Rural–urban marketing linkages

An infrastructure identification and survey guide

By 2050, 60 percent of the world’s population are expected to be living in urban areas. Population growth is not solely in larger metropolitan centres—the mega cities. The numbers of small and intermediate-sized urban centres are also increasing and have an important role as links in the marketing system. This guide is a simplified aid to understanding the physical implications of marketing linkages based on a regional planning approach. The guide provides a simple planning methodology and framework that focuses on the issues of how farmers can market their goods for their product, particularly identifying their marketing infrastructure needs. The users of the guide are likely to be at national, provincial or district levels and could include planners and engineers in ministries and departments of agriculture and transport, planners and marketing officers in ministries and departments of agriculture, local authority officials in planning, commerce and marketing departments and local authorities, communities, farmer groups and voluntary organizations who are concerned with understanding marketing constraints and with ensuring that rural producers have better access to markets for their products.
Rural–urban marketing linkages
An infrastructure identification and survey guide

by
John Tracey-White
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Preface

BACKGROUND TO THE GUIDE
Food supply and distribution systems in most developing countries are undergoing major changes following rapid urban population growth. Expanding urban populations demand increased supplies of food, especially fresh vegetables, eggs and dairy products. As cities and towns grow, in terms of physical size and population, the existing production systems and cropping patterns in the peri-urban areas intensify and the origin of food supplies shifts, with supplies coming from areas further and further afield.

To understand this changing situation and to be able to effectively plan to cope with it the personnel of Ministries of Agriculture and Planning, and local authorities, need a simple planning methodology and framework. This framework could be used to identify the impact of changing food supply and distribution systems on the overall marketing system, on infrastructure requirements and be used to establish strengthened and more efficient rural-urban linkages. The beneficiaries of an improved supply and distribution system would be urban consumers and, equally importantly, the rural producers who would have better access to markets for their products.

This guide focuses on the issue of linking farmers to market outlets for their produce, particularly produce flows and the identification of how marketing channels work. The scope of the guide includes the role of markets and rural transport infrastructure, but with particular emphasis on the functioning of food marketing systems.

The guide covers evaluating existing marketing systems and identifying infrastructure improvements to meet the needs of expanding towns and cities. It provides a methodology for analysing existing linkages and for drawing up improvement proposals, using a regional planning approach on which to base marketing infrastructure investments.

MAIN ISSUES COVERED IN THE GUIDE
The main issues considered in this study of marketing linkages are:

- The planning and transport background to marketing;
- A description of the main marketing channels and the role of marketing functionaries;
- Techniques for undertaking a market linkage study and an assessment of farmers’ marketing practices;
- An assessment of supply constraints and potential flows through the marketing channels; and
- An estimate of rural supply and the demand from urban areas and intermediate centres.

Some of the issues raised in the guide have been covered in previous FAO guides, in particular those dealing with the planning and design of wholesale, retail and rural markets. These documents are listed in the Further Reading section at the end of this guide.
Acknowledgements

The author would like to acknowledge the assistance provided by FAO’s Agricultural Marketing Group. The initial idea for the Guide came from Edward Seidler, who also provided many useful comments and acted as the technical editor of the guide.

Many of the survey tools described in the guide were developed at field level on a number of FAO projects. The author particularly extends thanks to: Rajendra P. Singh, National Team Leader, Master Plan for Agricultural Marketing in the Kathmandu Valley project, Nepal; Aurelie Zafisambo, Post Harvest and Food Processing Consultant, Women in Irrigation, Nutrition and Health Project, Cambodia; Bob Bishop, National Consultant, Central Market Feasibility Study, Palau; and Agron Hetoja, National Project Co-ordinator, Agricultural Production Support Project, Albania.
List of abbreviations

FAO    Food and Agriculture Organization of the United Nations
ILO    International Labour Organisation
IIED   International Institute for Environment and Development
MIS    Market Information Service
NGO    Non-governmental Organization
PLA    Participatory Learning and Action
PRA    Participatory Rural Assessment
WIN    Women in Irrigation, Nutrition and Health Project
Chapter 1 outlines the background to urban – rural linkages:
1. It describes the recent phenomena of urban growth accompanied by increased food demand.
2. It describes the role of small and intermediate urban centres in facilitating exchange between the towns and the countryside.
3. It defines the objectives of improving linkages by making marketing interventions.
4. It outlines the purpose of the guide as a framework for studying market linkages.
5. It provides a summary of the overall process that is recommended by the guide.

**BACKGROUND**

**Context – urban growth**

By 2030, 60 percent of the world’s population are expected to be living in urban areas. As shown in Table 1, estimates of urban population increases vary widely, from a doubling to a trebling over a 20-year period.

Population increases in less developed countries are also adding significantly to the proportion of the urban population that is living below the poverty level. Fifty percent of the population below the poverty line is common and figures for the year 2000 were as high as 80 percent for some cities.

This urban expansion has four main consequences for food security, as shown in Box 1.

**Role of small and intermediate urban centres**

Population growth is not solely in larger metropolitan centres – the mega cities. The number of small and intermediate sized urban centres are also increasing and also have an important role as links in the marketing system (as explained in Chapter 2). The International Institute for Environment and Development (IIED) estimated that by 2000, more than 60 percent of the urban population of Africa, the Caribbean and Southeast Asia (as well as Europe) were in urban centres of less than half a million inhabitants. These market towns and administrative centres are of critical importance in facilitating exchanges between rural and urban areas. Rural populations depend

**TABLE 1**

Selected estimated percentage increases in urban populations (base year 2000)

<table>
<thead>
<tr>
<th>Country</th>
<th>City</th>
<th>2010 Percent</th>
<th>2020 Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>Dacca</td>
<td>57</td>
<td>145</td>
</tr>
<tr>
<td>Burundi</td>
<td>Urban population</td>
<td>77</td>
<td>212</td>
</tr>
<tr>
<td>Ghana</td>
<td>Accra</td>
<td>51</td>
<td>127</td>
</tr>
<tr>
<td>Guatemala</td>
<td>Guatemala City</td>
<td>46</td>
<td>112</td>
</tr>
<tr>
<td>Malawi</td>
<td>Urban population</td>
<td>67</td>
<td>180</td>
</tr>
<tr>
<td>Namibia</td>
<td>Urban population</td>
<td>45</td>
<td>110</td>
</tr>
<tr>
<td>Nepal</td>
<td>Urban population</td>
<td>61</td>
<td>158</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Lahore</td>
<td>47</td>
<td>116</td>
</tr>
</tbody>
</table>

on these urban services, including access to traders and markets to dispose of their agricultural produce and to access the retail stores and other facilities located in local urban centres. The intermediate centres also provide employment opportunities for rural populations and may, in some cases, help to decrease migration pressure on the larger urban centres.

Structural adjustment programmes have had an impact on low-income groups and the dismantling of marketing boards has increased reliance on local markets. Access to these markets is often hampered by lack of investment in transport infrastructure and storage facilities. The background to these issues and the relationship to local governance and to livelihood diversification is summarized in Box 2.

**Objectives of marketing interventions**

Marketing facilities and other post-harvest infrastructure are usually limited in expanding urban areas. Urbanization is largely unplanned and local authorities generally do not have clear policies on developing facilities to meet their future needs.

The objective of marketing interventions is to bring an improvement in the marketing of horticultural and other agricultural produce, promoting strategies for increasing food security. An efficient and functioning marketing system is a precondition for agricultural diversification and improved nutrition. This enables better prices to be obtained by producers (leading to higher incomes) and improves the availability of competitively priced produce to consumers.
**PURPOSE OF THE GUIDE**

**Scope of the guide**

Government policies increasingly recognize the importance of marketing to the commercialization of agriculture and the expansion of agriculture productivity. Linking of producers to consumers is usually addressed in two ways: through improved marketing extension and by improving physical infrastructure. This guide focuses primarily on physical infrastructure, including rural and urban markets, and rural access roads.

The starting point of such a study is the supply side (the producers). It involves identifying main production areas for key crops and their handling characteristics, transport modes, looking at past growth and the potential for increased production. Next, the physical facilities that support this network of linkages are reviewed, including communications, as well as the intermediate markets and other infrastructure that facilitate linkages. Produce flows to local, regional and city markets are assessed and an evaluation undertaken of infrastructure improvements needed to meet future demand coming from the urban areas. Finally, the implications of transport improvements on market linkages are reviewed.

**Users of the guide**

The guide provides a simple planning methodology and framework that focuses on the issue of linking farmers to market outlets for their produce particularly identifying their marketing infrastructure needs.

The users of the guide are likely to be at national, provincial or district levels and could include:

- planning and marketing officers in Ministries and Departments of Agriculture, concerned with promoting activities in production areas and developing appropriate production, post-harvest and marketing extension packages;
- planners and engineers in Ministries and Departments of Public Works and Transport, concerned with making decisions on improving rural roads and other transport systems;
- local authority officers in planning, commerce and marketing departments in urban areas, concerned with the supply of wholesome and reasonably priced food to urban consumers and with identifying new wholesale and retail market facilities within the cities to serve this need;
- local authorities, communities, farmer groups and voluntary organizations, concerned to understand marketing constraints and with ensuring that rural producers have better access to markets for their products.

**SUMMARY OF THE MAIN STEPS**

This guide provides a simplified aid to understanding the physical implications of marketing linkages, based on a regional planning approach. It is divided into two sections. The first section provides a conceptual framework of the process, as follows:

- The first step is to understand the types of formal and informal linkages that make up the overall marketing system. This includes who is involved (the market “functionaries”), where they operate from (their spatial distribution) and how they interact (at markets or farmgate). These linkages and the regional planning background in which they operate is the subject of Chapter 2 of the guide.
- Before starting with any fieldwork it is necessary to carefully evaluate what information is already available that will provide an understanding of the various linkages. The guide’s approach is to use rapid market appraisal and participatory techniques, including personal observations, interviews, surveys, focus group discussion and reviewing relevant secondary literature. The methods for undertaking this review and placing it within a marketing framework are
outlined in Chapter 3. This includes quantifying the supply flows in marketing channels, how these flows are handled through a network of rural market facilities and how the data collected can be used to estimate the demand for food marketing facilities in urban areas.

- Chapter 4 outlines how to synthesize the information gathered in the previous steps so a comprehensive picture is obtained of marketing linkages. The method described provides planning processes that can be used as decision-making models for improving both rural and urban marketing systems.

The second section of the guide provides detailed technical notes and survey formats:

- Some fieldwork will invariably be required. At one extreme it may be necessary to obtain an overall picture of marketing linkages where no other information is available and at the other extreme to confirm assumptions made on the basis of present data. One of the most effective ways of doing this is through informal group discussions with producer communities and this is described in Chapter 5.

- Other survey data on produce flows and physical facilities will also be required, involving discussions and, sometimes, formal surveys to be undertaken with market traders, commission agents, transporters and consumers. Information from these surveys is often more difficult to collect than from farmers. These types of surveys are described in Chapter 6.

- The guide concludes with a review of methods of evaluating transport infrastructure proposals so that they incorporate and facilitate marketing linkages.
Chapter 2

Understanding market linkages

Chapter 2 outlines a framework for understanding market linkages:
1. It defines what market linkages are.
2. It describes the types of intermediaries that are involved with marketing.
3. It describes the main marketing channels.
4. It outlines the relationship between marketing, transport and accessibility.
5. It describes the influence on marketing of the spatial distribution of settlements, and the relationship between location and agricultural land use.
6. Finally, it examines the impact of location theory on regional and rural development policies.

WHAT ARE MARKET LINKAGES?

Some general principles need to be clarified to provide a basis for understanding food-marketing systems within a development context. In order to make any effective interventions in a marketing system it is necessary to define the types of marketing channels, their linkages and functions.

The term “market linkages” is often referred to in the literature on rural development. What precisely does it mean? The term linkage obviously implies a physical connection between the producer and the ultimate consumer. Linkages also involve financial transactions - the selling and buying of goods - and can be broadly defined in four different ways:

- by the form of financial transactions or type of intermediaries who undertake the transactions;
- by the channels through which transactions occur and the type of facilities used for transactions;
- by how they are linked together by transport and communications networks;
- by the spatial distribution of transactions - where they occur and whether this forms a pattern.

There is obviously a close interaction between these definitions, but it is useful to separate them so that a clearer understanding can be developed of the marketing system. A number of these factors are described in other FAO publications but are also summarized below so that a complete picture can be built up of the marketing system.

Purpose of facilitating market linkages

However, before describing these mechanisms it is important to understand what the market linkages are intended to achieve. They are meant to facilitate the flow of produce between the different levels of the marketing system. The input to the process is the agricultural production (the supply) and the output is the consumption of that produce by consumers (the demand).

This guide does not focus on the performance of the marketing system as such but assumes that if the system can be made more efficient it will be more competitive, will facilitate economic growth and will maximize benefits to farmers. Thus, the marketing process needs to be undertaken as efficiently as possible, at the lowest cost and with the minimum of losses occurring at each stage.
Marketing costs and margins
Costs are the key to competitiveness. Marketing costs are the total costs for bringing produce from the farm to the ultimate consumer. Margins are the costs that are added by transporters and traders to cover their expenses and to provide a profit for their services. They are added to the basic farmgate price of a product. An analysis of marketing channels can be used to examine what margins are incurred at different stages in the process and whether they are reasonable. As will be apparent later in this chapter, marketing costs and margins are also fundamental influences on the spatial distribution of the production areas and are heavily influenced by the cost of transport.

In summary, the costs that make-up the marketing margins are as follows:
- the costs of sorting, washing, grading and packing the produce;
- transport costs: public transport, farmer's transport or truck hire, or use of trader's vehicles; and
- trader's overheads and profit.

TYPES OF MARKETING INTERMEDIARIES
The simplest link between production and consumption is where farmers sell their own produce directly in a market. This is more usual in rural markets, but may also occur at farmers' markets located in urban areas.

The private sector is playing an increasingly active role in most developing countries in providing inputs, agro-processing and marketing services. Thus the linkage between the rural and urban areas is often provided through a network of traders or intermediaries, the costs of their activities being paid for through the marketing margins. The role of these intermediaries may overlap and in less-developed marketing systems their function may be unclear.

The relationships among producers, wholesalers, and retailers play an important role in the marketing of produce. Such linkages can create mutual trust among different functionaries in the marketing system, but may also cause a dependency relationship between parties and make it difficult for newcomers to enter the marketing process. Linkages are often based on village proximity (area based) or on family relationships developed over many years.

Conventional marketing intermediaries
Conventionally, the most common intermediaries are:
- Petty traders and assemblers, who are specialized middlemen that purchase produce from farmers at the farmgate or local market, for selling to other traders, wholesalers and retailers. They may use their own transport or hire from a transporter.
- Independent collectors and commission agents, who take possession of produce from an individual or group of farmers and then sell the produce to a wholesaler, market trader or other middleman. For providing these services the collector (or commission agent) normally charges a percentage of the final sales price.
- Market agents, linked to specific markets who sometimes also act as brokers for wholesalers or as auctioneers at the market.
- Wholesalers and semi-wholesalers, located in markets or independent facilities, who may also function as retailers.
- Retailers, who buy either directly from farmers, from traders or wholesale markets, and sell the products to consumers through retail outlets.

Other types of marketing intermediaries
Contract arrangements
Sometimes, contracts may be arranged with an organization, such as a food processor or wholesaler, who makes an advance contract with a group of farmers to supply a
specified product on a regular basis. The buyer usually provides seed and extension advice, sometimes credit, and also guarantees to procure the produce at harvest at an agreed price. Poultry farmers, for example, may develop a long-term relationship with poultry processing companies, who may provide baby chicks, feed, and medicines. When the broilers are ready for sale, they purchase them from the farmers at the prevailing market price or at a previously agreed price.

Other linkages
Other possibilities for linkages are direct agreements with organizations, such as:
- restaurants and hotel chains;
- cooperatives, particularly for grains and export crops, such as coffee and tea;
- supermarket and Chain stores; and
- institutions, such as schools, army or hospitals.

With these arrangements an individual or group of farmers’ make a collective agreement for the supply of produce. Transport would be either organized by the farmers or may be supplied by the buyer.

Group marketing
There is often scope for group marketing of produce to obtain better prices for farmers. For high value vegetables and fruits, especially for export, contract arrangements may be feasible.

Vertical integration
There may be cases where these contract arrangements are extended to create a vertically integrated marketing process. Typically this might apply when farmers’ groups enter into contracts with supermarket chains or exporters. The characteristics of such a system might include:
- organization of farmer groups;
- providing extension services and production inputs to the farmer groups, sometimes through NGOs;
- harvesting of crops and pre-sorting at farm level;
- transport from farm to a packing centre;
- final sorting and grading;
- packaging (including film wrapping of high value produce) or processing;
- pre-cooling and temporary storage in packing centre cool store;
- loading onto refrigerated truck from packing centre cool store;
- transport by refrigerated truck from packing centre to supermarket (or export) cool store; and
- sale from supermarket display and cooling cabinets.

MARKETING CHANNELS
Marketing channels often vary according to the type of agricultural produce. Marketing, both for fresh produce and for semi-perishable produce, such as grains, lentils and onions, is normally through markets. These can either be formal markets, set up by central or local government, or informal markets, where trade has spontaneously developed. The main types of markets are described below.

Rural primary markets
In rural markets, trade is characterized by direct sales of small quantities of produce by producers to village traders and by retail sales to rural consumers. The rural markets normally form part of a local trade network and are usually arranged on a periodic basis, on specific weekdays. They are commonly organized at a central place in a village or district centre or beside a village’s access road. In some instances, provincial and
district-level markets also serve this function, as well as providing an assembly function (by combining produce in larger quantities for onward sale to outside buyers).

**Assembly markets**

Larger rural markets occur where greater quantities of produce are traded, either by the producers themselves or by traders. These “assembly” markets, which are often combined with local rural or town markets, are normally situated on main highways, near to local transport interchange points. Traders, collectors and commission agents, acting on behalf of urban wholesalers are the main buyers of produce at these markets.

**Wholesale markets**

Terminal wholesale and semi-wholesale markets are located within or near to major cities. If an urban population exceeds 0.5 million some form of wholesale facility is likely to develop. These centres may be supplied by purchasing/assembly centres in the rural areas or directly from farms, particularly those in peri-urban areas. The supply is either from agents, traders or by the farmers themselves. Within wholesale markets, traders often handle the transactions and only larger producers deliver their own produce. Thus, the produce after its arrival in an urban area often passes through a number of intermediaries, including retailers (see below) before it reaches consumers.

**Retail markets**

These are markets directly serving consumers. Although primarily retail, they may have a semi-wholesale function, particularly if they allow farmers to trade in them. In that case, they are often called farmers’ markets. This form is very typical in developing countries, but there has also been a strong trend in the USA, the UK and other parts of Europe to create farmers’ markets for the sale of specialized produce, such as organically grown fruits and vegetables.

**Other types of retail outlets**

In many countries small retail shops, often termed “corner” shops and roadside stands provide produce close to consumers’ homes. Alternatively, with very low-density urban areas mobile shops or stalls may supply consumers. These retailers usually purchase their produce from wholesale markets, although in some cities there are many small hawkers, operating from bicycles or small carts, which provide retailers with small quantities of produce or sell directly to consumers. In Kathmandu, for example, hawkers account for more than 25 percent of the produce outflow from the wholesale markets.

**Supermarkets**

The rapid growth of supermarkets in developing countries is having a significant impact on shopping habits. However, the degree to which supermarkets have had any major effect on the marketing of fruits and vegetables, or on fresh meat, varies significantly. In Latin America and the Middle East supermarkets dominate the trade in fresh produce, but this is less apparent in Asia or Sub-Saharan Africa, where supplies from traditional markets continue to be very important.

**Alternative marketing channels**

Channels other than markets also usually exist, particularly in the case of horticultural produce.

**On-farm sales:**

The main alternative is likely to be on-farm or “farmgate” sales, where collectors purchase produce directly from farmers. They then arrange transport to processors, wholesale outlets, packhouses or directly to supermarkets.
In the case of fruit, especially in the Near East, India and Pakistan, produce is often sold on the tree and the purchaser may arrange for picking, packaging and transport of the produce to wholesale markets.

Marketing groups:
Other alternatives to formal markets are community-level marketing groups or primary cooperatives, which may organize transport facilities and manage and maintain their own collection centres and small-scale packinghouses.

Factors driving alternative channels:
The extent to which alternative channels are used is usually conditioned by a number of factors:
• Levels of rural indebtedness and credit. If formal credit is not available, marketing intermediaries have an intimate relationship with producers and often take on the role of providing finance.
• For semi-perishable produce, the marketing intermediaries may be able to provide suitable local storage facilities.
• When distances to market are long, transporters may take on the role of providing suitable vehicles for bulk transport.
• Whether there are already contracts arranged between producers and distributors.
  These contract arrangements may be extended to adjacent areas or to those served by the same transport system.

Direction of flows
It needs to be remembered that the flow and linkages are in two directions. A production area may not be able to provide all its own needs and the role of local centres will be to make up these deficiencies. This can have both positive and negative implications.

Government policies are often oriented to reducing the number of market intermediaries and encouraging farmers to market their own produce directly to consumers. This is not necessarily to their advantage as intermediaries may provide marketing and transport services more cost-effectively than the producer. This can only be confirmed by looking at the whole pattern of costs and is usually measured by what proportion of the end-price the producers receive. For example, 30 percent might typically be unsatisfactory and 50-60 percent satisfactory.

TRANSPORT LINKAGES AND ACCESSIBILITY
Trade links and market catchment areas
In much of the developing world, mobility in rural areas is hampered by the lack of all forms of transport facilities and by poor roads which discourage the use of personal transport. Thus, in looking at market channels it is also necessary to understand how they are influenced by transport systems. The best way to gain an understanding of access issues is to start with the agricultural production area – to understand farmers’ concerns – including how their relationship with their suppliers, transporters and buyers is influenced by transport.

The trade links in the agricultural marketing system are those routes used by farmers and by transporters carrying farmer’s produce. The mode of transport used, the length and time of journey, and the costs of transport will all affect the efficiency of the marketing system. Table 2 illustrates the wide range of forms of transport and the relative loads, speeds, coverage and costs.

By looking at individual routes that serve production areas, the planner can determine the catchment area from which the products will come. It should be remembered that some of the products will be consumed locally (including on the farm itself). The surplus will pass through the channels described above: some will go to a nearby
village, to a provincial or district town or to the capital city and some may be exported to other countries by road or, in the case of very high-value products, by air.

**Types of rural transport facilities**

In reviewing rural transport it is usual to concentrate on roads and, by implication, on the motorized forms of transport that use them. However, looking at the dominant modes of movement in rural areas, trips by motorized means generally make up a very small proportion of the total. It is also likely that the transport mode will vary substantially depending on the trip purpose. A typical example of transport modes for rural Cambodia is shown in Box 3.

Roads are only one of the means by which transport systems may need to be improved. Equally important in many cases is other infrastructure, such as bridges and jetties, and improved transport facilities. These might include water transport and animal power.

**Other types of infrastructure**

Sea transport and ports are particularly important for inter-island trade in archipelagos, such as Indonesia and the Philippines, in the Caribbean, and between the South Pacific islands. Slowness of sea transport is always a problem if they are used to transport perishable produce, particularly if this necessitates double handling of produce. This

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**TABLE 2**

**Transport means: indicative characteristics**

<table>
<thead>
<tr>
<th>Mean</th>
<th>Cost price ($)</th>
<th>Load (kg)</th>
<th>Speed (km/hr)</th>
<th>Range (km)</th>
<th>Cost per ton/ km ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carry/ head load</td>
<td>0</td>
<td>20</td>
<td>5</td>
<td>10</td>
<td>1.50</td>
</tr>
<tr>
<td>Sledge</td>
<td>10</td>
<td>100</td>
<td>4</td>
<td>3</td>
<td>0.80</td>
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<tr>
<td>Wheelbarrow</td>
<td>30</td>
<td>100</td>
<td>4</td>
<td>1</td>
<td>0.40</td>
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<tr>
<td>Hand cart</td>
<td>60</td>
<td>150</td>
<td>4</td>
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<td>0.35</td>
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<tr>
<td>Pack donkey</td>
<td>60</td>
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<td>7</td>
<td>20</td>
<td>0.70</td>
</tr>
<tr>
<td>Bicycle</td>
<td>100</td>
<td>60</td>
<td>10</td>
<td>20</td>
<td>0.60</td>
</tr>
<tr>
<td>Cycle rickshaw</td>
<td>170</td>
<td>150</td>
<td>8</td>
<td>15</td>
<td>0.45</td>
</tr>
<tr>
<td>Donkey cart</td>
<td>300</td>
<td>400</td>
<td>6</td>
<td>15</td>
<td>0.60</td>
</tr>
<tr>
<td>Ox cart</td>
<td>500</td>
<td>1000</td>
<td>5</td>
<td>10</td>
<td>0.20</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>900</td>
<td>100</td>
<td>50</td>
<td>50</td>
<td>1.30</td>
</tr>
<tr>
<td>Power tiller trailer</td>
<td>5 000</td>
<td>1 000</td>
<td>10</td>
<td>15</td>
<td>0.70</td>
</tr>
<tr>
<td>Pickup</td>
<td>12 000</td>
<td>1 200</td>
<td>80</td>
<td>200</td>
<td>0.70</td>
</tr>
<tr>
<td>Truck</td>
<td>60 000</td>
<td>12 000</td>
<td>80</td>
<td>200</td>
<td>0.50</td>
</tr>
</tbody>
</table>

may be mitigated if roll-on roll-off facilities are provided, as in the Philippines. River transport is an important form of market linkage in the counties of the Mekong Delta, in China and in Bangladesh.

The use of railways for carrying produce tends to be more important in larger countries, such as India, China and Russia. In Iran, for example, some 8 percent of produce is transported by rail. Ropeways are used in mountainous areas, such as in Bhutan and Nepal, to link remote production pockets to the main road systems. Air transport is rarely economically feasible, except for high value crops.

Data communications infrastructure is an increasingly important element of marketing linkages, allowing timely price data to be used to adjust production and market supplies to maximize prices for producers. Formerly, market price information systems have been based around centralized data collection systems, supplied from markets by fax or landline telephones, and using radio and television for dissemination of the information. Increasingly this is being replaced by E-commerce online computer techniques (such as the e-kiosks in India) and by links to price data on mobile phones, using short messaging services (SMS). One of the main issues in applying such systems is the need to have grades and standards so that the prices can be applied to defined produce.

**Benefits of transport improvements**
The benefits from rural infrastructure development activities are inter-related and are generally targeted at increasing access as a means of improving rural living standards and incomes. Road and other transport improvements thus provide support to a range of rural development activities, such as:

- providing improved access to areas outside the village, so that agricultural surplus can reach collection centres and markets more rapidly;
- reducing the time burden on family members, particularly (in some cultures) the younger and female members of the family;
- reducing damage to perishable crops during transport;
- reducing operating costs for vehicle users; and
- providing greater opportunities for social and educational journeys and providing more direct and cost-efficient access to public services, such as schools and health facilities.

**Overall approach to prioritizing transport**
The justification for improving an individual route may be relatively easy to establish. However, the difficulty is that although the local point of access may be obvious, such as a route running through a production area, the importance to the marketing system of the whole network cannot be ignored. Improvements to secondary routes linking the villages to higher level settlements may be of equal and greater importance, as could be the tracks linking the village to the farm. Figure 1 illustrates the typical relationship between the road hierarchy, the settlement pattern and the marketing system.

Market access is thus one of the most important factors to be taken into account when rural road improvement programmes are being formulated. The typical assessment techniques that may be used for evaluating rural roads are reviewed in Chapter 7.

**MARKETING AND SPATIAL DISTRIBUTION**
The spatial characteristics of marketing are normally reflected in the rural settlement pattern. There is a vast literature on the spatial aspects of marketing related to settlement patterns. This section concentrates on the main theories that are used to describe the regional hierarchy of settlements and markets. The description is based on the main original sources of location theory, that of the German geographer Christaller in 1933.
FIGURE 1
Farm to market transport chain and rural transport infrastructure

<table>
<thead>
<tr>
<th>Typical transport infrastructure</th>
<th>Path</th>
<th>Path/track</th>
<th>Track/earth road</th>
<th>Earth road /gravel road</th>
<th>1-2 lane gravel or surfaced road</th>
<th>2 lane asphalt surfaced road</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical traffic (vehicles per day - VPD)</td>
<td>Headloads and porters</td>
<td>Non-motorized 0.5 VPD</td>
<td>Non-motorized 5-50 VPD</td>
<td>Non-motorized 20-200 VPD</td>
<td>Motorized &gt;100 VPD</td>
<td>Motorized &gt;1,500 VPD</td>
</tr>
<tr>
<td>Typical distance</td>
<td>1-5 km</td>
<td>1-10 km</td>
<td>5-20 km</td>
<td>10-50 km</td>
<td>20-100 km</td>
<td>50-200 km</td>
</tr>
<tr>
<td>Typical ownership responsibility</td>
<td>Community</td>
<td>Local government</td>
<td>Central/provincial authority</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of network</td>
<td>Rural transport infrastructure</td>
<td>National and/or provincial roads</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Central places and the hierarchy of settlements
A key concept in rural development is how rural towns and villages relate to the overall pattern of rural settlement. Rural towns and villages can be the main force driving the economic livelihood of rural areas. They act as “central places”, in providing and servicing the population of the surrounding areas with goods and services. They may also be the main focus for the assembly of local farm produce, for bulking-up into loads and for onward movement of the produce to urban areas outside the region.

This relationship or linkage between the centres and individual settlements is normally defined as a “hierarchy” of “catchment areas” or “spheres of influence”. A catchment area’s coverage represents the “range” or “threshold” for economically providing services or goods, which in turn is influenced by the cost of transport. The theoretical shape of catchment areas is circular, but it is normally represented as a series of nesting hexagons. In reality, transport routes and other geographical features distort the location of centres and the shape of their related catchment areas.

Because of a desire for accessibility, this pattern of centres results in population concentrations. This is normally arranged in a hierarchy of settlements. In such a system, the lowest order centre (e.g. a village) would look to the next level (e.g. a rural service centre located in a small town) for more specialized services. The system culminates at the top of the hierarchy with the highest level of services, such as speciality markets, provided in a district or provincial capital or wholesale market in an urban area (see Figure 2).

Types of settlements found in rural areas
Governments frequently base their rural settlement policies on the principle of reinforcing the existing hierarchy of service centres as a means of reducing regional economic imbalances and distributing government services on an equitable basis. Above the farm or hamlet level, settlement systems essentially have three levels of central places:
Rural service centres:
Services provided at the lowest level of centre typically include a primary school, a health post or dispensary, a police post and a primary market, often operating periodically, rotating on a weekly or fortnightly basis. Rural service centres are normally located in the centre of a village (and associated hamlets) serving around 500 to 1,000 families. A population of 5,000 people is common and the centres usually have a catchment area not exceeding a 10-kilometre radius from the market.

District centres:
These are rural settlements whose primary function is to provide administration and to deliver public services. These centres might contain a secondary school, a health clinic and a market area, which might perform assembly functions for the district. The market area is often associated with a bus stand and a number of permanent shops.

Provincial centres:
Major regional/provincial towns or cities are usually based on a sustainable natural resources base (such as agriculture or mining) or a main administrative function, with strong social and economic linkages to their hinterlands. The centre might contain a range of higher-level services, such as colleges, hospitals, banking services, a major market (often with some wholesaling functions) and specialized shopping facilities.

Regional development strategies
Rural development is often viewed in isolation from its sub-regional and regional context. Although no formal regional plans may exist there are often a number of sectoral plans such as environmental management plans and national roads strategies. However, these may not provide an integrated approach that can provide a clearly defined regional planning framework, which could guide investment decisions. Such a framework would need to take account of conflicting sectoral goals;
- rural population growth rates and internal migration trends;
- directions of development growth based around future transport corridors; and
- emerging local, regional and cross-border agricultural marketing patterns.

Growth poles
Implicit in many rural plans is the “growth pole theory” which derives from the idea that rapid economic growth (and maximization of incomes) requires a concentration or clustering of diverse, though interrelated, activities in a few main centres. The growth of a local economy resulting from this concentration is stimulated by external factors. Most of these economies relate to the scale of the activities. They result in a more efficient supply of services and could include:
- access to a larger market for the sale of produce or products (particularly higher value products);
- a multiplier effect between key linked activities (“propulsive” industries) forming the growth pole’s nucleus (such as rice milling or other agro-processing, using local produce, which it processes and then exports outside the area);
- development of greater skilled and unskilled labour mobility because of the existence of a more concentrated labour market;
- the presence of micro-credit and banking facilities to provide capital;
- institutional economies - potentially with lower interest, taxes and insurance;
- transport economies, due to competition amongst transport providers and savings in the cost of assembling of loads to send to market;
- communication economies and social benefits (because of face-to-face contacts); and
- economies of scale in providing social facilities (health and education) and public services, such as agricultural extension and infrastructure (rural roads, electrification, irrigation, markets, etc.).

The growth pole theory provides a link between location theory (the drive of an individual enterprise to locate at an optimum location) and regional planning (which normally aims to correct structural “imbalance” and to distribute services and income on a more equitable basis). Development at a growth pole has spatial implications and naturally has around it a zone of influence (or growth zone). However, evidence from many countries tends to indicate that growth poles only influence areas within a relatively short distance of the centre.

Application of the growth pole policy is likely to be most successful where there is already a population concentration and where it reinforces growth patterns that are already evident. Examples could be where there is new cash crop production, emerging assembly markets or strong transport trends, such as a growth axis caused by an improved inter-regional road system (which may encourage “voluntary” migration or settlement). Thus, ideally, growth and development should proceed sequentially from more developed to less developed areas. This reinforces the importance of secondary road links – to only upgrade local rural accessibility will not have a true impact without comparable upstream improvements.

LOCATION AND AGRICULTURAL LAND USE
A related location theory that also needs to be understood in looking at marketing systems is that of Johann Heinrich von Thünen, a German estate manager working in the early nineteenth century. The basic premise of von Thünen was that the competition between producers for land resulted in a pattern where the farming system that yielded the highest return would be able to afford the highest economic rent. Essentially, users of high quality land within easy reach of a city would pay the higher rent; whilst producers of low value produce would only be able to afford lower quality land and remoter locations.

Von Thünen's argument was based around the concept of pure “economic rent” or surplus, which is the return on a factor of production that is inelastic in supply. In reality, soil quality varies, agricultural wages differ and the costs of inputs and marketing change with transport costs and with the bulk and perishability of produce. Thus, the real world is somewhat different than the isolated state that von Thünen used to develop his theory and there are many distortions from the perfect competition envisaged. However, the basic principles he expounded are a very useful tool for looking at agricultural land use. Thus, with urban expansion peri-urban areas will be under the greatest pressure. The effective impact of this is that producers will adopt intensive production methods i.e. horticultural crops giving higher returns. As distance from the centre increases, cropping intensity is lower and arable crops prevail.

Another important concept considered by von Thünen was the issue of transport costs related to marketing costs and margins. For example, a horticultural farmer may need to shift his or her production area; thus, the impact of urban expansion on agriculture may be an increase in overall costs. The farmgate gate price may increase as the costs of inputs are higher and transport costs from farmgate to market will also increase because of an increased distance to the urban area.

REGIONAL AND RURAL DEVELOPMENT POLICIES
Although the ideas on location and central places discussed above are “theories” they have had a significant impact on the development of planning policies and practice. As discussed above, these are normally expressed as “growth centre” and “growth pole” policies, sometimes related to transport corridors. The assumption behind adopting these principles has usually been that the most effective and least costly way of
distributing services to serve rural populations is obtained by promoting a “balanced” growth of a hierarchy of settlements. The basic premise of these policies is that the higher level centres serve the lower-order centres, who provide services and goods to the rural region.

There has been a some criticism of these policies, particularly whether they have had the expected impact in promoting rural development, particularly the agricultural sector. At one extreme, such planning can be exploitative and be used as a means of control of the local population. Clearly, therefore, adopting a settlement hierarchy principle can only be equitable where it meets locally driven demands and there is a high level of local participation in the formulation and implementation of development policies. But does it facilitate the operation of marketing systems?

Local economic development strategies
Although evidence is limited, the IIED have identified four ways in which small and intermediate urban centres might contribute to local economic development, by:

- acting as centres of demand and markets for agricultural produce (particularly from small-scale producers) from surrounding rural areas, for consumption by local residents and for transhipment;
- acting as centres for production and distribution of goods and services to rural areas. This might also include the provision of agricultural inputs and market information, including details of price fluctuations and of consumer preferences;
- becoming centres for the promotion of non-farm activities and employment in manufacturing, services and trade. However, increasingly, food processors in small centres are unable to compete with imported goods; and
- attracting rural migrants from the surrounding region by providing opportunities for non-farm labour – although this may frequently conflict with other macro-economic policies and sectoral priorities.

**Box 4**

Development of intermediate market towns

Main factors influencing intermediate market towns:

- Farming systems and access to natural resources and labour – large-scale commercial cash crop and/or export oriented agriculture tends to bypass local centres, Small-scale horticultural production tends to rely more on the presence of local services;
- Accessibility and affordability of transport and road infrastructure – the existence of inexpensive local bus services, for example, will have a positive influence, although this can also have a negative influence by allowing local centres to be bypassed;
- Access to storage and processing facilities and slaughterhouses; to reduce losses;
- Presence of local urban demand for fresh food – although this will be limited by local income levels;
- Links with wider trade network of middlemen, collection centres and assembly/wholesale markets – that gives access to non-local markets. However, this could remain limited to very low-level transactions unless farmers are able to respond to demand from urban-based consumers (and traders); and
- Relations between producers and traders – the negative side of which might be the use of monopolistic practices and the positive side the provision of transport, extension advice and informal credit, which would not otherwise be available to small farmers.

Source: Compiled from Satterthwaite and Tacoli (2003), IIED, London.
The IIED have also reviewed the conditions under which small and intermediate urban centres might develop as markets for regional agricultural produce. These factors are summarized in Box 4.

Small and intermediate urban centres can play a key role in connecting rural areas with both domestic and international markets, spurring local production and providing non-farm employment opportunities, hence, widening a local economy's base. Local centres are important in ensuring the provision of services and can help improve access to markets.
Chapter 3

Approach to studying marketing systems

Chapter 3 describes the approaches that need to be adopted to study a marketing system:

1. The basic issues that need to be reviewed.
2. The methods that can be used to review existing marketing systems.
3. The information needed to make an assessment of supply, demand and consumption.
4. Deciding on the types of surveys that need to be undertaken.
5. The uses to which data collected can be applied – analysis of survey results.
6. Mapping marketing systems.

BASIC ISSUES
The design of marketing interventions needs to be approached in a comprehensive and holistic manner. Potential benefits, such as reduced losses and more cost-efficient marketing, will not be achieved through single uncoordinated actions. This chapter outlines approaches that can be used to assess marketing systems, from both the supply and demand viewpoints.

As the first step in preparing marketing development proposals, the gaps in the present marketing and distribution system need to be identified and a review made of the potential methods for improving marketing efficiency. An overall assessment of the flows through the marketing channels is a difficult exercise to undertake. Without very extensive surveys accurate figures are virtually impossible to obtain and these can be both expensive to collect and time-consuming. The traders’ role needs to be thoroughly reviewed, as well as the part that assembly and wholesale markets play in the overall agricultural marketing system.

The basic steps in a study are summarized in Box 5 and the information sources are described in this chapter.

STUDY METHODOLOGY
The fundamental difficulty with studying marketing systems is that it requires the surveyor to use a number of survey methods. Table 3 compares the wide range of survey methods that might be used to obtain appropriate data for developing proposals for either the design of marketing interventions in rural areas (likely to be at assembly markets) or in urban areas (wholesale and retail markets).

No single technique will suffice. The data is also often scattered in many different sources and it is difficult to present in a comprehensible way. The conventional method to present marketing data is in tabulated form (see examples in Chapters 4 and 5) or by using graphs, supplemented by diagrams of marketing channels. Mapping the data is a very useful way of understanding marketing systems and this is briefly described later in this chapter.

Secondary data sources
The first step in a study is to review and analyse any existing literature and information on agricultural produce marketing and update and complement such information by
collecting additional data from primary sources. Previous studies and surveys may have been undertaken of settlement systems and market hierarchies, as well as forecasts of future food needs of urban areas, towns and cities. The main sources of secondary data is likely to include:

- central bureau or department of statistics, particularly if data is available from a recent agricultural census;
- ministries of agriculture, commerce and public works;
- national planning commissions or banks;
- bilateral and multilateral agencies; and
- studies by consultants and academic bodies.

**Primary data on marketing chains**

To supplement the secondary data, primary data will also need to be collected on the existing marketing channels. These data are collected through formal market and traffic surveys or by using rapid market appraisal techniques. Chapter 5 describes a technique for interviewing producers. Some caution is needed in using these participatory survey methods as, although there are a vast number of techniques available, few of them are suitable for marketing studies.

Chapter 6 outlines methods for undertaking market inventory surveys and for interviewing other actors in the marketing system (sometimes called “market functionaries”), such as collectors, transporters, wholesale and retail market traders, market operators and consumers. Chapter 7 gives details of transport and produce movement surveys.
### TABLE 3
Choosing appropriate survey methods

<table>
<thead>
<tr>
<th>Survey method</th>
<th>for rural marketing interventions</th>
<th>for urban marketing interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official data collection:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population census</td>
<td>Useful, but possible to use local estimates</td>
<td>Essential as a basis for demand calculations</td>
</tr>
<tr>
<td>Agricultural census</td>
<td>Essential, but not always up to date</td>
<td>Very useful for supply calculations</td>
</tr>
<tr>
<td>Household surveys</td>
<td>Useful if consumption data is included</td>
<td>Particularly useful if consumption data included</td>
</tr>
<tr>
<td>Nutrition/health surveys</td>
<td>Very useful, but possible to get by without</td>
<td>Useful for targeting poorer communities</td>
</tr>
<tr>
<td>Official reports</td>
<td>Useful if available and from a reliable source</td>
<td>Useful if available and from a reliable source</td>
</tr>
<tr>
<td>Formal surveys:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market condition/throughput survey</td>
<td>Useful, but expensive to undertake</td>
<td>Essential for wholesale market design</td>
</tr>
<tr>
<td>Infrastructure assessment:</td>
<td>Essential in high potential production areas</td>
<td>Essential to justify urban market changes:</td>
</tr>
<tr>
<td>- Existing markets</td>
<td>Utilization of existing facilities</td>
<td>Utilization of existing facilities</td>
</tr>
<tr>
<td>- Proposed market locations</td>
<td>Evaluation of new sites</td>
<td>Evaluation of new sites</td>
</tr>
<tr>
<td>Trader questionnaires</td>
<td>Not required; better to use informal methods</td>
<td>Useful if agreement sought on fees/leases etc.</td>
</tr>
<tr>
<td>Traffic counts</td>
<td>Essential for rural road upgrading</td>
<td>Essential for running/calibrating a traffic model</td>
</tr>
<tr>
<td>Cordon surveys</td>
<td>Usually not required, but very useful</td>
<td>Very useful for getting an overall picture</td>
</tr>
<tr>
<td>Produce movement surveys:</td>
<td>Essential where major interventions proposed</td>
<td>Essential where major interventions proposed</td>
</tr>
<tr>
<td>- Produce in (and/or out)</td>
<td>Used, but may need to sample markets</td>
<td>Essential and easy to undertake</td>
</tr>
<tr>
<td>- Origin &amp; destination survey</td>
<td>Used; include with produce survey</td>
<td>Used; include with produce survey</td>
</tr>
<tr>
<td>Mapping of markets and shops</td>
<td>Essential if a market network is to be planned</td>
<td>Essential if a market network is to be planned</td>
</tr>
<tr>
<td>Informal/participatory surveys:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing PRA and PLA surveys</td>
<td>Good background, such as seasonal calendars</td>
<td>Not useful unless covering urban communities</td>
</tr>
<tr>
<td>Group surveys with villagers</td>
<td>Essential as a main starting point</td>
<td>Useful starting point to understand channels</td>
</tr>
<tr>
<td>Individual household interviews</td>
<td>Useful, but time consuming &amp; should be limited</td>
<td>Not usually required</td>
</tr>
<tr>
<td>Marketing channel surveys:</td>
<td>Generally useful, but time consuming:</td>
<td>Generally useful, but time consuming:</td>
</tr>
<tr>
<td>- Collectors</td>
<td>Useful, but not essential</td>
<td>Useful</td>
</tr>
<tr>
<td>- Major buyers</td>
<td>Useful, but not essential</td>
<td>Important if, for example, there is tourism</td>
</tr>
<tr>
<td>- Transporters</td>
<td>Useful, but not essential</td>
<td>Useful</td>
</tr>
<tr>
<td>- Traders</td>
<td>Very useful and easy to collect</td>
<td>Essential and easy to collect</td>
</tr>
<tr>
<td>- Group surveys with traders</td>
<td>Very useful if markets are to be upgraded</td>
<td>Very useful if markets are to be upgraded</td>
</tr>
<tr>
<td>Consumer behaviour surveys</td>
<td>Easy to do and very useful</td>
<td>Easy to do and very useful</td>
</tr>
<tr>
<td>Consumer preference surveys</td>
<td>Not usually required</td>
<td>Essential if radical changes being made</td>
</tr>
</tbody>
</table>

### Sampling primary data
The most realistic way of estimating the level of flows in the marketing chain is to compute the flows of produce of a representative number of crops for small definable sampling units. Precautions have to be taken to use random sampling and appropriate sample sizes have to be chosen. Alternatively, stratified samples can be used if the criteria for stratification are clearly defined. The average flow per sampling unit (for example, per agricultural district) is then multiplied by the total number of the sampling units in the whole study area to give an estimate of the scale of the flows through the marketing channels.

### Supply, Demand and Consumption
Before working out the functioning of the marketing channels a useful initial step is to understand what produce is being traded, where it is coming from and when are
the peak seasons for trading. This step is essential whether one is looking at specific markets or a whole marketing system. For smaller individual rural or urban retail markets this may be possible by undertaking a simple interview survey in the existing markets. However, when looking at a whole market system, particularly where rural assembly markets and urban wholesale markets are involved, a more comprehensive approach is needed.

Thus, in reviewing a marketing system it is also necessary to estimate the supply, demand and consumption of produce. Detailed techniques are given in FAO Agricultural Services Bulletins 90 and 121. The basic principles are summarized in Box 6. Below, some of the issues and questions involved with making the estimates are discussed.

**Step 1: Estimating the population served**
The first step in the estimating process is to define the population served by the marketing system: whether it is an administrative district, a region or a natural geographical unit, such as a river catchment area. To define market linkages it is essential to distinguish the rural (suppliers and consumers) from the urban population (largely only consumers). The most recent census data needs to be used for the study. An up-to-date map defining the study area and distinguishing administrative boundaries, census enumeration districts and settlements is essential before assembling the data.

**Definition of urban areas:**
What is urban? This is not very easy to determine, as there is a tendency for urban areas to spread out as linear development into the countryside. Smaller settlements (intermediate towns) are equally important as both supply and consumption areas.
Using census data:
In looking at census data it is also important to be careful about the definition of the census districts – a district in a previous census may have been classified as rural, then reclassified as urban based on a local official definition of what constitutes “urban”. This varies significantly and is usually based on population thresholds. In general, countries with larger populations will tend to set thresholds at a higher level than those with smaller populations. Alternatively, census boundaries may be based on the range of services that settlements provide (such as an administrative centre or rural market). The boundaries of census districts may also be reclassified between census dates, which make projections very difficult to undertake.

Demographic change varies significantly between countries and growth rates also vary widely between different levels of settlement. Recent official census data needs to be used in making any calculations, particularly so that the natural increase in population can be distinguished from migration, as the latter is likely to impact on the composition of the population.

Population distribution:
It is also important to remember that despite global urbanization trends, in many countries the majority of the population lives in rural areas and is engaged in agriculture.

The output of step 1 should include a definition of the existing population in the study area, distinguishing between rural and urban (for the main cities and towns) and estimates of population growth.

Step 2: Estimating food supply
The next step is to look at past growth and potential for increased supply of fresh and processed produce in the defined study area, using the “food balance” method outlined in Box 6. This requires identifying:

Location of main production areas:
Identify the main production areas serving the markets for key crops (horticulture, livestock, etc.).

Pattern of food supply:
Define the cropping patterns and calendar for the main production areas, distinguishing between perishable and non-perishable (storable) crops. The impact of peaks and troughs may also need to be investigated, such as the effect on supply and demand of religious and public holidays.

Changing production technology:
Investigate the effect of increased food crop production due to the adoption of improved varieties and better extension systems, or opening up of new irrigated areas, leading to surpluses being available for sale and to a greater demand for marketing facilities in rural areas.

Land use change:
Loss of agricultural land (and water retention areas) and kitchen gardens through urbanization, both within and on the edge of urban areas, necessitating supplies from more distant sources.

Step 3: Estimating consumption
The next step is an intermediate step that will need to be undertaken to estimate the likely levels of consumption in the marketing system. There are two basic approaches to making these estimates, using:
• derived data on the per capita supply of produce (using the “food balance” method from step 2); or
• using local data on elasticity of demand for produce (i.e. whether consumption of individual products changes if prices go up or down). This is a much more complex method and reliable data is rarely available.

Changes in consumption habits also need to be reviewed, such as shifts to purchasing convenience and pre-packed foods from rapidly emerging supermarkets.

Step 4: Estimating food demand
The easiest way to define urban food demand is by examining the throughput of the wholesale market, if this data is available. (A format for undertaking an internal produce movement survey that would produce this information is given in Form C). Care needs to be taken that the survey also takes account of produce that may be bypassing the main markets, such as that which is purchased at the farmgate and goes directly to sales outlets, such as supermarkets, and produce that is going directly to processors.

If such survey data is not available, the most convenient technique is to make a rough estimate using the per capita consumption data (described above). Some care has to be taken in using this data as available figures tend to be national averages, or at best there may be a split between urban and rural consumption.

After completing these steps they should provide a numerical framework with which it is possible to undertake an analysis of marketing channels and functions described in Chapters 5 and 6.

ANALYSIS OF SURVEY RESULTS
The first step in preparing an overall evaluation of a marketing system (see Chapter 4) is an analysis of the results of the community PRA and other surveys, described in Chapters 5 and 6. The use of data for assessing marketing infrastructure investments will depend on whether it relates to rural production or to demand generated from population change, which would relate to urban conditions.

Common to all the uses described below will be an analysis and interpolation of data collected on marketing channels, margins and facilities. Excessively complex statistical methods are not usually appropriate and the use of correlation methods, for example, is easily misinterpreted and not a substitute for clarity of thought.

Use of survey data
The use of the survey data described in the next two chapters will depend on whether these data are being used for analysing a rural or urban condition:

Rural areas
• providing data for the design of programmes for upgrading an individual or system of existing assembly or primary market facilities;
• providing data for assessing the impact of new facilities, such as a new assembly market or packhouse, on the viability of existing facilities; and
• providing a marketing input to the design of rural road improvement programmes and to the promotion of intermediate forms of transport (see Chapter 7).

Urban areas
• providing data for deciding whether new or upgraded wholesale or retail facilities are needed;
• providing the basis for assessing the impact of new facilities, such as a supermarket, on the viability of existing facilities; and
• providing a marketing dimension to urban road or public transport improvement programmes.
The surveys can also provide a baseline by which any of the activities above may be measured and their impact subsequently assessed (see Chapter 4).

**MAPPING MARKETING SYSTEMS**

**Advantages of mapping**

Maps are often the best means of presenting a visual representation of marketing systems. Maps allow the data that has been collected as a result of the surveys described in Chapters 5 and 6 to be related to the particular local circumstances, such as the location of geographical boundaries, the shape and extent of catchment areas and the type of transport network. The statistical link between data can be established without graphics - but graphic analysis is clearer as marketing data always has spatial dimension. Mapping is useful for understanding: the present status of a marketing system as well as how the marketing system has been changing.

**Catchment areas**

In mapping, the first issue to determine is what geographic area to use. Generally, there are a series of nesting catchment areas, as described in Chapter 2. At one extreme a study area may consist of a single production area with a definable catchment area, with one route to a single market outlet. The other extreme may be many production areas, served by a number of channels, with variations in marketing system by crop and variations in the marketing system depending on the socio-economic status of the producers. Although it is possible to look at a single market or marketing channel this is not usually that helpful as a means of understanding an overall marketing system, which is likely to have many channels and overlapping catchment areas.

What affects the shape of catchment areas? The area served by a particular rural market or group of markets can be established by looking at the production areas within walking or animal cart distance of a market - a maximum radius of 10 kilometres from a market is a reasonable assumption. A longer distance could be assumed when an assembly market is being planned and farmers have access to public transport or small trucks. In that case the catchment area will depend on the availability of alternative market outlets. If there are no other large rural centres with markets a “catchment” area for an existing or new assembly market could have a radius as high as 50 kilometres. Box 7 summarizes some basic characteristics of rural catchment areas.

For an urban market the catchment area needs to be looked at from the opposite viewpoint – what are the production areas from which the majority of its supplies originate? Where is the present entry of produce into the city?

| BOX 7 |
| Radius of catchment areas |

Local village markets:
Production areas within walking or animal cart distance of a market - maximum radius of 10 kilometres from markets is usual.

Alternatively, it can be calculated:

\[ R \text{ in kilometres} = \frac{(\text{Sales price per kg at market} \text{ less production costs per kg}) \times \text{Transport costs per kg per kilometre}}{\text{Transport costs per kg per kilometre}} \]

Assembly markets:
If there are no large rural centres within its “catchment” area an existing or new assembly market could have a radius of 50 kilometres.
Map compilation
In compiling marketing maps the following types of features might be recorded:

- the location of production areas - surplus and deficit areas;
- the location of settlements and their associated catchment areas;
- the location of markets and other facilities such as packhouses, stores and processors;
- transport routes;
- changes in population of urban areas;
- physical boundaries, such as hills, watersheds and rivers, and other boundaries, such as local authority and census boundaries.

Mapped outputs
There are three main types of mapped outputs that can be useful for understanding marketing systems: thematic maps, networks, and dot/contour maps. The mapping can be prepared using a computerized geographic information system (GIS). This is a powerful tool, but maps can also be prepared manually.

Thematic maps:
For analysing market systems effective mapping can be obtained by plotting two or more data sets together, so that relationships can be clearly shown. Superimposing different data sets using overlays (sometimes called sieve mapping) can provide an understanding of the relationship between the different variables. For example, surplus production areas related to seasonal fluctuations in supply.

Networks:
This is the most straightforward way of presenting marketing. For example, they can be used to relate flows in marketing channels to linear data, such as transportation routes. A factor in preparing network maps is to decide what types of distance to represent - direct or actual?

Dot and contour maps:
The use of dot maps is also appropriate in some cases. These can show the intensity of a particular feature, such as the number of middlemen by geographic area. A map might show their distribution – effectively the density of traders. Frequently, these data are represented by grouping values which provides a useful visual comparison between areas – but this does not necessarily provide a true representation of the magnitude of particular phenomena.

Example of marketing system mapping:
Figure 3 illustrates examples of thematic mapping of the rural market system in Albania using GIS. Figures 3a-3f illustrate the spatial distribution of vegetables, potatoes and fruits, based on the district production data, compared with the food balance (defined as surplus and deficit districts, derived from estimates of potential consumption of the districts’ population). Figures 3g-3h show the evolution of these patterns, integrating the existing and proposed wholesale and assembly markets with the road system and settlement pattern, into an overall strategic action plan for market development. The action plan is based on the principle of developing marketing regions consistent with the national market planning strategy, providing a facility appropriate for the location and reinforcing the hierarchy of markets and settlements. In this case the mapping process becomes part of a “strategy” approach (described in the next chapter), which places greater emphasis on the process of planning (rather than a fixed plan) and on involving the participation of the major stakeholders.
Examples of mapping a marketing system - Albania
Rural–urban marketing linkages – an identification and survey guide

3.d: Potato production
3.c: Potato production
3.3 Fruit production

3.4 Fruit balance

Approach to studying marketing systems
3.h. Marketing regions and action plan

3.g. Road accessibility
Chapter 4

Overall evaluation of marketing systems

This chapter is concerned with applying the survey results in the design of potential interventions to the marketing system. The chapter describes:

1. The type of development options and assessment methods that may need to be considered.
2. How to apply the survey results in reviewing options for rural marketing interventions.
3. How to integrate the market selection process into a regional planning framework.
4. How to use the survey results in reviewing options for urban marketing interventions and preparing overall marketing strategy plans.
5. How to prepare an overall action plan for market development that reinforces and improves market linkages.
6. The basic steps in market design, implementation and operation.
7. How to monitor the impact of market developments.

Innovation of approaches to evaluation

Introduction

Making the most effective use of resources depends on an efficient planning and appraisal process. Therefore, options need to be appraised and the most appropriate solutions selected. An important point to emphasize is that any evaluation method must include a role for all the stakeholders, in addition to the decision-makers and their technical advisors.

Types of marketing options

If the actions outlined in the previous chapters have been correctly followed then a fairly clear picture should have emerged of the marketing situation. It is generally inevitable that there will be a range of possible development options that will need to be evaluated. These might include:

- selecting the most suitable sites for improvement between a list of potential rural primary or assembly market sites;
- choosing the best locations for retail market centres in urban areas;
- evaluating whether traders would be willing to pay increased rents for improving rural or retail markets;
- choosing whether to upgrade an existing assembly or wholesale market, or to relocate to a new site; or
- deciding whether to make any form of marketing investment at all.

Evaluation techniques for ensuring the viability of individual market proposals are described in a series of FAO market design manuals (see list of Further Reading). However, before reaching this detailed design stage it is first necessary to ensure that the locations for the marketing proposals are sound and that they will reinforce and improve the pattern of marketing linkages. The purpose of this chapter is to outline methods that can be used to ensure this occurs.
Evaluation methods
Although, ideally, the decision making process should have as a starting point quantified data on produce flows through the marketing channels, this is unlikely to be available. The survey and analysis methods described in the previous chapters will give an impression of the pattern of marketing (who is involved and the marketing channels they use) and this will be invaluable in evaluating proposals that might be considered for solving farmers’ marketing problems. Discussing options with communities and traders (on an individual and group basis) to reach agreement on practical steps that can be taken to implement the proposals will also be essential. The practical approach to evaluation is to start at this point and to follow through a process that ensures that the proposals are wanted by the users, but also that they are likely to be financially and operationally viable.

The essence of a sound evaluation method is that it should be transparent and easy to apply. For these reasons, evaluation methods need to be systematic, quick, simple and inexpensive to use. They need to be comprehensive enough to take account of all the main factors relevant to decision making. It is important that the evaluation method can organize the information in a way that the decision-maker and users can test the evaluation against their personal experience. The step-by-step processes described in the following sections have been practically applied and found to be useful.

PARTICIPATORY APPROACH TO SELECTING RURAL MARKETS
Strengthening farmer-to-market linkages requires a conscious effort to be made to enter into a dialogue with the potential users of market facilities. This will include discussions with key players (farmers, collectors, transporters, retailers, traders, cooperatives, etc.). The market channel surveys outlined in Chapters 5 and 6 will form part of this process. They will engage the market users in the design process by identifying the principal flows in the markets and by discussing with the users what they perceive as their problems with the marketing system. These data provide a useful starting point for local authorities and marketing departments in the identification of potential improvements to market systems. A process for the eligibility and selection of rural primary and assembly markets is described below. The method can also be adapted to selecting retail market centres in urban areas, but for situations where wholesale markets are involved a more rigorous approach is required (described later in this chapter).

Procedure for selecting candidate rural markets
Experience throughout the world is that the development of rural markets can be one of the most cost-effective and reliable ways of addressing the problem of marketing small quantities of produce. Although alternative strategies might be considered, such as farmer-owned marketing cooperatives and packhouses, these are likely to be less effective than directly addressing the farmer’s marketing needs. The best approach adopted, therefore, is usually to work to improve the existing marketing chain by reinforcing the link between farmers and market outlets to make the system more efficient by improving the physical conditions under which marketing is undertaken. This implies activities which will, in time, support specialization in the marketing system such that farmers may no longer have to retail their own produce and assemblers, wholesalers and retailers will be able to concentrate on those functions, rather than playing multiple roles.

In line with the principle of reinforcing the link between farmers and market outlets, an overall participatory process needs to be applied from the selection of target area up to the completion and operationalization of the candidate markets. The main precondition for starting the process should be that the local authorities or other agencies that might potentially be included in the programme are identified. In addition to
meeting the basic eligibility or selection criteria (discussed below) the inclusion of the local authorities will also have to be verified against whether there is synergy with other planning factors, such as the presence of viable cooperatives and market outlets. Institutional constraints will also need to be considered to ensure that there is sufficient capacity to implement the programme.

The typical eligibility criteria that need to be applied as an integral part of this process are shown in Table 4. The application of the eligibility criteria should be a two-stage procedure. The first stage (pre-qualification) should be used to confirm that the candidate markets meet the basic location and access criteria for consideration under a possible programme. The second stage (qualification) should be to apply more detailed criteria to ensure that the market improvements are technically possible and to obtain from the local authorities safeguards about the operation of the market when it is completed. The implications of the application of the operational conditions are summarized later in this chapter and described in greater detail in other FAO publications.

**APPRAOCH TO DESIGNING A REGIONAL PLANNING FRAMEWORK**

In considering the selection/eligibility criteria it will be important to look at whether the market improvements can be linked to other rural infrastructure activities being undertaken in the locality (district or region), such as the rehabilitation of irrigation works and the development of processing and storage facilities.

In particular, the development or improvement of rural primary and assembly markets requires that a linkage be established with rural roads that connect the markets into the local and higher-level regional road system. However, in most countries the potential scale of financing that is needed to fully support rural road rehabilitation and maintenance is likely to exceed the available financial and management resources. This will necessitate a prioritization approach being adopted. A core network of roads will need to be defined to ensure that minimum all-weather connectivity is achieved for the main assembly markets and other key points in the marketing system.

Therefore, it is necessary to develop an approach and methodology that integrates selecting and prioritizing markets related to rural road improvements (see Chapter 7). The types of issues that need to be included in the methodology are how to:

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**TABLE 4**

Typical market selection criteria

<table>
<thead>
<tr>
<th>Stage/Factor</th>
<th>Eligibility criteria/Trigger</th>
<th>Source/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st stage: Basic location and access criteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>1.1 A market already exists at the location</td>
<td>Market inventory</td>
</tr>
<tr>
<td></td>
<td>1.2 Located in surplus producing areas</td>
<td>Market inventory</td>
</tr>
<tr>
<td></td>
<td>1.3 Has more than a purely retail function;</td>
<td>Market inventory</td>
</tr>
<tr>
<td></td>
<td>1.4 Has a clear role as an assembly point</td>
<td>Market inventory</td>
</tr>
<tr>
<td></td>
<td>1.5 Has significant existing grain/coffee throughput</td>
<td>Market inventory</td>
</tr>
<tr>
<td>Access</td>
<td>1.6 All-weather road access</td>
<td>Road network plan</td>
</tr>
<tr>
<td></td>
<td>1.7 Parking and bus stand nearby</td>
<td>Road standards</td>
</tr>
<tr>
<td>2nd stage: Detailed design/operation criteria:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical conditions:</td>
<td>2.1 Initial physical/cost feasibility to undertake works</td>
<td>Site inspection</td>
</tr>
<tr>
<td></td>
<td>2.2 Site ownership is clear and not a constraint</td>
<td>Land certificate</td>
</tr>
<tr>
<td></td>
<td>2.3 No environmental conflict exists</td>
<td>Environmental clearance</td>
</tr>
<tr>
<td>Operational conditions:</td>
<td>2.4 Commitment to agree to cost/share in programme</td>
<td>MOU</td>
</tr>
<tr>
<td></td>
<td>2.5 Commitment to users to pay market fees</td>
<td>MOU</td>
</tr>
<tr>
<td></td>
<td>2.6 Commitment to set up a management committee</td>
<td>MOU</td>
</tr>
<tr>
<td></td>
<td>2.7 Commitment to set aside funds for O and M</td>
<td>MOU</td>
</tr>
<tr>
<td></td>
<td>2.8 Meets basic financial viability criteria</td>
<td>Check financial criteria</td>
</tr>
</tbody>
</table>
FIGURE 4
Planning framework for prioritizing rural market development
• ensure that a participatory approach is incorporated into the planning process;
• make the initial selection of the candidate markets for improvement based on the very limited information (on the physical characteristics and social context) that is likely to be available for making such an assessment;
• refine this list so that the final selection incorporates appropriate commercial, socio-economic, gender and environmental criteria; and
• incorporate a socio-economic dimension into the design process that realistically reflects the physical circumstances of rudimentary rural markets linked to an unimproved network of rural roads with low vehicular traffic volumes.

The approach suggested below is essentially one of trying to identify markets for improvement that are linked to the “core” network of roads. This planning framework offers a process that is iterative and can allow the stakeholders at different levels to enter into a dialogue with the local, district and regional authorities.

Planning framework

A regional planning process for market upgrading would ideally have eight stages. The first three stages are pre-qualification stages, covering an initial marketing/access situation analysis. The final five stages are the qualification stages for including the eligible markets in an action programme, and in some cases the local and regional budget preparation process. The eight stages in the planning process are illustrated in Figure 4.

Pre-qualification

Stage 1 – Market infrastructure inventory:
The first stage of the process is to prepare a market infrastructure inventory for each market facility that might be included in the programme. A checklist of the typical scope of the market infrastructure inventory is shown in Chapter 6.

Stage 2 – Outline programme:
Based on the market infrastructure inventory and the results of the surveys of producers and marketing functionaries, Stage 2 of the process will be to sketch out an outline annual programme. This needs to be undertaken in close consultation with representatives of the stakeholders and local authorities - to priorities which markets might be candidates for inclusion in the programme for that year. A common challenge at this stage will be to avoid political pressures and dissuading the stakeholders from including markets solely on the basis that every area should be allowed part of the “cake”. It is critical, therefore, that the initial steps to assess whether the markets fulfil the basic location criteria (see Table 4) are undertaken carefully. An operating market or trading activities should ideally already exist at the location and it should be located in a surplus production area. The market should also ideally have more than a purely retail function and have a clear role as an assembly point and a significant existing or potential throughput.

Stage 3 – Identify road links:
The next activity will be for the potential road links to the markets to be identified. Markets should (ideally) have all-weather road access, but this will not always be possible. The accessibility of the candidate markets needs to be defined, in terms of how the access road (or roads) to the market link into the rest of the district and regional road network. Choosing the best route will need to be done with reference to the region’s road planning strategy documents, which should normally include overall network plans.
During Stage 3, the overall road and settlement hierarchy needs to be identified, as well as the key road network linkages to the secondary and primary road system. The criteria applied in choosing the road links to markets should reinforce the local settlement pattern and might typically include that the road should:

- connect the market to the nearest all-weather road in trafficable condition, and to associated public transport facilities;
- connect the market to an administrative centre, local town, or regional capital, including links to higher-level socio-economic services, such as terminal markets, senior schools and hospitals;
- traverse an agricultural surplus production area. Attention will also need to be given to whether the route has potential for facilitating new economic activities, such as expanded agricultural areas and tourism, as well as the possible synergy the market access road might have with other projects of donors, NGOs and local government.

Pre-qualification output:
The output at the end of the pre-qualification stage will be a “first-cut” listing of the priority markets, possibly with associated road links. After this preliminary screening has been completed the markets should be ranked. The simplest form of ranking is to rank markets in order from “high throughput/good road access” down to “low throughput/poor road access”. If the market or associated route is not immediately justifiable it should be re-classified.

Qualification

Stage 4 – Road accessibility criteria:
The first activity of the qualification stage is to confer with the local road authority to ensure that the identified road links are feasible and will fulfil the socio-economic viability criteria that are being used by them to prioritize their road programme. These may include whether the prioritized routes fulfil a minimum economic internal rate of return or meet the selection criteria incorporated into a multi-criteria evaluation method (see Chapter 7).

Stage 5 – Initial consultations:
The next stage will be to make a site visit to the potential market improvement sites. The purpose of these visits is (i) to make an initial physical check on the feasibility and cost of improving the market and to (ii) initiate a discussion with the local authority and other stakeholders on the principle of improving the market, including introducing them to any operational eligibility criteria. The site area should also be checked and the possibility of expanding the market in the future verified. If the site is found to be very constricted or involve high development costs because of steep slopes or difficult drainage conditions then the candidate market might have to be rejected or deferred.

Rural market improvements are only likely to be viable if the levels of investment are relatively modest. The incremental benefits of undertaking these improvements should be set to provide sufficient revenues to cover all operating costs, including putting-aside a sinking fund for future market expansion (and possibly for other local infrastructure, such as the maintenance of local roads). Revenues are often insufficient to cover repayment of capital and interest – even assuming a long repayment period and grace period before repayment. The returns are very sensitive to the daily charges. Thus after meeting initial selection criteria, the short-list of suitable locations would be ranked according to whether:

- they are likely to make a significant contribution (in terms of volume turnover) to the trading of fresh produce (and/or livestock/dairy products);
they are important in the overall hierarchy of markets, with priority given to markets serving production areas with surplus produce; and
the works can be linked to other rural infrastructure improvements, such as minor irrigation works and the rehabilitation of rural roads.

Stage 6 – Environmental screening:
The next activity should be to confirm that there is no land ownership or environmental conflicts with using the market site. Ownership of the market site needs to be certain. The overall site might include roads, paths and open areas that are under the local authority and adjacent plots belonging to individual retailers or wholesalers, or to co-operatives. In some cases it may be necessary for land or lease certificate evidence to be produced to clarify the ownership situation.

An environmental screening needs to be undertaken to ensure that there are no significant impacts derived from the use of the market site and that a detailed environmental impact assessment does not need to be carried out. Consultation with the local environmental protection agency may also be necessary to confirm the status of the market site and to obtain an environmental clearance certificate, if this is required.

As part of this process the environmental status of the potential road links will also need to be considered. The main land uses through which the road alignments pass will need to be checked to see if there any potential conflicts with environmental factors, such as the location of protected areas. If there is a conflict this may be discussed with the environmental protection agency to see whether it is soluble. Environmental mitigation measures or management procedures may need to be included at this stage, which again will need to be designed in consultation with the environmental protection agency, such as siltation, can be dealt with by incorporating appropriate mitigation measures in the engineering design. This should not affect the choice of roads, but the cost of the measures should be incorporated in the cost estimates for road upgrading.

Stage 7 – Operational conditions:
The penultimate stage in the process is for the operational conditions for the market to be agreed with the local authority and market users. This will require a special meeting or workshop to be set up to which representative local stakeholders, such as local wholesalers, retailers and farmer's groups will need to be invited, plus a selection of key informants (local "experts"), including women’s group representatives. The outcome of this consultative workshop should be a signed memorandum of understanding (MOU) between the market investor and local stakeholders, (which until a marketing committee is actually established is likely to be only the local authority). The community should be attracted to attend the consultations by widespread advertising of the meetings (using local posters and radio, etc.).

The scope of the MOU will be an undertaking to allow the marketing department to include the particular market in the programme as long as the stakeholders are willing to adhere to a set of commitments. These commitments might include agreement to:

• provide a cost-share to the programme. A minimum of 15-20 percent of the total development costs is a common cost-sharing arrangement;
• pay user market fees, in accordance with an agreed schedule;
• set up a representative management committee to oversee the operations of the market; and
• to set aside funds from clearly specified sources for the recurrent operations and maintenance of the assembly markets.

At the end of Stage 7, the final choice of a short-list of markets for the coming year’s programme may be constrained by a number of factors. These might include: (i) the proposals exceeding the overall size of the funding envelope for that year’s programme; (ii) an unsatisfactory or inconclusive result from consultations, where the MOU could
not be finalized; and (iii) where no commitment could be obtained on the maintenance or upgrading programme for the associated link roads. In any of these cases, the proposal should be returned to the pool of potential programme activities and could be re-considered the following year as part of a rolling investment plan.

Stage 8 – Annual work plan and budget:
The final stage is the compilation of the final choice of markets as components of an annual work plan and budget. The budgeted amount will need to include provision for both the capital works and an allowance for the design and supervision fees. If there are agreed road links to the market a funding request will need to be made for this.

URBAN AREAS – MEETING FOOD DEMAND

General principles
Urban markets need a slightly different approach. Once food demand estimates have been prepared, following procedures set out in Chapter 3 (Box 6), the planner needs to be able to advise on site selection to meet this demand. The planner’s problem is to present options, preferably quantified, which clearly reflect the users’ needs. Site selection depends on two general factors:
- the potential forecast financial turnover of a new location, in relation to the competition from existing locations; or
- the potential for expanding or redeveloping an existing location.

Urban areas – simple cases
To investigate a single retail market an uncomplicated approach (described in other FAO manuals – see Reading List) is feasible. This can be based on a simple relationship between physical throughput (the tons of produce that a market or retail facility would be able to sell within a year or another time period) being used as a proxy for turnover. Derived from international empirical evidence (which might be checked against local data) the throughput of a market can be related to the sales space as follows:
- small-scale fruit and vegetable primary markets: 3–7 tonnes per m²;
- fruit and vegetable all-year assembly markets: 10–15 tonnes per m²;
- urban fruit and vegetable market: 5–10 tonnes per m².
- urban wholesale markets: 20–25 tonnes per m².

More details on how to apply these standards, taking account of population growth and changes in demand, are given in other FAO manuals (see Further Reading). These simple calculations can be used in conjunction with the consultation method described above for rural markets, but with less emphasis on the road access.

Urban areas – more complex cases
However, for major interventions, such as locating large-scale retail facilities and wholesale markets this simplified approach would not be adequate. In urban areas, the concept of a market’s financial turnover is complex as it is influenced by a number of related factors, which could include:
- the size of the facility (site area and sales floorspace of buildings);
- the size of the catchment it serves – the present and projected population and its demographic characteristics, particularly age composition and family size;
- the distance that the catchment population would need to travel to reach the location, which would be particularly important in low income areas, whose residents may only be able to walk to the location;
- the socio-economic profile of the catchment area – its level of affluence or spending power;
- the present turnover and market share of competing retail and wholesale locations;
• the synergy provided by related uses. A common example in low income areas might be the presence of a bus station or department store, which would reinforce the market location's potential;
• the efficiency of present locations, related to the average performance of similar facilities. This is particularly difficult to assess as a wide range of performances are likely to exist, influenced by a multitude of factors, including individual trader family circumstances and by outside factors such as local taxation levels and the cost of services; and
• constraints on the use a location. These could be transport (e.g. congestion, lack of parking, etc.) or environmental factors, such as conflicting land uses and pollution.

As with rural markets, it is essential to involve the stakeholders in the whole design process. However, the level of investment in major urban infrastructure requires that attention also be given to quantifying the impact of the development. Thus, what planners attempt to do in urban areas is to model the marketing system.

Modelling

Regression methods:
Complex statistical (multiple regression) techniques, based on empirical data, or theoretical models can be developed to relate these factors. In these cases the financial turnover is treated as the dependent variable and the related factors as independent variables. Regression coefficients are included in the calculations derived from a calibration of data related to existing retail facilities.

Spatial interaction – gravity models:
However, these models do not deal with the spatial interaction between locations. Another approach, commonly adopted in Western countries is to use a spatial interaction model, the most common of which is a gravity-model (sometimes called a “spatial interaction model”). Such models are based on the principle that there is an inverse distance relationship between the location of market centres and the users of such centres.

Using a gravity approach enables the modelling of the flow of customers (and revenues) between their places of residence and retail facilities. These models are predictive and do not optimize location. The general form of the gravity model for locating retail trade, which links expenditure and accessibility, is shown in Box 8.

Gravity models have been very effectively used for planning marketing networks in Western Europe and North America, where detailed databases are available and they can be used in conjunction with geographic information systems. In developing

<table>
<thead>
<tr>
<th>BOX 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravity model format</td>
</tr>
</tbody>
</table>

\[ I_{ij} = \frac{K A_i A_j}{d_{ij}^a} \]

Where:

- \( I_{ij} \) = expected degree of interaction (quantified as people or money) between centres i and j
- \( A_i, A_j \) = size of attractiveness of centres i and j (in terms of demand in weight or as floorspace)
- \( d_{ij} \) = a measure of distance (or cost of travel) between zones i and j
- \( K \) = a constant (to be calibrated on the basis of empirical studies)
- \( a, b \) and \( c \) = exponential parameters (the gravity functions of the model)
countries, in the case of larger urban/metropolitan areas, the use of gravity models is in principle possible as most road departments already use gravity models in some form for modeling road networks. However, there are many problems in using them:

- lack of data on shopping trips leading to difficulties in calibrating models, which even in Western countries has tended to produce distortions and inaccuracies;
- the domination of non-shopping traffic flows in the traffic system; particularly journeys to work or school;
- the cells or zones in a network often do not adequately reflect the structure of wholesale and retail trade, nor of variation in income of consumers;
- the cells are usually defined too large, so when the traffic predictions are aggregated they are not representative of the characteristics of an urban area. For accurately assessing shopping trips the cells should be made as small as possible, but this is rarely possible, without an extensive database; and
- there is a common tendency to simplify distance in gravity models to pure distance, not reflecting time or cost differences in operating the road network.

Impact assessment models:
A simpler method is usually needed than these modeling approaches. What is usually used is a "rule of thumb" checklist. An example of this procedure for assessing impact is shown in Figure 5. This methodology is robust and is more reliable than using gravity models. To apply it in a rigorous manner in developing countries is unlikely because of the almost universal lack of reliable household expenditure data.

However, the basic steps in the methodology are useful – particularly if throughput (in tons) is used as a proxy for expenditure. The model can be applied to a variety of situations. It can be used to look at the impact of introducing a new wholesale market; the effect of introducing new centres as part of expanding an urban area; and as a method for assessing the impact on existing facilities of constructing a new supermarket. The stakeholder involvement in the process would normally be during steps 1 and 9.

Rating or ranking models:
As a variant to using an impact assessment technique, simple rating or ranking models can be applied, as long as it is remembered that they need to be reviewed carefully, preferably by traders and other market users who have an understanding of the dynamics of marketing.

Mapping the results:
In combination with the modeling of the marketing system, the proposed locations of the facilities, together with other features, such as road links and catchment areas, should also be mapped. This will often give a much clearer idea of the marketing proposals, as many of the stakeholders (and planners and decision-makers) are not used to looking at detailed tabulations or graphs.

**MARKET PROGRAMMES AND ACTION PLANS**
The final step in the planning process is to integrate the proposals into an overall policy statement, programme and action plan. This can be as limited as a proposal for improving a group of rural markets or be a project for developing a related set of rural markets and roads. At a more complex level the proposals could be for a comprehensive marketing development programme.

Whichever type of action plan is needed, the following features will need to be included:
- the purpose of the proposal and expected outputs;
- the activities/inputs needed for implementation; and
- details of the institutional arrangements.
Box 9 illustrates an example of a marketing policy to improve linkages in Cianjur, Indonesia. The example is a small-scale, but integrated, programme for developing marketing sub-terminals, which provide a range of services, together with associated improvements to rural roads and irrigation systems.

Table 5 illustrates a more complex example. It makes a comparison between existing marketing practices and a new approach promoted by a marketing master plan, which in addition to making physical infrastructure proposals also addresses governance, institutional, legal, land use, environmental and public health issues.

**MARKET DESIGN, CONSTRUCTION AND OPERATION**

**Introduction**

Once markets have been included in an annual work plan and budget then the detailed process for design and construction of the markets, as well as for setting up an effective management and operation system, can be commenced. The whole process will need to be undertaken in close collaboration with the market users. Further details on the design process are given in the FAO publications listed in the Further Reading section.

The annual work plan and budget will usually allocate a “notional” budgetary allowance for constructing the markets, but this will need to be elaborated during the
detailed design phase including, if appropriate, undertaking an elementary financial analysis of the proposals to ensure that they are viable.

**Market design and construction**

**Stages in design:**
The market development project will go through a number of distinct stages and these are summarized in Figure 6. The critical stages are stages 1 to 5, from the initial brief through to testing the feasibility of the proposals. These five stages (sometimes called “project preparation”) will determine the final direction the project ought to be taking and confirm the decision to proceed with its implementation.

The design process:
The process starts (Step 1) with the identification of the marketing problem and needs of the users, particularly women (often) the main users of the markets, leading to broad recommendations on how these problem might be solved.

Physical as well as socio-economic surveys will be required at this point (Step 2) to allow design to proceed. An assessment will need to be made of the performance of the existing markets in the selected local authorities. This will be undertaken in consultation with the local authority and the market users (producers, traders, etc.). Data already collected through the field surveys, described in Chapters 5 and 6, together with desk studies of existing information (such as published maps) need to be brought together and analysed. Special surveys may need to be undertaken at this time, for example, surveys for targeting women and/or vulnerable groups or specialized surveys to supplement an environmental impact assessment.

The next step (Step 3) is to identify with the users or community the various planning and infrastructure alternatives that are available to solve the identified
**TABLE 5**

*Example of justification for adopting new approaches to produce marketing – Kathmandu*

<table>
<thead>
<tr>
<th>Existing Marketing Practice</th>
<th>New Approach In The Master Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing issues addressed by separate sectors, but mainly as the concern of Ministry of Agriculture with strong compartmentalization and little cross-sector linkages and interactions</td>
<td>Multi-sectoral and multi-disciplinary approach adopted through a “forum” for marketing and agricultural development in the Valley</td>
</tr>
<tr>
<td>Lack of co-ordination of marketing issues, insufficient trained staff in marketing – to advise on the design of facilities and programmes, operations and professional management, statistics, price information, etc.</td>
<td>Consolidation of marketing-related matters (horticulture, fish, livestock products, etc.) under one body. Suggestion to move MDD to become a separate unit directly under the Ministry of Agriculture. Train and equip the staff of the unit.</td>
</tr>
<tr>
<td>Marketing programmes often designed by officials and donors without involvement of stakeholders.</td>
<td>Traders and farmers involved from start as equal partners, with officials acting as facilitators to solve marketing problems.</td>
</tr>
<tr>
<td>Existing rural land-use controls are largely ineffective. Policies on agricultural land-use are based on conservation considerations (i.e. preserving “green” space) and not on maximizing the incomes of growers in the Valley. Farmers are viewed as culprits in damaging the Valley and as part of the problem.</td>
<td>Rural land-use decisions based on maximizing sustainable use of land suitable for higher value crops (but compatible with hazard control and watershed conservation needs) - taking account of farmer’s interests, needs, knowledge and ability to manage their own natural resources. Greater emphasis given to locally based land-use planning.</td>
</tr>
<tr>
<td>Interests of local producers in marketing not accommodated in urban areas – leading to use of unsatisfactory facilities, such as roadside sales at Anam Nagar Road.</td>
<td>Provision of new collection centres in the production areas and growers markets at planned locations, such as on the edge of the urban areas.</td>
</tr>
<tr>
<td>Interests of all potential private sector wholesalers not considered in developing facilities in the Valley – resulting in the development of unplanned wholesale facilities, such as the Harsha Fruit Market.</td>
<td>Long-term proposals for a new wholesale market to supplement (and/or ultimately replace) the Kalimati Wholesale Market.</td>
</tr>
<tr>
<td>Proliferation of unauthorized food trading activities (family shops, pavement sellers and hawkers), providing a convenient source of cheap food and giving employment opportunities for low income groups. Illegal status leads to harassment.</td>
<td>Licensing and regulation of food sellers – but going with clear provisions being made to accommodate small-scale retailers, and with costs for use of space set at low and realistic levels.</td>
</tr>
<tr>
<td>Commercial land-use decisions ignored in master plans and no special provision made. Thus, retail market facilities have grown spontaneously, often occupying road space, and are seen as a problem and nuisance (causing traffic congestion, waste disposal and public health problems).</td>
<td>Retail facilities planned (or encouraged) to locate in new local and neighbourhood centres by providing space - so that the centres can act as focus for planned settlement areas (land pooling and guided land development areas). Small-scale “infill” markets planned in existing urban areas.</td>
</tr>
<tr>
<td>Livestock slaughter and sales facilities are inadequate and not in accordance with elementary public health standards.</td>
<td>Initiating a programme of private sector operated slaughter slabs and improved butcher’s shops.</td>
</tr>
<tr>
<td>Public concerns with improved food quality not recognized and little concern with point-of-sale hygiene.</td>
<td>Greater emphasis given to testing foods for meeting public health standards, pesticide residues, etc.</td>
</tr>
<tr>
<td>Markets only seen as a source of revenues and not as a public service. Insufficient resources set-aside for maintenance.</td>
<td>Revenues from market users and hawkers collected and used to invest in maintenance and new market developments.</td>
</tr>
<tr>
<td>Local authorities do not see themselves as service providers of marketing facilities: there was no legislation or policies for providing markets and for their management.</td>
<td>New decentralization/self-governance legislation provides powers for local authorities to develop and manage markets and haat bazaars.</td>
</tr>
<tr>
<td>A lack of existing legislation and regulations for the operation and management of market facilities.</td>
<td>Provision of new draft regulations for the operation and management of market facilities and for regulating hawkers.</td>
</tr>
<tr>
<td>Little emphasis in marketing for small-scale farmers and informal sector traders, including women and disadvantaged groups.</td>
<td>Particular emphasis on small-scale farmers and on gender equity and disadvantaged groups (by providing special areas in markets).</td>
</tr>
<tr>
<td>Little direct use made of private sector resources to stimulate development activities.</td>
<td>Local authorities entering into agreements with the private sector for the development and management of market facilities.</td>
</tr>
</tbody>
</table>
planning problem and to priorities these options. Essentially, at this point in the process, it should be clear what the community wants and what is appropriate for the situation in terms of space and facilities.

Outline proposals are then drawn up (Step 4), sometimes requiring a range of different options to be looked at. Some initial ranking of the options may be made. Sometimes at this stage it is necessary to look again at the design brief and make modifications - the design may need to solve a completely different set of problems to that which was originally anticipated when the designs were discussed with the users.

The next step in project preparation (Step 5) is where the market improvements are designed in some detail and budget cost estimates are prepared. A financial analysis may need to be undertaken at this point to confirm the feasibility of proposals for larger markets – to confirm that revenues are going to be sufficient to cover operating costs. A saving of 2 – 3% of the total quantity (or value) of produce marketed is usually considered a realistic assumption. More details of simple methods for undertaking economic and financial analysis are given in the other FAO manuals in this series.

Before proceeding with the detailed design drawings, specification and a simple schedule of quantities (Step 6) the proposal needs to be agreed with the financier of the project through a process of negotiation and approval. Design adjustments may be needed to meet cost limits.

This is followed by the preparation of tender documents, the tendering process and the letting of contracts (Step 7). The project is then implemented (Step 8), through the provision of construction services.

Finally the project is monitored by the users and evaluated (Step 10) to ensure that what has been implemented conforms to the original project design and that any lessons learned from the experience can be applied to any further projects. The monitoring process is discussed in the next section.

**MONITORING MARKET DEVELOPMENT IMPACT**

**Objective of monitoring and evaluation**

The targets for measuring the direct results of a market improvement programme are difficult to determine at the outset. Such a programme is in part capacity building, but a significant part of a programme is likely to be finance-driven (see Box 10) and often includes a beneficiary contribution.

The three main functions of monitoring are to:
- enable assessments to be made of the social and economic impact of the programme;
- determine whether resources have been correctly utilized; and
- provide an indication of what adjustment should be made in future management and design.

![FIGURE 6 Market design and development process](image-url)
Given the grassroots emphasis of a market improvement programme the monitoring system should aim to provide tools that can be used by the key actors at all the implementation levels. It should inform management of the progress in implementing the physical targets of the programme. Standardized reporting on a small number of key indicators will allow more meaningful impact assessments to be made and this information can be used to modify the programme to match changing and evolving circumstances.

### Monitoring and evaluation indicators

Individual small-scale market improvements probably need only to be monitored using simple physical indicators, such as area improved, number of stalls created and total number of traders. For larger-scale programmes the expansion of market trading activities could be also be monitored:

Regular programme evaluation and reports prepared by a marketing department supported by market committee reports should be used to monitor the marketing improvement programme. These reports will also include environmental impact and gender dimensions (gender policy and disaggregated data). Typical indicators are shown in Table 6.
PART B

Technical studies and survey formats
Chapter 5

Participatory agricultural marketing surveys

This chapter provides a method for undertaking simple participatory surveys of the marketing practices of rural communities:

1. It describes the approach that needs to be undertaken, including the preparations that need to be made before starting the survey.
2. It outlines the participatory survey process.
3. It gives a step by step method for undertaking a participatory survey.
4. It describes how to interpret survey data on marketing channels, costs, margins and problems.
5. Finally, it describes the lessons learned from previous surveys that might be useful for the design of a new survey.

USING A PARTICIPATORY METHOD

Before designing marketing interventions that may impact on specific communities, surveys need to be undertaken. This chapter (and Form A) provides an example of a participatory approach, using focus groups of producers, to assess existing marketing channels.

Marketing networks reflect varied and complex social and economic interrelationships. However, any methods utilized in assessing marketing systems needs to be easy to apply and be well understood by rural communities. Usually, answering direct questions on marketing is not difficult for farmers and they are able to express opinions on the problems they encounter. Such discussions are very useful as a means of obtaining a rapid and representative assessment of local marketing conditions and problems. For example, alternative transport modes may be discovered and the role of commission agents and traders buying at the farmgate may be highlighted from the surveys.

Scope of the surveys

A marketing survey of farmer groups needs to capture a number of different factors:

- the various systems used for marketing different crops, such as farmgate sales for heavy, low value sales and market bartering and sales for high value, lightweight crops;
- the difference in marketing practices between the seasons, and whether this varies at harvest time (e.g. selling at farmgate at the peak times and at markets at other times);
- how marketing is affected by storage practices (e.g. storage of grain for lean times and only selling when cash is required for special needs);
- the varying practices of different wealth group, affecting how much surplus the farm households might have available to sell and whether they have access to transport or not;
- the possible variation in roles of men and women in marketing crops, and whether there is a difference in the types of crops they market or in their functions (e.g. men carrying the load and women selling); and
• how marketing practices are being affected by changes in cropping systems, such as increased production or diversification into new crops, and by the impact of transport improvements.

The design of the questionnaire will be affected by these factors, but it may not be necessary to take account of all of them. It is usually better to concentrate on the key crops – those crops that form the staple diet of the community and those that normally provide cash income.

Survey approach
The method described below has been field tested and found to be very effective in providing a gender sensitive and rapid assessment of marketing conditions. Although this survey method is useful for understanding the process of marketing, for making any quantitative analysis a more systematic method is needed. This normally requires a consumption survey and as this involves interviewing individual households it is rather time-consuming and should only be employed when absolutely necessary.

Preparation for the survey
Selection of communities:
The first step in the survey is the selection of the communities to be surveyed. This can be based on the specific characteristics of the community or on a sample basis. The former case may apply when a particular community is to be targeted for assistance or when a set of specific characteristics need to be evaluated - such as communities with special features or located in a particular area.

When making a general review of marketing channels a sampling approach will need to be adopted. The sample can be either taken on a random basis or it could be stratified. For example, if the marketing problems of villages in a large-scale irrigation area were being examined the strata might be determined from the location of the communities in relation to the supply of irrigation water. Another obvious stratum would be to sample on the basis of wealth ranking so variations in marketing practices can be related to family incomes and whether a community is remote from marketing outlets.

Review existing data:
As discussed in Chapter 3, it is important before starting the survey process to review any data that is already available on the communities, including existing participatory and formal/official surveys (such as an agricultural or population census).

The survey formats shown at the end of this chapter (Forms 5.1-5.3) should provide a useful starting point for designing new forms. However, they are likely to need to be modified to make them appropriate for particular requirements. For example, it may be necessary to design separate formats for women and men, so that they could be interviewed independently. In all cases it is essential to test the survey formats before applying them comprehensively in the field.

SURVEY PROCESS
A participatory survey uses the typical format practised with farmer training schools, with the participants sitting cross-legged in a circle, usually in the space under a house or tree, or in a primary school. The facilitators usually stand in front of them using flip charts to record the results of the dialogue. A single facilitator could handle the session, but it is usually better if it is undertaken jointly by a male and a female facilitator.

Status profile
The survey should start with a general introduction on the purpose of the meeting. The facilitators should give their names and ask the participants to give theirs. To put
the participants at ease the facilitators usually take the villagers through a status profile of the groups. This gives a rapid overview of the village based on the types of factors that provide indicators of the community’s wealth and economic vulnerability. The factors normally include the size of their land holding, the size of the family (to give an indication of dependency), whether the family has a single head and the ownership of key assets. The latter may include the type of roof covering, access to transport facilities and whether villagers own a radio or TV. The type of assets will obviously vary with the level of development of the community. The group’s answers can be entered into a flipchart table, the data being disaggregated by gender.

Ranking produce
The group is then asked to rank their agricultural produce in terms of its importance both as food for the family and as produce for sale (the staple crop, such as rice or corn is usually ranked first). The participants may find the concept of ranking to be difficult – for example ranking a list of ten crops in importance. An alternative approach is to get the participants to pick the top three items, then start again and pick the next three, etc.

Utilization of produce
Based on the ranking that is agreed upon, the group is then asked to estimate the utilization of the produce: whether the produce was used for eating, retained for seed, used as animal feed, processed or sold at market or farmgate. In some cultures the gifting of produce or bartering may also be important. Percentages may be difficult to grasp and the interviewers may find it necessary to use simple fractions (e.g. 1/4, 1/2, 3/4, 1/3 and 2/3) instead of percentages.

A single question on “processing” will give limited information; only really whether produce is being processed or not. However, to obtain more useful information would require a duplication of the survey process; asking whether the processed food was being consumed at home, gifted, sold at the farmgate or sold at the market. This would add significantly to the survey time. If processing is important or one of the main purposes of the survey is to target processing then it may be worthwhile to include further questions.

Problem assessment
The last step in the participatory survey is to ask the group to try and evaluate their main products in terms of the problems they have with storing, marketing and processing them. Although the participants would define which crops should be analysed, in many circumstances it may be possible to use a standardized list of crops, making comparisons between groups easier.

One of the main difficulties with a problem analysis is how to use the facilitators (often inexperienced extension staff or university students) to probe into the farmer’s problems. There is a difficult balance to be struck between provoking the farmers (by providing them with a list of possible issues) and trying to get the farmers to define their own issues. The problem analysis might be divided into three sections and for the first two sections (dealing with post-harvest and processing) a standard list of problems usually works well as the issues are quite concrete.

However, the third section of the problem analysis deals with marketing; a subject in which the issues tend to be inter-related. An open-ended list of problems is often not very useful, as there is a tendency for all the boxes in the form to be checked, as they are all seen as relevant. This does not produce very useful answers. The answer for marketing may be to use more provoking questions, such as “if there was one or two things that could be done to help marketing what would they be”? If the answer was, say, market information and transport, then a few further questions might be asked to define what the participants meant.
Although there are other techniques used in problem analysis, such as SWOT (strengths, weaknesses, opportunity and threats) analysis and problem trees, these are probably no more useful than the approach described above.

**STEPS IN PARTICIPATORY MARKETING SURVEYS**
The steps outlined below might be followed in a community level survey of the marketing and processing needs of small-scale producers. The process can be used on a selected or sample basis to obtain an overall impression of the working of the marketing system (steps 1-8). Alternatively, it can be used as an overall approach directed at a specific community who are being targeted for a marketing intervention programme (in which case all the steps 1-12 will need to be followed).

**Step 1:**
Select the communities to be targeted (based on specific characteristics or on a sample basis).

**Step 2:**
Review the data already available on the communities, including existing PRA and formal/official surveys (such as an agricultural or a population census).

**Step 3:**
Build-up a profile of the communities, including:
- family structure and size (widow households, number of dependants, etc.);
- wealth ranking characteristics (based on asset ownership);
- land holding sizes and types (lowland irrigated, upland rainfed, etc.); and
- ownership of livestock, fishponds and other income sources.

**Step 4:**
On the basis of step 3, decide on what information is missing and will need to be collected during the marketing PRA. Use the PRA formats (Forms 5.1-5.3) as a starting point and as a checklist of what needs to be considered.

**Step 5:**
Consider whether the marketing/processing PRA process has to be separately applied for men and women, or is better combined.

**Step 6:**
Design and test the marketing/processing PRA format. If it is believed necessary, develop separate formats for women and men. Consider if any supplementary survey may be needed, such as:
- a sample production and consumption survey and analysis (see below); and
- interviews with buyers, market traders and consumers.

**Step 7:**
Make arrangements for the PRA, including transport, payments and notify people that you are coming on a particular date, such as the villagers themselves, local officials, etc.

**Step 8:**
Undertake the PRA, separating men and women if necessary. Typical formats for the survey flipcharts are shown in Form 5.1:
- a. social status;
- b. product utilization of main crops; and
- c. problem analysis of typical crops.
Use detailed production and consumption surveys to fill in any gaps, for a stratified sample of the farmers (see Forms 5.2 and 5.3). Limit the number of surveys so that a real understanding can be obtained. Discuss the overall results with the villagers before leaving. Remember to thank the farmers for their assistance.

Step 9:
Undertake follow-up surveys with buyers, market traders and consumers (see Chapter 6).

Step 10:
Analyse the results of the PRA and other surveys. Prepare some options (on an individual and group basis) that might be considered for answering the farmer’s marketing and processing needs.

Step 11:
Discuss the various options with the villagers and try to reach agreement on practical steps that can be taken to implement the proposals.

Step 12:
Design, cost and implement the proposals. Make sure that a simple means for monitoring and assessing the impact of the proposals is also included.

ANALYSING GROUP SURVEYS
The following examples of analysing group surveys are drawn from a number of FAO projects where participatory planning techniques have been used.

Status profile - background to communities
The first analysis should be of the community’s status profile. In most cases, using the survey format given in Form 5.1a the information collected will be used to produce a qualitative description of the community. Table 7 shows the data on social status

<table>
<thead>
<tr>
<th>Status factor</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Single household head</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Land holding:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Houseplot only</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>- Houseplot + &lt;0.5 hectares</td>
<td>13</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>- Houseplot + &gt;0.5 hectares</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Household size:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &lt; 5 people</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>- average (5-6 people)</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>- &gt; 6 people</td>
<td>9</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>Wealth indicators/assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof covering – thatch</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Roof covering – galvanized iron</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Roof covering – tiles</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bicycle</td>
<td>12</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Motor bike</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Boat – links to market 3 km from village</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Buffalo (for draught purposes)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TV</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Radio</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: GP/INT/750/FIP
FIGURE 7
Comparative utilization of produce

FIGURE 8
Palau, marketing problems – all crops
collected at a village in Cambodia. Such data can also be aggregated for a group of
villages to obtain a general overview or to review the variations between areas in terms
of the ownership of assets.

**Analysis of marketing channels**

Group survey is very useful as a means of understanding marketing channels. Presenting the results of the surveys can be accomplished by tabulating the results or by using graphs to show how the marketing channels might vary both by crop and by area. Table 8 shows tabulated results of a number of group surveys, with the results expressed as quantities, as the small scale of the survey allowed reasonable estimates to be made of the amounts. The table can also be used to show the utilization by crop as percentages of the total production.

Another way of presenting the data is in diagram form as in Figure 7, which compares the utilization of produce in Palau.

Alternatively, the tabular data can be used to present an overall summary of the marketing situation, as shown in Box 11.

The other topic that is normally covered by group surveys is how the groups perceive the problems they have with marketing their produce. This again could be presented in a tabular format or as a diagram. Figure 8 illustrates the problems identified by producers for all crops marketed in Palau. The percentages represent the numbers of farmers identifying the particular marketing problem. Alternatively, the diagram could have shown the marketing problems for a single village or an individual crop.

**Analysis of marketing margins**

When undertaking the surveys of producers mention is often made by producers that the visiting traders buying at the farmgate have fixed prices and there is no room for negotiation. Another point frequently raised in discussions is the apparent lower prices obtained at the farmgate, compared to prices that might be obtained in the market.

**TABLE 8**
Farm household annual food balance

<table>
<thead>
<tr>
<th></th>
<th>Produced</th>
<th>Sold</th>
<th>Bought</th>
<th>Gifted</th>
<th>Consumed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taro</td>
<td>1,580.7</td>
<td>1,220.6</td>
<td>89.8</td>
<td>-45.9</td>
<td>355.6</td>
</tr>
<tr>
<td>Other roots</td>
<td>1,377.1</td>
<td>1,016.9</td>
<td>79.6</td>
<td>3.7</td>
<td>395.3</td>
</tr>
<tr>
<td>Vegetables</td>
<td>723.2</td>
<td>600.4</td>
<td>359.2</td>
<td>-11.4</td>
<td>462.4</td>
</tr>
<tr>
<td>Fruit</td>
<td>2,148.9</td>
<td>1,765.0</td>
<td>175.5</td>
<td>-21.5</td>
<td>563.3</td>
</tr>
<tr>
<td>Total</td>
<td>5,829.9</td>
<td>4,602.9</td>
<td>704.1</td>
<td>-75.1</td>
<td>1,776.6</td>
</tr>
<tr>
<td>% of total</td>
<td>-</td>
<td>79%</td>
<td>12%</td>
<td>-1.2%</td>
<td>30.5%</td>
</tr>
</tbody>
</table>

Source: TCP/PAL/2902

**BOX 11**
Palau, comparison of fruit marketing

- All groups retained bananas for home consumption, but 60 percent also sell at local markets and a limited amount is sold at the farmgate (25 percent).
- Of the groups growing betel nut all retained some for consumption, but the majority was marketed, 92 percent of the groups using local markets and 30 percent selling at farmgate.
- Two-thirds of the groups producing coconuts retained some for home consumption, but the majority of groups (75 percent) sold at local markets and a limited amount at farmgate (15 percent).
This is often not really substantiated if the marketing costs collected during the market utilization survey are examined in detail. To do this, however, it will be necessary to collect some additional information on typical transport costs and market fees. Table 9 shows an example in Cambodia of the type of profits that might be obtained if the farmers took the product to market instead of selling at the farmgate. The illustration uses cucumbers, which is a vegetable with a generally higher retail price per kilogram. Despite this, the profit margin for selling is just about reasonable for a larger load transported by motorbike (10.4 percent) and is negative (-5.9 percent) for a load transported by bicycle. If transport costs were ignored there would of course be a profit – but this is an unrealistic assumption.

If resources are available to undertake a sample survey of the farm households in the group, using the survey formats shown in Form 5.2 to produce the summary shown in Form 5.3. Table 10 shows the results of such a survey of 107 farm families, distinguishing between the production characteristics of different types of farms: small-scale/subsistence farmers, market gardeners and larger commercially oriented farms. Table 11 presents the household level production and consumption data for Palau in a disaggregated manner, highlighting the differences by gender.

**LESSONS LEARNED FROM PREVIOUS SURVEYS**

The participatory survey method is easy to apply; taking around two hours per village group. The most difficult part is to ensure that the participants are really members of the community, as opposed to those who simply join the group or are government counterparts. With more time, it is possible to carefully quantify average production – which is useful for establishing whether there is really a surplus being produced for sale. If there are already some concrete proposals for improving the marketing system these should be included as part of the problem analysis (described in step 8 above).
### Table 11

**Palau, comparative production and consumption of female-headed households**

<table>
<thead>
<tr>
<th>Household type</th>
<th>Taro</th>
<th>Other roots</th>
<th>Vegetables</th>
<th>Fruit</th>
<th>Rice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household production (lb.):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female-headed</td>
<td>1 566.9</td>
<td>874.1</td>
<td>318.1</td>
<td>2 293.0</td>
<td>0</td>
</tr>
<tr>
<td>Male-headed</td>
<td>1 588.0</td>
<td>1 643.0</td>
<td>937.0</td>
<td>2 072.0</td>
<td>0</td>
</tr>
<tr>
<td>Overall sample</td>
<td>1 580.7</td>
<td>1 377.1</td>
<td>723.0</td>
<td>2 148.9</td>
<td>0</td>
</tr>
<tr>
<td>Household consumption (lb.):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female-headed</td>
<td>404.6</td>
<td>387.6</td>
<td>501.9</td>
<td>589.5</td>
<td>771.7</td>
</tr>
<tr>
<td>Male-headed</td>
<td>329.8</td>
<td>399.4</td>
<td>441.5</td>
<td>508.2</td>
<td>799.4</td>
</tr>
<tr>
<td>Overall sample</td>
<td>355.6</td>
<td>395.3</td>
<td>462.4</td>
<td>563.3</td>
<td>789.8</td>
</tr>
</tbody>
</table>

Source: FAO Project TCP/PAL/2902

### Subsistence communities

The greatest difficulty with these surveys is with traditional subsistence, often non-literate, communities. How these communities dispose of their produce will often be difficult to understand. Market places for exchange of goods do not evolve unless there is some specialization in production, a surplus to sell and there is a need for trade between different communities, rather than exchange within the same group.

Barter is often the most common form of exchange in these communities, sometimes based on established values for goods, or derived from a bargaining process. Not all crops will necessarily be bartered though. A cash crop, even though the quantity is very small, may be sold to raise money for expenses, while other crops may be bartered with neighbouring areas. Another important means of disposal of produce is often through gifts and traditional forms of exchange, typically corresponding with birth, marriage and funeral rites. In some communities, such as those in the South Pacific, this may make up a significant part of “surplus” production.

However, even where subsistence communities are remote, if there is sufficient surplus middlemen will exist to aid the transaction process. Whether these activities are undertaken within a permanent or temporary market, at a roadside or by collection from the farmgate will depend on the value of the produce, cost of transport and local sales customs. An example of the main marketing methods, derived from a survey of a subsistence community in Cambodia, of the channels for disposing of surpluses is shown in Box 12.

### Box 12

**Examples of marketing channels – Cambodia**

- The families in the survey area ate most of their rice production and only a limited amount was sold.
- Corn was sold through both farmgate or market channels, but larger quantities were disposed of at the farmgate.
- Vegetable sales were predominately made in the markets, except for Chinese cabbage, which was more typically sold at the farmgate. This was consistent with the need to dispose of fresh products immediately after harvesting.
- Slightly more fruits were sold at farmgate than at the markets. More heavy and bulky fruits, for example such as coconuts and watermelon, tended to be sold at farmgate, whilst smaller lighter loads of fruit were sold in markets.
- In the case of some fruits, such as mango, the fruit was sold in advance on the tree.
- Most livestock products were sold at the farmgate, except chickens and eggs, which were sold at markets.
- In summary, livestock and heavy products that were difficult to transport, such as coconut and watermelon, were mostly sold at farmgate, while perishable fruits and vegetables were usually brought to the market. Transport and handling of the produce was usually undertaken by men, while women were responsible for sales.
Follow-up
The community-level information can also be supplemented by following up on the market chain (see Chapter 6). This includes undertaking surveys in local markets, which will allow a more detailed assessment to be made of demand. Other surveys include interviews with buyers/collectors and with market traders.
**PARTICIPATORY MARKETING SURVEY FORMATS**

**Form 5.1: Community PRA survey – typical format**

a. Social status (number of respondents recorded)

<table>
<thead>
<tr>
<th>Status factor</th>
<th>Female participant</th>
<th>Male participant</th>
<th>Total participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single household head</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land holding:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Houseplot only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Houseplot + &lt;0.5 hectares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Houseplot + &gt;0.5 hectares</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household size:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &lt; 5 persons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- average (5-6 persons)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &gt; 6 person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wealth indicators/assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof covering - thatch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof covering – galvanized iron</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof covering - tiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorbike</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boat – links to market 3 km from village</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo (for draught purposes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radio</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b. Production utilization of main crops (group opinion on % of total)

<table>
<thead>
<tr>
<th>Products – ranked in importance</th>
<th>Consumption %</th>
<th>Processed %</th>
<th>Sold at farmgate</th>
<th>Sold at market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Food</td>
<td>Seed</td>
<td>Animal feed</td>
</tr>
<tr>
<td>1. Rice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Cucumber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Watermelon</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Pigs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Vegetables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Fruit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

c. Problem analysis of typical crops (group opinions recorded)

<table>
<thead>
<tr>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
</tr>
<tr>
<td>Fruit</td>
</tr>
<tr>
<td>Vegetables</td>
</tr>
<tr>
<td>Fish</td>
</tr>
<tr>
<td>Pigs</td>
</tr>
<tr>
<td>1. Storage</td>
</tr>
<tr>
<td>- home storage</td>
</tr>
<tr>
<td>- community storage</td>
</tr>
<tr>
<td>- pests</td>
</tr>
<tr>
<td>- prices and margins</td>
</tr>
<tr>
<td>2. Marketing</td>
</tr>
<tr>
<td>- transport</td>
</tr>
<tr>
<td>- linkage with traders</td>
</tr>
<tr>
<td>- prices and margins</td>
</tr>
<tr>
<td>3. Processing</td>
</tr>
<tr>
<td>- home processing</td>
</tr>
<tr>
<td>- mills and processors</td>
</tr>
<tr>
<td>- prices and margins</td>
</tr>
</tbody>
</table>
Form 5.2: Household food marketing and consumption survey

<table>
<thead>
<tr>
<th>1. Date of survey</th>
<th>2. Location - Province/District</th>
<th>3. Village name</th>
<th>4. Name and gender of farmer</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Female head of household?</th>
<th>6. Family assets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>male adult</th>
<th>female adult</th>
<th>other adult</th>
<th>male child</th>
<th>male child</th>
<th>male child</th>
<th>female child</th>
<th>female child</th>
<th>female child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Family size (no. of persons and age)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Production and consumption of produce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total production in dry season (kg)</th>
<th>Total production in wet season (kg)</th>
<th>Total production (wet and dry season) (kg)</th>
<th>Amount sold annually to traders collecting from farmgate/village (kg)</th>
<th>Amount sold annually by farmer at market or trader at market (kg)</th>
<th>Retained annually for seed (kg)</th>
<th>Amount bought annually (kg)</th>
<th>Amount eaten daily by the family in dry season (kg)</th>
<th>Amount eaten daily by family in wet season (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 5.2: Household food marketing and consumption survey (continued)

9. Livestock/animals used for foodstuff

<table>
<thead>
<tr>
<th></th>
<th>No. produced annually</th>
<th>Amount produced annually in kg</th>
<th>Sold at farmgate in kg</th>
<th>Sold at market in kg</th>
<th>Amount bought annually to eat in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pigs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ducks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 5.3: Analysis of production sales and consumption

<table>
<thead>
<tr>
<th>Summary of production &amp; sales</th>
<th>Summary of consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total production (wet and dry season) (kg)</td>
<td>Average amount eaten daily by the family (kg)</td>
</tr>
<tr>
<td>Total sold surplus at farmgate/village or market (kg)</td>
<td>Total amount eaten annually by the family (kg)</td>
</tr>
<tr>
<td>Total sold surplus as a % of total production</td>
<td>Amount eaten annually per capita (kg)</td>
</tr>
<tr>
<td>Average amount bought annually in (kg)</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td></td>
</tr>
<tr>
<td>Maize</td>
<td></td>
</tr>
<tr>
<td>Total grains/pulses</td>
<td></td>
</tr>
<tr>
<td>Cucumber</td>
<td></td>
</tr>
<tr>
<td>Aborigine</td>
<td></td>
</tr>
<tr>
<td>Cabbage etc.</td>
<td></td>
</tr>
<tr>
<td>Total vegetables</td>
<td></td>
</tr>
<tr>
<td>Coconut</td>
<td></td>
</tr>
<tr>
<td>Mango</td>
<td></td>
</tr>
<tr>
<td>Banana etc.</td>
<td></td>
</tr>
<tr>
<td>Total fruit</td>
<td></td>
</tr>
<tr>
<td>Pigs</td>
<td></td>
</tr>
<tr>
<td>Chickens</td>
<td></td>
</tr>
<tr>
<td>Ducks</td>
<td></td>
</tr>
<tr>
<td>Beef</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td></td>
</tr>
<tr>
<td>Total Meat etc.</td>
<td></td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 6
Follow-up interviews and surveys

The scope of this chapter covers:
1. The purpose of follow-up surveys.
2. Who will need to be interviewed?
3. The basic approach to follow-up surveys.
4. Formal surveys and how to organize data collected on marketing facilities.
5. The method for collecting information using simple surveys of marketing functionaries.
6. How to undertake a consumer survey.
7. Gender considerations.
8. The different techniques which can be used to present the survey results.

FOLLOWING-UP ON THE MARKET CHAIN
From the focus group discussions with producers outlined in Chapter 5 a basic understanding of the marketing system should have been obtained. It is important to start from this point, as producers are the ones who are likely to suffer most from present shortcomings in the marketing system, whether from a lack of market facilities, or poor transport linkages.

However, these discussions will be from the producer’s perspective and inevitably there will be gaps that will need to be filled by follow-up surveys. One of the main reasons for undertaking these follow-up surveys is that the growth of marketing systems is often haphazard and constantly evolving. Often, peoples’ perception of marketing is based on previous and outmoded experience.

These surveys are not always needed if the results of making the surveys in Chapter 5 are completely clear. However, this is frequently not the case and further survey may be needed. Particularly valuable are surveys of traders and consumers.

Who will need to be interviewed?
After reviewing the relevant secondary literature the follow-up studies of the marketing channels will need to use rapid market appraisal and participatory techniques. These are likely to range from personal observations, interviews, formal surveys and focus group discussions. The surveys, interviews or focus group surveys will need to be undertaken with:
- buyers, collectors and commission agents;
- transporters;
- wholesale, assembly and retail market traders;
- market operators; and
- consumers.

Finally, discussions need to be held with key personnel in government, NGOs, municipalities, and private sectors to review the policy, legal, and institutional environment influencing agriculture produce marketing in the study area.

Tracing marketing linkages
Linkages and relationships among producers, wholesalers, and retailers play an important role in marketing fresh agricultural produce. These linkages and relationships
may have both positive and negative effects. On the positive side, the establishment of linkages creates mutual trust among different marketing functionaries. Trust, in principle, reduces transaction cost and hence, leads to lower prices to consumers, and promotes growth and prosperity. On the negative side, the development of linkages and relationships may hamper the operation of market forces. For example, linkages might create dependency and a monopolistic relationship between the parties. If one party resorts to opportunistic behaviour in such a relationship, the other party may not really benefit from the relationship. The presence of such linkages may also make it difficult for a new entrant into business, causing imperfections in the market. To get some idea on these kinds of linkages and relationships, the traders need to be asked whether they have any linkages with other geographical areas or groups.

The need for credit and easing of uncertainty by ensuring a guaranteed market is usually the main motivations for developing linkages. Linkages are often based on village proximity (area based), political or religious affiliations, or on family relationships. For example, a trader may have a competitive edge in dealing with farmers from his or her area because they enjoy more trust, compared to traders from other areas. If farmers are asked whether they are compelled to sell products to traders in such relationships, they often say that they are not compelled but they would prefer to sell to the traders they know and maintain a relationship with them, unless the prices offered are too low.

Care should be taken that any outside intervention in agricultural marketing does not destroy the advantages created by the linkages. On the other hand, market imperfections and unfair competition caused by such linkages may need to be corrected.

Basic approach to follow-up surveys
The basic approach to tracing the marketing chain is to follow the marketing of some key crops through all the marketing channels. However, there are some difficulties in undertaking these follow-up surveys:

- How to sample: With producers sampling can be made on a geographical basis and stratified on a simple wealth-ranking basis. With marketing functionaries this is more difficult as without starting the survey process it is difficult to trace the linkages between the different levels – it is a process of pursuing leads. Consequently, many interviews may be repetitive and unproductive.
- Special interest groups: Old-established traders, who could resent new participants in the system, may dominate the present marketing chains. Thus, the particular needs of women retailers and small-scale traders are often ignored. In designing new interventions these need to be fully considered.
- Problem of obtaining financial information from private sector traders and transporters: Any financial question should be left to the end of the interview and better couched in terms of a proxy or comparison e.g. is that crop more profitable to market than another?

FORMAL SURVEYS
Formal survey is an invaluable tool in understanding marketing systems. However, these surveys are both costly to undertake and may place impossible burdens on an over-stretched and under-funded government department or local authority. The most useful formal surveys are individual market surveys, which can provide the basis for preparing a market inventory (see below).

On the basis of an analysis of markets it will be possible to put forward suggestions to enhance the efficiency of markets. One of the specific recommendations may be to make improvements to marketing infrastructure.

Other FAO manuals provide detailed methods for making physical/operational surveys of markets, traffic counts and origin/destination surveys (see Tracey-White,
1991, 1995 and 1999). However, for convenience of users of this guide some examples of produce movement survey formats for internal produce flow and cordon surveys are also provided in Chapter 7 (Forms 7.1 and 7.2).

MARKET INVENTORIES

Poor Marketing Conditions

Poor conditions in markets are common. Demand for stalls in many markets is high and stall space is often limited, thus the traders spill out onto adjacent streets (sometimes to avoid fee payments). Produce is frequently sold directly on the ground and exposed to the weather, resulting in high losses. Facilities may be limited, with no market sheds and with no provision of water supply or latrines. These conditions also frequently exist in unimproved wholesale markets.

Main Physical Defects

The main defects of existing markets may include:

- poor site location and road access. This is often a key issue and is difficult to resolve where future road improvements have not yet been implemented;
- insufficient temporary sales space to accommodate growers, particularly during peak times and seasons, leading to produce being sold in the open, with consequent spoilage;
- a lack of well-designed and constructed sheds, making the marketing process inefficient and inhibiting customer flow;
- insufficient vehicular and non-vehicular circulation space and traffic management measures, and lack of parking provision and areas for unloading, leading to vehicular and pedestrian congestion;
- poor condition of roads and paving;
- inadequate provision for solid waste collection, drainage and flooding facilities, leading to produce losses and potential public health problems;
- a general lack of building and facilities maintenance;
- inadequate site security and overnight storage; and
- inadequate provision of hygiene facilities for meat, poultry and fish handling, including a lack of refrigeration facilities.

Social and Managerial Problems

In addition to physical defects there are also likely to be problems with the management of facilities:

- difficulties in enforcing the market bye-laws and regulations;
- an inefficient use of market sales space with low sales volume and low rents;
- a high demand for places in the market, reflecting either uncontrolled use of space or relatively high profit margins; and
- a market management system where there is no clear relationship between revenues and costs and, consequently, the market is under-funded, especially for repairs and maintenance.

Making an Inventory

An essential step in the process will, therefore, be to obtain a profile of each of the significant markets in the study area. From these profiles an inventory of market and retail centres can be built-up, which can provide the basis for preparing the market development programme. A possible format for compiling a market inventory is illustrated in Form 6.1. An example of the sort of data that can be compiled from a market inventory survey is shown in Table 12, which relates the markets to the villages they serve, the size of catchment areas and the population density.

The inventory can be detailed by making estimates of throughput on a daily or weekly basis, using the format given in Form 6.2, which can be used in rural areas.
Form 6.3 shows a format that is more appropriate for recording the pattern of food marketing in urban areas.

The method can also be applied to any form of sales outlet, such as supermarkets or shops. Table 13 shows the presentation of the results of a sample survey of stores and markets in Koror, the capital of Palau.

By asking about the origin of produce it is also possible to make some estimate of the flows along different routes serving local, regional or city markets.

**INTERVIEWS WITH MARKET FUNCTIONARIES**

A sample of buyers, collectors, transporters and traders will need to be interviewed using a structured questionnaire to examine and understand their roles in agricultural produce marketing. Form 6.4 presents a format for these interviews. The same basic survey format can be used for interviewing any of these functionaries, which would allow a simpler analysis of the data and also make comparison between them easier.

In any case, the distinction between these roles is often very unclear. For example, a local person may own a truck and agree to transport his or her neighbour’s produce to market on a sale or return basis. This person is, therefore, a producer, collector and transporter. The range of information that a survey of functionaries would need to collect is as follows:

- type of functionary;*
- gender,* caste/ethnicity and marital status;
- education level/literacy;
- type and location of trading space e.g. roofed open sheds; enclosed/lockable stalls or open spaces;*
- variation between wet season and dry season;*
- source and amount of produce purchased; from farmers, market traders or from other sources;*
- location of purchases;*
- mode of purchasing from producers and traders: for cash or on credit;
- mode of selling to customers: for cash or on credit, or combined;

### TABLE 12

<table>
<thead>
<tr>
<th>Zilla/Greater District</th>
<th>Type of Market/Hats (number)</th>
<th>Villages served (no.)</th>
<th>Catchment Area (km²)</th>
<th>Density (‘000 persons /km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural Primary</td>
<td>Assembly/Secondary</td>
<td>Urban # Terminal</td>
<td>Total</td>
</tr>
<tr>
<td>Bogra</td>
<td>91</td>
<td>99</td>
<td>5</td>
<td>195</td>
</tr>
<tr>
<td>Dinajpur</td>
<td>359</td>
<td>92</td>
<td>7</td>
<td>458</td>
</tr>
<tr>
<td>Palma</td>
<td>198</td>
<td>88</td>
<td>8</td>
<td>294</td>
</tr>
<tr>
<td>Rajshahi</td>
<td>182</td>
<td>279</td>
<td>3</td>
<td>469</td>
</tr>
<tr>
<td>Rangpur</td>
<td>261</td>
<td>270</td>
<td>11</td>
<td>542</td>
</tr>
<tr>
<td>Total</td>
<td>1,921</td>
<td>1,386</td>
<td>62</td>
<td>3,374</td>
</tr>
</tbody>
</table>

* Comprising urban wholesale, wholesale-cum-retail and retail markets

Source: Department of Agricultural Marketing, Dhaka

### TABLE 13

<table>
<thead>
<tr>
<th></th>
<th>Root crops</th>
<th>Vegetables</th>
<th>Fruits</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>lb. per day per sampled stores</td>
<td>279.5</td>
<td>2 040.6</td>
<td>474.1</td>
<td></td>
</tr>
<tr>
<td>lb. per day per all stores</td>
<td>847.0</td>
<td>6 183.5</td>
<td>1 436.6</td>
<td>8 467</td>
</tr>
<tr>
<td>tons per year</td>
<td>140.5</td>
<td>1 025.9</td>
<td>238.3</td>
<td>1 405</td>
</tr>
<tr>
<td>% of total</td>
<td>10%</td>
<td>73%</td>
<td>17%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: FAO Project TCP/PAL/2902
Follow-up interviews and surveys

- percentage of wastage: unsold produce and transportation losses;
- vehicle ownership, type and load;*
- years involved with produce trading;
- number of employees;
- ownership of business, or leased?
- other sources of livelihood;
- main price information sources: radio, TV or other traders; and
- main costs in operating the business, such as average amount of rent paid by the traders etc.

(Information that is essential is indicated with *)

Interviews with market traders
A structured survey of traders such as that shown in Form 6.4 will also need to be undertaken within markets in order to understand the functioning of the agricultural produce marketing system. Additional questions may need to be added to the survey format for interviewing wholesalers and traders in major markets.

In applying the survey a sample of persons to interview should be chosen randomly, based on the following criteria.

- First, an attempt should be made to include wholesalers as well as retailers in the sample.
- Second, traders from different types of facilities should be included, such as fixed shops, roofed sheds, pitches in open spaces, and itinerant vendors.
- Third, the sample should cover a wide geographical area.
- Fourth, care should be taken to include both male and female traders. As petty traders tend to be women separate focus group discussions may need to be held with women traders to understand marketing problems specific to female traders.
- Finally some diversity in products dealt with by the traders needs to be included.

The types of results that can be obtained from the survey are shown in Table 14. This illustrates the range of produce handled by the two main types of purchasers: eight major buyers acting for supermarkets and institutional users (such as hospitals and schools) and 66 smaller traders and collectors who deliver to markets and shops.

Table 15 shows the results of the survey of 74 market functionaries analysed in Table 14, but this time highlighting from where they source the produce: at farmgate or from smaller markets. This table illustrates an oddity of marketing practice in Palau in that

<table>
<thead>
<tr>
<th>TABLE 14</th>
<th>Daily produce handled by traders, collectors and buyers (lb. per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Taro</td>
</tr>
<tr>
<td>Major buyers</td>
<td>22</td>
</tr>
<tr>
<td>Traders collectors</td>
<td>64</td>
</tr>
<tr>
<td>TOTAL</td>
<td>86</td>
</tr>
</tbody>
</table>

Source: FAO Project TCP/PAL/2902

<table>
<thead>
<tr>
<th>TABLE 15</th>
<th>Marketing channels used by traders, collectors and buyers to purchase produce</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Marketing channels:</td>
</tr>
<tr>
<td></td>
<td>% at farmgate</td>
</tr>
<tr>
<td>Major buyers</td>
<td>13.8</td>
</tr>
<tr>
<td>Traders/collectors</td>
<td>63.0</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>56.8</td>
</tr>
</tbody>
</table>

Source: FAO Project TCP/PAL/2902
as there is no major market at present; institutional buyers find it easier to buy the majority of their fresh produce from “other” sources, particularly supermarkets.

**Interviews with transporters**

Transporters will need to be interviewed if from other sources (such as the surveys of producers or traders) their role in marketing is found to be significant. The usual difficulty in interviewing transporters is that those involved with produce marketing are normally small-scale operators. They often “operate” their business from their vehicle and so tracking them down to undertake the survey can be time-consuming. The best approach is to obtain some names of transporters from the producers or to undertake the survey in the markets.

Another reason for interviewing transporters is to be able to check the transport cost element of marketing margin calculations. This can be a difficult exercise if any level of detail is needed. Double-checking with a number of transporters will be essential to obtain reliable data.

**Interviews with market operators**

Managers of a sample of markets in the catchment area may also need to be interviewed in order to understand the operation of their markets. It is particularly important to interview managers of any urban wholesale market or major assembly markets.

**CONSUMER SURVEYS**

The ultimate goal of any marketing system should be the satisfaction of consumers’ needs. Higher levels of income and education of urban populations tends to lead to rapid growth in the demand for fruits, vegetables, meat and fish products. Urban consumers are also becoming increasingly quality conscious. Consumer concerns may include environmental problems such as inappropriate and excessive use of pesticides, market cleanliness and unsuitable handling of the after-sale wastage of markets.

A simple consumer survey can be conducted to get some idea about the purchasing behaviour of urban consumers and the major problems and concerns of the consumers related to fresh produce marketing. Form 6.5 presents a format for the survey. The types of issues the survey can establish are:

- the frequency of purchases (daily, alternative days, weekly, monthly or seasonally) by type of produce;
- who purchases the produce – by gender;
- what types of vehicles do they own – bicycles; motorbikes; cars, etc.;
- how they travelled to the market – by public or private transport;
- how their consumption habits have been changing, say over the last five to ten years;
- ranking of their priorities in their decision to purchase products; and
- suggestions for improving the current marketing system – such as their response to constructing a new market, including its location and facilities.

Table 16 presents typical responses from a survey that ranked the consumer’s decision making process. As the table shows, the majority of the consumers (82 percent) ranked quality first. Health safety concerns were ranked second by a majority of consumers (67 percent). Price level, convenience, and transparency in price were ranked third, fourth, and fifth respectively. Although caution is needed in interpreting the results of a survey of this nature, it nevertheless in this case suggests that consumers were becoming quality conscious.

**GENDER CONSIDERATIONS**

The suggested survey formats distinguish the gender of the respondents and allow for disaggregation of the survey results by gender. Table 17, for example, shows a sample of market sales comparing the average daily sales of female to male sellers.
However, this may not provide sufficient detail to enable interventions to be designed in a gender-sensitive manner. The most direct way to reflect gender considerations in marketing is through focus group discussions with women farmers, traders and consumers. The range of issues that might be considered in these discussions is:

- How marketing facilities might be made more convenient for women, which could include the time of day when products are brought to a distant market (i.e. early hours of the morning or late in the evening) which might not be appropriate in terms of safety and social customs.
- How to introduce fair and transparent allocations of space in markets, both in terms of the amount of space and its position in the market.
- How to address a lack of women’s representatives on market management committees.
- How to recognize physical and cultural limitations imposed on women by the available modes of transport.
- How to address a lack of appropriate toilet and drinking water facilities in markets, which may cause more hardship to both women traders and customers.
- How to address the lack of other facilities, such as childcare centres in the markets.
- How to use the opportunity of a marketing programme to raise awareness amongst women market users of public health issues and the role that improved marketing opportunities may have on the spread of HIV/AIDS.

The specific concerns of women necessitate them to be fully involved in the design process from the outset.

OVERALL RESULTS FROM THE SURVEYS

At the end of the survey and analysis process it is necessary to review all the survey results to see if some clear conclusions can be drawn and whether any further surveys may be needed. The survey may have highlighted very different marketing practices between crops, between different types of marketing channels, supply areas and between genders. For example, women may be found to be specialized in a particular crop, because of traditional roles in farming practices or because they have only limited access to appropriate transport facilities.

Synthesizing survey results

The first step in the overall assessment is to prepare a clear tabulated and written statement of the marketing situation. A simplified example for Northwest Bangladesh
is shown in Table 18. The conclusions that can be drawn from examining these data, for Northwest Bangladesh, are as follows:

- The main sales outlets for vegetable trading is for the farmers to sell directly to consumers at local primary markets;
- Vegetable farmers sell to traders at the farm gate or at local collection centres, to wholesalers or their agents (usually from urban markets);
- Fruit producers usually sell their standing crop to traders or their agents or delivered at a road head to a trader’s agent;
- Some fruit and vegetable producers consign their produce to collection agents;
- Some vegetable farmers (and traders), from within and close to the region, bring produce directly to semi-wholesale and retail markets; and
- A limited group of farmers (mainly from inside the Region) still sell directly to consumers.

The producers in the region do not supply the total needs of the local population. Thus, some vegetables and fruits are purchased at Indian wholesale markets by wholesalers or their agents and are despatched to the Northwest Region.

Group interview results

Another way of obtaining a clear picture of the marketing situation is to ask specific questions about proposals as part of the participatory surveys with producer groups or the questionnaire surveys with market functionaries and consumers.

Table 19 summarizes the results obtained from asking a wide spectrum of stakeholders their opinions on proposals for developing a new central market in Palau.

The most commonly mentioned features by the survey participants are indicated with an asterisk (*). The presentation of the survey’s results distinguishes between features that would be expected in most market developments from those that are particular to the local cultural and climatic conditions. For example, the emphasis on “local” production is because of fears that imported produce would flood the market. Air conditioning is mentioned, as the main competitors to the market are the supermarkets, which offer better trading conditions. Some of the ideas conflict or are impractical (both operationally and because of cost) and compromise would need to be made in the final development of a project. Such compromises would need to be discussed with the stakeholders in order that some level of consensus is obtained. This design process is outlined Chapter 4.
### TABLE 19
Summary of group comments and ideas received during surveys

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Normal features</th>
<th>“Palauan features”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall goals</td>
<td>Concentration on local produce*</td>
<td>Only local producers – no access for foreigners</td>
</tr>
<tr>
<td>Management and operations</td>
<td>Operated by national government</td>
<td>“Scheduled” market – restrict other outlets?</td>
</tr>
<tr>
<td></td>
<td>Management board, with 1-2 representative from each state</td>
<td>Open 24 hours a day and 7 days a week</td>
</tr>
<tr>
<td></td>
<td>Introduction of grading/quality control*</td>
<td>No government involvement</td>
</tr>
<tr>
<td></td>
<td>Open 2-3 times per week</td>
<td>Complete government control</td>
</tr>
<tr>
<td></td>
<td>% on price to pay for fuel and utilities *</td>
<td></td>
</tr>
<tr>
<td>Promotions</td>
<td>Link with media to advertise produce</td>
<td>Establish marketing co-operative in each state</td>
</tr>
<tr>
<td></td>
<td>Agricultural information provided</td>
<td>One crop per community or group</td>
</tr>
<tr>
<td>Sales methods and Space allocation</td>
<td>First come, first served</td>
<td>Direct “buy-out” (regardless of quality)*</td>
</tr>
<tr>
<td></td>
<td>No discrimination – no reserve spaces</td>
<td>Uniform prices for commodities*</td>
</tr>
<tr>
<td></td>
<td>Market divided by type of product*</td>
<td>Each state allocated a designated section of market*</td>
</tr>
<tr>
<td></td>
<td>Use of “cashiers” (commission agents)</td>
<td></td>
</tr>
<tr>
<td>Physical layout of the market</td>
<td>Food court*</td>
<td>Gas station – for fisherfolk</td>
</tr>
<tr>
<td></td>
<td>Fish market</td>
<td>Slaughter house for pigs</td>
</tr>
<tr>
<td></td>
<td>Toilets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extension service and training room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Office space and administration</td>
<td></td>
</tr>
<tr>
<td>Facilities within the market</td>
<td>Freezers and ice machines*</td>
<td>Air conditioning</td>
</tr>
<tr>
<td></td>
<td>Sink with hot and cold water*</td>
<td>Market to provide transport - vehicle and/or boat*</td>
</tr>
<tr>
<td></td>
<td>Shelves for products</td>
<td>Food preparation facilities, microwaves, etc.</td>
</tr>
<tr>
<td></td>
<td>Storage facilities* and trash bins</td>
<td></td>
</tr>
</tbody>
</table>
### FOLLOW-UP SURVEY FORMATS

**Form 6.1: Checklist for preparing preliminary market inventory**

For each significant market in the area (i.e. more than 10 farmers or trader’s stalls handling agricultural produce) the following information should be collected:

<table>
<thead>
<tr>
<th>Category</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market identification</td>
<td>Name and exact location of the market (mark location on base map)</td>
</tr>
<tr>
<td>Responsible agencies</td>
<td>Agency or agencies (e.g. local government, private body, co-operative, etc.) responsible for market management</td>
</tr>
<tr>
<td>Frequency of operation</td>
<td>Whether the market opens daily, twice a week, once a week, etc. (record the days mentioned)</td>
</tr>
<tr>
<td>Catchment area of market</td>
<td>Names of the villages served and their total populations</td>
</tr>
<tr>
<td>Catchment area of market</td>
<td>Names of villages or areas sending produce to the market</td>
</tr>
<tr>
<td>Level of trade on peak day</td>
<td>Number of permanent retail stallholders (selling fresh produce)</td>
</tr>
<tr>
<td>Level of trade on peak day</td>
<td>Number of farmers visiting the market to sell produce</td>
</tr>
<tr>
<td>Level of trade on peak day</td>
<td>Number of wholesaler, collector or assemblers purchasing at the market</td>
</tr>
<tr>
<td>Physical facilities</td>
<td>Total area of market (square metres or hectares)</td>
</tr>
<tr>
<td>Physical facilities</td>
<td>Total number of fixed stalls by function (fish, meat, fruit, vegetables, charcoal, firewood, medicinal plants, etc.)</td>
</tr>
<tr>
<td>Physical facilities</td>
<td>List of key facilities (roads and parking, water supply, toilets, refuse disposal, rice mills, extension office, etc.)</td>
</tr>
</tbody>
</table>
Form 6.2: Estimating the throughput of markets and shops

(Note: one form is to be used for each facility and each row in the form is to be used for a single set of observations)

Name of Vendor/Hamlet: ____________________________  Reference code ______________

Building Type: Shop/Supermarket/Market stall ____________________________

Date/time of survey: ______________  Name of surveyor: ____________________________

<table>
<thead>
<tr>
<th>Code</th>
<th>Commodities sold</th>
<th>Farm of origin</th>
<th>Vegetables</th>
<th>Fruits</th>
<th>Root crops</th>
<th>Unit</th>
<th>Weight</th>
<th>Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td></td>
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<tr>
<td>3</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
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<td></td>
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<tr>
<td>6</td>
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<td>7</td>
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<td>8</td>
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<tr>
<td>9</td>
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<tr>
<td>10</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Form 6.3: Mapping of food markets and shops

(Note: each row in the form is to be used for a single set of observations of a single facility)

<table>
<thead>
<tr>
<th>Reference code</th>
<th>Hamlet or Ward Number</th>
<th>Location name</th>
<th>Type of sales area</th>
<th>Commodities sold (record volume sold per day/week if possible)</th>
<th>Area m²</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Fixed shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Super-market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Stall (roofed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Stall (lockable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Open space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>Fruit only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>Vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>Fruit &amp; Vegetables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>Fish only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Poultry only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>Meat only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>Meat &amp; Poultry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>Mixed foods</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15</td>
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<td>18</td>
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<td>19</td>
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<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Map sheet reference no.          Name of surveyor          Survey Sheet Number

Name of Metropolitan area          Date of Survey

Refer-     Reference       Hamlet  Location       Type of sales area | Commodities sold (record volume sold per day/week if possible) | Area m² | Notes
ence  code  or Ward  name | shop | Super- | Stall | Stall | Open | Fruit | Vegetables | Fruit & | Fish | Poultry | Meat | Meat & | Mixed |
Number     |      | market | (roofed) | (lockable) | space | only | only | Vegetables | & Vegetables | only | only | Poultry | only | Poultry | foods |
1          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
2          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
3          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
4          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
5          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
6          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
7          |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
35         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
36         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
37         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
38         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
39         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
40         |      |       |          |           |       |      |      |            |         |      |        |       |        |        |
Form 6.4: Interview survey with marketing functionaries

<table>
<thead>
<tr>
<th>Market functionary’s address/location in the market</th>
</tr>
</thead>
<tbody>
<tr>
<td>(mark location of stall and stall reference number on site plan)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day of the week/date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Name of interviewer</th>
</tr>
</thead>
</table>

1. What type of trade do you undertake and what type of stall do you operate?  
(open, roofed, enclosed/lockable + total area in m2, etc.)

<table>
<thead>
<tr>
<th>Wholesale or retail trade?</th>
</tr>
</thead>
<tbody>
<tr>
<td>m2</td>
</tr>
</tbody>
</table>

2. What types of products do you trade on a typical day?  
(list type, the weight in kg. and average price per kg. or unit)

<table>
<thead>
<tr>
<th>m2</th>
<th>kg.</th>
<th>$/kg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. How does this vary with the seasons?  
(\% decrease or increase in volume/weight of produce)

<table>
<thead>
<tr>
<th>% dry season</th>
<th>% wet season</th>
</tr>
</thead>
</table>

4. Do you come to the market every day and which is the peak day?

<table>
<thead>
<tr>
<th>days per week</th>
<th>peak day</th>
</tr>
</thead>
</table>

5. Did you lease your stall and what is the lease length?

<table>
<thead>
<tr>
<th>which year</th>
<th>no. of years</th>
</tr>
</thead>
</table>

6. How much did you pay to purchase or lease your stall?

| $ |
7. How much do you pay each day/week/month to the market owner?

8. How much do you spend on repairs/other costs per month?

9. Where do your products come from in the wet season?
   (from which villages/district centres and, if possible, approx. %)

10. Where do your products come from in the dry season?
    (from which villages/district centres and, if possible, approx. %)

11. Do you know what the types of persons you purchase from are?
    (if possible obtain a rough percentage)

12. Do you know where most of your customers come from?
    (from which villages/district centres and, if possible, approx. %)

13. Do you have any other types of businesses other than the market?
    (list what they are and where they are located)

14. Do you have use of your own vehicle and, if so, what is it?

<table>
<thead>
<tr>
<th>Security per day/week/month</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning per day/week/month</td>
<td>$</td>
</tr>
<tr>
<td>Other per day/week/month</td>
<td>$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>%</td>
</tr>
<tr>
<td>3</td>
<td>%</td>
</tr>
<tr>
<td>4</td>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Farmer</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transporter</td>
<td>%</td>
</tr>
<tr>
<td>Other trader/middleman</td>
<td>%</td>
</tr>
<tr>
<td>Other market</td>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>%</td>
</tr>
<tr>
<td>3</td>
<td>%</td>
</tr>
</tbody>
</table>
15. Do you own this vehicle or is it hired?

16. What is the total load this vehicle can carry?

17. Do you also use the vehicle for marketing produce? (collecting from farmers or delivering products to customers)

18. Do you market any of your own produce?

19. Are prices paid for produce at market less or more than other main markets? (% less or more)

20. Are sale prices at the market less or more than producing area markets? (% less or more)

21. Do you employ any staff and, if so, how many? (% less or more)

22. Do you have any linkages with other areas or groups? (% less or more)

<table>
<thead>
<tr>
<th>Family linkage</th>
<th>Credit linkage</th>
<th>Other (specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

kg.
Form 6.5: Consumer surveys

Survey Location:
Enumerator's name and date of survey:

1. Interviewee's home village and gender
   - female
   - male

2. What is the size of your family or household?

3. Do you grow any food at home and what proportion is that of the total family eats?
   - Yes
   - No

4. What proportion of your root crops do you buy from various outlets:
   - Market
   - Supermarkets
   - Local shop/other

5. What proportion of your vegetables do you buy from various outlets:
   - Market
   - Supermarkets
   - Local shop/other

6. What proportion of your fruit do you buy from various outlets:
   - Market
   - Supermarkets
   - Local shop/other

7. What proportion of your meat do you buy from various outlets:
   - Market
   - Supermarkets
   - Local shop/other
8. What proportion of your fish do you buy from various outlets

<table>
<thead>
<tr>
<th>Outlet</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarkets</td>
<td></td>
</tr>
<tr>
<td>Local shop/other</td>
<td></td>
</tr>
</tbody>
</table>

9. What type of transport do you normally use when visiting the market?

<table>
<thead>
<tr>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private car</td>
</tr>
<tr>
<td>Taxi</td>
</tr>
<tr>
<td>Public bus</td>
</tr>
</tbody>
</table>

10. Do you park your private car at the market?

<table>
<thead>
<tr>
<th>Parking Option</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private car</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. Do you make other trips when you go to market?

<table>
<thead>
<tr>
<th>Trip Type</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank or credit facility?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education or health?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leisure trips?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food shopping?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-food shopping?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Stress that the survey information is confidential and names and addresses are not revealed)
The final chapter evaluates how rural transport proposals can incorporate marketing issues:

1. It reviews the choice of methods that are conventionally used in evaluating rural transport proposals.
2. It makes recommendations on which of the evaluation methods are most appropriate to take account of the benefits to marketing.
3. It outlines the criteria that might be adopted in selecting roads for improvement.
4. It outlines an alternative approach to quantifying and understanding rural access, including access to markets.

**CHOICE OF EVALUATION METHODS**

Agricultural planners are frequently involved with advising whether road improvements are likely to have an impact on the marketing of produce. In order that their advice can be most effective in promoting market linkages it is useful for them to understand how rural road programmes are evaluated. The three main purposes of road improvements should be to:

- Keep roads open and enable greater travel regularity, punctuality and road safety;
- Reduce the costs of operating vehicles; and
- Prolong road life and postpone the day when major maintenance will be required.

However, many of the benefits from rural road improvements are difficult to quantify and this leads to difficulties in selecting a user-friendly, appropriate, inexpensive and transparent assessment method. The most commonly used methods are (i) sufficiency or adequacy rating, (ii) conventional economic cost-benefit analysis, and (iii) screening and ranking techniques. These methods are outlined below and more details of the techniques are given in documents listed in the Further Reading section at the end of the guide.

**Sufficiency or adequacy ratings**

This is a weighing technique, applicable only for road improvements. It takes account of the structural adequacy of the road construction, safety and service factors, such as alignment, passing distance and ride quality of the surfacing. It does not take any direct attention to the road’s function. Sufficiency rating, is a purely engineering technique, which does not incorporate costs and uses subjective values for the weightings. It is not a technique generally applicable in rural road planning, although it may be used to evaluate alternative technical solutions for surfacing the same length of road.

**Conventional economic cost-benefit analysis**

This method is applied either by quantifying the road user benefits (“consumer surplus” approach) or the increased agricultural output (“producer surplus” approach).
• The producer surplus approach is based on agricultural value-added and requires a great deal of locally collected household-level crop production data and marketing information. This is both expensive to collect and, because the surveys are specialized, tend to marginalize the involvement of local communities. There are also significant problems: firstly, in associating the entire total increase in production solely to road investments; secondly, in double-counting the benefits; and thirdly, in ignoring the other benefits to the community.

• The consumer surplus approach, this method is simpler to apply and concentrates on a road’s impact on generated traffic. As it focuses on transport and user cost savings from lowered vehicle operating costs the technique is not applicable to roads with very low traffic volumes and may exclude broader social benefits, including the direct benefits to the users of the marketing system.

Of the two cost benefit techniques, the consumer surplus approach is likely to be the more useful for assessing rural roads.

Screening and ranking techniques
This method uses a needs-led approach to develop a compound ranking system, concentrating on access factors, rather than the construction of roads. The method assigns points and weights to explicitly include multiple non-economic equity and social criteria and to target local concerns. However, with this technique there are always problems in the interpretation of the criteria used for the weightings. Refinements to the technique can be made by using statistical techniques (e.g. regression analysis) to define the weighting and by incorporating cost-effectiveness criteria, such as least cost per population served. Multi-criteria ranking systems are often the most appropriate technique as they recognize a wider range of socially based road-user benefits than traditional cost-benefit analysis:

• there can be a greater emphasis put on poorer households and recognition that the lack of access to goods and services is one of the fundamental constraints to their development;
• ranking can give more importance to improved transport for all household members, in particular children and women;
• emphasis can be given to the importance that, in the poorest rural areas, the household’s travel pattern is dominated by local trips related to subsistence activities - such as reaching the farm, collecting water and fuelwood, going to primary schools and health clinics, going to rice processing mills and carrying loads to markets;
• stress can be placed on using alternative and simple assessment techniques (such as least-cost planning – by choosing a route which provides the greatest benefit at the least cost); and
• it allows an integrated approach to be taken to local community rural transport, by recognizing that accessibility is taken into account in assessing a wide range of infrastructure and other development activities.

An example of the technique, as applied to rural roads in Flores by the Swiss-financed project “Low Cost Road Construction in Indonesia” is shown in Box 13.

This use of ranking and screening methods has led to the development of decentralized participatory planning approaches, such as “rural accessibility planning”, which is described later in the chapter.

CONCLUSIONS ON EVALUATION METHODS
The generally accepted view is that rural roads with an average daily traffic (ADT) of less than 50 motorized vehicles per day are not suitable for applying standard cost-benefit analysis techniques. Assessments by the World Bank tend to indicate that
increases in vehicle flows and projected agricultural output are often exaggerated (in Thailand, for example, only a third of trips on feeder roads are agriculturally-related). Thus, unless the road density is very low, there is a great deal of evidence to suggest that the extension of rural roads in existing populated areas has little impact on the production and marketing of agricultural products. This argument does not apply in the case of unpopulated and previously inaccessible areas - where the opening-up from a new road can have a major impact. However, the impact of road improvements on increasing the delivery and quality of other services, such as health and education, is highly significant and often underestimated.

Assessment technique choice:
An overall approach to choosing an assessment method is shown in Box 14.

Produce movement surveys:
Some of the survey methods that could be used to provide useful information on the relationship between marketing and transport are given in Form 7.1 (cordon surveys) and Form 7.2 (internal produce movement surveys).
SELECTION CRITERIA FOR ROAD IMPROVEMENTS

The application of road accessibility criteria forms an essential part of the regional planning framework that should be used in the process of selecting markets, as discussed in Chapter 4. If the road network is of a uniform standard then the condition of the access is not a critical factor. However, in most cases this is unlikely and the condition of the road system will need to be considered.

The starting point for ensuring that the market-related roads meet basic design criteria are the road authority’s network strategies and road management plans for the district or region. The road authority should have collected information on the current status of the roads - whether they are passable or impassable at certain times of the year and their maintainable condition. These data are used to determine the construction costs for road improvements. However, where road condition surveys are not available to permit detailed costs to be estimated, average estimates will need to be used (e.g. low, medium or high cost estimates, depending on terrain and surfacing haulage distances). These data may be supplemented with information on level of traffic flows, types of transport modes and on the origin and destination of the traffic using the road. What the road authority should be able to provide is (i) whether the candidate roads for improvement comply with a district or region’s road maintenance and rehabilitation strategies and (ii) the cost of upgrading or maintaining the road link (if this is found necessary).

To select an appropriate level of maintenance, spot improvement, culvert rehabilitation or road upgrading it will be necessary to consider the “level of service” expected from the improved road. Broadly, there are three levels of service used in rural road design:

- Full access – higher travel speeds, lower transport costs and low roughness, all-weather access, with annual average daily traffic (AADT) flow of less than 75 motorized vehicles per day, generally applying to higher levels in the road hierarchy, such as regional feeder roads.
- Partial access – seasonal/temporary access for specialized uses, such as seasonal harvesting activities.
- Basic access – lower travel speeds, higher transport costs and low vehicular traffic flows with AADT less than 25, generally applying to lower/local levels in the road hierarchy.

To achieve “full access” it will be necessary to rehabilitate selected roads up to accessibility level so they are passable all year round in comfort at acceptable average speed broadly equivalent to IRI 7 (International Roughness Index). “Partial access” broadly corresponds with being difficult but passable all year round and “basic access” with being passable all year round except for structures, and the need for drainage or other spot improvements in places. To achieve basic access the roads should offer some level of passability in the dry season but may often be inaccessible or difficult for most vehicles, possibly excluding four-wheel drive vehicles for some periods of time in the wet season.

RURAL ACCESSIBILITY PLANNING

Integrated Rural Accessibility Planning (IRAP) is a local level-planning tool, developed by the International Labour Organisation (ILO), which can be used to supplement the selection and assessment methods described above. It approaches the issue of infrastructure provision through the concept of accessibility. The technique is a simple and easily applied method designed for use at local level to analyse the access of rural villages to basic minimum needs, for example to markets and social services. It does this by assessing the difficulty in accessing these facilities. Data is collected through a participatory planning process that results in the development of local area plans, which priorities investments, and includes cost estimates for both maintenance and construction.
Data gathering is started at a local level workshop that usually takes 1.5 to 2 days. The team goes to the field with prepared base maps showing transport routes and other infrastructure. The maps can be prepared manually or using GIS. The team generally limits its collection of data to information on “accessibility” for each village to the following types of facilities: transport; potable water; health facilities; education facilities; access to employment opportunities; and market facilities. Key informants normally provide data at the commune workshop and these include village chiefs; school principals and teachers; local NGO representatives; local grassroots organization representatives; and women’s groups.

To undertake this type of analysis IRAP has evolved a set of indicators – combining the data collected on each sector into a single figure representing the “accessibility level” to the sectoral service for each village in a commune. By comparing these indicators it is possible for both planners and communities to understand the difference in the level of service provision.

The IRAP tool derives these “accessibility indicators” at local workshops with the villagers. The villagers are asked to estimate the time taken to reach a given facility (or service). The difference in the values for each village being the sum of travel times to these facilities (such as schools or markets) multiplied by the village population. The method can be refined by taking account of the frequency of trips to the facility and by incorporating the maximum acceptable travel time (based on a nationally determined “basic minimum need” standard).

The general form of the accessibility index equation is shown in Box 15. The basic needs or requirements standards usually relate to the population required for supporting the services or facilities. This is customarily expressed as either the population served or it can be defined in per capita terms (“x” number of facilities per person). In some cases, the level of service is defined by the type of settlement in which it is expected to be located (such as a main market in a district centre). Alternatively, as in the equation in Box 16, the standard could be expressed by distance, such as the maximum walking distance to a roadside collection point.

Alternatively, the accessibility data can be presented simply in an unaltered “raw” form to allow direct comparisons between the total number of trips, the total “time lost” or the average time per trip. The most obvious application of the technique is in the planning of rural road networks. The methodology can be used to develop priorities in the selection of roads that would most effectively serve marketing needs and is complementary to and can be used in parallel with economic analysis techniques.

Table 20 shows an example of such an analysis, which is the results of an accessibility survey of rural road improvements in Cambodia A total of 27 different lengths of road were surveyed, involving discussions with the communities through which the road passed and with 139 road users. Accessibility to four types of facilities were assessed and to food markets, for example, this showed an average reduction in the journey time

---

**Box 15**

Calculating an accessibility index

\[
AI = N \left( T - T_m \right) F
\]

Where:  
AI = Accessibility index for particular facility  
N = Number of households in the village  
T = Average travel time (in minutes)  
T_m = Maximum acceptable travel time  
F = Frequency of travel
TABLE 20
Benefits to road users after improvement

<table>
<thead>
<tr>
<th></th>
<th>To food market</th>
<th>To pagoda</th>
<th>To school</th>
<th>To health centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journey time reductions in minutes</td>
<td>-33 minutes</td>
<td>-8.9 minutes</td>
<td>-2.9 minutes</td>
<td>-24.4 minutes</td>
</tr>
<tr>
<td>Journey fare reductions in Riel</td>
<td>-1,100</td>
<td>-127</td>
<td>-180</td>
<td>-643</td>
</tr>
<tr>
<td>Monthly trips made to facility</td>
<td>+4.4</td>
<td>+1.2</td>
<td>+2.5</td>
<td>+1.1</td>
</tr>
</tbody>
</table>


to market of 33 minutes, a reduction in public transport fares and an increased number of 4.4 visits to market per month.
### PRODUCE MOVEMENT SURVEY FORMATS

**Form 7.1: Cordon survey form**

(Note: each row in the form is to be used for a single set of observations i.e. an entry or exit of a vehicle)

<table>
<thead>
<tr>
<th>Day of the week</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of enumerator</td>
<td>In or outbound</td>
</tr>
<tr>
<td>Survey cordon location</td>
<td>Sheet no.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference code</th>
<th>Time of entry or exit</th>
<th>Vehicle type (code)</th>
<th>Vehicle registration number</th>
<th>Origin of vehicle</th>
<th>Vehicle destination</th>
<th>Vehicle Load (tons)</th>
<th>Main commodity on vehicle</th>
<th>How often do you go to the market?</th>
<th>Type of market user</th>
<th>How often do you go to the market?</th>
<th>Buyer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<td>3</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>4</td>
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<td>28</td>
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<td>29</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>30</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification of vehicle types:</th>
<th>Classification of Products:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - motorcycle</td>
<td>1 - Fresh vegetables (beans, tomatoes, etc.)</td>
</tr>
<tr>
<td>2 - power-tiller</td>
<td>2 - Roots, pulses and tubers (ginger)</td>
</tr>
<tr>
<td>3 - tractor-trailer</td>
<td>3 - Onions and garlic</td>
</tr>
<tr>
<td>4 - bicycle</td>
<td>4 - Potato</td>
</tr>
<tr>
<td>5 - bicycle, with side basket</td>
<td>5 - Green, leafy vegetables</td>
</tr>
<tr>
<td>6 - car</td>
<td>6 - Tropical fruit (bananas, papaya, etc.)</td>
</tr>
<tr>
<td>7 - pick-up</td>
<td>7 - Winter fruit (including imports)</td>
</tr>
<tr>
<td>8 - light truck (max 2 tons)</td>
<td>8 - Fresh fish</td>
</tr>
<tr>
<td>9 - medium truck (+/- 6 tons)</td>
<td>9 - Dried and smoked fish</td>
</tr>
<tr>
<td>10 - large truck (+ 10 tons)</td>
<td>10 - Poultry (live)</td>
</tr>
<tr>
<td>11 - bus or mini-bus</td>
<td>11 - Meat (live)</td>
</tr>
<tr>
<td>12 - ox cart or donkey cart</td>
<td>12 - Other household items</td>
</tr>
<tr>
<td>13 - handcart</td>
<td>13 - Construction materials</td>
</tr>
<tr>
<td>14 - pedestrian with basket</td>
<td>14 - Forest products</td>
</tr>
<tr>
<td>15 - pedestrian headload</td>
<td>15 - Firewood and charcoal</td>
</tr>
<tr>
<td>16 - other</td>
<td>16 - Other (define)</td>
</tr>
</tbody>
</table>
Form 7.2: Internal produce movement survey form

Note: each row in the form is to be used for a single set of observations i.e. an entry or exit of a vehicle (representing a single database “record”)

<table>
<thead>
<tr>
<th>Reference code</th>
<th>Time of exit</th>
<th>Vehicle type (code)</th>
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**Date:**

**Name of enumerator:**

**Name of market:**

**Sheet no.:**
Glossary

Arbitrage is a technique in the marketing of produce – storing the crops until a better price can be obtained in the market.

Assembly Markets are larger rural markets where quantities of produce are traded (either by the producers themselves or by traders) and bulked-up for on-transport to other markets.

Basic access is a level of service for roads with low travel speeds and traffic flows, generally applying to local levels in a road hierarchy.

Central places are settlements, such as small towns that provide the population of the surrounding area with goods and services.

Catchment area or sphere of influence is the area surrounding a central place that can be economically provided with services or goods.

Consumers’ surplus is a technique used in economic analysis to quantify the benefits to consumers, such as the lower costs of providing transport because of the road improvement.

Food poverty line is a measure that relates poverty to a basket of food needed for an adult daily intake per person of 2,100 calories.

Geographical information system is a computer based mapping and planning tool, which replaces many manual operations, allowing the user to manipulate complex databases and not just to produce maps.

Growth centres are major regional/provincial towns or cities based around a sustainable natural resources base.

Growth pole theory is a planning principle based on concentration of inter-linked economic activities in a few main centres. Other terms are used to describe this, such as "growth nodes" or "clusters".

Hierarchy of settlement is a descriptive method for relating the overall pattern of rural towns and villages.

Informal sectors are businesses that are not formally registered basis and normally without collateral.

Integrated rural accessibility planning is local level-planning tool developed by ILO that approaches infrastructure provision and management through the concept of accessibility to services.

Marketing (or supply) chains are the processes by which produce is marketed from the supplier to the consumer.

Origin and destination surveys are field surveys that are used to determine where vehicles are coming from and where they are going.

Participatory rural appraisal is a survey method that allows a community to collect and analyse data. The community itself is the owner of the information. The process is sometimes called "participatory learning and action", which puts a greater stress on using the survey process as the basis for follow-up actions.
Participatory mapping is a method of creating community maps through discussion with key informants and villagers.

Peri urban are areas adjacent to urban areas that are not built-up.

Pilot survey is a preliminary survey undertaken to test whether a survey questionnaire has been properly designed.

Population density is the average number of persons per square kilometre or per hectare.

Poverty line is the line below which people are considered to be poor and reflects their food and non-food expenditure needs.

Primary data is information that has to be collected through field surveys to fill data gaps.

Producers’ surplus is a technique used in economic analysis to quantify benefits to a producer - such as the effect of better and lower-cost transport on increased agricultural production.

Primary Markets are small markets where the trade is characterized by direct sales of small quantities of produce by farmers to village traders and retail sales to rural consumers.

Rapid rural appraisal is a survey method where a surveyor visits a community in order to obtain information which is taken away to be analysed. This is very useful method if there is unlikely to be any direct follow-up actions, as it does not raise community expectations.

Secondary data is information that has already been collected and published by others.

Sieve mapping is a planning method that uses “overlays” to allow manual or GIS manipulation and combination of thematic maps.

Social stratification or wealth ranking is a simple technique for dividing up communities into groups with similar incomes levels.

Social assessment is a method that describes the social dimensions of development, combining published data from books and reports, with field research, and data directly obtained with communities.

Stakeholder analysis is a social assessment method that uses interviews and questionnaires to obtain the opinions of the main stakeholders or “actors” in the development process.

Sustainability is the continuation of an activity after capital funding has finished, which is invariably an issue of access to resources for maintenance and operations of a facility, such as a market or road.

Thematic maps are map layers showing different characteristics of an area highlighting particular themes or sectors - such as levels of accessibility to various services, routes needing improvement, etc.

Vehicle operating costs are the total of all the costs associated with the operation of a vehicle, including driver’s wages, depreciation, fuel and vehicle repairs and maintenance.
Further reading

SURVEY AND EVALUATION METHODS
FAO (2001), SEAGA Field Level Handbook. Socio-Economic and Gender Analysis Programme, FAO, Rome, Italy.

MARKETING SYSTEMS
Argenti, O., editor (2000), Food into Cities: selected papers. Agricultural Services Bulletin No. 143, FAO, Rome

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Spitzer, T, and H. Baum (1995), Public Markets and Community Revitalization. Urban Land Institute, Washington D.C., USA

LOCATION THEORY AND RURAL PLANNING

RURAL TRANSPORT