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Market Infrastructure Planning

A guide for decision
makers

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Preface

The development of market infrastructure has had a rather chequered history. Many developments have been too large or have failed to attract users and, consequently, have not been economically, financially or socially viable. Usually, the reason for this failure was that the critical first steps in the development cycle, when the basic strategic and planning decisions should be taken and when the development or "accommodation brief"* should be formulated, were overlooked.

The expansion of existing markets or construction of new ones is a complex process. It requires substantial capital investment. These investment decisions should be based on a review of marketing conditions, an analysis of the demand for facilities and a financial assessment. The users of the new facilities should be involved in the market design from the outset and there should be prior agreement on operating procedures and fee levels. This requires consultation and awareness campaigns targeted to farmers, suppliers, transport operators, traders, market employees and local authorities. If the closure of an old market and opening of a new market is foreseen this has to be carefully coordinated. Existing traders should agree to the changes and to the space-allocation process for the new market. Thought needs to be given to how the market operations will be shifted, in order to minimise any loss in time available for trading.

Many markets have problems of congestion and lack facilities. Although the investment in urban wholesale and retail markets is generally greater and the problems more complex than for rural assembly and retail markets, the basic design principles are similar. All these types of markets are considered in this guide.

** This term is defined in more detail in Chapter 5. To prepare a master plan for market development and, subsequently, to prepare infrastructure designs and budget costs, will require an accommodation brief. Broadly, the brief restates in physical terms the issues influencing the market design process, including policy, social, operational, management and economic factors.*

The intention of the guide is not to duplicate other FAO technical publications on design and management of markets. Rather, it aims to provide, for decision makers and planners, a step-by-step approach through the planning process. It concentrates on the initial formulation and basic design of market infrastructure proposals.

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Contents

Preface	i
CHAPTER 1	
INTRODUCTION	1
Who the Guide is for	1
The Development Process	3
Key Issues	4
Summary of the Market Planning Process	6
Further Reading	7
CHAPTER 2	
UNDERSTANDING THE MARKETING SYSTEM	9
The Main Focus of the Guide	9
Marketing Intermediaries	10
Basic Marketing Channels	10
Objectives of Market Improvements	12
Overview of Marketing Problems to be Addressed	14
CHAPTER 3	
THE POLICY CONTEXT	19
Policy Framework	19
Reviewing the Existing Marketing System	22
Basic Purpose of the Market Development	25
Main Elements or Functions to be Included	26
Available Financial Resources & Expertise	27

CHAPTER 4

MARKET OPERATIONAL ISSUES 29

Market Management and Operating Procedures	29
Operational and Technological Changes	31
The Activities to be Incorporated	31
Institutional Arrangements	32
The Market as a Business	33

CHAPTER 5

**GENERAL FACTORS IN MARKET
PLANNING AND DESIGN 35**

Introduction	35
Food Distribution in the Rural and Urban Planning Context	36
Major Influences on Market Planning	36
The “Accommodation Brief”	38
Design Approach and Options	39
The Site Location and Planning Strategy	41
Utilization of Space in Markets	43
The Market Master Plan	47

CHAPTER 6

**EVALUATION OF MARKET DEVELOPMENT
OPTIONS 53**

Options for Development	53
Appraisal Methods and Tools for Economic and Financial Analysis	54
Which Technique to Use to Evaluate	

a Simple Market	56
Evaluation of Wholesale Markets	57
Estimating Development Costs	59
Social and Environmental Impact of Marketing Projects	61
CHAPTER 7	
FURTHER STEPS IN THE DESIGN PROCESS	65
Programming Requirements	65
Involvement of Market Users - the Participatory Planning Process	66
Surveys for Development	66
Development Preconditions	68
CHAPTER 8	
SUMMARY OF ISSUES	71
General Issues Relating to all Market Types	71
Rural Primary Markets	72
Rural Assembly Markets	72
Urban Wholesale Markets & Food Centres	72
Urban Retail Markets	73
APPENDICES	
A. Preliminary Activity Check List	75
B. Criteria for Screening and Prioritising	79
C. Markets Survey Check List	83
D. Marketing Policy Issues	87
E. Further Reading	89

Text Boxes

1. Stages in the development process	2
2. Basic questions for developing a clear justification for marketing infrastructure interventions	5
3. Organizations that should be involved with marketing policy development	20
4. Actions required to develop marketing policy	22
5. Estimating overall supply, demand and consumption	24
6. Market throughput and traffic volumes	43
7. Common market sales space turnover standards	45
8. Questions to be considered in designing a market master plan	48
9. Assessing the viability of a simple market project	56
10. Initial choice and suitability of wholesale market site	57
11. Typical sources of wholesale market revenues	58
12. Typical cost and revenue components for a market	60
13. Desirable environmental and social impact of a market project	63
14. Surveys for marketing projects	68

Chapter 1

Introduction

The critical stage of the market development process is at the beginning and this is when decision makers and market users should be fully involved. This chapter describes the process:

- *it defines who the guide is meant for;*
- *it explains the overall development process;*
- *it raises the key issues that may need to be taken into account in project design;*
- *it suggests sources for further reading; and*
- *it provides a summary of the whole market planning process.*

A. WHO THE GUIDE IS FOR?

The purpose of this guide is to assist decision-makers to judge whether market infrastructure investments should be made or not and to guide them through the first steps of the design process in initiating a market infrastructure development programme. The potential users of the guide include:

- elected and appointed political and administrative representatives;
- senior government-level officials and administrators of Ministries of Agriculture, Planning, Trade, Commerce and local government;
- senior officials of provincial, district, municipal and local authorities;
- directors and facility managers of existing public corporations and private-sector marketing services, such as wholesale markets; and
- private-sector owners (existing and potential) of markets, packaging houses and transportation facilities.

The Client and User: The decision-making organizations and individuals listed above are effectively the “client” for the development. They are not generally the real “users” of the facilities. However, these users must have an equally important role in the development of an appropriate planning strategy

and the consequent design brief. The participation of traders and farmers in the process is critical. This issue, and the subject of potential conflicts between decision makers in different organizations and the coordination required, are further considered in later chapters.

Scope of the Guide: Although infrastructure is generally defined as constructed buildings and civil works, the guide does not confine itself exclusively to these activities. Often, market development will include: equipping or re-equipping a market; improving transport facilities; institutional restructuring, including reducing or reallocating staff; a system for the management of market facilities and information; providing training to market staff and to farmers' groups; introducing quality control standards; and properly enforcing market regulations.

BOX 1

Stages in the development process

- i) inception - the identification of problems and needs
- ii) surveys and development of the design brief (space and accommodation requirements) with the market users
- iii) outline proposals and pre-feasibility studies to evaluate options, re-design and modify the design brief
- iv) overall scheme design, detailed evaluation and feasibility studies, and decision to proceed with the project
- v) final studies and detailed infrastructure design
- vi) production information (bills of quantities, specifications and contract documents)
- vii) tendering process (selection of tenders, tender, review and appointment)
- viii) implementation - construction of infrastructure and procurement of equipment
- ix) monitoring and feedback, to provide information for future planning

B. THE DEVELOPMENT PROCESS

Any development project goes through a number of distinct stages (see Box 1). This guide broadly covers stages i) to iii), which comprise the critical period from the initial idea of a potential market development through to the preliminary feasibility studies which will be used to determine the direction the project ought to be taking and the decision to proceed to stage iv). Decision makers are not likely to get involved in detailed calculations. They will give the approval to a proposal prepared by technicians. Therefore, decision makers need guidance on the correct preliminary steps. If this process is not followed in a rational sequence then there is a high risk that the development will not be socially or economically viable.

The critical time in the design process is that between the idea for a market development and detailed feasibility studies. This is when the decision makers need to be sufficiently well briefed to be able to:

- suggest that further information is needed on how the food marketing system works;
- stimulate a dialogue with traders, particularly when some or all are likely to be moved to new premises;
- identify the specific requirements of traders and transporters, in terms of the trading space, services, facilities and parking areas they will require;
- think about the cost implications of distributing food from the farm, through an assembly and wholesale market system to the retail level;
- define the expected environmental and social consequences of the new market (traffic, pollution, etc.);
- identify possible ways to involve private associations (existing ones or new ones) in the management and operation of markets; and
- define, in agreement with market users, the expected type of services and the level of fees and charges.

C. KEY ISSUES

The guide defines an overall approach for analysing market development and provides simplified planning procedures to help decision makers to define what they want. It provides a basis for developing a new market to replace an existing market or for rehabilitating an existing one. The key issues that need to be considered in deciding whether to proceed with a market infrastructure investment are:

- what type and size of market facilities are needed and where should they be located?
- what technical, financial and institutional factors need to be considered and what preliminary work is needed (summarised in Appendix A - Check List of Issues) on which to make informed decisions?
- what planning (time) horizon should be used for forecasting?
- who should be involved in the design process (such as market users, farmers and traders)?
- what is needed to brief a team of technical specialists and consultants in preparing surveys and pre-feasibility and feasibility studies and detailed designs for the investment?

This guide attempts to demonstrate the clear linkages between agricultural and urban development policies, market-infrastructure planning, economic viability, market management and the role of the various involved parties. If a market development is to be both successful and profitable it is essential that there should be a clear understanding of the role of the market users (particularly traders). There may also be a need to make appropriate institutional and legal arrangements (the setting up of a market committee is likely to be a precondition). The linkages between market income, operating expenditure, profits and financial viability need to be clearly defined, as well as the relationship of the market improvements to other development programmes. Overall, there is a need to have a clear approach to defining criteria for screening, prioritising and evaluating market improvements. These basic questions are summarised in Box 2.

BOX 2

Basic questions for developing a clear justification for market infrastructure interventions

- Has consideration been given to whether the development is really necessary?
 - is it clear why there is a need for a new market?
 - have alternatives been considered, such as improving existing markets by rehabilitating/expanding?
 - has thought been given to the consequences of a new market on the environment?
 - have the implications for traffic and parking space been considered?
 - is there a consensus on the financial and economic rationale for the project? Is it agreed that it should be run on a profit-making or, at least, on a cost-recovery basis, i.e. be "economically sustainable"?
 - what are the traders', transporters' and consumers' reactions to the proposals?
 - is there a possibility or agreement for increasing market user charges?
For larger markets, such as urban wholesale and retail markets, further factors may need to be considered:
 - has thought been given to all the accompanying measures which may be required to protect the economic interest of those traders to be relocated to a new market site?
 - why should traders want to move to a new market?
 - will services (e.g. banks) also be willing to move to the new market?
 - has an estimate been made of how much more traders will have to pay to distribute food from the new market back into town?
 - has the involvement of traders and transporters in the operation of the market and its management been agreed?
- Finally, are the next steps on how to proceed with the market development clear?

D. SUMMARY OF THE MARKET PLANNING PROCESS DESCRIBED IN THE GUIDE

The approach to planning and developing market infrastructure as described in the guide is as follows :

- understand how the marketing system presently operates, who is involved, what are the channels for produce and what are the pressures for change to the system - *see Chapter 2.*
- understand the policy context and how it will influence the development of market infrastructure - *see Chapter 3.*
- review the existing market management and operating procedures, how these activities will be incorporated in a development and what are the institutional arrangements needed to facilitate the project - *see Chapter 4.*
- examine the general factors in market planning and design, examine alternative solutions, estimate space requirements and prepare a design brief - *see Chapter 5 and Appendix A.*
- prepare an overall master plan of physical requirements- *see Chapter 5.*
- define on-site (and off-site) planning and infrastructure requirements - *see Chapter 5.*
- prepare a budget with capital cost estimates- *see Chapter 6.*
- make an estimate of recurrent costs - *see Chapter 6.*
- make an estimate of revenues, including those from daily licence fees or tolls, annual or monthly rents, and long leases on stalls or income from the sale of sites - *see Chapter 6.*
- based on the cost and revenue information, evaluate the development options, by using prioritising alternatives and by calculating the economic and financial benefits of the development- *see Chapter 6 and Appendix B.*
- undertake an environmental and social impact, including the potential impact on beneficiaries' (producers, traders and special interest groups) income earning opportunities - *see Chapter 6.*

- define development risks and follow-up actions that may be required (e.g. land title availability and detailed survey requirements) - *see Chapter 7.*
- define the requirements for surveys - *see Chapter 7 and Appendix C.*
- examine methods of project implementation and financing, and any preconditions that may need to be met before the development can progress further - *see Chapter 7.*
- summarise the type of issues that will need to be considered for each type of market development - *see Chapter 8.*

E. FURTHER READING

The Guide should be read in conjunction with other FAO publications on wholesale and retail marketing, planning and management (see Appendix E - List of Further Reading on Marketing Infrastructure).

Chapter 2

Understanding the Marketing System

To facilitate marketing development it is essential to understand how the system presently operates and what changes are occurring. This chapter covers the following subjects:

- *the focus of the guide;*
- *those involved in marketing - the intermediaries;*
- *the marketing channels used for trading produce;*
- *the objectives of market infrastructure improvements;*
- *the pressures for change in marketing systems;*
- *an overview of marketing problems to be addressed by infrastructure development; and*
- *a summary of typical marketing problems.*

A. THE MAIN FOCUS OF THE GUIDE

The guide has two main areas of concern, which are:

- ***the rural context*** - which is primarily concerned with the infrastructure needs of PRODUCERS for the assembly and marketing of surplus produce to urban areas and, sometimes, for export; and
- ***the urban context*** - which is concerned with the wholesale and retail distribution of food products to CONSUMERS within an urban area and with further distribution to other urban areas and for export.

An efficient and adequate marketing system is a precondition for agricultural diversification, providing better prices to producers and the availability of competitively priced produce to consumers. Physical improvement is usually addressed in two ways: by providing improved market infrastructure (both urban and rural) and by improving rural access roads. In the case of markets, it is usual to place the main emphasis on the improvement

of fresh produce marketing (fruit, vegetables, meat and fish), focusing primarily on rural assembly markets and urban wholesale or semi-wholesale markets. The relationship between these facilities is discussed below. Many of the principles involved with market developments and discussed in this guide are common to all types of market. However, where there are specific issues relating to particular types of market these are considered separately.

B. MARKETING INTERMEDIARIES

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 linkage between rural and urban areas is normally provided by a network of market intermediaries, including:

- farmers selling directly in the market (more common in rural markets);
- petty traders and assemblers;
- wholesalers (and semi-wholesalers);
- commission agents, sometimes acting as auctioneers, and brokers;
- transporters and transport agents; and
- retailers.

C. MARKETING CHANNELS

Agricultural produce is normally channelled through the following types of market:

- a) Rural Primary Markets:* In rural markets, trade is characterised by direct sales of small quantities of produce by producers to village traders and by sales by retailers to rural consumers. Rural markets form part of a trade network and are normally arranged on a periodic basis on specific weekdays, and are commonly organised at a central place in a village or district centre or beside the village's access road. In some instances, provincial and district-level markets also serve this function, as well as

providing an assembly function (i.e. assembling produce in larger quantities for onward sale to outside buyers).

- b) *Assembly Markets:*** Larger rural markets are found where greater quantities of produce are traded, either by the producers themselves or by traders. These “assembly” markets (often combined with local rural markets), are normally situated on main highways, or near to ferries and other local transport nodes. Produce is predominantly bought by traders or collection agents on their own behalf or on behalf of urban wholesalers.
- c) *Wholesale Markets:*** Terminal wholesale and semi-wholesale markets are located within or near major cities (usually with populations exceeding 0.5 million). These markets may be supplied by purchasing or assembly centres in the rural areas or directly from farms, either by traders or by large farmers. Transactions are predominantly handled by traders although many wholesale markets incorporate “farmers’ markets” where farmers can sell directly to retailers. Some markets also allow traders to sell to retailers “off the back of the truck”.
- d) *Retail Markets:*** These are markets directly serving consumers and are found in main urban areas, such as provincial, town and city centres. Although primarily retail, they may have some semi-wholesale functions, particularly if they allow farmers to trade. 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 specialised produce, such as organically-grown fruits and vegetables.
- e) *Other Marketing Channels:*** Channels other than markets often exist, particularly in the case of horticultural produce. These include on-farm sales, where collectors purchase the produce (usually under contracts between the producers and distributors) and arrange transport to wholesale outlets, packing houses or supermarkets. The extent to which this is done depends primarily on the general state of development of the economy and the demands of consumers.

D. OBJECTIVES OF MARKET INFRASTRUCTURE IMPROVEMENTS

Why go ahead with market infrastructure investments? The reasons could include:

- pressures for change, both within and outside the food marketing system (see below);
- to obtain an increased value for an asset, allowing higher rents and charges to be introduced;
- to use an asset more effectively;
- to achieve reductions in overall costs (of maintenance, wages, services and other costs);
- to allow the adoption of new operating procedures and equipment; and
- to comply with new statutory requirements (such as public health, safety and environmental standards).

Pressures for change in marketing systems

The pressures for change derive from two sources: internal factors from within the food marketing system and external factors.

a) Internal factors: Changes occur due to the changing organizational structure of commerce:

- increasing volumes of produce to be handled;
- alterations to commercial practices and trading patterns, such as the private sector taking over markets from state-operated distribution systems, or the expanding influence of supermarkets;
- the emergence of professional specialised wholesalers.

There may also be changing operational practices within markets, including:

- introduction of fork-lift trucks and other mechanical methods;
- introduction of new grading standards and different packaging methods; and

- changes in user requirements (such as increased space), leading to a need for modernisation and repair.

b) External factors: The main external causes for change are demographic factors, including:

- an overall increase in population of a city as a result of migration and natural growth, overwhelming the existing market capacity and the road system;
- population shifts within cities and moves to the suburbs; and
- changes in the location and nature of workplaces.

Changing transportation patterns will have a significant impact through:

- increased traffic growth and resulting congestion;
- shifts in transport mode (i.e. the proportion of different types of vehicles); and
- changes in the capacity and size of delivery and distribution trucks.

Changes can also be precipitated by new legislation and greater public awareness:

- new town planning controls and zoning regulations;
- new environmental impact and energy conservation controls; and
- increasing consumer-protection laws, including new public health, food quality and safety regulations.

Impact of Changes

These factors all need to be taken into account in identifying the best approach to market development. The formulation of detailed proposals is likely to be done by either in-house technical advisors or outside consultants. However, as discussed in Chapter 1, it will be necessary for involvement of the decision-makers in order that the project can start on the right track. The decision-maker will need to be involved with reviewing all the main factors which will influence the development. Only when this exercise has been completed will it be possible to prepare a basic “accommodation brief” to be used for the detailed design of the project.

The three areas which will need to be reviewed in planning a market investment are:

- preparing a statement on the overall policy for the development;
- undertaking a review of the factors which will influence the operation of the infrastructure; and
- reviewing the planning and design issues, which will affect the physical construction of the market.

In addition to overall sub-sector reforms in terms of deregulation and trade liberalization, radical improvements may need to be made to the management, physical arrangement and layout of a market if there is to be a significant improvement in throughput and operational efficiency. These steps are elaborated in Chapters 3 - 5. This is followed, in Chapter 6, with an outline of appropriate approaches that can be adopted in evaluating the various development options.

Before initiating the process it will be necessary to review what information is presently available. In order to resolve many of these issues some basic surveys may need to be undertaken (see Chapter 7). In that case, it will be necessary to determine how to collect the information, who will be responsible, what should be the timetable for collection and whether additional financial resources will be needed to do it. The Appendices summarise the types of information that will be needed.

E. OVERVIEW OF MARKETING PROBLEMS TO BE ADDRESSED

Assembly and Wholesale Markets

The primary function of all markets is to facilitate the movement of produce between producers and consumers. The assembly and wholesaling of produce often occurs most efficiently within the framework of a developed wholesale market system. This system will also assist in price formation for domestic produce. However, when economies are developing or being liberalised it may take some time for wholesalers to emerge.

Where the marketing system is not organised, with a formal wholesale market, wholesaling premises tend to be scattered throughout cities. This is

neither convenient for producers delivering produce, nor for retailers, although such wholesalers (or semi-wholesalers) do provide a helpful service for small retailers, when they deliver produce directly to them. However, the existence of such a dispersed pattern tends to lead to imperfect market price formation. A similar situation may also emerge when an already established assembly or wholesale market has outgrown its site and additional markets are established or where the urban areas have expanded so rapidly that the central market facilities cannot effectively function.

Although the development of integrated marketing of produce through supermarket chains is emerging in many countries, in the medium-term it is likely that wholesaling will continue to be important. Wholesale markets still account for 50-80 per cent of the overall trade in fresh produce in most developing countries.

Land-ownership constraints often hamper municipal authorities in making long-term strategic development decisions. Difficulties of land acquisition and coordination of the different parties involved tends to lead, particularly at the early planning stages, to the intervention of government institutions and other organizations which have interests in produce marketing. Such organizations often play a decisive role in initiating and planning market projects, as well as financing their site development and infrastructure. They generally have the legal power to establish, operate and regulate markets, to lease space, charge fees and to clean the market area.

In the long term, institutional arrangements for the ownership and management of markets may need to be based on a form which balances the possible role of government with that of traders and other entrepreneurs whose support will be necessary for a market's success. For commercial viability and administrative flexibility, markets should ideally be run as self-accounting and autonomous management organizations. How this can be achieved will depend on the mix between government and private sector participation and ownership. *

* See the forthcoming *FAO Agricultural Services Bulletin " Wholesale Market Management Manual"*.

Ultimately, private markets run by individual traders or market management companies may emerge. However, initially the evolution of the management system may involve developing a system for joint public and private financing, with short-term government majority ownership of shares which can be transferred as private investment interest increases.

Retail Markets

Municipal authorities are also involved with the provision of low-cost retail facilities such as covered markets and street markets. Appropriate organizational structures for managing these are often not very satisfactory, resulting in the markets being poorly maintained. A frequent complaint concerns high rental values for stalls, which may drive the traders out of the market onto the street. Some markets are leased to single entities or franchises, which might lead to a distorted rental structure and may be counter-productive to the long-term development of retail markets.

Establishment of new retail markets and upgrading of existing market areas requires that a positive programme is adopted so that they can be properly integrated with development proposals for cities and towns, including any new wholesale markets. Guidance from municipal authorities is often needed for the planning of such an environmental upgrading programme. Improvements might include the provision of redesigned stalls for vendors, improved water supplies, better street surfacing and drainage, and the provision of facilities for the daily collection of solid waste.

Rural Markets

Similar conditions to those which occur with retail markets apply to rural primary markets, but usually with a lower value and volume of produce and, therefore, with less potential for generating revenues for improving services and infrastructure. The improvement of rural markets is often combined with programmes for general upgrading of post-harvest handling facilities or for access road improvements.

Markets as Taxation Instruments

A common situation at both wholesale and retail levels is that the markets are viewed as tax instruments rather than as means of facilitating the marketing of local produce. This means that the marketing system is “kidnapped” by municipalities, with the sole purpose of collecting taxes.

By imposing a tax which tries to catch everything that goes through the system (in a very rigorous and labour-intensive manner), the market authorities may inflict greater economic losses than the actual revenues collected. The losers are the overall national economy, the rural producers and the urban consumers. There are, ultimately, no real winners.

SUMMARY OF TYPICAL MARKETING PROBLEMS

In summary, the typical problems that affect planning of interventions in the marketing system include:

- *a lack of understanding (and data) on the location and role of major crop producing areas and the extent of internal, export and import trade flows;*
- *difficulties in defining marketing channels, when formal wholesalers hardly exist;*
- *unclear marketing policy and institutional arrangements;*
- *a lack of understanding of the changes occurring in the pattern of food distribution;*
- *crowded conditions in existing markets in which wholesale, retail and transport functions are often combined;*
- *the lack of a planning strategy for new or relocated markets, including land availability; and*
- *the misuse of markets to provide municipal revenues, at the expense of promoting the horticultural and agricultural sectors.*

Chapter 3

The Policy Context

Marketing infrastructure developments must be seen within their policy context in order that their basic purpose and function can be examined rationally. This chapter outlines the initial actions that need to be taken to formulate a workable marketing development project, as follows:

- *identifying the policy framework;*
- *reviewing the existing marketing system;*
- *defining the basic purpose and function of the development;*
- *deciding what are main elements or functions to be included;*
- *reviewing the available financial resources and expertise; and*
- *summarising the main policy and institutional issues.*

A. POLICY FRAMEWORK

The main justification for infrastructure development is to provide a suitable environment for more effective marketing. To understand this process, the marketing development needs to be placed within an overall policy framework. Typical marketing policies, and means to achieve them, that could have an impact on a development project include:

- liberalising of agricultural marketing and removal of price control, thus increasing the type and number of market intermediaries;
- encouraging farmers' groups and cooperatives in producing and marketing higher value crops;
- upgrading rural markets to reduce post-harvest losses and to improve handling;
- improving access to market facilities by:
 - increasing the density of rural markets so that the average distance of farmers to market facilities is reduced;

- facilitating construction of a network of wholesale markets, possibly in collaboration with the private sector;
- encouraging the export of vegetables and fruits;
- establishing an effective market information service to promote trading;
- improving urban nutritional standards by increasing the availability of fresh produce in urban areas;
- enhancing the revenue-earning base of local government; and
- enhancing the capacity of communities and small-scale entrepreneurs to operate and maintain infrastructure.

BOX 3

Organizations that should be involved with marketing policy development

- Ministry of Agriculture (including research & post-harvest bodies)
- Ministry of Trade and Supply and Customs Department *
- Standards Organization
- Environmental Protection and Public Health Bodies *
- Ministry of Urban Planning
- Main Municipalities and District/Provincial Authorities
- Export Councils and Trade Organizations
- Chambers of Commerce *
- Farmers' associations
- Representatives of private-sector trading interests and consumer groups

(those with * are optional depending on circumstances)

A Marketing Forum

Marketing is an interactive process and many of the activities are cross-sectoral. Marketing issues need the coordinated efforts of a wide range of stakeholders, in both the public and private sectors. Attempts to develop specific policies often fail because of a lack of coordination and dialogue. The issue of quality control and standards, for example, is one which may not progress because the interested parties have not been brought together. Therefore, it may be necessary to set-up some form of collaborative body such as a “marketing forum” or working group which can meet on a frequent basis to review ongoing interventions in marketing and to help form and direct government policy. The marketing forum should have as wide a membership as possible and include all the major stakeholders in the sector. Organizations that should be involved are shown in Box 3.

Policy issues that a Marketing Forum could consider might include developing:

- an improvement programme to remove marketing constraints;
- overall policy guidelines for agricultural marketing, in support of an agricultural sector policy;
- mechanisms for the establishment of a sustainable market information service;
- encouragement to potential investors in marketing activities;
- extension, publicity programmes and promotion of marketing activities;
- overall financial and physical monitoring of the market development programme’s performance;
- operational marketing procedures, reflecting the impact of changes occurring in the type of sales method (by direct negotiation, auction or commission sales);
- policies on restricting wholesale trade to a particular market or markets;
- training schemes;

- re-investment programmes for further marketing infrastructure development; and
- mechanisms for coordinating external assistance of donors involved with the planning, financing, construction, management or training aspects of market development.

Developing an Overall Strategy

A possible approach to developing an action plan for marketing development would be to arrange a series of workshops involving the marketing forum proposed above. As a follow-up to the workshop a series of actions would need to be recommended to develop the project (and any related marketing activities) on an effective and sustainable long-term basis, within the context of national agricultural and urban development strategies. The types of actions are shown in Box 4 and are explained in further detail in Appendix D.

B. REVIEWING THE EXISTING MARKETING SYSTEM

Marketing interventions need to be approached in a comprehensive manner. Potential benefits, such as reduced losses and more cost-efficient marketing, will not be achieved through single, uncoordinated actions. As the first step in preparing marketing development proposals, the gaps in the present marketing and distribution systems need to be identified and a study made of the potential instruments for improving marketing efficiency. The functions of the

BOX 4

Actions required to develop marketing policy

- undertake studies on marketing channels, costs and margins;
- define post-harvest problems and appropriate research activities;
- develop a legal framework for marketing activities;
- develop marketing operational regulations;
- identify need for strengthening institutions;
- establish a sustainable market information service; and
- develop local guidelines for planning urban food supply and infrastructure.

private sector need to be thoroughly reviewed, as well as the roles various types of markets play in the agricultural marketing system.

Assessment of Supply, Demand and Consumption

A fundamental step in understanding a marketing system is to know what produce is being traded, where it is coming from and when are the peak times that it will reach the market. For smaller rural and urban retail markets this information may be possible to obtain by undertaking a simple interview survey in the existing markets. However, for larger rural assembly markets and urban wholesale markets a more comprehensive approach will be needed. To do this it is necessary to define the cropping patterns and cropping calendar for the main production areas serving the markets. In reviewing the marketing system it is also necessary to estimate the supply, demand and consumption of produce. The basic principles for making an overall assessment at national, regional or city level are summarised in Box 5. *

Defects in the Market System:

The defects of existing markets should next be defined as clearly as possible. They may include:

Physical problems:

- poor site location and road access. This is often the main issue. It becomes difficult to resolve where there are planned road improvements that would provide access advantages, but have not yet been carried out;
- insufficient sales space, particularly of temporary spaces at peak periods and during peak seasons, leading to produce being sold in the open, with consequent spoilage;
- the presence of poorly designed and constructed sheds, making the marketing process inefficient and inhibiting customer flow;
- a general lack of building and facilities maintenance;
- insufficient circulation space and traffic management measures, leading to vehicular and pedestrian congestion;

* Detailed techniques are given in *FAO Agricultural Services Bulletins 90 and 121*.

- lack of parking provision and areas for unloading;
- poor condition of roads and paving;
- inadequate drainage and severe flooding problems, leading to produce losses and potential health problems;
- inadequate site security and overnight storage facilities; and
- inadequate hygienic provision for meat, poultry and fish handling, including a lack of refrigeration facilities.

BOX 5

Estimating overall supply, demand and consumption

Estimating the supply, demand and consumption of produce is the key step in reviewing the adequacy of the existing facilities and projecting the demand for new facilities. The following steps need to be followed:

1. Define the population served by the market system, including the immediate population (urban or rural) and that of adjacent areas forming part of the catchment zone of the market.
2. Define the annual average population growth of the catchment zone.
3. Estimate the overall supply of produce (usually defined in tons) using a “Food Balance” approach:
 - Total annual production, obtained from agricultural statistics and crop cutting trials;
 - Plus imports and existing stock/storage (where these are relevant, such as with a wholesale market);
 - Less waste and use for other purposes (e.g. seed) and future stock;
 - Less annual exports;
 - Balance available for consumption and processing;
 - Less processing;
 - Balance available for consumption;
 - Estimate for specified years the average per caput consumption of fresh fruit and vegetables (balance available for consumption divided by population - see 1 and 2 above); and
 - Estimate variations in consumption levels in different towns and regions (there is usually variation between urban and rural areas).

Social and managerial problems:

- difficulties in enforcing market bye-laws and regulations;
- an inefficient or uncontrolled use of market sales space with low sales volume per trader and, often, low rents or charges;
- a high, unmet, demand for places in the market, frequently combined with high-profit margins for traders; and
- market management which establishes no clear relationship between revenues and costs, leading to the market being under-funded, especially for repairs and maintenance.

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

C. THE BASIC PURPOSE OF THE MARKET DEVELOPMENT

It would seem self evident that the basic purpose of a project should be clearly defined. This is frequently not the case and the approach adopted is either over-ambitious in what it wants the marketing infrastructure to achieve or has identified the problem properly but not the correct solution. For example, surplus agricultural production is often seen as a marketing “problem” (or even worse as a processing problem) which could be solved by market construction. The solution is likely to be found in making production more responsive to market demand rather than in constructing markets.

The first step in reviewing a project, therefore, is to go back to the policy context in which it will operate. Inevitably, there will be two aspects to this:

- policies directly under the control of an implementing agency which can be modified if it is found that they are not practical; and
- policies which are controlled by external agencies.

With the latter, it will be necessary to ask whether the development’s policies will fit in with those of other bodies, including the private sector. Their priorities, policies and programmes need to be quite clearly understood in order to avoid any conflicts. The “marketing forum” discussed above could play a critical role in resolving these issues.

In both cases it will be necessary to determine what would be the development's relationship to and impact on related projects and development programmes such as:

- agricultural development programmes (e.g. extension and crop production);
- public health improvement programmes;
- environmental damage mitigation programmes;
- neighbourhood and village improvement programmes;
- service upgrading programmes (particularly solid-waste management); and
- rural and urban road improvement programmes, including urban traffic-calming measures.

D. THE MAIN ELEMENTS OR FUNCTIONS TO BE INCLUDED

The main elements or functions to be included in a market project should be self-evident. However, it is very easy to include too much in a programme without realising the consequences of this. It is necessary, therefore, to:

- identify the demand for the project facilities and their relationship to existing infrastructure. This may need special surveys to quantify in broad terms the level of demand (see Chapter 7);
- identify what standards are required to be adopted; and
- identify who the likely participants are and how will they be involved? Thus, the main actors in the market development and their particular requirements will need to be defined. This may necessitate establishing a market committee and (in some cases) entering into agreements on future actions (through memoranda of understanding). These could cover the setting of payment amounts at levels related to the financial commitment of the market's owners or in exchange for the market users taking over greater management responsibilities.

E. AVAILABLE FINANCIAL RESOURCES AND EXPERTISE?

Cost will normally be a major determinant of whether a project is viable, as the improvements will need to be economically sustainable (and profitable). This will necessitate a pre-feasibility study (see Chapter 7). Factors influencing the viability of a market development might include whether there are any:

- defined capital and operating cost limits, such as fixed norms for construction of new buildings or long-term rental agreements with the market's tenants?
- time limits for vacating a site or completing the development?

Another point to consider at this stage is whether appropriate technical resources are already available to undertake such studies. If they are not, the appointment of suitable consultants needs to be considered.

SUMMARY OF POLICY AND INSTITUTIONAL ISSUES

- *is the policy framework for the project clearly defined?*
- *are characteristics of the existing marketing system understood?*
- *is the basic purpose and function of the development agreed on?*
- *are main elements or functions to be included in the development agreed?*
- *are there the necessary financial resources and expertise available to implement the project?*

Chapter 4

Market Operational Issues

Market infrastructure development cannot be isolated from its operational context, which includes:

- *overall market management and operating procedures;*
- *changes in operational methods and technologies;*
- *activities that need to be incorporated;*
- *the institutional arrangements; and*
- *the market as a business operation.*

A. MARKET MANAGEMENT AND OPERATING PROCEDURES

Operational methods that will be used in the markets need to be clearly defined as they will influence both the physical design of the markets and their regulation. In developing an operational method the features that should be considered include: (i) sales methods (such as whether by auction or negotiated sales); (ii) whether only standardised or graded produce will be handled (requiring the use of special crates, packaging and handling equipment); and (iii) the types of licensing and leasing arrangements. The latter will be a major determinant of how the markets operate, as it will effect the use of space and may limit new entrants into the marketing system.

Also critical to understanding market requirements is defining the present and future role of the public and private sectors in market operations and management. Institutional reform might include the establishment of committees or autonomous boards of Directors for the markets. At the national level, coordination may need to be provided for constructing and operating new markets, in a manner that will lead to more effective participation by all the participants. Markets also need to be operated in a consistent manner which reflects government and community concerns. These may include:

- the application of weights and measures;
- a rational application of rental and stall-allocation policies;
- providing means for dispute resolution;
- effective traffic control and management;
- enforcement of environmental, public health, and food safety requirements; and
- introducing mechanisms for meeting recurrent and periodic maintenance requirements.

These issues will need to be covered by a consistent set of Model Regulations, suitable for local conditions. They will also influence the overall design of the project. Proposals to down-size government departments and reduce government interventions will also have a strong influence. It is critical, therefore, to review the future role of existing institutions, as well as that of the private sector. This might require a radical reassessment of functions and a review of what should be left to the government and local authorities and what should be handled by the private sector.

The physical organization of new markets (and restructuring of existing markets) would need to take into consideration all the relevant technical and institutional factors, including:

- the suitability of the market's location (present or proposed) and its future expansion needs (whether it would be possible to easily expand in the future);
- the organization of incoming and outgoing traffic;
- the designation of suitable locations in the markets for the sale of each crop and the designation of a specific time for commencement of the sale, whereby the buyers and sellers can organise more efficiently the use of their time;
- the conditions of licenses and leases issued to the traders, which will determine the characteristics of those transacting in the market; and
- the existence of regulations and laws for standardising the packaging used for a specific variety of fruits and vegetables and prohibiting misrepresentation in the packaging.

B. OPERATIONAL AND TECHNOLOGICAL CHANGES

Markets are not static organizations and the development of a market will be heavily influenced by the type of operational and technological changes that are occurring. These might include:

- changes in quality control methods, including integrated quality control agreements, which monitor each stage in the marketing process from farm to consumer;
- changes in packaging and handling methods; and
- changes in marketing channels, with more direct sales to supermarkets and other food outlets;

Some of the more sophisticated trends being seen in markets in developed countries will in the future also have an impact on market design. These include:

- new ways of marketing produce, such as selling by sample;
- the creation of “virtual” markets based on trading by electronic means;
- the dual use of market space for different functions at different times of the day (often called “hot-seating”); and
- a move towards intelligent or “smart” buildings through the application of information technology to the coordination and control of building functions, such as entry gates which can automatically record a vehicle’s entry.

C. THE ACTIVITIES TO BE INCORPORATED

To develop the design brief it will be necessary to define the specific factors which will govern the layout, relationships and priorities of the market. These might include:

- the number of traders and the size of trading units;
- effective methods for protection of produce from climatic factors, such as rain, wind, and dust. This could be in the form of permanent structures or temporary facilities (such as the “umbrellas” often used in retail markets);

- the type of pedestrian and vehicular traffic delivering and collecting produce (e.g. pickups, trucks, animal carts, buses, motor bikes, cycles)
- specific environmental requirements, such as fresh/clean water and cooling facilities for meat or fish;
- the method of operation and the types of equipment which will be required; and
- the likelihood of change in the future and the type of flexibility required.

The market's activities may need to be supported by the following marketing services and facilities:

- storage units, both cold storage and regular ambient storage, ripening chambers and ice plants;
- grading facilities for specific qualities of produce (although this should preferably be undertaken at farm level);
- facilities for washing (cleaning) of fruits and vegetables;
- facilities for the sale of packaging materials;
- communications facilities (telephones, facsimile, etc.);
- market information service facilities; and
- banking, catering and other facilities for farmers and traders.

D. INSTITUTIONAL ARRANGEMENTS

There are many variations possible for operating wholesale markets. In some countries it is the responsibility of producers' organizations. In the UK many markets are operated by the traders and the systems in France and Spain are based on parastatal and municipal ownership. A number of major markets in the USA are cooperatives and full private ownership also occurs, although this is comparatively rare. In Eastern Europe a common model being considered for the development of wholesale markets involves the use of joint-stock companies. There are a variety of potential investors, such as state agencies, banks, private companies, local government, and producer and processing organizations.

Within this framework, however, there are still many options available on how a market should be managed. Although the overall management could come under a market management company, the ownership of the land and facilities can be separated from the management system. For wholesale markets, for example, individual sections could be under the delegated control of producers' organizations or private companies. Contracting out services or the use of franchise agreements may be appropriate for activities such as site facility management and cleaning.

The basic questions that will need to be asked at the project identification stage are:

- what will be the administrative and management structure?
- is it possible to define numbers of different staff categories?
- are there specific occupational and work requirements?
- what outside services (e.g. cleaning, caterers), or franchises might be used?
- what provision for communications systems is required?

E. THE MARKET AS A BUSINESS

The principal aim of improving both physical infrastructure and management systems at a market is to facilitate trade and, in the case of wholesale markets, to encourage the development of specialised traders to perform true wholesale functions. In the case of retail markets, traders and producers can operate side-by-side. However, in wholesale markets, traders should be either independent commission agents, handling produce exclusively on behalf of producers, or multipurpose wholesalers taking title to produce.

Alternative Management Systems: The impact of arrangements for market management on the market design will need investigation. This will be particularly relevant where there are arrangements which reflect groupings of traders who are physically adjacent to each other (i.e. a "neighbourhood" concept), or there are associations based on common interests, such as groupings of exporters, wholesalers or producers from the same area or marketing group.

Alternative Revenue Collection: Revenues to be collected from the market users should reflect the need to cover recurrent as well as past and future capital expenditure. Some of the revenue collection system will also impact on the physical design. Alternative systems to charging stall rents, such as the use of entry or parking fees, may be attractive as revenue generation methods but could lead to increased congestion (or corruption). Rental collection based on the turnover of commission agent's units may also impose high demands on staff time and cause the need for provision of additional infrastructure such as collection booths.

Financing of Market Improvements: Arrangements for financing market alterations or new developments would need to be worked out in detail. They are likely to include a combination of municipal financing, funding from groups of users (possibly reflecting autonomous entities foreseen under a revised management system), sale of shares, and individual investments by traders and others (such as constructing partitioning, extending canopies and making investments in cold storage).

To allow the private sector to initiate a process of marketing improvements, current regulations governing the management of markets may need to be amended and an alternative management structure put in place, whereby the actual users have direct control over market management. This might be achieved by privatising the market management or by delegating responsibility for market management to one or more appropriate autonomous entities. If it is intended to transfer ownership a municipality should be compensated for the investment that it made in the development of the market, and for any services it continues to provide on a long-term basis.

SUMMARY OF OPERATIONAL ISSUES

- *what will be the market's future management and operating procedure?*
- *are there any operational and technological changes envisaged as a result of the development?*
- *what are the activities to be incorporated in the market?*
- *what are the institutional arrangements for operating the market?*
- *how will the market act as a business enterprise and how will*

Chapter 5

General Factors in Market Planning and Design

Market infrastructure is influenced by many factors, the most fundamental of which is the size and use of selling space and its relationship to traffic circulation and parking. This chapter reviews these issues, which include:

- *factors influencing food distribution in the rural and urban planning context;*
- *major influences on market planning;*
- *the “accommodation brief”, listing all the market development requirements;*
- *design approach and options;*
- *the site location and planning strategy;*
- *utilization of space in markets;*
- *the market master plan; and*
- *summary of design issues to be included in the accommodation brief.*

A. INTRODUCTION

Although the major concern of decision makers is with policy matters rather than operational issues, their involvement in the physical planning process is also essential. The aim of their involvement will be to ensure that the proposals make the best use of space. Rational decisions on market infrastructure can only be made if the decision-maker can ask the right questions. It is the intention of this chapter to guide this decision-making process.

B. FOOD DISTRIBUTION AND RURAL AND URBAN PLANNING

There are four main factors relating to food supply and distribution which may ultimately influence market planning and infrastructure provision:

- increased food crop production, leading to surpluses being available for sale and to a greater demand for marketing facilities in rural areas;
- loss of agricultural land and kitchen gardens through urbanisation, both within and on the edge of urban areas, necessitating supplies from more distant sources;
- pressures caused by traffic growth and related congestion, requiring suitable sites to be found for locating new wholesale and retail markets; and
- changes in consumption habits creating the need for new cold storage facilities and food processing industries.

These economic and social pressures increasingly force local authorities and other bodies to question their attitude to the provision and control of marketing facilities. New policy measures are needed, which will produce new approaches to planning and physical arrangements.

C. MAJOR INFLUENCES ON MARKET PLANNING

Occasional Markets: Markets have always been transit points - the traditional periodic markets or country fairs (including livestock markets) being the most obvious examples. In the case of occasional markets, the sites are only temporarily used. Their most important feature is not that they provide specific infrastructure for marketing, but that they take place on the same day of the week or season, or once a year. These occasional markets are often abandoned over time or relocated to new, more appropriate, locations. As land use becomes increasingly constrained by land-value increases and the introduction of land-use zoning and planning systems, it is necessary to specifically set aside land for market development and to provide specialised infrastructure.

Truck Stops: The development of trucks at the start of the 20th century had a profound effect on the distribution of food and this process is continuing. Developing countries, since the 1960s, have been experiencing a major growth in truck traffic. Often, the trucks have effectively become mobile workplaces, with the owners not really possessing any other business assets. Examples of this are the practice of selling produce from the backs of lorries (common in the Middle East and Eastern Europe) and the practice in the USA of being able to “plug-in” refrigerated lorries when they reach a market rather than the market itself constructing expensive facilities for short-term, cold-storage.

Changing Shopping Patterns - Shopping Malls and Supermarkets: Recent decades have seen an evolution of the shopping centre from the corner and roadside “strip” shops to the mega-malls of the USA and some Western European countries (such as the hypermarkets of France). These facilities often combine one-stop retail shopping with entertainment facilities. In some cases the development of supermarkets may completely replace the traditional neighbourhood shops and retail markets. In parallel will be the decline of the wholesale markets serving the older retail suppliers.

Impact on Location and Market Layout: The dominance of the truck has meant that there has been a tendency to design (and redesign) market structures to provide adequate parking and to facilitate an uninterrupted flow of goods. This has led to a demand for larger sites, resulting in a tendency to decentralise facilities to the outskirts of cities where space is available at a lower cost. With markets, this change of emphasis away from the structure of the buildings (sometimes even to eliminate them), to the flow of produce, has resulted in the development of new design characteristics. The market buildings have tended to become transit sheds, leading to the elimination (or at least minimization) of storage facilities.

The key feature of market design has become the ease of circulation, parking and manoeuvring of vehicles. For example, where the practice is to use larger trucks, the incorporation in the design of loading bays becomes essential. How they are designed (raised or at grade) will depend on how the produce is handled within the market (mechanically or manually).

Poor Marketing Conditions: Poor conditions in markets are common. In smaller rural markets and urban street markets a standard pattern is for there to be both fixed stalls and temporary stalls. Demand for stalls in many markets is high and stall space is often limited, thus the traders spill out on to adjacent streets (sometimes to avoid fee payments). Produce is frequently displayed directly on the ground and exposed to the weather, resulting in high losses. Facilities may be limited, usually with no main market sheds and no provision of water supply or latrines. Such conditions also frequently exist in unimproved wholesale markets.

D. THE ACCOMMODATION BRIEF

The Process: Markets are the physical expression of the marketing system - involving a complex mixture of social, management and economic factors. To prepare a master plan for market development and, subsequently, to prepare infrastructure designs and budget costs, will require an accommodation brief. This should, in principle, flow from the policy and operational reviews discussed in the previous chapters. The brief will simply restate these issues in physical terms. Initially, the preparation of the brief can be comparatively lacking in detail, but it will need to be gradually “firmed-up” during the design process. The types of information that the brief will need to contain are summarised at the end of this chapter. There are five basic steps involved in preparing a brief:

- definition of the problem (from Chapter 3);
- definition of the activities that will need to be included in the market and the equipment requirements (from Chapter 4), including any surveys needed to fill information gaps;
- definition of space requirements for the activities (from this chapter);
- a synthesis of these factors to prepare a preliminary master plan and preliminary budget. There may be one obvious solution or a number of options; and
- after evaluation of the options, revision of the brief so it can form the basis for a final master plan and can be used for the detailed design of buildings and infrastructure (see Chapter 6).

Participation: The participation of market users is critical in all these stages and one process for ensuring that this happens is described in Chapter 7. Those who will be responsible for operating and maintaining the facility should also be included. This will apply whether it is intended to modify an existing market, plan for future expansion needs or develop a brief for relocating a market to a new site. If this consultation is not done resentment is likely to occur and there may be strong resistance to market improvements or to relocating.

Data Collection: Methods of collecting information from the users include group meetings and workshops, watching how individual traders operate and asking them questions, preferably using questionnaires and, in the case of wholesale markets, asking the traders (and market visitors, such as producers and buyers) to keep a diary of their activities. As many of the methods as possible should be used to cross-check the information. It is important to remember that questions asking about market space requirements are likely to lead to inflated demands and that the answers to direct questions on rents and charges are unlikely to be realistic. It is important to have some form of site survey plan available to discuss possible development options.

E. DESIGN APPROACH AND OPTIONS

In preparing a development it is likely that two basic situations will need to be considered:

Facilities at existing sites

In many cases the rehabilitation of existing markets is required. This would be done by:

- the complete or partial replacement of existing facilities (which may create problems of continuing the operation of a market during the demolition and construction works);
- the extension or alteration of the existing facilities (which may allow the continuing operation of the market, but might involve too many design and management compromises); and
- the introduction of an operational technique such as “facilities

management”, which is a system that monitors the use of services to ensure that spaces are utilised as effectively and economically as possible to create an acceptable internal and external environment. This technique may be an alternative to the creation of new facilities or may be implemented in addition to other measures.

Facilities at a new location

If an existing site becomes unsuitable or there is a need to create a completely new facility, this could be done by:

- the construction of new market facilities (at a “green field” site); or
- the conversion and adaptation of existing facilities (for example where an existing central food distribution warehouse or other building is converted into a market).

Providing new market facilities creates a number of design problems. A major consideration will be the potential resistance by traders to change and to moving to a new location. Other issues may also need to be resolved, including: (i) the potential competition between markets and other distribution channels; (ii) the possibility of constructing facilities that are too large; (iii) the type of institutional controls that will be appropriate for the new location; and (iv) the issue of long-term viability of the market related to city and hinterland size. This is particularly relevant with new wholesale markets and in a city with a population of less than half a million a wholesale market is unlikely to be viable.

Planning and Design Alternatives: Usually the basic design approach is not immediately obvious and a project may need to consider several alternatives and to evaluate which one is preferable. The choice between modifying an existing facility or constructing a new one should not be based on expediency or ill-informed decisions. It is necessary to approach the problem by thinking clearly about what the facility has to do in order to offer solutions which would function at the lowest cost and with the simplest form. The development of the options should also take account of possible socio-economic changes and any potential environmental impact (such as pollution and noise impact). Many options are likely to be available and there is

unlikely to be one correct solution. However, in choosing options, care is necessary to ensure that there is no over-design of physical facilities. The facilities will have a limited life span (say 25 years) and will inevitably be subject to frequent change.

F. THE SITE LOCATION AND PLANNING STRATEGY

Site Location

The choice of location of any market is a key decision, particularly for urban wholesale markets. The question of location is closely bound up with that of transport, as markets are essentially only transit stops. Transportation changes and evolving road networks will significantly influence whether it is still viable for a market to remain in its present location or whether a new site should be sought. The types of transport changes which will have an impact are:

- the privatisation of transport facilities (as in former centrally planned economies);
- increased availability of different types of transport, such as animal carts being replaced with small motorised vehicles or trucks replacing small pick-ups;
- changes caused by the relocation of a bus station or by road improvements, such as the construction of a ring road or a new inter-urban road which brings produce from an entirely new direction; and
- a trend for transport facilities to be used as “mobile” markets - including display in the open and with direct selling from the truck’s parking space.

The preferred location for markets is one with good access to a main road system and with compatible adjacent land uses (such as catering and agri-business industries). Urban retail markets must be convenient for customers, preferably within walking distance of lower-income housing areas. These location requirements will need to be balanced against other factors such as the suitability of the site in terms of its cost, present ownership, size, suitability for construction and availability of services. Optimum site locations

will reduce the financial costs of transportation for both sellers and buyers, lowering margins, and ultimately decreasing the costs to consumers. In addition, the reduced costs also have an economic and environmental impact in creating the opportunity for energy savings and for reducing potential air and noise pollution.

Internal Traffic Flows and Congestion

Congestion is often the main factor influencing the need for market improvements. Problems often occur where access is limited to only one operating entry and exit and where the market authority uses the gate to control entry in order to maximise revenues. If the lead-in length of the internal access road is also very short and the parking of vehicles is not rigorously controlled, congestion is inevitable. Altering the road pattern to work on the basis of a one-way system and extending or changing market trading hours may solve the problem, but this will not help if the parking of vehicles inside the market is uncontrolled and there is a lack of traffic management.

Market Lay-out

Market operations are influenced by management methods and by the physical lay-out. They need to achieve:

- an unobstructed traffic circulation pattern and effective parking control with adequate parking facilities being provided;
- maximum possibility for interaction between the market users leading to the possibility of optimum price formation;
- provision and full utilization of support facilities;
- adequate arrangements for display and sale of produce to maintain produce quality; and
- efficient produce handling (such as by pallets and forklifts).

G. UTILIZATION OF SPACE IN MARKETS

The optimum use of space in markets is one of the keys to their success. The fundamental design decision relates to determining the “core” space of the market, i.e. the area in which sales occur. This area includes both the area occupied by the traders and the local circulation area needed to reach these stalls or premises. This area may be totally indoors or may be a combination of covered space (such as a stall), combined with external gangways or access platforms. The available sales space will have a direct relationship on the rents that can be charged and will affect the market’s throughput. In addition to the sales space, allowance also has to be made for ancillary and supporting services, such as administrative offices and banks. This process of calculating space requirements is described below.

BOX 6

Market throughput and traffic volumes

1. Using estimates of consumption, it is possible to obtain an indication (in tons) of the level of existing and future trade:
 - a) Start with the estimated annual total consumption (from Box 4) for target dates in 5, 10, 15, 20 and 25 years
 - b) Subtract produce by-passing the market (i.e. passing through competing markets or other marketing channels).
 - c) The total of these figures is the existing market throughput (if available, check figures against records of arrivals at the market).
 - d) Make adjustments for population growth and changes in marketing patterns for target dates in 5, 10, 15, 20 and 25 years.
 - e) Estimate total future market throughput for target dates (these figures can be adopted as upper limits for future planning purposes).
2. Daily traffic levels for existing incoming traffic may be available from records or alternatively can be estimated by dividing the total wholesale market throughput by the average load per vehicle and number of trading days in a year.

Turnover: Annual turnover (in metric tons per square metre of the total market sales area) is one of the main criteria used in the design of all markets. To be able to apply this parameter, the key issue in the design of a market is to understand its throughput (expressed in tons per day, week, month or year) and to relate this figure to the utilization of space. On the basis of the estimates of supply, demand and consumption (see Box 5) the next step in the design process is to estimate the total produce that is going through the market (see Box 6). The throughput can then be used to estimate total requirements for covered space and the number of parking spaces required for incoming and outgoing vehicles.

Space Use: The theoretical turnover per square metre of covered space is in the range of 20 to 30 tons/square metre covered space for wholesale markets, 15 to 20 tons/square metre for assembly markets and 5 to 10 tons/square metre for rural primary and urban retail markets. These figures need to be used with some caution as they apply only to the areas used for sales and ancillary uses. Space utilization is also influenced by the type of packaging used as this determines the quantity of produce which can be stacked on a given area. The standards take no account of the fact that, with rural markets, sales may occur outside the periphery of the market and that with wholesale markets the majority of the actual display and sales may occur in the parking areas immediately in front of the units, which can reduce the net turnover per square metre by 50-75 percent. Details of typical space standards are illustrated in Box 7.

Calculating Areas: Based on the space standards given in Box 7 the sequence for calculating the area of buildings and the overall site, for both an existing and a new market, is as follows:

1. Divide the projected annual market throughput (in tons) for a number of target years by the sales space standard in tons per square metre/per annum to obtain the **total sales space** requirements (covered and open). Adjust the figure to take account of different floor levels. This sales space figure, less the space used for local pedestrian circulation, is the area on which the stall rent or lease premium costs will be applied (the net

lettable space). This figure will normally equate to units of around 2 - 4 square metres per trader in small retail markets and an average of around 100 square metres per trader in wholesale markets. The sales space projections should be compared to information on the existing or projected number of traders, to ensure that enough accommodation is being provided.

2. The next step is to add the following special uses to the total sales space requirements:
 - administrative office space @ 10 - 15 square metres per office worker (often on more than one floor);
 - cleaners' store plus guardhouse @ say 10 square metres for a small market and 20 - 30 square metres for a larger market;
 - private toilets: 2 square metres @ per 25 market employees (male and female separate);
 - public toilets: 2 square metres @ per 1,000 peak period market users (male and female separate);

BOX 7

Common market sales space turnover standards

Type of market	Annual throughput (tons per m ² /annum)
Rural fruit and vegetable open market	average of 5 tons
Rural fruit and vegetable all-year assembly market	20 - 25 tons
Seasonal assembly market (3 - 4 month peak)	15 - 20 tons
Urban fruit and vegetable open market	5 - 10 tons
Urban fruit and vegetable covered retail market	15 - 20 tons
Combined urban market (fruit, vegetables, fish, meat)	10 - 15 tons
Semi-wholesale fish, poultry, egg or meat market	5 - 15 tons
Semi-wholesale retail grain, potato or onion market	10 - 15 tons
General urban wholesale market	20 - 30 tons

Source: FAO (1991). Wholesale markets: planning and design manual. FAO Agricultural Services Bulletin No. 90 and FAO (1995). Retail markets planning guide. FAO Agricultural Services Bulletin No. 121.

- specialised uses (such as an auction slab, banana ripening rooms and public cold stores); and
 - ancillary space for service users (such as banks, post office, catering facilities and sales outlets for packaging materials).
3. The total of these figures is the **net usable space**. Some of the special uses are likely to be part of the market's public provision, whilst others would be more efficiently provided by the private sector.
 4. An allowance should then be added for the general pedestrian circulation, such as main walkways, of around 10 percent, which produces the **total usable space**.
 5. Normally, a further allowance of 5 percent of the total usable space should be made for the area that the building structure and infill walls will occupy and to take account of any irregularities in the shape of the site (sometimes termed the "fit factor"). With very narrow sites or irregular shapes the use of space will be more inefficient and an additional 10 percent may need to be added. Above this total figure (say 15 - 20 percent) the additional costs that it imposes are likely to result in an inefficient market.
 6. The grand total of these figures will be the **gross market area**. This will normally correspond to the building area (although with smaller retail markets it will also include some of the external public circulation area). For an existing market this figure can be compared to the actual provision to see whether it is adequate and for a new market it can be used to determine the area needed.

Site Size: The overall site area required to accommodate the covered space should be in the ratio of between 1: 4 and 1: 3. This would mean that for every square metre of covered sales space an additional three to four square metres of site would be required. Exceptionally, this factor can be reduced to 1:2.5 if the site area is very limited and increased to 1: 5 if much of the trading is

likely to be undertaken in the open. The overall **site area** in square metres can thus be derived by multiplying the gross market area by a factor of 2.5 to 5 to allow for traffic circulation, parking areas and site landscaping. Decisions on road design, carriageway widths, the size of parking bays and sidewalk widths will be fundamental in creating an economic layout which achieves the turnover standard.

Time Perspective: The projected annual market throughput is for a specific point in time. An issue that is always difficult to deal with is how to choose the right time perspective for the project and how to deal with future expansion needs. The luxury of having a site that will allow for very long-term expansion is rare and in most cases, it is not economic to build all the accommodation at once. A rational approach would be to make the overall projections for the site area based on the expected economic life of the buildings (usually 20-25 years) and then to phase the construction so that buildings are generally fully utilised at all times.

The initial phase may be to construct premises suitable for, say, ten years. The space standard adopted for the sales space should reflect present needs and also make some allowance for future greater efficiency in use. A tight fit is preferable to leaving large areas under-utilised and, consequently, not rented-out. Thus, the allocation of space within a market has to cope with its present status (or, if a new market, with a first phase of development) as well as longer term needs. Initially only part of the market premises may be required. However, if the space occupied is concentrated in one area it may result in congestion. Therefore, the leasing policy should ensure that the fullest use is made of all the developed market area, but not cause short-term congestion nor prevent flexibility in accommodating needs of future tenants.

H. THE MARKET MASTER PLAN:

The next step will be to prepare preliminary master plans for each option that needs to be evaluated. In addition to the plans, the proposed land uses on the site should be tabulated as this will form the basis of the budget estimates and phasing. A check list of the basic questions to be considered in preparing plans is contained in Box 8.

BOX 8**Questions to be considered in designing a market master plan**

- does the accommodation brief and plans developed from it create an attractive and comfortable environment which will allow the market to compete with other marketing outlets?
- does the accommodation brief and plans reflect the perceived needs of the market users?
- has a preliminary estimate been made of the total number of traders and area of sales space required, based on the projected turnover of the market and the likely variation in daily turnover?
- has account been taken of the different uses (i.e. fruit and vegetables, meat, fish, poultry, grains, dairy products, clothing, household goods, etc.)
- has a decision been made, for each different type of user, on the distribution between open and covered spaces, based on an assumed (for new markets) or observed (for existing markets) pattern of use (e.g. 90 percent open spaces in a weekly rural or assembly market, 100 percent under cover in a central urban market)
- is the market appropriate to the income and expenditure habits of the existing and potential users?
- does the plan reflect the market's overall management system and take account of existing facilities?
- are financial constraints under which the plan will have to operate recognised?
- have minimum development standards been applied (e.g. health, safety and environmental standards)?
- does the plan provide a good layout in relation to climate, site geometry, optimum stall size and simple circulation patterns?
- does it provide sufficient space for vehicle parking, including cycles and motorcycles?
- does the plan phase the development to take account of immediate urgent requirements and longer-term needs?
- have the proposals been discussed with traders to ensure their acceptability?

Market Congestion: Congestion within a market and the types of vehicles delivering and collecting produce will have a significant impact on a market's efficiency. Wholesale markets tend to have much higher turnovers in relation to their sales space because of the larger quantities handled per trader and more effective management system of sales space and traffic.

Impact of changing marketing patterns: As alternative marketing channels develop, it is unlikely that practices such as the auctioning of truckloads of low-value produce will continue to be undertaken within a market area. Producers are likely to develop direct links to retailers. The establishment of farmers' markets and the gradual development of supermarket chains will also have a significant impact on produce flow and future retailing patterns. The market master plan should attempt to foresee and accommodate such changes. It is sensible, therefore, to be conservative in making the estimate of sales space needed when there is already a perceived change occurring in the system. However, care should be taken not to provide insufficient parking areas, which could lead to congestion and may itself precipitate a decline in the use of the wholesale or retail market facility.

Desirable Market Characteristics: The main factors which should be taken into account when improving an existing market or designing a new one are as follows:

- adequate space provision is essential, for sales areas, storage, administration, specialised facilities, circulation and, especially, parking;
- ideally, this space provision should allow both for future expansion needs and for adjusting the space utilization of the market to match management requirements to meet changing social and economic circumstances;
- building designs should also allow the maximum amount of flexibility for change;

- for peak periods, and for simple rural and urban retail markets, emphasis should be given to the use of low-cost covering of sales areas, either by using permanent light-weight shade structures or retractable blinds;
- building designs should avoid, as far as possible, different floor/road levels. These prevent the use of both simple handcarts and more sophisticated handling facilities; and
- there are clear advantages for maximising market efficiency and for reducing congestion by the adoption of an organised approach to traffic control and by using controlled parking. This is usually achieved by segregating pedestrian and hand-cart movement from heavy delivery vehicles.

SUMMARY OF DESIGN ISSUES TO BE INCLUDED IN THE ACCOMMODATION BRIEF

The Site

- *what are the main features of the location and of the access to the site(s)?*
- *what are the main features of the site(s), in terms of terrain and the availability of mains service, such as drainage outlets, potable water, telecommunications and electricity?*
- *what planning, environmental and other constraints are likely to affect the project?*
- *are there any specific requirements by statutory authorities for relating buildings to the site, such as sight and building lines, service easements or maximum building heights?*

General Requirements

- *what are the critical dimensions and standards to be used - typically a target turnover per square metre?*
- *are specific groupings of functions envisaged?*

- *what are the basic accommodation requirements?*
 - *office accommodation for market staff - open plan or cellular;*
 - *catering facilities, first aid, banks, post office, telephone booths and other public spaces;*
 - *the overall number of parking spaces; and*
 - *sanitary accommodation and waste disposal method.*
- *are there specific constraints in relation to point-of-site access and internal traffic circulation?*
- *what type and quality of internal (air conditioned/heated) and external (covered/open) environments are envisaged?*
- *are there specific provisions required under legislation, market regulations or the individual stall leases?*

Individual Users' Requirements

- *has the range of floor space per user been defined?*
- *are there any specific requirements, such as space for cool rooms, banana ripening rooms or facilities for special equipment?*
- *are there any specific security requirements, such as lock-up stalls?*
- *are there any specific parking requirements for users or staff?*

Evaluation and Follow-Up Issues (see Chapters 6 and 7)

- *have the different options to be evaluated been formulated?*
- *has a reliable estimate been made of project costs?*
- *has the accommodation brief been revised to reflect the evaluation and any financial constraints?*

Chapter 6

Evaluation of Market Development Options

It is essential that all the market infrastructure options are fully evaluated and that any key social and environmental issues are identified. This chapter reviews the following subjects:

- *the options for development;*
- *possible appraisal methods and tools for economic and financial analysis;*
- *which evaluation techniques to use;*
- *the specialised issues that need to be considered in evaluating wholesale markets;*
- *methods for estimating development costs; and*
- *criteria for assessing the social and environmental impact of marketing projects.*

A. OPTIONS FOR DEVELOPMENT

If the steps outlined in the previous chapters have been followed it is almost inevitable that a range of possible development options will need to be evaluated. These might include:

- selecting the most suitable site for improvement, from a list of potential rural primary or assembly market sites;
- choosing whether to upgrade an existing wholesale market or whether to relocate to a new site;
- evaluating whether traders would be willing to pay increased rents for improved retail markets; or
- deciding whether to make an investment or whether to maintain the marketing system in its existing, unimproved state.

B. APPRAISAL METHODS AND TOOLS FOR ECONOMIC AND FINANCIAL ANALYSIS

Making the most effective use of resources depends on an effective planning and appraisal process. Therefore, the decision-maker needs to appraise the options and select the most appropriate solution. The first point to emphasise is that any evaluation method must include a role for all the concerned parties, in addition to the decision makers and their technical advisors. For this reason evaluation methods need to be systematic, quick, simple and inexpensive to use and comprehensive enough to take account of all the main factors relevant to decision making. It is important that an evaluation method can organise the information in a way that the decision-maker and users can test the financial indicators against their personal experience. Cost per ton or trader, or anticipated rental levels, are the type of simple indicators which can easily be understood. The range of tools conventionally used is:

- payback period;
- financial analysis: net present value, annual equivalent and internal rate of return;
- cost-effectiveness and break-even analysis; and
- screening, decision trees and ranking techniques.

Payback period: this is a technique for simply comparing the number of years which will be necessary to recover the overall development costs, i.e. by comparing the costs to the total annual rents and charges, less estimated operating costs. It is a fairly crude technique, but easily understood

Financial analysis: This is a means of assessing whether the sum of the discounted benefits exceeds the sum of the discounted costs, i.e. whether the revenues will exceed the sum of the investment and recurrent costs. The conventional way of expressing these costs is as a net present value (NPV) and the profitability as an internal rate of return (IRR). A similar technique to the IRR is to express the profitability as a benefit-cost ratio (BCR) This technique is particularly useful where other variables, such as environmental impact, need to be taken into account.

Cost-effectiveness and break-even analysis: At the identification stage it is unlikely that there will be sufficient information to undertake a financial analysis such as that considered above and other techniques will have to be used. A cost-effectiveness analysis is a simpler technique based on using the benefits as outputs (such as tons of produce traded) against the minimum cost of development. A similar method is a break-even analysis, which is a useful technique where there is a clear idea of the returns the project should be making. In this case the idea is to calculate the minimum monetary value per unit traded to justify the project. Other techniques use the equivalent rents as the indicator.

Simpler techniques: In many cases, the types of methods described above will be too complex and a simple screening, decision-tree or ranking method will be more appropriate. An example of this is given in Appendix B.

Marketing Margins: For a financial or cost-effectiveness analysis realistic estimates will also need to be made of the potential impact of the project on marketing efficiency and the possible affordable level of market charges. To do this will require reliable information on marketing costs and margins. For selected crops, at key urban and rural locations, the average marketing costs will need to be computed. Techniques for doing this are given in detail in the FAO publication “A guide to marketing costs and how to calculate them”. The procedure may be more complex in the case of wholesale markets, which if they have a monopoly can charge what they like, regardless of existing margins. This may mean traders adjusting their mark-ups or lead to the departure of inefficient traders and some consolidation.

DEFINITIONS:

Net Present Value (NPV): *The sum of the discounted costs and benefits. The higher the NPV the greater the project benefits.*

Internal Rate of Return (IRR): *The discount rate at which the base year value of costs and benefits are equal (i.e. NPV = 0). If the IRR is higher than planning discount rate then the project is viable.*

Benefit Cost Ratio (BCR): *The ratio between the discounted total benefits and the discounted total costs. If the NPV is zero then the NPV divided by the discounted costs is zero and the BCR is unity (1). If it exceeds unity it is profitable.*

C. WHICH TECHNIQUE TO USE TO EVALUATE SIMPLE MARKETS

The choice of technique to evaluate simple market proposals will depend on two factors: the type of project and the stage of the analysis. In applying any technique two broad considerations are essential. Firstly it must be recognised that the capacity for project formulation is usually limited. Secondly, any simplification that is applied must not ignore the need for the intended beneficiaries to understand the analysis. The most conventional technique is to use discounted costs, but at the identification stage this is not always practical as it needs a substantial level of information.

Identification stage: For most projects (but excluding wholesale market developments) at the identification stage, the most effective technique is to use a simple screening and ranking approach which prioritises the options. An example of this methodology, applied to rural markets and urban retail markets, is given in Appendix B.

Pre-feasibility stage: The pre-feasibility stage, where selected options or a single preferred solution need to be examined in greater detail, can often be undertaken by simply looking at the pay-back period. Such a methodology is shown in Box 9.

BOX 9

Assessing the viability of a simple market project

1. Add together all the expected annual rents, revenues and required profit.
2. Subtract the value of any existing total annual rents and revenues.
3. Subtract any additional annual recurrent costs (e.g. electricity, and water).
4. Multiply the result by 5 to obtain a value for 5 years total net revenues (if the project is less risky and/or a high return is not required multiply by 10 for 10 years revenues, i.e. equivalent to a 10 percent yield).
5. Estimate the total costs of buildings, infrastructure and equipment, plus the existing site value or cost of site acquisition (if applicable).
6. Compare the total net revenues (4) to the budget capital cost estimate (5). If they are roughly equal then the project is viable.
7. If capital cost exceeds the revenues, increase the annual or monthly rents.
8. If this looks to produce rents that traders will not be willing to pay (discuss with them the new rent levels) review the project and reduce capital costs.

However, where the investment in individual market improvements is likely to be high (say, exceeding US\$ 50,000) they should be subjected to a rudimentary financial analysis to ensure that the additional revenues are going to be sufficient to cover the capital costs.

Feasibility stage: Unless the project is very simple (such as a single rural market or small urban retail market) the feasibility stage will always require some form of financial analysis, which is outside the scope of this guide. The essential thing to ensure at the identification and pre-feasibility stages is that the surveys and studies needed to prepare the feasibility stage have been set-up. A simple economic analysis is also useful to test whether the potential economic savings (such as reduced post-harvest losses and reduced vehicle operating costs) are significant.

D. EVALUATION OF WHOLESALE MARKETS

Evaluating wholesale markets requires a slightly different and more detailed approach as it is likely that the level of investment will be quite high and that there will be a need to choose the most cost-effective site location. Thus, after estimates of land requirements for the market have been made, an initial choice of potential sites for the wholesale market needs to be made. This will often be based on studies prepared by technical experts or local consultants. The factors involving the choice of sites are summarised in Box 10.

BOX 10

Initial choice and suitability of wholesale market site

- overall land availability, including whether the site conforms to planning regulations and zoning requirements;
- terrain - the flatter the site the better;
- potential flooding hazards and the level of the water table;
- the site's suitability for construction (geotechnical constraints);
- the presence of mains services at a reasonable cost; and
- any potential environmental pollution mitigation measures or land reclamation requirements.

BOX 11	
Sources of wholesale market revenues	
Description	Unit
Rental of Space (including service charge):	
Individual Wholesaler Units:	
• Fruit and vegetable units	m ²
• Dry goods units	m ²
• Flower sales	m ²
Semi-Wholesaler Stalls:	
• Fruit and vegetable units	per stall or m ²
• Dry goods units	per stall or m ²
Restaurants m ²	
Independent Commission Agent's Offices	m ²
Bank Rental m ²	
Wholesale Parking Area:	
• car parking space (0.1 to <0.5 t)	per day per space
• pick-up/small truck parking space (>0.5 to <3 t)	per day per space
• medium and large truck parking space (>3 t)	per day per space
Farmers' Market Parking/Selling Spaces:	
• farmers' car selling space (0.1 to <0.5 t)	per day per space
• farmers' pick-up/small truckselling space (>0.5 to <3 t)	per day per space
• farmers' medium and large truck parking space (>3 t)	per day per space
• buyers' parking space	hourly per space
Miscellaneous services:	
• rental of fork lift trucks	daily rental
• rental of palletizers	daily rental
• rental of pallets	daily rental
• rental of hand trolleys	daily rental
• rental of scales	daily rental

From this preliminary review a short-list of suitable sites can be drawn up and considered in more detail by the technical advisors and by consultants. The methodology used for detailed site selection might be as follows:

- an evaluation should be made of technical and physical planning criteria (land availability, existence of mining and other reserves, service regulations, environmental conditions, road and rail access, scale of earthworks, and availability of water supply, sewage, stormwater drainage, gas supply, heating, electricity and telecommunications). The evaluation could be based on comparing development costs or, where information is limited, a weighted ranking method;
- an initial economic assessment should be made of land values of each of the potential sites and the relative costs of service provision in comparison with likely market rental values;
- an assessment should then be made of the institutional factors that could influence the choice of site, including:
 - the immediate population served;
 - potential local authority budgetary contributions; and
 - the proportion of the land in public ownership.
- finally, a preliminary financial analysis should be made of the entire project for the most likely locations. This will require that development costs are prepared in some detail and that at least an initial assessment is made of the potential sources and level of revenues. Typical examples are shown in Box 11.

E. ESTIMATING DEVELOPMENT COSTS

The financial evaluation of any project will depend on the flow of development costs and revenues. These are broadly of two categories: (i) the initial investment costs and (ii) recurrent costs and revenues over the market's useful life. A summary of typical cost components is shown in Box 12.

The conventional way of estimating costs is to use representative "historical" cost (or more correctly "price") data for each of the major components or elements. The costs need to be carefully identified as they can be significantly affected by the methods of project procurement, i.e. whether it is by a conventional, turn-key or force-account contract.

BOX 12**Typical cost and revenue components for a market****Investment costs**

- pre-development costs, including site survey, planning fees, official permit fees and financing costs for banks and other lending institutions;
- site purchase costs, including legal fees and taxes;
- demolition and site preparation;
- construction costs, including:
 - infrastructure costs, such as roads and services;
 - environmental impact mitigation measures;
 - building costs, including structure, building cladding, internal finishes and infill walls;
 - refitting or rehabilitation costs for existing buildings;
 - the cost of labour, tools, equipment, materials and the establishment of workers' camps (for direct or "force" account contracts where employment or labour-based technology is to be used);
- disruption costs for relocating the market users during construction and loss of market income from vacated stalls;
- fitting-out costs, including equipment, machinery and mechanical services, such as environmental controls, fire safety, security and sanitation; and
- design and supervision costs (for planning consultants, architects and engineers).

Recurrent costs and revenues

- potential fees, rents, premiums and sale value or other incomes from the market;
- the cost of staff and employees;
- running and maintenance costs, including management fees;
- the opportunity cost of alternative investments which could be financed from the same resources; and
- potential asset value (which might be the value of the market's goodwill, improved site value or just its residual value), expressed as an annual equivalent revenue.

At the initial identification and pre-feasibility stages it is usual to make budget estimates using a square metre basis or some other simplified measure (such as cost per stall). At the detailed design stage, particularly with any project of a complex nature, such as a major wholesale market, the costs for each element should be built-up from rates reflecting the actual materials which it is intended to use in constructing the project.

Often the costs which will significantly influence the viability of a project are the site purchase and staffing costs. The fitting-out costs may also be a significant cost element, particularly for wholesale markets. Some of these costs can be transferred to the market tenants, such as the construction of infill partitioning and the provision of specialised equipment such as cool stores. This is only possible where the tenants have been fully involved in the design process and where long leases are going to be made available. Since the cost of design is a small proportion of the total investment cost, the value-for-money return on ensuring good and economic design is substantial.

F. SOCIAL AND ENVIRONMENTAL IMPACT OF MARKETING PROJECTS

Even when no significant environmental problems are foreseen, a review of the environmental and social impact for each of the project sites needs to be undertaken. At the identification and pre-feasibility stages this usually only needs to be a general screening or examination, which can be followed-up and more thoroughly assessed at the feasibility study stage. Common environmental and social impact issues of a marketing project are shown in Box 13 and include:

- land acquisition and resettlement impact;
- air, groundwater, soil pollution, noise pollution and effluent disposal;
- handling, storage and transport of hazardous materials;
- potential asbestos, dust and fibre pollution issues;
- solid-waste management;
- occupational health and safety implications;
- energy conservation;

- natural environment, heritage and landscape impact implications; and
- emergency, security and safety plans.

Lending agencies and donors, such as the World Bank, designate wholesale markets (and sometimes other categories of markets) as Category "A" projects (in accordance with World Bank Operational Directive 4.01). This means that environmental impact mitigation measures will need to be incorporated into the project design and that these will need to be fully considered at the time of project appraisal (usually corresponding to the feasibility stage). In addition, local environmental laws often require that a formal environmental impact assessment be made, as well as providing formal documentation demonstrating that there are no unresolved planning issues, i.e. a change-of-use certificate should be available (if applicable) and proof be provided that there is no conflict with a local structure plan or land-use zoning plan. In some cases a formal management plan may also be required.

SUMMARY OF EVALUATION ISSUES

- *clearly set out the design alternatives;*
- *estimate the development costs - investment and recurrent;*
- *choose an evaluation technique, from among: payback period, financial analysis, cost-effectiveness, break-even analysis, screening, decision tree and ranking techniques;*
- *for identification of rural markets and urban retail markets, use a simple ranking method to evaluate alternatives;*
- *for a pre-feasibility study of rural markets and urban retail markets, use a payback period or a simple financial analysis to test the selected alternatives;*
- *with wholesale markets, apply a more rigorous evaluation methodology; and*
- *evaluate the proposals in terms of their social and environmental impact and if any significant negative effects are discovered build into the project design appropriate mitigation measures.*

BOX 13

Desirable environmental and social impact of a market project

Component	Environmental impact	Socio-economic impact
Land	No loss of natural habitat	Limited land acquisition
	No land-use conflicts	No land ownership conflicts
	General amenity gain	Limited loss of existing property
Labour	No additional soil pollution	
	None	Benefits local construction industry Use of local labour not requiring additional accommodation
Health	Improved hydrological and drainage conditions	Improvement to sanitation system
	Reduced health hazards	
	Public health benefits	
	Reduction in disease transmission	
	Reduced water contamination	
Waste collection	No impact on water table	
	No hazardous waste Limited construction waste	Improved solid-waste No additional disposal quantities
Construction	Use of renewable resources	Use of local materials
Energy	Marginal resource depletion	Marginal increase in market operating costs
Air pollution	Marginal change	None
Noise	Marginal change	None
Heritage	Conservation gain	Parallel socio-economic gain

Chapter 7

Further Steps in the Design Process

Before proceeding further, the next steps should be clearly identified - including how beneficiaries should be involved, what surveys may be required and whether there are any preconditions. This chapter describes the following:

- *programming and follow-up requirements;*
- *the involvement of market users - the participatory planning process;*
- *surveys required for development; and*
- *preconditions for development.*

A. PROGRAMMING REQUIREMENTS

To implement the project a number of follow-up actions might need to be undertaken. These could include the following:

- formulate an overall long-term strategy for market infrastructure improvements;
- review the present management system and market regulations and develop, as appropriate, an alternative system with beneficiary participation, including private sector interests, cooperatives and franchising operations;
- appoint consultants to prepare feasibility studies;
- establish baseline targets for market improvements;
- review and amend the implementation of the tax collection system by municipalities;
- review and identify legal changes that will be required;
- define the need for different types of surveys;

- review traffic management and parking systems and physical planning strategies; and
- prepare architectural and engineering proposals, including detailed cost estimates.

B. INVOLVEMENT OF MARKET USERS - THE PARTICIPATORY PLANNING PROCESS

It is essential to organise the operation of markets so that the way they operate is agreed by all the stakeholders. To achieve this, user participation in the formulation process, from identification through to design and implementation, is essential. By this means, it will be possible to ensure that the method of management, the operational procedures, the charging system, the rental and other revenue structures and the market regulations are acceptable to all parties. To achieve this participation, a number of approaches will be needed:

- an initial meeting with traders' and farmers' groups (if they exist) to explain the purpose of the project;
- in-depth discussions with representative users to develop the design and accommodation brief;
- a public forum to discuss the brief and to present the development alternatives;
- meetings to discuss the evaluation process and to agree on viable levels for rents and charges; and
- final discussions before detailed design to agree on the selected option. It is preferable if this can be formally recorded through a memorandum of understanding.

C. SURVEYS FOR DEVELOPMENT

All market design, other than the improvement of very simple rural and urban retail markets, depends on a quantification of existing and future produce flows. This information usually needs to be collected through surveys. Surveys are also required because often the precise role of existing produce markets is often not known.

With a project that intends to improve roads and markets, for example, a judgement also needs to be made on how different components will interact. Investment in local markets may be superfluous if the simultaneous improvement of access and feeder roads either encourages farmers to market more produce at the farm gate or to deliver more produce directly to urban markets.

Although more information may be available on existing trade at urban wholesale markets, because of records of vehicle entries, this may not give a very complete picture of the activities of the individual traders nor of the market's impact on the overall transport system. This is also likely to apply to urban retail markets, particularly their role in serving the local community. For these reasons, it is essential that flows in the existing marketing systems are better understood and, therefore, systematic market surveys may need to be undertaken. Initially, the design may be based on rather crude estimates but, as the process evolves, more refined information will be required.

Before starting a survey it is essential to define its basic purpose, and identify who will be responsible for undertaking it (which might require the involvement of specialist contractors and universities) and how it will be paid for. It will also be necessary to define when it will be undertaken (a major purpose of market surveys is to identify the impact of peak production periods) and whether any special consents are required from market users, adjoining owners or traffic authorities.

Often, only limited resources are available to implement market improvements and it is not practical to prepare designs for each individual market. In these cases, it is often better to concentrate the surveys on deriving information suitable for designing standardised "models" based on surveys of a representative sample of markets. The participation of market users would need to be included as an integral part of the survey process. Background planning data that will need to be assembled and the broad scope of the information required for project formulation is shown in Box 14. Appendix C contains detailed survey check-lists.

BOX 14

Surveys for marketing projects**Identification stage**

- production, consumption and food balance data;
- existing market channels - throughput and role;
- agri-processing and storage facility data;
- auto-consumption data;
- animal feed and seed requirements, losses, etc.;
- details of existing traders - type and scale of operation; and
- details of any relevant studies on horticulture and/or marketing.

Pre-feasibility stage

- legal and financial data relating to market institutions;
- site engineering, physical planning and unit cost data;
- estimates of likely revenues; and
- costs of services for existing and future market sites.

D. DEVELOPMENT PRECONDITIONS

There are a number of factors which always need to be resolved before taking a development any further than has been discussed so far. These could include:

- **Legal framework:** a legal framework for marketing activities may need to be established, together with the introduction of new market regulations. As this process can often take longer than the actual market construction it needs to be initiated as rapidly as possible;
- **Organizational issues:** agreements may need to be made on the type of organizational change and responsibilities, including confirming the legal status and structure (composition of board of directors, management/auditing system) of any existing company or institution;

- **Investors:** the level of participation of potential stakeholders (such as municipalities, transport companies, traders, banks, other private companies, and individual investors) may need to be defined. This may require confirmation that these potential investors are being actively identified through individual meetings and/or publication in local newspapers and would become shareholders by contributing equity in cash or in kind;
- **Planning consent:** when the market is to be constructed on a new site it may be necessary to confirm that a change of use certificate is available or that a structure plan amendment decree has been issued;
- **Land title and value:** new market sites may require land acquisition if the site is not presently in the ownership of the implementing agency. With new urban markets it is normal for the implementing agency not to own the site. This may necessitate either lengthy negotiations or the use of compulsory purchase powers. It may be necessary to obtain both a formal valuation and an official land-allocation decree (including cadastre plans) to ensure that the site is unencumbered (e.g. there are no claims from private individuals with former ownership or usage rights).
- **In-kind contributions:** with rural markets, the market users are sometimes required to donate the land as their contribution to the project. In that case, a Memorandum of Understanding would need to be drawn-up between the implementing agency, the beneficiaries and the local community;
- **Traffic and road system:** often, one of the main justifications for the choice of a selected site is that it is able to accommodate the substantially increased traffic flows caused by market development. However, confirmation will need to be obtained from the authorities (usually the Ministry of Transport) that the design and location is acceptable. Particular attention will be required in relation to junction location and spacing on national highways, and to the design of approach roads.

- ***Social and environmental impact assessments:*** it may be necessary to commission, from an accredited consultant, an environmental assessment of the market site, as required under local environmental laws. This may also be required to satisfy the concerns of other government departments, a donor or a lending agency.
- ***Social and environmental mitigation measures:*** if the social and environmental impact assessment identifies specific impacts, there may be a need to include civil works or other mitigation measures to overcome the impact. These may need to be defined as preconditions and agreed with an environmental agency.

Chapter 8

Summary of Issues

This chapter summarises the main issues raised in the guide as they apply to the different types of market infrastructure.

A. GENERAL ISSUES RELATING TO ALL MARKET TYPES

- are there existing marketing problems which suggest the need for a new or improved market? If not, what evidence is there that the development is required?
- should the project rebuild an existing market(s) or relocate to another site?
- have the market users been fully consulted in formulating the project?
- what is the ideal location for the market and how will the market relate to the whole system of markets?
- what factors should be considered in site selection and site planning?
- what are the main design (planning and infrastructure) issues?
- what are the management and institutional factors that should be considered?
- how should the project involve the market users in the improvement programme?
- what basic information is needed for deciding on whether to proceed?
- what is the market's existing throughput and what could be the market's future throughput?
- how large should the market be and what facilities should the market contain (such as type and size of stalls)?
- what are the next steps to consider before proceeding with detailed studies?

B. RURAL PRIMARY MARKETS

- will the market operate daily, weekly or seasonally?
- will it be possible to recover all or part of the costs?
- how should the project deal with special needs, such as livestock and dry goods sales?

C. RURAL ASSEMBLY MARKETS

- are the marketing channels for the assembly of produce understood?
- will the market only trade seasonally and what will the facilities be used for in the off-season?
- is trading from trucks likely to be the most usual practice and how will this influence the design?

D. URBAN WHOLESALE MARKETS AND FOOD CENTRES

- are there pressures for private ownership of markets?
- could this result in a loss of monopoly and potential competition between markets?
- what are the implications for rentals?
- in the development of the food distribution system is there the possibility of developments which will reduce the importance of a wholesale market?
- has the role of the urban planner in facilitating market development, both through land allocation and in stimulating economic development, been fully exploited in market-location decision making?
- with regard to urban planning, have issues of urban agriculture and hobby gardens been addressed which may reduce the need to further import produce from outside the urban area?
- is there a need to take account of the needs and regulations of other local government departments, such as the public health department?

- has the need for rights-of-way easements for pedestrians, drainage courses and electricity supply been considered?
- is a clean water supply available?
- are there difficulties because the proposed site is remote, with problems of access for staff, availability of public transport and loss of casual employment opportunities (particularly for female labour)?
- has the design made optimum use of land, minimising the amount of land that needs to be used consistent with efficient market operations?
- is the introduction of an efficient handling system constrained by lack of space?
- is there competition for land from other land uses, leading to a conflict of an ideal market location with site value?
- with small wholesale markets, are there difficulties in mixing semi-wholesaling and retailing with wholesale functions?
- have traffic issues and environmental impact, particularly the handling and treatment of solid waste, been fully considered and are there any specific impact mitigation measures required?

E. URBAN RETAIL MARKETS

- does the new project fully meet neighbourhood food needs, particularly for low income areas?
- have retail markets been considered as amenities within planned residential developments?
- is there competition with supermarkets and has this been considered in the project design, by reducing the scale of the market or by providing special facilities which enable the market to compete more effectively?
- is there a nearby bus stop or other form of public transport for the market users and has allowance been made for new access facilities?
- is there adequate provision for delivery trucks and for off-street parking?

APPENDICES

A. Preliminary Activity Check List

This appendix provides a check list of the basic information and issues that will need to be considered in formulating a market infrastructure development project. Subsequent detailed costing, project feasibility studies, final design, preparation of bills of quantities and other tender documents, and final construction are not considered here.

1. INITIAL BACKGROUND INFORMATION

- has a basic list of markets been drawn-up and their locations mapped?
- have official statistics on agricultural production and urban consumption and background information on marketing been collected?
- have arrangements been made to undertake preliminary surveys of existing markets?

2. FACTORS TO BE CONSIDERED IN IDENTIFYING THE PROJECT AND DEVELOPING A DESIGN BRIEF

The Policy Context

- has the basic purpose and function of the project been defined?
- how does this fit in with other policies?
- what are the priorities in event of conflict with other policies?
- what is its relationship to and impact on related projects?
- what are the main operational elements or functions to be included in the project?
- what is the demand for the project and its relationship to existing facilities?

- who are the likely stakeholders and how will they be involved in the planning stage?
- what are the available financial resources and expertise?
- are there any defined capital and operating cost limits and are there any time limits for expenditure?
- what building standards are required to be adopted?

Marketing Operational Factors

- what are the activities to be incorporated in the project?
- what specific factors govern the layout, relationships and priorities of the project?
- are there specific occupational and work requirements?
- are there specific environmental requirements?
- what will be the method of operation and what types of equipment will be required?
- is there any likelihood of change in the future and what flexibility is required?
- what will be the administrative and management structure?
- is it possible to define details of staff categories?
- what outside services (e.g. cleaning, caterers) or franchises might be used?
- what communications systems are required?

General Factors in Market Master Plan Preparation and Design

- what are the main features of the site's location?
- what are the characteristics of the site(s) and what planning and other constraints are likely to effect the project?
- what type and quality of internal and external environments are envisaged (heated or cooled, landscaped, etc.)?
- are there critical dimensions and/or areas - (such as a target turnover

per square metre) or other specific requirements?

- are specific groupings of functions in the market envisaged?
- what are the basic accommodation requirements, such as the number and size of traders' units?
- has the traffic (pedestrian and vehicular) system been clearly defined?
- are specific provisions under construction and environmental legislation required?

3. FORMULATING THE MARKET PROJECT

Analysing Market Conditions

- has the information on existing throughput and the market channels been correctly analysed?
- have projections been made of future market throughput?
- have estimates been made of sales space requirements and site area?
- have ancillary needs and services been defined?
- are the targets and priorities for the development defined?
- has the management structure been defined
- are the staff training needs defined?

Designing the Project

- has an overall master plan of the market site been prepared?
- are there preliminary designs for individual buildings and infrastructure components?
- have specialised equipment needs been defined?

Evaluating the Project

- has an assessment been made of the potential benefits of the project in meeting its objectives?
- have capital and recurrent budgets and cash flow forecasts been prepared?

- have the development options been evaluated and ranked so a clear solution is identified?
- have the financial and economic returns been calculated for the preferred option? (pre-feasibility study)
- has the preliminary master plan been adjusted to conform with evaluation results and finance available?
- have the legal, environmental and social impacts of the project been evaluated?
- have the mode of implementation, sources of finance and follow-up actions been defined?

B. Criteria for Screening and Prioritising Market Improvements

Among rural and urban retail markets there may be a large number of potential candidates for improvement. At the identification stage it will be necessary to prioritise these so that a realistic improvement programme can be drawn-up. The factors used in the selection criteria and the prioritisation process can be given equal weighting, can be ranked (so that a particular factor which is of importance to the development programme can be emphasised) or can be used in a sequential manner to provide a decision tree.

SELECTION CRITERIA

The most important criteria for selection of markets for improvement are likely to be whether:

- the markets are presently in an unimproved state;
- they have a special function, such as an assembly market (used by producers) or are serving a large rural or urban catchment area. Rural primary markets and urban street markets that have solely a local retail function may not be either financially or economically viable;
- they trade in fresh produce (with the majority of permanent and visiting traders selling fresh fruits, vegetables, fish or meat);
- the sites are on land already owned by local government, a market body or authority, or the local community;
- they can be subject to a formal agreement where the developments would be implemented through market committees established with the agreement of the traders;
- there is a willingness on the part of the market traders to improve the efficiency of the present market operations and to accept higher fee or rental charges as a condition of improvements being made;

- assurances have been obtained that adequate financial revenues from the improved markets could be generated to cover all operational and maintenance costs and provide funds for further market improvements; and
- the private sector is willing to take responsibility for improving individual sheds and stalls, and the project limits its activities to investment in the upgrading of "common" basic infrastructure, such as:
 - site preparation, fencing, parking areas, internal road works and main covered sheds and open sales areas;
 - a simple surface/stormwater drainage system, sanitary accommodation and a water supply; and
 - garbage collection points, collection carts and shade tree planting.

RANKING OF MARKET PROPOSALS

Generally, market improvements are only likely to be viable if the levels of investment are relatively modest. The incremental benefits of undertaking the market improvements should provide sufficient revenues to cover all operating costs, including putting aside a fund for future market expansion. Revenues are often unlikely to be sufficient to cover repayment of capital and interest – even assuming a long repayment period and a grace period before repayment. The returns are very sensitive to the daily charges. Thus, after meeting the selection criteria outlined above, the short-list of proposals should be evaluated and ranked according to:

- whether they make a significant contribution (in terms of volume turnover) to the trading of fresh produce;
- their importance in the overall market system, with priority given to unimproved major markets;
- whether it is possible to use an improved existing market site. A new market site should only need to be considered if it is necessary to replace an existing congested site or if there is an urgent need for expansion because of population growth; and

- whether they comply with the local development planning policy framework:
 - the improvements can be linked to other related programmes, such as parallel marketing initiatives, the rehabilitation of rural roads or small-scale civil works (drainage and flood control works, culverts and bridges, in areas adjacent to marketing access roads) that would allow the market to function more effectively;
 - the local community is willing to make an undertaking to maintain the facility once it has been improved;
 - the selected markets are compatible with areas targeted under a needs-based policy (such as high density areas deficient in services) or a sustainable livelihood approach;
 - there is a correspondence with existing lending, donor and NGO programmes;
 - there is a lack of alternative funding sources; and
 - there is the possibility that a programme of works could be packaged together to form viable construction contracts for a series of market improvements.

C. Market Survey Check Lists

The following appendix provides a check list of the type of preliminary surveys and studies needed for identification and pre-feasibility studies for design of a market development project. Depending on its availability the information can be derived from desktop studies (such as published statistics and maps, other studies, planning reports and policy statements) or from preliminary surveys. As surveys are costly and time consuming, it is important to only collect the information needed and to avoid undertaking too early the type of detailed surveys which will be needed for a full feasibility study. *

1. BASIC PLANNING INFORMATION

The information required would normally include the following:

- What are the existing wholesale and retail market channels for fresh produce and other foodstuffs? Where are the products sold (in wholesale and retail markets, supermarkets, through institutional buyers or through direct sales to consumers) and what is the estimated throughput and role of these different channels?
- Background details on existing traders, their type, location and scale of operation.
- Estimated existing and projected throughput of the new market facilities. For simple markets this can be based on a survey of just the overall quantities of produce traded. For assembly and wholesale markets a more comprehensive food balance approach is needed:
 - the quantity of production in a sub-region or town, including what is produced at home or in hobby gardens;
 - the quantity of horticultural and other food supplies into a sub-

* *Details of survey methodologies and examples of questionnaires are provided in the FAO Agricultural Services Bulletins No. 90 (Wholesale markets: planning and design manual, Chapter 11, 1991) and No. 121 (Retail markets planning guide, Chapter 3, and Annexes A and B, 1995).*

- region or town - from elsewhere in the country and from abroad;
- products not marketed because of post-harvest losses; supplies to agri-processing facilities; what goes into temporary storage; what is used for animal feed and seed requirements; and what is directly consumed by the consumer;
- the existing and projected consumption of food products in the sub-region or town, including that coming from the consumers' own sources; and
- what would be the share of trade that is likely to go through the new market, in the short and long term.
- Legal and financial data relating to the local authority's marketing department, a market authority or private company.
- Details of any relevant background studies on horticulture and/or marketing, including existing and planned wholesale and retail trade developments.

2. PHYSICAL CHARACTERISTICS

Although detailed design will not be undertaken until the feasibility stage some data on the physical characteristics of the market site will be needed to prepare an outline master plan. The scope of the information required, which would usually be derived from desk and on-site studies, would normally include the following:

- market-site location map (and/or aerial photography) and a calculation of its extent;
- details of local planning factors, including the compatibility of the market with surrounding land uses;
- a broad description of topography and soil conditions, including flood and other hazard risks;
- details of the existing (and any proposed) traffic movement patterns, such as the number of vehicles and the proportion of different types of vehicles;

- details of any rights-of-way, drainage and pipeline easements and other legal restrictions on site use;
- the presence of mains infrastructure (power, drainage, water supply, sewerage and solid-waste collection);
- the existence and condition of existing buildings and equipment; and
- information on any special physical requirements.

3. DETAILED INFORMATION FOR FORMULATING WHOLESALE MARKET PROJECTS

With wholesale market projects a more rigorous approach is required in order to make a realistic evaluation. This necessitates further preliminary design work to be undertaken so that a reasonably comprehensive cost estimate and financial analysis can be made. For the purposes of the financial analysis a detailed investigation will need to be undertaken, and this should include all of the main uses* in the existing wholesale market site and any proposals for the future facility. The following information will be required:

- a summary of the general characteristics of each of the main uses (i.e. working hours and throughput);
- estimates of present and likely revenues from renting space and from other income sources, such as the hire of equipment and parking charges;
- the overall area of buildings, the number of traders, size of trading space and the type of facilities provided, including equipment, both existing and proposed;
- the numbers and salaries of management personnel and the services that are provided;
- the capital cost for the future site development and the construction of buildings, sub-divided into infrastructure, buildings and equipment;

* Such as: administration buildings; fruit and vegetable retailing or wholesaling; fruit and vegetable producers retailing or wholesaling; potato retailing or wholesaling; flower and plant retailing or wholesaling; meat retailing or wholesaling; dairy, fish and poultry retailing or wholesaling; dry goods retailing or wholesaling; customs and bonded goods; and ancillary uses.

- the recurrent cost of services and utilities; and
- information on the site value and the level of land taxes and other legal charges.

D. Marketing Policy Issues

The following appendix outlines a number of policy issues which may have a direct or indirect influence on the design of a market development project.

1. DEFINING POST-HARVEST RESEARCH ACTIVITIES

High levels of post-harvest losses of crops, both in the field and during storage and marketing, is often a priority problem. Post-harvest research organizations usually emphasise food technology and post-harvest management (processing, preservation, handling, storage, marketing, loss reduction and harvest maturity) of farm products and by-products, but such activities are not always strongly linked to the needs of the sector. A marketing infrastructure programme may seek to influence the direction of such research in order to address specific post-harvest issues, particularly:

- the requirements for new extension training programmes;
- improved on-farm processing and storage;
- improved packaging, handling and transportation methods; and
- improved operational procedures at pack-house and market level.

2. QUALITY STANDARDS AND PACKAGING METHODS

In many countries produce may either be loaded loose in trucks or packed in unsuitable cartons. Market improvements may include the promotion of an improved packaging system. This needs to be approached with some caution as it can result in an inefficient use of transport, either with return loads of empty non-nesting crates or with the traders having to double-handle the produce to put the produce in their own crates.

3. LEGAL FRAMEWORK FOR MARKETING ACTIVITIES

Interventions possible in a marketing system are largely determined by the regulatory framework for marketing. Frequently, under legislation,

municipalities are given the mandate to establish and manage both retail and wholesale markets, sometimes with the mandatory requirement that all fresh produce sold in urban areas should pass through the wholesale market system. However, the legal context for marketing activities may also be lacking and this could prevent the development of the required infrastructure. This may have a direct impact on the market design if new institutional arrangements are to be assumed as the basis for operating the market. In that case, a special decree for the regulation of markets might become a precondition to implementing the project, requiring the general scope of a new or revised Marketing Law to be defined.

E. List of Further Reading on Marketing Infrastructure

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financing be arranged?

