AGRICULTURAL MANAGEMENT,
MARKETING AND FINANCE
OCCASIONAL PAPER

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Urban food supply and distribution in developing countries and countries in transition

A guide for planners

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A guide for planners

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2008

ISBN 978-92-5-106096-4

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Introduction

Developing countries, while heterogeneous in many respects, are all characterized by densely populated cities, rapidly expanding urban populations and urban poverty.

Urbanization often occurs in an unplanned and unregulated way: the city expands rwhere there is space, where it is easier, often in the absence of any infrastructure and services, giving rise to “fragmented” areas and ever larger slums.

Such uncontrolled urbanization impairs the efficiency of food supply and distribution systems (FSDSs). The demand for food in the cities is growing and requires quantities of food that rural and periurban areas may not be able to supply. Moreover, existing market, storage and transport infrastructure is less and less able to cope with the growing quantities of foodstuffs. And so the informal sector expands to provide low-income families with their only means of livelihood.

In such a context, planners may not only be asked to produce a town-planning scheme for the city or a plan for a market, but, more importantly, they are expected to know about food supply and distribution systems, how to make them as efficient and dynamic as possible by mobilizing the resources and using the various instruments available to them.

While only too well aware of the complexity and variety of contexts in developing countries, the authors of this guide describe the principal activities of FSDSs and suggests planning criteria for managing the physical and spatial dimensions of the city in order to improve the quantity, quality, variety and safety of food, and to help low-income urban populations to access it.

The first chapter defines the role of planners. The second and third chapters give guidelines for intervention in rural, metropolitan, urban and local settings, with examples and data taken from various cities in developing countries. The fourth chapter deals with monitoring and evaluation indicators for the different kinds of intervention.

The aim of this guide is not to provide prescriptive rules, but rather general guidelines that planners can adapt to the local situation and translate into concrete action.

Some of the topics dealt with in “Food for the Cities. Food Supply and Distribution Policies to Reduce Urban Food Insecurity. A Briefing Guide for Mayors, City Executives and Urban Planners in Developing Countries and Countries in Transition”, by Olivio Argenti, and “Studying Food Supply and Distribution Systems to Cities in Developing Countries and Countries in Transition", by Maurizio Aragrande and Olivio Argenti, both of which are recommended reading, are discussed in greater depth in this guide. The above documents can be found in FAO’s electronic collection “Food into Cities” and downloaded free of charge from: www.fao.org/ag/sada.htm

Readers interested in market planning may also find the following publications useful:

- Tracey-White, J. 1991. *Wholesale markets. Planning and design manual*, FAO Agricultural Services Bulletin No. 90. Rome.
- Tracey-White, J. 1995. *Retail markets planning guide*, FAO Agricultural Services Bulletin No. 121. Rome.
- Tracey-White, J. 1999. *Market infrastructure planning. A guide for decision-makers*, FAO Agricultural Services Bulletin No. 141. Rome.

Chapter 1
Food supply and distribution: new issues in land-use and urban planning

1.1 What are "Food Supply and Distribution Systems" (FSDSs)?

Food Supply and Distribution Systems (FSDSs) are complex combinations of activities, functions and relations (production, handling, storage, transport, processing, packaging, wholesaling, retailing, etc.) that enable cities to meet their food requirements.

These activities are performed by different economic agents: food producers, assemblers, importers, transporters, wholesalers, retailers, processors, shopkeepers, street vendors, providers of services (such as credit, storage, porterage, information and extension), packaging suppliers, public institutions, (e.g. city and local governments, public food marketing boards, ministries of agriculture, ministries of transport) and private associations (e.g. traders, transporters, shopkeepers and consumers). They all need infrastructure, facilities, services and laws as well as formal and informal regulations to govern their decisions.

An FSDS comprises[1]:

- a sub-system for supplying food to cities, which consists of infrastructure and activities linked to production, assembly, selection, processing, storage and transport up to an urban (consumption) center;
- an urban food distribution sub-system, which consists of formal, informal, traditional and modern activities and infrastructure involved in food distribution within cities (intra-urban transport, wholesale and retail markets, which may be specialized, planned or spontaneous markets; shops of various kinds, supermarkets, hypermarkets, shopping centres; restaurants, snack bars and street vendors).

The geographical areas covered by an FSDS may be:

a) **regional**, comprising the principal areas on which the city relies for supplies of food and water;
b) **metropolitan**, comprising periurban areas used for food production (crops, livestock and aquaculture), wholesale markets, slaughterhouses, city markets, etc.;
c) **urban**, including areas used for urban agriculture, major retail food markets, hypermarkets, shopping centres, etc.;[2]
d) **local**, including all the food sales outlets serving the inhabitants of a specific neighbourhood (permanent and itinerant neighbourhood markets, food shops and

[1] See Aragrande and Argenti (1999).
[2] Some cities do not have metropolitan areas but a densely populated urban area and a lower density periurban area. Metropolises, in contrast, consist of an urban centre with medium-to-high residential density surrounded by an area of medium/high residential density and a periurban area that is not built up.

supermarkets), street-food vendors and informal trade in general, both permanent and itinerant.

1.2 Efficient and dynamic FSDSs: the goal of planners

Planners are responsible for orienting urban policies, programmes and decisions towards more efficient food supply and distribution (FSD) infrastructure and activities in order to reduce food insecurity among low-income dwellers.

Planners should ensure that their goals are in keeping with the priorities of central and local government paying careful attention to the short-, medium- and long-term aims.

In order to carry out their duties satisfactorily planners should:

1) Understand the structure, dynamics and performance of FSDSs in their own cities; be informed about the cultural, ethnic, social, geographic and regulatory aspects; and identify their impact on public health and the environment.
2) Answer the following questions:
   - Is the supply sub-system able to satisfy the urban demand for food now and ten years from now?
   - Does the urban distribution sub-system allow for expansion of the urban and metropolitan area?
   - What constraints and opportunities do they expect to encounter in improving the efficiency of FSDSs, particularly regarding the urban areas where poor families live?

When identifying and then choosing what sort of action to take, planners should always ask themselves:

- Is intervention necessary?
- Who are the direct beneficiaries and do they agree with the planned action?
- Who stands to lose and who stands to gain?
- How much will it cost, what will the returns be and who will pay for it?
- How long will it take to implement?
- Who will be in charge of maintenance and management?

1.3 Planning overview

Activity	Phase 1	Phase 2	Phase 3	Phase 4
Analysis of FSDS[3]	Define what you need to know. Choose a team of people to work with. Gather existing data and documentation.	Analyse the information and data. Identify the aspects that need to be examined in greater detail.	Identify problems and priority needs. Seek the opinions of consumers, shopkeepers, traders, transporters, producers, local authorities, NGOs, etc.	Draw up synthesis, conclusions and recommendations.
Design of the intervention programme	Define: • goals and the target population; • the action to be taken immediately (one to six months), in the short term (six months to three years), in the medium term (three to six years) and in the long term (over six years); • the options and alternatives for each intervention; • the financial, social and environmental costs of the planned interventions; • sustinable interventions.	Identify: • the human resources needed and their skills and duties; • the required financial resources. Define: • the terms, interest and conditions governing private investment; • the resulting public interventions. Identify additional technical aspects.	Define: • standards and regulations; • monitoring indicators; • evaluation indicators.	Draw up a schedule for each intervention.
Programme implementation[4]	Carry out each component of the programme.	Monitor the work in progress. Carry out any necessary fine tuning.	Evaluate the impact of the programme with respect of its established goals. Identify the benefits and possible negative consequences.	Define a follow-up or maintenance programme of the intervention.

[3] See Aragrande and Argenti (1999), Chapter 2.
[4] See Aragrande and Argenti (1999), Chapter 3.

Data collection methods

Instruments for gathering information:

- *Direct observation* is useful in gathering readily observable quantitative and qualitative information in a given setting, involves a certain amount of organization but modest expenditure.
- *Interview or informal conversation with the various stakeholders* (local authorities, traders, directors of organizations, religious leaders, heads of families, etc.) to gather information about how the market should be organized, people's views on training and the economic and human resources available. Conversations may be unstructured (relying on spontaneous questions rather than pre-determined ones) or structured (with the aid of questionnaires and given to selected individuals or groups of people), depending on the situation and the willingness of interviewees to cooperate.
- *Document review* of official statistics, studies, publications, articles, project reports, seminars and workshops.

Identifying problems and evaluating the data. An essential part of defining the needs of the various actors consists of asking them to identify the problems they experience and suggest possible solutions. Regular meetings may be scheduled throughout the information-gathering and decision-making phase so that synthesis of the collected data can be carried out and a programme drawn up in keeping with the established priorities. Assessment of the data is moreover a decisive stage in verifying whether there is enough information to understand the whole FSDS.

Variety and flexibility should be encouraged. The diversity of social groups, economic activities and urban settings in cities precludes the adoption of a standard methodology.

The characteristics of a strategy

Inter-institutional, clearly idetifying the role of central versus local government institutions, public versus private organisations.

Inter-disciplinary, FSDSs have a complex nature covering social, economic, cultural and environmental aspects.

Enabling, to help people become more self-reliant.

Participatory.

Sensitive to gender issues.

Chapter 2
The role of the planner in supplying cities with food

2.1 Regional level

Food supply at the regional level includes:

- rural food production;[5]
- assembling, handling and packaging facilities;
- processing;
- storage;
- transport.

The role of planners in this context must be to create the conditions for adequate quantities of food to be produced and brought to cities at the lowest cost and under the most hygienic conditions possible. Planners must also encourage investment to satisfy the growing urban demand for food while minimizing the environmental impact.

To achieve this the following will be necessary:

- *assembly markets* (including provision for the preparation and packaging of produce) to foster a concentration of supply and avoid the collection of small quantities from producers scattered across the region;
- *warehouses for storage* to extend the availability of seasonal produce and to reduce the amount of goods that are lost to spoilage;
- *adequate transport, infrastructure and transport services* (roads, ports, railways and canals), to cut down transport times and costs and reduce damage to produce in transit;
- *an efficient communications system linking urban and rural areas* to facilitate the exchange of market information and to improve the supply/demand ratio;
- *adequate sanitation and hygiene in the various facilities.*

Production losses in Asia

In many Asian cities annual production losses vary between 10% and 30%. In India, for example, 40% of fruit and vegetables and 10% of the grain harvest is lost each year. Lack of efficient infrastructure for the transport and storage of foodstuffs are the main causes of this situation.

Nor should it be forgotten that the urban demand for food will have increased considerably by 2010. Marked increases in the volume of produce to be transported from rural to urban zones will be experienced in Shanghai (China) - 350,000 tonnes, Mumbai (India) - 312,000 tonnes, and Beijing (China) 302,700 tonnes.

Source: Yasmeen, 2002.

[5] The terms rural and periurban food production refer to all the activities necessary for the production of food (whether vegetable or animal in origin, including aquaculture).

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Food production (crops, livestock and aquaculture)	• The status of cultivated land (private property, public property, rented, tribally-owned, jointly-owned by associations, etc.). • How easy it is for low-income groups to access the land (formally or informally). • Structure and organization of food production units including any cooperatives or associations. • Quantities and types of production in relation to current food needs. • Areas available for new crops (to be identified on maps) and expected increases in current yields. • Availability and/or limitations of water, land, human, financial and technological resources. • Buying and selling methods used by wholesalers and producers of food. • Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations, etc.).	• Disposal of organic waste and its improper reuse in food production. • Proximity of production areas to areas designated (or illegally used) for waste disposal. • Lack of safe water. • Improper use of chemicals (fertilizers, herbicides and fungicides) in agricultural production. • Improper use of chemical products during the storage, cleaning and preparation of foodstuffs. • Poor hygiene in assembly markets and in storage centres.
Assembly, selection and cleaning of produce	• Existing rural assembly markets (to be identified on maps). • Types of operators involved and their information, sensitization, technology and credit needs. • The hygiene measures and conditions under which produce is selected and cleaned. • Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations, etc.).	
Packaging, storage and processing	• Existing facilities and areas (size, location, suitability, public/private). • Methods of packaging produce. • Different storage methods required by different types and categories of produce. • Need for cold storage. • Technology, infrastructure and services used for the processing of food at industrial level or by small-scale enterprises. • Types of operators involved. • Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations, etc.).	
Rural-urban transport	• Types of packaging and transport techniques. • Connecting infrastructure. • Transport times and costs. • Forms of transport used and their condition. • Need for refrigerated transport. • Loss of produce (quantity and causes). • Types of operators involved. • Public and private organizations and institutions responsible for intervention.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Increasing food production	
• Distinguish between areas already used for food production and those where production couldbe undertaken. • Reorganize the land tenure system (where possible). • Ensure adequate infrastructure to provide water. • Set up private channels for the distribution of seeds and other necessary inputs (fertilizers and chemical products).	• Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Carry out an economic, financial and technological feasibility study of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Setting up assembly markets and areas for the selection and cleaning of produce	
• Define the number and location of the assembly markets to be set up. • Identify potential sites, taking into consideration ease of access. • Identify and critically assess the regulations to be respected. • Define the size and characteristics of each market. • Allocate areas for unloading, cleaning, preparation, sales, packaging and transport activities. • Assess availability of market and credit information.	• Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Carry out an economic, financial and technological feasibility study of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 3: Boosting packaging, storage and processing activities	
• Prepare pre-feasibility studies to promote, in suitable areas, small-scale and industrial facilities for the production of the various types of packaging required. • Prepare pre-feasibility studies to promote, in suitable areas, storage warehouses for the various types of foodstuffs. • Prepare pre-feasibility studies to promote small-scale and industrial facilities for food processing. • Draw up a technical, organizational, management and financial support programme.	• Inform private investors of the investment opportunities on the basis of the pre-feasibility studies.
Intervention 4: Improving rural-urban transport	
• Distinguish between existing infrastructure and services and those to be created. • Draw up a plan to renovate and upgrade the existing infrastructure (road, rail and water); to be preceded by an economic pre-feasibility study. • Draw up a plan to create any new infrastructure (rail, road or water); to be preceded by an economic pre-feasibility study.	• Discuss plans with the institutions and organizations concerned and finalize plans. • Define institutional responsibilities for carrying out and managing the work.

Assembly markets

An assembly market is a place where farmers go to sell their produce to the traders, who will then take it to a wholesale market. It is much more efficient for traders to purchase from farmers at one or two places rather than visit each farmer individually. In fact, where roads are poor many farmers cannot be visited by truck. Assembly markets can take many different forms: in some cases they may be small areas where farmers and traders gather for a couple of hours on a regular or irregular basis, in others they may be weekly markets. Normally assembly markets are in rural areas but permanent assembly markets can often be found in small towns close to farming districts. In this case, such markets also function as local wholesale markets and perhaps also as local retail markets *(Shepherd, 2000)*.

The success of any assembly market depends on being able to:

- identify, understand and support the existing business relations, both formal and informal, between farmers and urban traders;
- promote awareness among producers and sellers by providing information on the potential benefits of an assembly market to their business;
- obtain the agreement of users;
- evaluate the costs and benefits of the intervention;
- select the site in agreement with the users;
- improve the roads connecting production areas and urban markets to the assembly market;
- let the sellers be responsible for providing their own stalls;
- ensure that the assembly markets are part of an overall plan.

2.2 Metropolitan level

Food supply at the metropolitan level principally concerns:

- periurban food production;
- assembly, handling and packaging facilities;[6]
- food processing and slaughterhouses;
- transport.

There is no specific definition of a metropolitan area. For the purposes of this guide metropolitan area is taken to mean:

1. an area defined as metropolitan in the plans of some cities; or
2. in cities where there is no metropolitan area as such, it is applied to all those areas that are partly built up and partly used for growing crops and rearing livestock, not densely populated, and which can be fairly easily reached from the current city boundaries, that is, within reasonable urban-periurban transit times (e.g. a maximum of two hours). While this definition is certainly open to discussion it is nonetheless useful since farming in periurban areas is mainly given over to the production of perishable food, which needs to be transported to urban markets as quickly as possible to ensure freshness and quality.

In addition to playing an important role in supplying food, farming activities in periurban areas provide low-income families with employment, mean lower transport costs for getting food to urban areas of high consumption and play a useful role in organic waste disposal through reuse as fertilizer.

Demographic growth and the demand for land for housing and industry pose a threat to food production activities at the periurban level.

Slaughterhouses are part of the supply system in that they provide facilities for processing livestock on the hoof to produce meat. They are one of the principal causes of air, water and soil pollution.

Planners must:

- protect the land resource, balancing the need for land for cultivation against the demands of urbanization (e.g. by promoting green belts);
- create the conditions for sufficient quantities of food to be produced and brought to the city at the lowest possible cost and under the most hygienic conditions;
- create the conditions to ensure that all processing activities in slaughterhouses are carried out under proper hygienic conditions;
- encourage public and private investment in order to meet the growing urban demand for food;
- make every effort to minimize the negative environmental impact of food supply activities.

[6] See the discussion of these aspects at regional level.

Periurban food production

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Food production (crops, livestock and aquaculture)	• The status of cultivated land (private property, privately rented, public property, publicly rented, tribally-owned, jointly-owned by associations etc.). • How easy it is for low-income groups to access the land, formally or informally? • Areas to be set aside (in the short, medium and long term), temporarily or permanently, for new crops (to be identified on maps) and expected increases in current yields. • Need to satisfy demand for land for urbanization in the short, medium and long term. • Structure and organization of food production units and any cooperatives or associations. • Quantities and types of produce for sale and for own consumption. • Quantities and types of produce in relation to current food needs. • Availability and/or limitations of water, land, human, financial and technological resources. • Public and private organizations and institutions responsible for intervention.	• Disposal of organic waste and its improper reuse in food production. • Lack of safe water. • Improper use of chemical products (fertilizers, herbicides and fungicides) in agricultural production. • Improper use of chemical products during the storage, cleaning and preparation of food. • Proximity of food production areas to sewer discharges and waste disposal sites.
Periurban-urban transport	• Types of packaging and transportation methods. • Connecting infrastructure. • Transport times and costs. • Forms of transport and their condition. • Need for refrigerated transport. • Loss of produce (quantity and causes). • Types of operators involved. • Public and private organizations and institutions responsible for intervention.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Increasing food production	
• Distinguish between areas already used for food production and those where production is to be undeertaken. • Identify areas to be temporarily or permanently set aside for periurban agriculture (maintaining a careful balance between the demands for agricultural land and land for urbanization). • Assess the willingness of landowners to put their land to agricultural rather than residential use. • Reorganize the land tenure system (where possible). • Support equitable land distribution policies, either on a tenancy or ownership basis (paying special attention to people on a low income). • Revise standards and restrictions. • Ensure adequate infrastructure to provide water. • Include periurban agriculture in zoning plans. • Set up private channels for the distribution of seeds and other necessary inputs (fertilizers and chemical products).	• Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Carry out an economic, financial and technological feasibility study of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Improving periurban-urban transport	
• Distinguish between existing infrastructure and services and those to be created. • Draw up a plan to renovate and upgrade the existing infrastructure (road, rail and water) to be preceded by an economic pre-feasibility study. • Draw up a plan to create any new infrastructure (rail, road or water) to be preceded by an economic pre-feasibility study.	• Discuss plans with the institutions and organizations concerned and finalize plans. • Define institutional responsibilities for carrying out and managing the work.

Examples of periurban agriculture

In Hanoi (Viet Nam) 80% of vegetables, 40% of eggs and 50% of meat come from urban and periurban areas. Periurban land for food production, however, is constantly diminishing as a result of increased urbanization (*Yasmeen, 2002*).

In Colombo (Sri Lanka) a large part of the periurban area has been used for building houses and factories. Most food production is therefore concentrated in rural areas. This has led to an increase in prices for primary goods (*Rupasena, 1999*).

In Santiago de los Caballeros (Dominican Republic) 56% of the periurban area is used for food production, most of which for own consumption (see map 3) (*Del Rosario, 2000*).

In Lahore (Pakistan), although there is no longer any agricultural land in the urban area, most food production (50% of meat and 80% of vegetables) takes place in periurban areas (*Yasmeen, 2002*).

In Shanghai (China) 60% of vegetables and 90% of milk and eggs come from urban and periurban areas (*Yasmeen, 2002*).

Working with institutions, municipalities and beneficiaries of projects to integrate periurban agriculture into the Land Use Plan: the case of Harare (Zimbabwe)

Rather than adopting a purely technical approach to the problem of integration, planners must get to grips with the political and institutional situations in cities, working with the existing associations to contribute to the formulation of policies which will give even the poorest sectors of the population access to land. In Harare many families are involved in periurban farming activities; the produce is usually destined for own consumption and for sale in markets. Low-income families, however, have difficulty in accessing land and, moreover, have to compete with residential and industrial development needs. Urban planners were asked to draw up a land-use plan prioritizing low-income groups but the political and institutional situation in Harare effectively ruled out a strategy of this kind. The following expedient was therefore found to deal with the situation: a farming cooperative was set up with the aim of increasing the purchasing power of individual producers thus making it easier for them to gain access to land. A pressure group called the "Women and land lobby group" has been set up to lobby for the legalization of urban agriculture.

The phases of the intervention strategy are as follows:
1. lobby members of parliament, municipalities, NGOs and all other relevant bodies;
2. set up a "Farmers Development Trust" to support farmers;
3. provide training in farming techniques;
4. obtain the integration of periurban agriculture into the Land Use Plan.

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

Supporting equitable land redistribution policies: the case of Bangladesh

Land prices are often beyond the means of low-income groups. In a periurban environment the development of a land market with formal assignment of title penalizes the very poor. Various "informal" ways of accessing land thus arise. In such cases the formation of cooperatives may be promoted since they are officially recognized and so can apply for loans.

In Bangladesh, for example, the NGO Samata has supported efforts to simplify land access for low-income groups. Samata helps people to form cooperatives so that they can apply for loans. This is one way of distributing publicly-owned land to those on low-incomes. The association has currently set itself the goal of acquiring 200,000 hectares of public land and distributing it to the very poor.

Source: *Department for International Development (DFID), 2002.*

Integrating urban agriculture into town planning: the case of Dar es Salaam (United Republic of Tanzania)

The development of a favourable political and institutional climate in Dar es Salaam has been key to recognizing the decisive role of periurban agriculture in supplying food and as a source of work for the unemployed. A working party was set up (comprising representative citizens, both men and women, government ministers and NGOs and Community-based organizations representatives) with the aim of making periurban agriculture an integral part of the Strategic Urban Development Plan (SUDP).

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

Slaughter facilities in Dar es Salaam (United Republic of Tanzania)

In the metropolitan area of Dar es Salaam there are 17 slaughtering facilities. All the slaughter slabs are unhygienic and devoid of tap water and electricity. Water is fetched in buckets from downstream shallow ponds. Slaughters, skimming evisceration and meat inspection are carried out on the same floor often using kerosene lamps. The slabs are not fenced and, therefore, condemned meat and inedible parts are scattered in neighbouring areas posing a health hazard to the public. Meat from slaughter slabs/abattoirs is transported to various destinations using general purpose, open pick-up vehicles. Only a few of the pick-ups have proper meat containers fitted. If strict meat hygiene regulations were to be enforced, none of the meat transporting vehicles would qualify for use.

Source: *Schiere, 2000.*

Food processing and slaughterhouses

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Slaughtering livestock	• Structure and organization of existing slaughterhouses. Any cooperatives or associations. • Use of land (residential, agricultural etc.) surrounding the slaughterhouse and any pollution risks. • Characteristics of the slaughterhall and existing services. • Quantity and types of meat in relation to current food requirements (to be identified on maps). • Availability and/or limitations of water, land, human, financial and technological resources. • Proposed temporary or permanent sites (to be located on maps) of new slaughterhouses (in the short, medium and long term), and expected increases in current yields. • Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations etc.).	• Liquid and solid waste disposal including: any treatment before dumping, disposal times, and proximity of residential areas to designated waste disposal sites. • Lack of safe water. • Improper use of chemical products during storage, processing and preparation of meat. • Lack of hygiene in slaughterhalls and other areas for which the slaughterhouses are responsible.
Assembly, selection and cleaning of butchered meat	• Existing facilities or areas. • Types of operators involved and their information, technology and credit needs. • Public and private organizations and institutions responsible for intervention.	
Storage and processing of butchered meat	• Existing areas and structures (size, location, suitability, public/private). • Different storage times and methods required by the various kinds of meat. • Need for cold storage. • Product packaging methods. • Technology, infrastructure and services used for small-scale and industrial food processing. • Types of operators involved. • Public and private organizations and institutions responsible for intervention.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Improving slaughterhouses	
• Distinguish between existing slaughterhouses and those to be built. • Identify the areas of existing slaughterhouses in need of improvement (services, flooring, access, waste disposal, etc.). • Identify and critically assess the regulations to be respected. • Define the number and location of new slaughterhouses. • Identify potential sites taking into consideration ease of access. • Identify areas for waste disposal and treatment. • Define the size and characteristics of each slaughterhouse. • Allocate areas for the different activities (unloading animals, slaughter, etc.). • Assess availability of market information and credit. • Ensure adequate infrastructure to provide water. • Carry out information and awareness campaigns about hygiene standards and waste management. • Promote the legalization of informal slaughterhouses.	• Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Carry out an economic, financial and technological feasibility study of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Improving meat assembly, selection and cleaning activities	
• Identify and critically assess the regulations to be respected. • Define the size and characteristics of the areas where these activities are carried out. • Allocate areas for unloading, cleaning, preparation for sale, packaging and despatch. • Assess availability of market information and credit.	• Carry out an economic, financial and technological feasibility study of the proposed intervention. • Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define waste processing techniques: o correct treatment of liquid waste before discharge; o systems for treating solid waste (e.g. incinerators) before dumping it in the designated waste disposal areas. • Define institutional responsibilities for implementation and management.

Intervention 3: Improving meat packaging, storage and processing activities	
• Prepare pre-feasibility studies to promote, in suitable areas, small-scale and industrial facilities for the production of the various types of packaging required. • Prepare pre-feasibility studies to promote, in suitable areas, storage warehouses for the various types of meat. • Prepare pre-feasibility studies to promote small-scale and industrial meat-processing facilities. • Draw up a technical, organizational, management and financial support programme.	• Inform private investors of the investment opportunities on the basis of the pre-feasibility studies.
Intervention 4: Improving methods of transporting butchered meat	
• Distinguish between existing infrastructure and services and those to be created: • Draw up a plan to renovate and upgrade the existing (road, rail and water) infrastructure; to be preceded by an economic pre-feasibility study. • Draw up a plan to create any new infrastructure to be preceded by an economic pre-feasibility study.	• Discuss the plans with the institutions and organizations concerned and finalize the plans. • Define institutional responsibilities for implementation and management of the work.

Examples of illegal slaughter facilities

Before going ahead with plans for a new slaughterhouse planners should verify whether there are any cheaper informal facilities that could negatively affect the running of an official slaughterhouse.

In Addis Ababa (Ethiopia) the Livestock Marketing Authority has estimated that the annual quantity of meat from illegal slaughter facilities is 12,800 tonnes. The informal service is often preferred to the formal system because it offers advantages such as shorter waiting times and more efficient transport.

Although Syria has modern slaughterhouses supervised by veterinarians and public health officers, many old, sick and unvaccinated animals are slaughtered, creating a potentially serious public health risk.

In such cases planners must verify whether there are any:
- information campaigns;
- incentives for informal slaughterhouses to become legal;
- informal facilities prepared to legalize their activities.

Source: *Schiere, 2000.*

2.3 Urban level

The supply and distribution of food at the urban level mainly concerns:
- urban food production;
- food processing including slaughterhouses;
- transport.

Production activities in an urban environment provide considerable social economic and environmental advantages.

The threat to farming is much greater in urban environments than in metropolitan ones because of the higher population density.

Farming in densely populated areas is also characterized by a high risk of pollution (the improper utilization of chemical products, and liquid and solid waste are major sources of air, water and ground pollution and food contamination) .

Slaughterhouses in densely populated areas pose a serious environmental risk and are a danger to public health. They are also a further cause of traffic congestion. Despite this, many facilities are located within urban centres.

The role of planners is to:
- support and promote urban agriculture on suitable land;
- protect the land resource, balancing the need for land for cultivation against the demands of urbanization;
- promote kitchen gardens on suitable land;
- create the conditions for sufficient quantities of food to be produced at the lowest cost and under the most hygienic conditions possible (e.g. promoting the use of safe water);
- create the conditions for all food processing activities (agricultural produce including meat) to be carried out under adequate hygiene conditions;
- encourage public and private investment to satisfy the growing urban demand for food;
- make every effort to minimize the negative environmental impact of food supply activities.

The importance of urban agriculture

The poorest families in Cairo (Egypt) are dependent on urban agriculture for more than 60% of their income.

The percentage of families involved in urban farming activities is: 37% in Dar es Salaam (United Republic of Tanzania); 36% in Ouagadougou (Burkina Faso); 35% in Maputo (Mozambique); and 45% in Lusaka (Zambia).

In Nairobi (Kenya) 50% of food consumed by low-income groups comes from urban agriculture.

In Accra (Ghana) 90% of vegetables are produced in an urban environment.

In Harare (Zimbabwe) the land area given over to urban agriculture doubled between 1990 and 1994.

In Jakarta (Indonesia) 2% of rice, 16% of fruit and 10% of all vegetables are produced in an urban environment.

It has been estimated that urban agriculture accounts for 15% of the food supply in the urban areas of developing countries. Some studies in Kampala (Uganda), Harare (Zimbabwe) and Nairobi (Kenya) have found that urban agriculture, which is practised mainly by women, also has a positive influence on the nutritional value of the diet.

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

Urban food production

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Food production (crops, livestock and aquaculture)	• Structure and organization of the food production units and any cooperatives or associations. • Dwelling density in the vicinity of cultivated land and any sources of pollution. • Security of tenure for plots of agricultural land. • Number of private plots with kitchen gardens and the conditions under which fruit and vegetables are grown. • Quantities and types of produce for sale and for own consumption. • Availability and/or limitations of water, land, human, financial and technological resources. • Areas to be set aside (in the short, medium and long term), temporarily or permanently, for new crops (to be identified on maps) and expected increase on current yields. • Public and private organizations and institutions responsible for intervention.	• Disposal of organic waste and its improper reuse in food production. • Lack of safe water. • Improper use of chemical products (fertilizers, herbicides and fungicides) in agricultural production. • Improper use of chemical products during the storage, cleaning and preparation of food.
Intra-urban transport	• Types of packaging and transport techniques. • Connecting infrastructure (conditions of roads and drainage channels). • Forms of transport (hand-pulled and motorized) and their condition. • Types of operators involved and any cooperatives or associations. • Public and private organizations and institutions responsible for intervention.	

Intervention programme

Planning	Resources and technology
Intervention 1: Increasing food production	
• Distinguish between areas already used for food production and those where production is to be commenced. • Identify areas to be temporarily or permanently set aside for urban agriculture (keeping a balance between food production and urbanization demands). • Define the rules and regulations to be applied to kitchen gardens on residential plots (e.g. for irrigation systems, the siting of sanitary facilities, sewer outlets, and waste collection and disposal systems). • Renovate or create new infrastructure to provide safe water. • Reorganize the land tenure system (where possible). • Promote equitable land redistribution policies (paying special attention to low-income sectors of the population). • Integrate urban agriculture into zoning plans. • Set up private channels for the distribution of seeds and other required inputs (fertilizers and chemical products).	• Discuss the preliminary plan with the organizations and institutions concerned and finalize the plan. • Carry out an economic, financial and technological feasibility study of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Intra-urban transport	
• Distinguish between existing infrastructure and services and those to be created. • Draw up a plan to renovate and upgrade the existing road networks; to be preceded by an economic pre-feasibility study. • Draw up a maintenance programme for urban roads and drainage systems. • Draw up a plan for any new roads to be built; to be preceded by an economic pre-feasibility study.	• Discuss the various plans with the institutions and organizations concerned and finalize the plans. • Define institutional responsibilities for implementation and management.

The key role of local authorities: the case of Quito (Ecuador)

Planners must sensitize local authorities to ensure that they:
1. support and develop urban agriculture on suitable land (rather than adopting an approach of tolerance or even harassment);
2. support the integration of urban agriculture into a Land Use Plan (rather than tolerating unlawful interstitial use of the land).

Recognizing the role of urban agriculture in supplying low-income sectors of the population with food, in providing the unemployed with informal work and its contribution to sustainable development, the Municipality of Quito embarked on a process of institutionalizing urban agriculture. An action plan was drawn up and implemented in El Panecillo, a neighbourhood in the old centre of Quito, in the following stages:
- setting up of composting and vermiculture plants (providing direct employment to 15 youths);
- installation of a community nursery for native ornamental and food production species;
- supporting existing family gardens for production of vegetables, medicinal plants and small fruits (involving 30 families and mainly women);
- setting up of two agro-industries for vegetables and medicinal plants (providing direct employmentto 23 families).

Actors involved in the pilot programme formulated the following land-use regulations:
1. symbolic rents for municipal lands used for agriculture;
2. preferential property taxes for private land areas under agriculture (10% discount);
3. long term (5-10 years) user-right agreements for municipal lands used for agricultural activities.

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

The marginalization of urban agriculture: the case of Lusaka (Zambia)

Landowners often prefer to build on their land and rent out properties, rather than use it for agriculture. In such cases attempts to support urban agriculture may have little impact.

The authorities in Lusaka have ruled out any possibility of making agriculture an integral part of the urban environment, using the urgent need to satisfy the growing demand for housing to justify their decision. The presence of services, such as water, sewer systems and roads within the urban area, make the costs of building housing lower than they would be in outlying areas. Consequently all agricultural activity has been pushed to the edges of the city, to areas involving longer travel times and costs which are beyond the means of most of the population. Nor has any provision been made for any policies to support the low-income population. The planning authority did not have decision-making power and inserted the agricultural areas into the current *Lusaka Development Plan*, taking only periurban and rural areas into consideration. In cases like this transport plans and programmes to encourage the formation of producers' associations, which would also help those on low incomes to access periurban areas, should be considered.

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

An environmental approach: the reuse of liquid waste in Glen Valley (Gaborone-Botswana)

In some cases urban agriculture may also receive indirect support. The decision to integrate agriculture into urban areas may be dictated, for example, by environmental reasons: environmental sustainability is an indisputable aim of development policies.

In the city of Gaborone the lack of water resources is one of the main limiting factors in the development of urban agriculture. In 1997 a decision was taken to set up a new sewage treatment plant to reuse treated effluent water for irrigation purposes. As a result of the environmental advantages and the increase in production, a campaign has recently been launched to protect urban production areas from residential development by including them in the zones covered by the Development Plan.

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

The integration of urban agriculture into urban planning: the case of Dar es Salaam (United Republic of Tanzania), Santiago de los Caballeros (Dominican Republic) and Accra (Ghana)

Although temporary use of unbuilt urban areas was permitted under Dar es Salaam's previous Master Plan, the current Strategic Urban Development Plan (SUDP) places greater emphasis on urban agriculture, including it in the zoning plan. Different criteria are also being used to manage the urban area:

- vertical expansion of building is being encouraged in some zones in order to increase the number of plots available for urban agriculture;
- efforts are being made to improve infrastructure to tackle the problem of land degradation and water pollution;
- the introduction of low cost transport (hand-pulled carts and bicycles) to facilitate the distribution of produce is being examined;
- the possibility of extending the plan to other municipalities in the United Republic of Tanzania is being examined. The plan has been accepted by the Ministry of Land Development and may thus be considered a pilot project serving to shape national policies.

In the urban area of Santiago de los Caballeros, 33% of unbuilt or partially built-up areas are used for agricultural activities; 22% of unused areas are considered suitable for agricultural production. In this case areas have been classified according to ownership, characteristics and potential use of the land and the areas then included in the zoning plan (Maps2-3). This method is currently being used in a pilot project for Havana, the "General Urban and Land-Use Plan for the City of Havana", which refers to an "agricultural corridor around the urbanized area of Havana".

In Accra legislation is being introduced to integrate urban agriculture into the Land Use Plan. The principal aims of the strategy are to:

- provide land tenure security (legislation to create green zones specifically for urban farming. Building permits can be refused in designated greenbelt areas to give existing farmers the long-term security they need);
- improve the provision of extension services (information and training on bio-intensive farming methods is provided);
- provide safer water for irrigation (cleaner water provision includes the siting of a sewage-treatment plant).

Source: *Urban Agriculture Magazine, No. 4 July 2001.*

Slaughterhouses

The subject of slaughterhouses has already been covered in the section on the metropolitan level. This section briefly discusses the problem of slaughterhouses located in urban areas and how to encourage slaughterhouse owners to relocate to a metropolitan setting.

Example: the slaughterhouse in Addis Ababa (Ethiopia)

The Addis Ababa Slaughterhouse Enterprise, owned by the government, is located in the centre of the city with a capacity of 900 head of cattle per day. It is also used to slaughter sheep, goats and pigs. The meat is distributed by truck to the various butchers in Addis Ababa. Part of the leftover meat and bones are processed into feed and glue. The remaining bones and other waste are dumped in a heap in an open field within the compound, adjacent to the river. A factory for processing the waste into fertilizer was built in the compound. Untreated liquid waste from the slaughterhouse is also released into the river.

Source: *Amha and Eshete, 2002.*

In the majority of cases, despite the pollution risks, slaughterhouse owners are unwilling to move to other premises.

In such cases, rather than harassing them, it is better to persuade them through:

- information, sensitization or training;
- strict regulations and inspections regarding hygiene and waste management;
- legalizing informal slaughterhouses;
- incentives for setting up private slaughterhouses.

Chapter 3
Urban food distribution

This section analyses food distribution facilities and activities. It focuses on markets, shops and street-food vendors, since it is in these contexts that food safety and food distribution activities are most at risk.

3.1 Metropolitan level

Wholesale markets play a fundamental role in food distribution. Locating markets on the outskirts away from the city centre helps to streamline food distribution activities, attenuates traffic congestion in urban areas and leads to more efficient traffic management.

Despite the advantages of wholesale markets located in metropolitan areas, many cities lack such markets and wholesale activities are carried out in urban centres[7].

Examples of wholesale markets in outlying areas

[Most] African cities lack organized wholesale markets. Wholesale activities are usually carried out by traders-collectors-drivers who buy from farmers and sell either to retail market traders in urban centres, or directly to consumers.

Salè, on the outskirts of Rabat (Morocco), has one wholesale market. It was built in 1974 when a law to make tax collection easier was passed requiring that all goods retailed in the city must pass through a wholesale market. No further markets were built; the Salè market, with its monopoly on wholesale activities in Rabat, was simply expanded.

In 1960 the City Council of Nairobi (Kenya) decided to build a market on the outskirts of the city. As demand increased further wholesale markets emerged (Kawangware, Ngong, City Parkmarket), but they are all in urban areas close to retail sellers.

When a need arose for wholesale markets for cassava in Kinshasa (Democratic Republic of Congo), 55 open spaces in the urban area were used as wholesale markets.

The most important wholesale market in Islamabad (Pakistan) stands in an open space in the city centre, where there are no facilities, infrastructure or services of any kind.

Source: *Tollens, 1997.*

[7] The problem of wholesaling in urban centres will be dealt with in the following section.

The Master Plan and food distribution: the cases of Dar es Salaam (United Republic of Tanzania) and Amman (Jordan)

Only in rare cases do urban plans for cities in developing countries establish regulations and standards governing the size of areas to be allocated to markets, which usually come under the category of public buildings and commercial zones.

The 1997 standards in Dar es Salaam allocate a commercial area of 0.4-0.5 m^2 per head of population and 300- 1,500 m^2 for each neighbourhood. On the other hand, much of the city has been taken over by informal development: 42 neighbourhoods are the result of spontaneous settlements where the population density varies between 370 and 630 people/hectare. Basic infrastructure (water, sanitary facilities, electricity and sewers) and public services (markets, schools, hospitals) in these neighbourhoods are either wholly inadequate or, in most cases, non-existent *(Marocchino, 2000)*. The Master Plan for Amman sets standards of 0.475 m^2/person of commercial space in the city centre and 0.23 m^2/person of commercial space in residential areas. Taking the expected expansion of the city into consideration, the plan also provides for the development on the outskirts of a commercial zone, which has yet to be built *(Sirryeh M., 2001)*.

Whereas provision has been made in the Master Plans of both Dar es Salaam and Amman for supermarkets and a variety of shops in commercial zones, no mention is made of specific areas for food markets. Indeed no account has been taken of the implications for food distribution in their decisions regarding infrastructure, services and transport.

Planners should:

- create the conditions for the efficient wholesale distribution of food;
- promote the development of wholesale markets outside urban centres;
- encourage public and private investment in the development of wholesale markets;
- take action to minimize the negative environmental impact of wholesale activities.

Wholesale markets

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Sales	• Identification of the various wholesale distribution mechanisms (formal and informal). • Identification of existing markets (to be located on maps) and ease of access from both rural and urban areas. • Identification of sales trends and the possibility of increasing current yields. • Buying and selling methods used by wholesalers and retailers. • Identification of potential sites for building new markets (to be located on maps). • Existence and efficiency of infrastructure and services. • Availability and limiting factors of water, human, financial and technological resources.	• Lack of, or poorly maintained, waste collection equipment. • Improper waste disposal. Lack of safe water. • Poor hygiene in sales areas, storage centres and during the transport of produce.
Storage	• Need for cold storage. • Existing public and private areas and facilities (size, location, suitability). • Different storage methods required by different types of produce.	
Management, maintenance and supervision	• Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations etc.). • Types of operators involved and their information, technology and credit needs. • Any forms of maintenance and supervision of sales areas.	
Transport	• Identification of the market's parking, transit and access areas. • Transport infrastructure. • Transport times and costs. • Means of transport and their condition. • Need for refrigerated transport. • Loss of produce (quantity and causes). • Types of operators involved. • Public and private organizations and institutions responsible for intervention.	• Lack of, or poorly maintained, waste collection equipment. • Improper waste disposal. • Lack of safe water. • Poor hygiene in sales areas, storage centres and during the transport of produce.

Intervention programme

Planning	Resources and technology
Intervention 1: Integrating areas for wholesale markets into zoning plans	
• Evaluate the need to build a market in a specific area. • Evaluate levels of consensus among sellers and market users. • Promote information and awareness campaigns to sensitize sellers and market users to the need for a specific wholesale market building. • Define how many markets to set up and where. • Evaluate any competition mechanisms that could arise between the new market and other wholesaling methods. • Analyse the costs to users and sellers of travelling to the market. • Identify potential (public and private) sites with easy access. • Identify and critically assess the regulations to be respected. • Define the size and characteristics of the market (for sales facilities, give only indications of materials and type of structure to be used; sellers should preferably provide their own stall and selling equipment). • Define the characteristics of access, transit, exit and parking areas, and regulations governing them. • Organize loading, unloading, sales and storage areas. • Make provision for sanitary facilities and easy access to safe water. • Make provision for waste collection and disposal areas. • Make provision for regulations on the use of waste. • Evaluate the availability of market information and credit. • Add areas for the new wholesale markets to zoning plans.	• Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or provide labour. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Renovation programme for existing wholesale markets	
• Promote information and awareness campaigns to sensitize sellers and market users to the need to renovate existing markets. • Make provision for services and infrastructure (particularly water and sanitary facilities). • Improve the access areas to the market. • Make provision for storage facilities. • Make provision for waste collection, disposal and treatment (e.g. incinerators or processing plants to turn waste into fertilizers). • Critically assess and allocate areas for dumping. • Draft regulations governing the use of waste.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Discuss the preliminary plan with the institutions and organizations involved and finalize the plan. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.

Intervention 3: Improving transport	
• Renovate and upgrade the existing infrastructure (road, rail and water); to be preceded by an economic pre-feasibility study. • Plan the technical, organizational, management and financial support.	• Discuss the various plans with the institutions and organizations involved and finalize the plan. • Define institutional responsibilities for implementation and management.

Use of waste: the Jakarta composting experiment

The following are essential for a waste management plan to be effective:
- promote solid waste segregation in markets and in all food distribution areas;
- organize public educational and promotional campaigns in cooperation with the different stakeholder groups (markets vendors, local government, environmental officers, garbage pickers);
- establish a landfill site where the remaining solid waste without any economic value must be dumped;
- organize the management and the maintenance of a waste disposal system.

The development of community-based composting in Jakarta is an example of sound composting practice in a developing country.

Aid from Australia, Germany, the Netherlands, and New Zealand helped to initiate pilot projects in Jakarta in the 1980s. Later, the Harvard Institute for International Development (HID) and the Centre for Policy Implementation Studies, supported by the Government of Indonesia and the Jakarta City Government, worked on a model for operating small-scale neighbourhood composting in Jakarta. Starting around 1992, several small composting enterprises were set up in Jakarta. The Jakarta experiments incorporated sound practice into small-scale composting in similar cities, while enhancing the role of the informal sector. The project trained individuals already involved in materials processing and taught them the basics of composting. The compost market was further boosted by training intermediate buyers of recyclables to understand the physical and commercial properties of the compost *(Balbo, 2000)*.

3.2 Urban level

Food distribution at the urban level relates to areas larger than single neighbourhoods and refers to:
- large retail markets (formal and informal);
- large supermarkets.

Retail markets may be formal or informal. Informal ones, which are very widespread, are usually to be found on open sites by the roadside. Their size and layout varies depending on the characteristics of the site, the internal organization of the market, and whether they are legal or illegal. They are frequent causes of congestion and traffic in urban centres.

Supermarkets are usually privately owned and are to be found in planned areas of the city. They have to be allocated very large areas for access, parking and the transit of light and heavy vehicles.

The choice of markets or supermarkets depends on the level of development of the cities and the distribution of wealth (in African cities, for example, the poorest use markets whereas relatively high income earners use supermarkets).

This section of the guide will also look at wholesale markets in urban areas (see 3.2.2) which are one of the main causes of congestion and traffic. The situation is particularly bad in many African cities where wholesale markets are often to be found in urban areas, close to retail markets or on open sites along the main arterial roads.

Planners must:

- create the conditions for the efficient retail distribution of food;
- encourage public and private investment in the development of large retail markets and large retail supermarkets;
- take action to minimize the negative environmental impact of retail activities;
- minimize the negative (environmental, social and public health) consequences that existing wholesale markets have on the urban area;
- promote the development of wholesale markets outside urban centres.

Retail markets

Many areas of Amman (Jordan) have no market. There are nine formal markets: three are managed by the municipality and six by the private sector. These facilities are completely insufficient with respect to the needs of the growing urban population *(Sunna, 2000)*.

In Dar es Salaam (United Republic of Tanzania) there are not enough planned markets; most of the 50 markets registered with the market offices have arisen spontaneously in both publicly and privately owned open spaces (see map 5). To these are added the many informal markets scattered throughout the city, which are difficult to quantify and completely illegal *(Marocchino, 2002)*.

In Dakar (Senegal) around three quarters of the retail markets have arisen spontaneously *(Argenti, 1999)*.

In Accra (Ghana) there are 43 informal markets, most of which have arisen spontaneously (*Argenti and Haroun, 1998*).

In New Delhi (India) 60% of fruit and vegetables come from informal markets *(Balbo, 2000)*.

Of the 306 markets in Lima (Perú) only 72 have been planned and built by the municipality. The others have arisen spontaneously in informal neighbourhoods or in areas where the service was insufficient or non-existent *(Balbo, 2000)*.

Large urban retail markets and supermarkets

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Sales	• Identification of formal and informal markets and supermarkets (to be located on maps). • Evaluation of ease of access to markets and supermarkets • Identification of usage levels of markets and supermarkets (on different days and at different times of the day). • Identification of the level of congestion and traffic in the area of the market or supermarket. • Sales trends and possibility of increasing current earnings. • Efficiency of existing infrastructure and services (warehouses, safe water, sanitary facilities). • Identification of potential sites for new markets and supermarkets (to be located on maps). • Availability and limiting factors of water, human, financial and technological resources.	• Proximity of the sales areas to waste storage areas and sanitary facilities. • Lack of waste collection equipment. • No provision for daily waste collection. • Lack of safe water. • Poor hygiene in sales areas, in storage areas and during the transport of produce.
Storage	• Existing areas and facilities (size, location, adequacy, public/private). • Need for cold storage systems.	
Management, maintenance and supervision	• Public and private organizations and institutions responsible for intervention (ministries, local authorities, trade associations etc.) • Types of operators involved and their information, technology and credit needs. • Existing maintenance, supervision and management of the sales area (e.g. waste disposal or tax collection).	
Transport	• Parking, transit and access areas (size and characteristics). • Access roads to the markets and supermarkets and their condition. • Means of transport used (hand-pulled or motorized) and their condition. • Types of operators involved. • Public and private organizations and institutions responsible for intervention.	

Some problems of formal and informal markets

Formal markets	Informal markets
• Facilities are inadequate. • Limited possibilities for expansion. • Lack of parking areas. • Sales areas often unsuited to the needs of sellers. • No maintenance systems. • Competition with informal markets.	• Lack of regulation. • Illegal use of public land. • Lack of services and infrastructure. • Often insalubrious selling conditions. • No maintenance systems. • No waste management systems.

Intervention programme

Planning	Resources and technology
Intervention 1: Integrating areas for retail markets into zoning plans[8]	
Intervention 2: Renovation programme for existing formal retail markets	
• Promote information and awareness campaigns to sensitize sellers and market users to the need to renovate existing markets. • Make provision for services and infrastructure (particularly water and sanitary facilities). • Improve access to the market: build roads, provide bus stops and car parks in the vicinity of the market. • Evaluate the need to expand the market and the feasibility of such a step. • Improve hygiene and sanitation in the sales areas: provision of flooring and drainage. • Make good dilapidated facilities using local materials. • Make provision for storage facilities. • Identify areas for the collection, disposal and processing of waste (e.g. incinerators or processing plant to produce fertilizers from waste). • Draft regulations for the reuse of waste.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Discuss the preliminary plan with the different institutions and organizations involved and finalize the plan. • Define the public and private investments required and identify sources for these. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management. • Identify how and when the beneficiaries of the intervention can contribute financially or in terms of providing labour.

[8] Follow the guidelines for including wholesale markets in the zoning plan (see §3.1).

Intervention 3: Legalization or relocation of informal markets	
• Evaluate the possibility of legalizing existing markets and the need for this. • Improve hygiene and sanitation in the sales areas: provision of flooring and drainage. • Make provision for services and infrastructure (particularly water and sanitary facilities). • Renovate dilapidated facilities. • Identify areas to which existing informal markets can be relocated on condition that: o the new area is close enough to the present sites to ensure there will be no additional transport costs for sellers and users and to guarantee the same usage levels; o the move does not involve expenses which would force traders to increase their prices.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these. • Identify how and when the beneficiaries of the intervention can contribute either financially or by providing labour.
Intervention 4: Integrating supermarket areas into the zoning plan	
• Evaluate the need to create supermarkets. • Evaluate the expected usage level of a supermarket. • Define the number of supermarkets to be created and their locations. • Identify available areas. • Define and critically evaluate regulations. • Integrate areas for supermarkets into the zoning plan.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these.
Intervention 5: Improving road access and transport	
• Upgrade and renovate the existing road network (road surface and drainage) to be preceded by a pre-feasibility study. • Draw up a traffic management plan so as to minimize congestion in the vicinity of the markets or supermarkets. • Make provision for parking areas near markets and supermarkets. • Plan the technical, organizational, management and financial support.	• Discuss the various plans with the different institutions and organizations involved and finalize the plan. • Define institutional responsibilities for implementation and management

Investing in new urban markets: an informed decision

Investment decisions need to be justified well before pre-feasibility studies are undertaken. Decision makers thus need to be able to answer the following questions:

- Is the proposed development really necessary?
- Is a new market needed?
- Are there alternatives: for example, improving existing markets by renovating or expanding them?
- What are the likely consequences of a new market on the environment?
- What are the implications for traffic and parking space?
- Is there consensus on the financial and economic rationale for the project? Is it agreed that it should be run on a cost-recovery basis? Or on a profit basis?
- What are the reactions of traders, transporters and consumers to the proposals?
- Why should traders want to move to a new market?
- How much more will traders have to pay to distribute food from a new market? By how much will the new market reduce transport costs from supply areas?
- Will services (e.g. banks, packaging and cafeterias) be willing to move to the new market?
- Will market user charges be increased and can agreement be reached on the amount of the increase?
- How can traders and transporters be involved in the operation and financing of the market, as well as its management?
- Are the next steps clear on how to proceed with market development?

Source: *Tracey-White, 2000.*

New markets that are not used

It is essential to avoid the risk of creating under-used facilities. In many cities in developing countries the building of new markets has been a failure.

In Dar es Salaam (United Republic of Tanzania) two markets were built, Makumbusho and Temeke Stereo Market, currently almost entirely unused: less than 5% of the 500 sales spaces are in use. The failure of these markets is mainly due to their locations: they are far from the bus stops and busy streets where most of their potential customers are to be found *(Marocchino, 2002).*

In Amman (Jordan) the contrast between the efficiency of the Al Wehdat Retail Market, which is near a bus terminal (Map 6), and the inefficiency of the Al Hussein Retail Market is striking. A large number of the 280 sales spaces in the latter market are not being used. People prefer to buy from the street vendors in the vicinity of the market *(Sirryeh, 2001).*

In Colombo (Sri Lanka) many of the markets built by the municipality are located away from the centre and are therefore under-used: only about 50% of the Mount Lavinia, Maradana, Thotalanga and Delkanda markets are used *(Rupasena, 1999).*

Improving road conditions and making provision for parking areas

The following steps are essential in managing traffic on market access roads:
- identify the area of greatest congestion (road, market entrance, road junction near the market);
- identify the times of the day when the problem is most serious;
- opt for a road-use strategy that limits the type of vehicles allowed on the road at certain times (for example, heavy vehicles could be limited to certain times, avoiding the transit of other vehicles at such times);
- adopt a traffic management programme which provides for one-way traffic flows where the roads are not wide enough to cope with heavy vehicles, pedestrians and other vehicles;
- get round the problem of heavy vehicles driving into market areas by using hand-pulled carts to transport produce from the nearest parking area to the market.

The problem of parking areas is more difficult to deal with and cannot be solved by setting standards, since in most cases free space in the vicinity of the market is badly lacking. The following may, therefore, be considered:
- hourly use of any free space in the vicinity of the market;
- use hand-pulled carts to transport produce from the nearest parking area.

Urban wholesale markets

Examples of wholesale markets in urban centres

In Dakar (Senegal) the wholesale fruit and vegetable markets are located near areas where retailers sell various kinds of produce *(Tollens, 1997)*.

In Nairobi (Kenya) many wholesale fruit and vegetable markets (Wakaluma market in the east, Kawangware and Ngong in the west, City Park market in the new suburbs of Parklands and Westland) are located next to retail markets and it is difficult to distinguish between wholesale and retail selling. There are no official regulations to be respected in these markets. Traders pay a minimum fee for road maintenance and waste collection. Poor hygiene and sanitation conditions and the lack of proper services make for a very unhealthy selling environment *(Tollens, 1997)*.

In Dar es Salaam (United Republic of Tanzania) one of the main wholesale markets for bananas, tomatoes and potatoes, Urafiki market, is in a residential area not far from Morogoro Road, one of the city's principal arteries. The market is a cause of heavy traffic and congestion. The market area is not paved, has no roof and no drainage, so market business is carried out in very poor conditions *(Marocchino, 2002)*.

In Addis Ababa (Ethiopia), Atkilt Tera Vegetable Market, the city's largest and most important market (both for retail and wholesale trade), is situated in the city centre *(Amha and Eshete, 2002)*.

In Accra (Ghana), sixteen retail markets in the urban centre also carry out wholesale functions, which causes congestion problems *(Argenti and Haroun, 1998)*.

In Amman (Jordan), although a new wholesale market was built in 1995, it does not have the necessary services: there are no storage facilities and there is not enough parking, which inevitably leads to food losses and congestion near the market area *(Sirryeh, 2001)*.

Examples of wholesale markets in urban centres (cont.)

Lahore (Pakistan) has four wholesale fruit and vegetable markets, one of which is closed and another of which is only partly functioning. Of the other two functioning markets, Badami Bagh causes congestion and traffic in the city. The market does not have suitable storage facilities; nor are there parking areas, sanitary facilities, water or drainage systems. Moreover, since Badami Bagh is the principal wholesale market for retailers in the city, every day produce has to be hauled from Badami Bagh into the city over hilly terrain on hand-pulled carts *(Argenti, 1999)*.

Of the four wholesale markets in Hanoi (Viet Nam), only one, Long Bien, was planned. The others have arisen spontaneously by the side of the road in the city centre where they have become the cause of congestion and traffic. Despite the fact that the traders pay taxes, they work in extremely bad hygiene and sanitation conditions *(Kobayashi, 2000)*.

Most of the 15 wholesale markets in Malaysia are situated in urban centres where buildings are dilapidated, overcrowding and temporary shelters are rife and there are no services or infrastructure whatsoever.

In Colombo (Sri Lanka) the three wholesale markets are situated near the retail market. The most important wholesale market is housed in a completely dilapidated building where the sellers are so cramped they can barely move, there is no ventilation system and not enough parking space *(Rupasena, 1999)*.

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Sales	• Identification of the wholesale food distribution mechanisms (formal and informal). • Analysis of the advantages and disadvantages of locating the wholesale market in an urban centre. • Identification of the various sales methods (directly from trucks, from licensed or unlicensed sites on public or private land. • Identification of sales trends and competition mechanisms with other wholesale markets. • Identification of buying and selling methods adopted by wholesalers and retailers. • Evaluation of congestion and traffic caused by the presence of the market in the urban area. • Evaluation of proposal to relocate the market (with the prior agreement of the sellers). • Verify the existence and efficiency of infrastructure and services. • Verify the availability and limiting factors of water, land, human, financial and technological resources.	• Lack of equipment or areas for waste collection. • Improper waste disposal. • Lack of safe water. • Poor hygiene conditions in sales areas, storage centres and during the transport of produce.

Storage	• Need for cold storage. • Existing areas and facilities (size, location, suitability, public/private). • Different types of storage required by different products.	
Management, maintenance and supervision	• Public and private organizations and institutions responsible for intervention. • Type of operators involved and their information, technology and credit needs. • Existence of any forms of maintenance and supervision of the sales area.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Legalization of existing markets	
• Support the legalization of sales activities. • Make provision for a traffic management plan (e.g. allowing heavy vehicles to use the road only at certain times of the day). • Encourage sellers to form associations and support them in their efforts. • Evaluate the level of consensus among sellers and market users. • Make provision for sanitary facilities and easy access to safe water. • Identify areas for the collection and disposal of waste. • Draft regulations governing the use of waste. • Evaluate the availability of market information and credit.	• Discuss the preliminary plan with the different institutions and organizations involved and finalize the plan. • Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or to provide labour. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Relocation of wholesale markets to outlying areas[9]	

[9] Follow the guidelines for the metropolitan level (see §3.1).

The importance of associations: the case of the Atkilt Tera Vegetable Market Addis Ababa (Ethiopia)

Atkilt Tera is the largest and most important market in the city for both wholesale and retail sales. The market's main problems were the very unhygienic conditions of the sales area and congestion caused by vehicles and pedestrians. The market sellers decided to form associations and the following organizational and structural improvements were made:

- the sales area was paved;
- sanitary facilities were installed;
- waste collection is now properly managed;
- a security system was installed in the market.

The market sellers' association is moreover trying to stop illegal selling in the market. The sellers have imposed their own restrictions on unlicensed sellers working in the market area.

The association has decided that:

- sellers who do not have a licence must pay 100 Birr/day to sell in the area in front of the legal market;
- transporters who come into the market to sell directly from their trucks must pay a tax of 20 Birr directly to the association by way of contributing to the development, cleaning, security and administration of the market.

To cope with the problem of congestion, the members of the association have decided to limit heavy vehicles: trucks may park in the market from 5.30 to 10.00 a.m.

Source: *Amha and Eshete, 2002.*

Dar es Salaam: a wholesale market in an urban area

Tandale market in Dar es Salaam (United Republic of Tanzania), one of the most important wholesale markets in the food distribution sub-system (one third of the city's rice and cereal needs is met by this market), is situated in a residential area causing severe congestion in the area and the surrounding streets. Attempts to move at least part of the market to other areas have failed. The sellers have purchased lots and increased the size of the market. They have built roof and storage facilities at their own expense and they have no intention of moving (Map 7). In light of the situation, the municipality has had to give up plans to relocate the market and opt for its legalization, granting sellers the right to occupy public land *(Marocchino, 2002).*

Relocation from an urban to a peri-urban environment may be considered provided the sellers are given incentives such as reduced transport costs, tax relief, or access to credit facilities.

3.3 Local level

The local level in this guide refers to all kinds of food distribution that occur in small sections of the city (e.g., in a neighbourhood or along the roadside). The most common sales methods at the local level are:

- shops including small supermarkets;
- street vendors (permanent or itinerant) of fresh food;
- street vendors (permanent or itinerant) of cooked food, including small restaurants.

Shops and small supermarkets may be located:

- on the ground floor of multi-storey buildings;
- in independent premises in residential areas;
- in kiosks, containers or temporary structures of various types, usually located in informal neighbourhoods;
- in rooms in residential properties.

Examples of shops

In many informal areas in Dar es Salaam, shops have been set up in people's homes and are family run. In most cases a window (if there is one) is all that is needed to turn part of the home into a shop. The products sold range from foodstuffs to utensils and clothing. It is not unusual for fresh food grown on the sellers' own plot or home-produced meat (particularly poultry) to be sold *(Marocchino, 2000)*.

In the cities of many developing countries street-food vendors (fresh food and cooked food) provide:

- a source of food for the poorest sectors of the population;
- an informal distribution system which guarantees the food supply even in areas not served by markets;
- a source of employment and income, particularly for women.

The development of street vendors of cooked food and small restaurants is linked to the changing lifestyle, from rural to urban, which has led to changes in the eating habits of a large part of the population. Living in cities has led to the use of "ready-to-eat food and beverages prepared and sold by vendors and hawkers, especially in the street and in other public places". Buying food on the street or in small restaurants is, moreover, cheaper than preparing food at home. For this reason street food vendors have become an indispensable resource for poorer urban consumers.

Town planners must:

- create the conditions to allow food to be equitably distributed in all parts of the city;
- encourage public and private investment for the development of shops and small supermarkets;
- promote the legalization of street food vendors;

- create the conditions so that street vendors can carry out their food-selling business (by providing them, for example, with sales areas and the necessary services and infrastructure);
- make every effort to minimize the negative impact (on public health and on the environment) of street food vending activities.

Shops including small supermarkets

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Shops	• Identification of existing shops and small supermarkets (to be located on maps). • Structure and organization of shops and small supermarkets and any associations or cooperatives. • Verification of efficiency of existing infrastructure and services. • Evaluation of ease of access to shops and supermarkets (e.g. the condition of roads leading to them). • Verification of availability and limiting factors of water, land, human, financial and technological resources. • Identification of the variety, quality and availability of products. • Identification of competition with other forms of food distribution (e.g. with nearby markets). • Evaluation of the need to set aside other areas for building new shops or small supermarkets.	• Inadequate collection and disposal of waste. • Lack of safe water. • Poor hygiene conditions in sales areas.
Management, maintenance and supervision	• Public and private organizations and institutions responsible for intervention. • Identification of the types of operators involved and their information, technology and credit needs. • Any existing forms of maintenance for sales facilities.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Renovation of existing shops and small restaurants	
• Improve hygiene conditions in sales areas: provide flooring and drainage. • Make provision for services and infrastructure (particularly water and sanitary facilities). • Renovate dilapidated premises. • Repair access roads to shops and supermarkets. • Make provision for waste collection and disposal equipment. • Define regulations for the reuse of waste. • Evaluate the availability of market information and credit.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or to provide labour. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Allocation of areas for shops and small restaurants	
• Evaluate the need for shops or supermarkets. • Define the location and number of stores needed. • Identify the available areas with easy access. • Make provision for infrastructure and services (for sales facilities, only information about the type of structure to be used is necessary. Sellers should preferably be responsible for providing these themselves). • Make provision for waste collection equipment and regulations governing waste disposal. • Include areas to be designated for shops and supermarkets in an intervention plan.	• Discuss the preliminary programme with the organizations, institutions and local authorities concerned and finalize the programme. • Identify the private investments required and sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or to provide labour.

Street vendors of fresh food

What do you need to know?

Type of activity	Main aspects	Sources of public health and environmental risks
Sales	• Identification of the areas where street food vendors work, formally or informally, and have permanent or itinerant stalls (to be located on maps). • Identification of the reasons why they choose a particular location. • Verification as to whether the vendor has the right to occupy the (public or private) land. • Identification of the types of sales structures. • Verification of the efficiency of any infrastructures and services. • Verification of the availability and limiting factors of water, land, human, financial and technological resources. • Evaluation of the hygiene conditions under which food is sold. • Evaluation of the variety, quality and availability of products. Evaluation of how competitive the vendors are compared with other forms of food distribution (e.g. with nearby markets). • Identification of the structure and organization of street food vending and whether there are any associations of vendors. • Verification as to whether any urban development plans allocate space for street food vendors. • Need for cold storage. • Existing areas and facilities (size, location, suitability, public/private). • Different types of storage required by different products. • Public and private organizations and institutions responsible for intervention. • Type of operators involved and their information, technology and credit needs. • Existence of any forms of maintenance and supervision of the sales area.	• Inadequate waste collection and disposal. • Lack of safe water. • Poor hygiene conditions in sales areas. • The food on sale is unprotected and exposed to the elements (e.g. sun, rain and smog).
Management, maintenance and supervision	• Existence of any kind of harassment towards informal sellers. • Identification of the public and private organizations and institutions responsible for intervention. • Identification of the types of operators involved and their information, technology and credit needs. • Identification of any kind of maintenance of the sales area.	

Intervention programme

Planning	**Resources and technology**
Intervention 1: Legalization of the activities of existing street food vendors	
• Improve the hygiene conditions of the sales areas: make provision for flooring and drainage. • Make provision for services and infrastructures (particularly water and sanitary facilities). • Renovate dilapidated premises • Repair access roads to shops and supermarkets. • Make provision for waste collection equipment and areas for waste disposal. • Make provision for regulations for the use of waste. • Evaluate the availability of market information and credit.	• Determine the economic, financial and technological feasibility of the proposed intervention. • Define the public and private investments required and identify sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or to provide labour. • Identify the available human and technical resources and any necessary additional resources. • Define institutional responsibilities for implementation and management.
Intervention 2: Include areas for street food vendors	
• Identify areas in the city where street food vendors can be given the right to occupy land. • Indicate the size of the area to be given to the sellers (by the roadside, near a bus stop, in a parking area). • Identify areas where space can be used on an hourly basis. • Make provision for street vending (on an hourly basis) in some areas (giving priority to areas not served by shops, small supermarkets or markets). • Support sellers associations. • Make provision for the infrastructure and services required (paving/flooring, drainage systems, safe water and sanitary facilities). • Indicate the type of stalls to be used. • Define a maintenance programme for the area occupied up to a distance of two metres from the food sales or consumption area. • Make provision for waste collection equipment and regulations governing waste disposal. • Make provision for inspections to check that the hygiene regulations are respected.	• Discuss the preliminary programme with the organizations, institutions and local authorities concerned and finalize the programme. • Define the private investments required and identify sources for these. • Evaluate the willingness of the direct beneficiaries to contribute financially or provide labour. • Define institutional responsibilities for implementation and management.

Street vendors of cooked food and small restaurants

What do you need to know?

Type of activity	Main aspects	Main sources of public health and environmental risks
Food preparation	• Identification of the types of areas used for the cleaning and cooking of food. • Evaluation of the hygiene conditions under which food preparation is carried out. • Verification of any inspection and control measures to enforce hygiene regulations.	• Improper use of chemical and inflammable products • Lack of safe water. • Poor hygiene conditions in food preparation, cooking and restaurant areas. • Proximity of the cooking area to sources of contamination (e.g. waste, stagnant water, sanitary facilities).
Restaurants	• Identification and critical evaluation of the types and dimensions of the spaces used • Evaluation of the hygiene conditions in the restaurant area (e.g. including the existence of paving/flooring, roofing, sanitary facilities, waste collection equipment, daily maintenance of the area). • Verification of any inspection and control measures to enforce hygiene regulations. • Identification of the type of user and what they expect to pay.	

Chapter 4
Strategies: characteristics and evaluation tools

4.1 A programme or specific interventions?

The suggestions to planners in the previous chapters may be used:

1. in the context of new or on-going FSDS development programmes (at regional, metropolitan, urban and local levels);
2. in cases where a specific intervention is called for (improving a road, building a new market, the division of a rural or periurban area into lots) that is not part of an FSDS development programme.

In the first case, the planners' intervention would be part of a policy to improve the efficiency of FSDSs (see *Argenti, 2000*).

The design of an FSD programme is an iterative process comprising the following stages:

- design of programmes (identification of geographic areas);
- design of sub-programmes (identification of main technical area);
- design of an action plan for each sub-programme on specific themes.

The planner's task in this case is to:

- contribute to drafting the programme;
- propose action plans that are consistent with the programme objectives (definition phase);
- define the impact of the action plan on food security (definition phase);
- monitor the project's progress and that the objectives are being achieved (project implementation phase);
- verify that the results are in line with the objectives set (evaluation phase).

Planners will, however, rarely have the opportunity of working within the framework of such a well-defined and institutionalized programme. In most cases they will be asked to site a wholesale market, plan a rural-urban link road or deal with a traffic problem on a busy street where there is an informal market, where the requested intervention may not be part of an FSDS improvement programme.

Planners should therefore take the information provided in the previous chapters and use it to analyse and manage individual problems:

- correlating them with the regional, metropolitan or urban context they are working in;
- setting themselves the objective of more efficient FSD activities and helping low-income groups to obtain easier access to food.

4.2 Monitoring and evaluation indicators

Given the complexity and diversity of contexts in developing countries, a project and an analysis, however right and proper the planner and the project team may consider them to be, are not, in themselves, enough to guarantee that:

- the aims of the project will be achieved;
- there will be no negative effects;
- every possible effect of the project has been taken into consideration (even on apparently remote sectors).

Monitoring and evaluation indicators should therefore be developed to provide adequate answers to the above questions.

Indicators are diagnostic tools for progressively evaluating the impact of the action plan and the intervention strategy on food security (in the immediate, short, medium and long terms).

It is not easy to define a variety of valid indicators (economic, social and environmental) capable of assessing the heterogeneous and complex performance of FSDSs.

Here too, guidelines will be given to facilitate the selection of suitable evaluation tools for regional, metropolitan, urban and local settings.

Monitoring indicators are used to assess the course of the intervention during the implementation phase, while *evaluation indicators*, are used, on completion of the project, to verify that the objectives set have been reached.

Monitoring and evaluation

Monitoring is the continuous collection and analysis of information about the implementation of a project's activities in order to verify that it is actually achieving its objectives. *Evaluation* is the assessment of the result achieved within a project against its stated objectives. It can be carried out at different times (mid-term and final) and focuses on the resources used, what has been accomplished and the progress towards objectives *(Balbo, 2000)*.

Monitoring and evaluation may be carried out by technical experts (in economic, social, environmental and public health fields) or may involve the direct beneficiaries of the project or institutions and organizations.

In both cases the monitoring and evaluation should meet the following conditions:

- the costs involved should not be high;
- it should be completed in a relatively short time;
- it should be feasible;

- it should be communicative and easy to understand;
- it should be useful in terms of implementing changes or feedback mechanisms (revising the objectives, making necessary changes in terms of timing, project phases and expected results).

4.3 Economic, social, public health and environmental indicators

Monitoring and evaluation indicators may take the form of numbers, opinions, events or perceptions. They are quantitative when determined by numerical analysis. They are qualitative when determined by analysis of perceptions and subjective judgements.

However, even the simplest and most objective measurements may be open to question, so it is always useful to refer to multi-disciplinary analyses which correlate qualitative and quantitative data.

Economic indicators

It is necessary to evaluate the impact of the intervention on market trends, product prices, the reduction of production losses, the development of private initiatives etc. It is also essential to evaluate the costs of the intervention in relation to the cost of the time taken, the available economic resources and the benefits obtained.

a) Monitoring indicators

These indicators should essentially measure the activities carried out and the costs sustained up to the time of monitoring. The following are examples of such indicators:

- number of activities carried out up to the time of monitoring (planned/actual);
- time to complete the various activities (planned/actual);
- number of beneficiaries making a financial contribution to the implementation of the work (planned/actual);
- incentives for those who actively participate in carrying out the work (planned/actual);
- number of private participants involved in the intervention (planned/actual);
- number of associations of beneficiaries (existing or in the process of being formed) that have access to credit.

Project to locate a new wholesale market in a periurban area: monitoring

Project goals: to make food distribution more efficient by relocating a number of wholesale traders away from the urban centre. *Activities:* flooring the area (immediate); sanitary facilities (short term); improving road and transport connections to rural and urban areas (medium term).

Monitoring indicators:
- number of: square metres of flooring, cubic metres of drainage, square metres of road surface laid, up to the time of monitoring;
- planned costs /actual costs for each activity, up to the time of monitoring;
- financial contributions from the beneficiaries of the intervention (planned/actual);
- actual economic incentives provided by organizations and institutions involved in the project / requested by the beneficiaries of the project;
- number of associations of beneficiaries (existing and in the process of being formed) that have access to credit (planned/actual).

b) Evaluation indicators

These indicators should essentially measure, from a qualitative and quantitative point of view: who uses what has been created; the influence of the intervention on the market; and the potential for maintaining and improving over time what has been created. The following are examples of such indicators:

- number of beneficiaries of the intervention (planned/actual);
- number of low-income beneficiaries (planned/actual);
- quantity of produce sold (sales trends);
- increase in production (planned/actual);
- increase in earnings of the operators involved;
- number of investments made since project implementation;
- number of people who work on maintenance.

Project to locate a new wholesale market in a periurban area: post-project evaluation

Project objective: to make food distribution more efficient by relocating a number of wholesale traders away from the urban centre.

Activities: flooring the area (immediate); sanitary facilities (short term); storage facilities; improving road and transport connections to rural and urban areas; acquisition of the surrounding area to increase the size of the market (medium term).

Evaluation indicators (immediate-short term):
- number of users of the market;
- prices of products sold in the market / prices of products sold in other settings (rural an urban), particularly informal ones;
- number of sellers who pay taxes;
- number of sellers and transporters who have obtained loans (planned/actual);
- number of sellers who continue to trade at the old site;
- quantity of products sold at the new site / quantity of products sold at the old site;
- number of transporters who have found work since the new market was built.

The evaluation carried out in the short term should be repeated for the medium-to-long term evaluation in order to measure the variations in efficiency over time; to evaluate the efficiency of the type of maintenance adopted (useful indicators for this could be the condition of structures, infrastructure and services); and to decide whether it is worth acquiring the surrounding land to increase the size of the market.

Social indicators

Assessing the impact of a food security strategy from a social point of view means looking at the extent to which it: guarantees equitable access to food; gives access to basic services; creates employment opportunities; and allows greater social integration, particularly for women.

a) Monitoring indicators

These indicators should essentially measure the impact on populations of the work in progress. Examples of such indicators are shown below:

- number of people working on the project (planned/actual);
- number of women working on the project (planned/actual);
- number of beneficiaries of the project attending information and training programmes;
- number of female beneficiaries of the project attending information and training programmes;
- number of street vendors and other trading activities that have appeared in the intervention area;
- number of organizations in the process of formation.

Renovation of a retail market in an urban area

Project objectives: to make the market more efficient and improve the hygiene conditions of the sales activities.

Activities: flooring; drainage; sanitary facilities; places for itinerant (safe) water sellers, information and sensitization.

Monitoring indicators:

- number of people working on the project (planned/actual);
- number of beneficiaries who contribute, in terms of labour, to carrying out the project (planned/actual);
- number of women who contribute to the project (also by preparing and selling cooked food to those working);
- number of sellers who attend information and training sessions;
- number of sellers ready and willing to forming associations;
- actual contribution (financial and labour) of residents in the area around the market who benefit from the flooring, drainage and safe water provided;
- willingness of the heads of associations or neighbourhood leaders to give a hand with managing and coordinating the people involved in the project (planned/actual).

b) Evaluation indicators

These indicators should essentially measure levels of satisfaction (low, medium, high) among beneficiaries of the work, evaluating its level of usefulness; measuring its capacity to provide jobs and to bring about greater integration of women:

- number of people using what has been created/renovated (how crowded a street, market or infrastructure is);
- number of people who have found work following the implementation of the project;
- number of women who have found work following the implementation of the project;
- level of safety and supervision;
- number of users (farmers, sellers, transporters, consumers) who are members of associations.

Improving a road connecting periurban and urban areas: the case of Morogoro Road in Dar es Salaam

Objective: increasing the efficiency of goods and passenger transport between periurban and urban areas.

Activities: compulsory purchase of some private lots to allow the road (Morogoro Road) to be widened; resurfacing and repair of the road and construction of drainage channels; placing bus stops on the road.

Duration of project: three years.

Social evaluation indicators:

- number of people who have found work since the road was built;
- number of women who sell street food at bus stops;
- number of shops opened since the road was built;
- number of households that have rented part of their residence to traders, thus augmenting the family income;
- reduction in the crime rate in the area through which the road passes;
- reduction in the number of muggings.

If we use these indicators to evaluate the social impact the widening of Morogoro Road has had on Manzese (the informal area through which the road passes), we become aware of the positive effects. In the first place, food distribution in Manzese and the surrounding neighbourhoods has improved. There have also been a large number of business start-ups since the road was improved. Furthermore, the neighbourhood, which had a reputation for being the most dangerous in Dar es Salaam due to its high crime rate, is becoming more liveable. There is greater vigilance on the part of sellers and neighbourhood committees, all of whom are interested in making the neighbourhood safer in order to avoid commercial activities being jeopardized by criminal activities. On the other hand, the widening of the road and the simultaneous commercial development of the area traversed by Morogoro Road, has resulted in more pedestrian traffic. Although this does have a positive effect in environmental and social terms, it has also given rise to an increase in road accidents. Therefore when building a road a pedestrian and vehicular traffic management strategy should also be considered in order to reduce the number of road accidents *(Marocchino, 2002)*.

Public health and environmental indicators

Evaluating the implications from an environmental and public health point of view means ensuring and verifying that the food supply and distribution activities are carried out in healthy environments (in terms of air quality, hygiene in the areas occupied, infrastructure and services used, and proper waste management) and that they are a source of healthy food.

a) Monitoring indicators

These indicators should essentially measure: the environmental impact, the effects on public health of the activities carried out during the implementation phase of the intervention, how interested those working on the implementation phase are in respecting the regulations:

- level of pollution caused by the way pollutants are transported and used;
- level of congestion caused by transport;
- suitable disposal and reuse of (liquid and solid) waste produced during the implementation phase;
- level of information about safety standards to be respected during the implementation phase of the intervention;
- number of technical inspections during the work;
- number of people who attend information and training sessions dealing with environmental and public health issues.

Renovation of areas for small restaurants: monitoring

Objectives: improve hygiene conditions in the sales area; improve the quality of the food sold.

Activities: flooring/paving; drainage; provision of safe water; provision of sanitary facilities; waste disposal equipment; information and awareness campaigns about hygiene standards and protecting the environment.

Monitoring indicators:

- sewer trenching;
- level of congestion and noise caused by the activities;
- level of ventilation in enclosed spaces;
- maintenance of the appropriate distance from nearby houses of pipes, sanitary services and waste disposal equipment;
- number of inspections carried out by technicians to verify that the restaurant areas comply with current health norms;
- number of beneficiaries who attend information and training sessions.

b) Evaluation indicators

These indicators should measure food quality, the hygiene conditions under which food is sold and the results of the sensitization, information or training campaigns:

- fewer cases of infection and contamination from fresh or cooked food (planned/actual);
- number of inspections and medical check-ups for street food vendors (planned/actual);
- number of waste disposals units used (planned/actual);

- increase in pedestrian traffic (planned/actual);
- reduction in the use of hazardous materials (planned/actual).

Improving the hygiene conditions of street food vendors near a bus stop

Objective: improve the hygiene conditions of the selling area and the quality of the food sold.

Activities: flooring, drainage, sanitary facilities and safe water.

Evaluation indicators:
- number of inspections of the quality of the food sold;
- reduction in infections and contamination (planned/actual);
- number of street vendors who daily clean the site they occupy;
- number of sellers who set out their goods on clean displays at least 60 cm from the ground;
- number of sellers who protect their goods from the sun and from insects;
- number of sellers who prepare or sell food in areas close to sources of contamination (toilets, drainage channels, areas with heavy traffic), without taking precautions;
- number of sellers who use safe water;
- number of sellers who take care to use waste disposal equipment for solid waste;
- number of sellers who use forms of sterilization for utensils;
- number of sellers who carry out the proper disposal of liquid waste (particularly those containing chemical pollutants);
- number of sellers who store utensils after use in such a way as to avoid any form of contamination;
- capacity of roads, drainage systems and sanitary facilities (planned/necessary);
- capacity of waste disposal equipment (planned/necessary).

Monitoring and evaluating of level of participation

For the project to be sustainable over time, it is vital to evaluate the extent to which beneficiaries participate. Monitoring and evaluation of their participation is indispensable in order to measure, over time, the levels of awareness, skills and responsibility reached by the operators involved.

Participation cannot be measured merely by the analysis of objectives and results. It calls for a more dynamic approach that can take into account perceptions, reactions and the relationships between the various operators.

a) Monitoring indicators
- number of people who attend information and training meetings;
- number of women who attend information and training meetings;
- number of local leaders who take on positions of responsibility.

b) Evaluation indicators
- level of organization and collaboration;
- ability to take initiatives;
- links between organizations and institutions;
- number of meetings held periodically between operators.

In dealing with the problems of the invasion of urban space by informal sellers the following aspects should be kept in mind:

- The location chosen by sellers is almost invariably the best one. Sellers usually know what people need, what they are prepared to pay for a service and how far they are prepared to walk to get it. They move into an area only when they are certain that the sales prospects are good. Rather than looking for alternatives to existing sites, the possibility of leaving the sellers in the positions they have chosen themselves should be considered.
- If there is incompatibility arising from other uses or activity in the chosen area, alternative locations may be considered, providing:
  - the new locations are sufficiently close to the old ones so that no additional transport costs are incurred by sellers and consumers and sellers can maintain the same type of clientele;
  - the new position is clearly visible from the busiest pedestrian areas;
  - the cost of the move does not force vendors to increase prices.
- Sellers should be guaranteed only the bare essentials: sanitary facilities, drinking water and efficient drainage.
- The stall should preferably be mobile and temporary. The informal sector is so unstable and vulnerable that building fixed or permanent stalls would be a waste of resources. It is, furthermore, preferable to let the sellers purchase their mobile stalls themselves or repair the ones they own. Technical advice can, however, be given regarding suitable types of structure and materials.
- Intervention should not only be aimed at isolated cases: it should be an integral part of urban planning.
- Regulations and standards should not be too inflexible. The size of the space to be occupied should, in each case, be agreed on with the sellers and their representatives.
- The intervention plan must include provisions for a control, management and maintenance programme. The action plan should not only deal with the immediate future, but must also include the medium-long term. For a project to be effective over time it must be established at the beginning that the maintenance costs of what has been created can be met.

Dar es Salaam: projects for *mamantilie (women food vendors)*

In 1996 a project was launched in three neighbourhoods of Dar es Salaam (Magomeni, Kivukoni front and University) to improve the areas used by *mamantilie* to prepare and sell food on the street. The idea of moving the women's activities to more suitable areas was rejected as it was estimated that the move would have involved a change in the customer base and costs that the women could not and were not prepared to sustain *(Marocchino, 2002).*

Dar es Salaam (United Republic of Tanzania) and Imphal (India): projects to integrate and reorganize street vendors

In Dar es Salaam a group of fruit and vegetable sellers had taken over the pavement on one of the busiest streets in the centre, giving rise to congestion.

The intervention, carried out in agreement with the sellers, concerned:
- legalizing their activities by issuing licences;
- using mobile stalls that made better use of vertical space creating less of an obstruction for pedestrians;
- better organization on the part of the sellers regarding waste collection and general maintenance of the space occupied.

These steps were taken keeping in mind the financial resources of the sellers and the need to grant them the right to occupy municipal land. The sellers purchased mobile stalls and undertook: to keep the way clear for pedestrians, to pay for cleaning their work areas and to adopt good hygiene standards. The group has now become a recognized market association and pays the municipality an annual licence fee in exchange for the right to occupy municipal land.

Street vendors in Imphal (India) have also been integrated into the urban setting. The municipality offered a group of sellers the right to occupy municipal land and receive economic benefits. The sellers now pay a daily tax for waste collection and an annual tax for renewal of the licence *(Marocchino, 2002).*

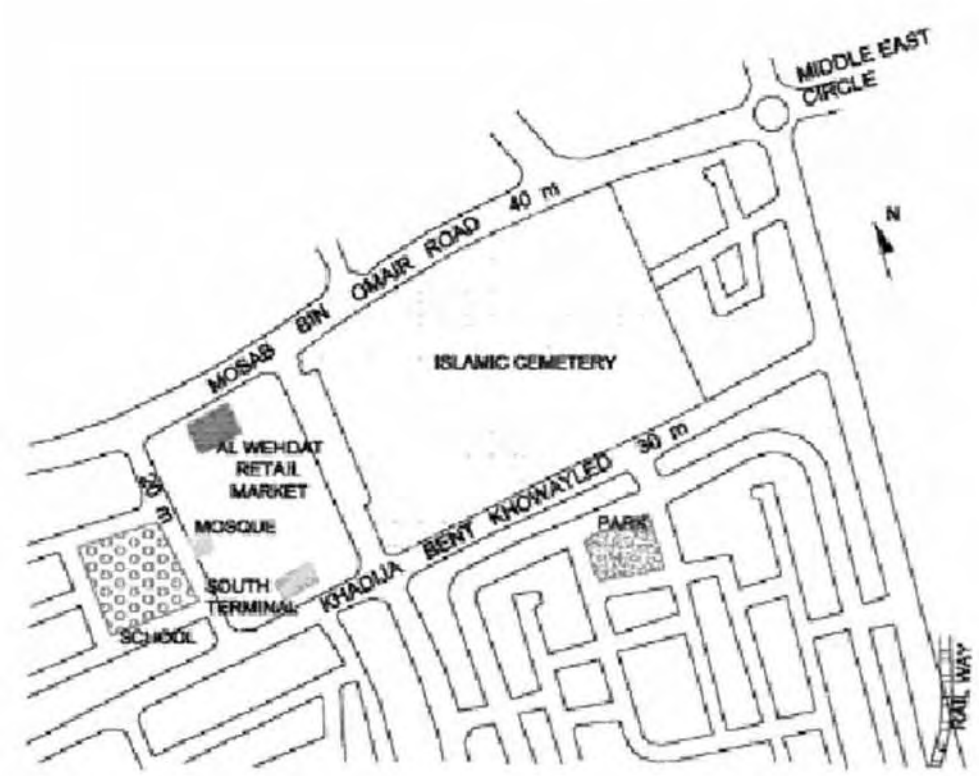
Examples of interventions to support Street Food Vendors

In Beijing (China) the activities of street food vendors are managed under the *Comprehensive Environmental Treatment Program*. Regulations have been established governing sales structures and hygiene conditions. In order to receive the licence sellers must have a health certificate. There is scrupulous inspection of all this by the Public Health Bureau.

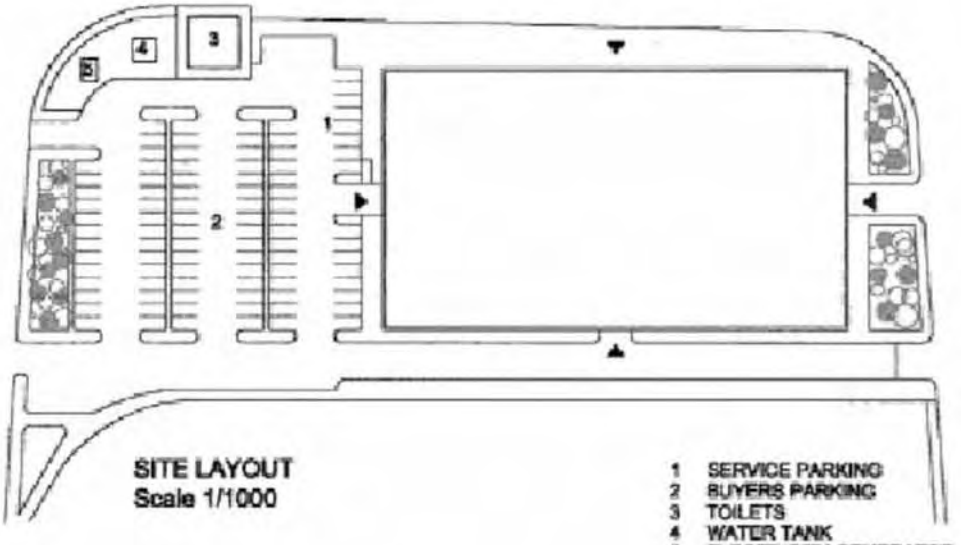
A programme has also been implemented in Jakarta (Indonesia), and is currently running, thanks to the efforts made to manage informal traders. In Vientiane (Laos) most *street food vendors* work informally. The local municipalities do not have the technical skills to carry out quality control on the food sold; they are only able to manage and oversee the daily collection of waste.

Source: *FAO, Regional Seminar on Street Food Development, 1999.*

Map 6
Amman: Al Wehdat retail market. A market near the bus terminal



LOCATION PLAN
Scale 1/5000

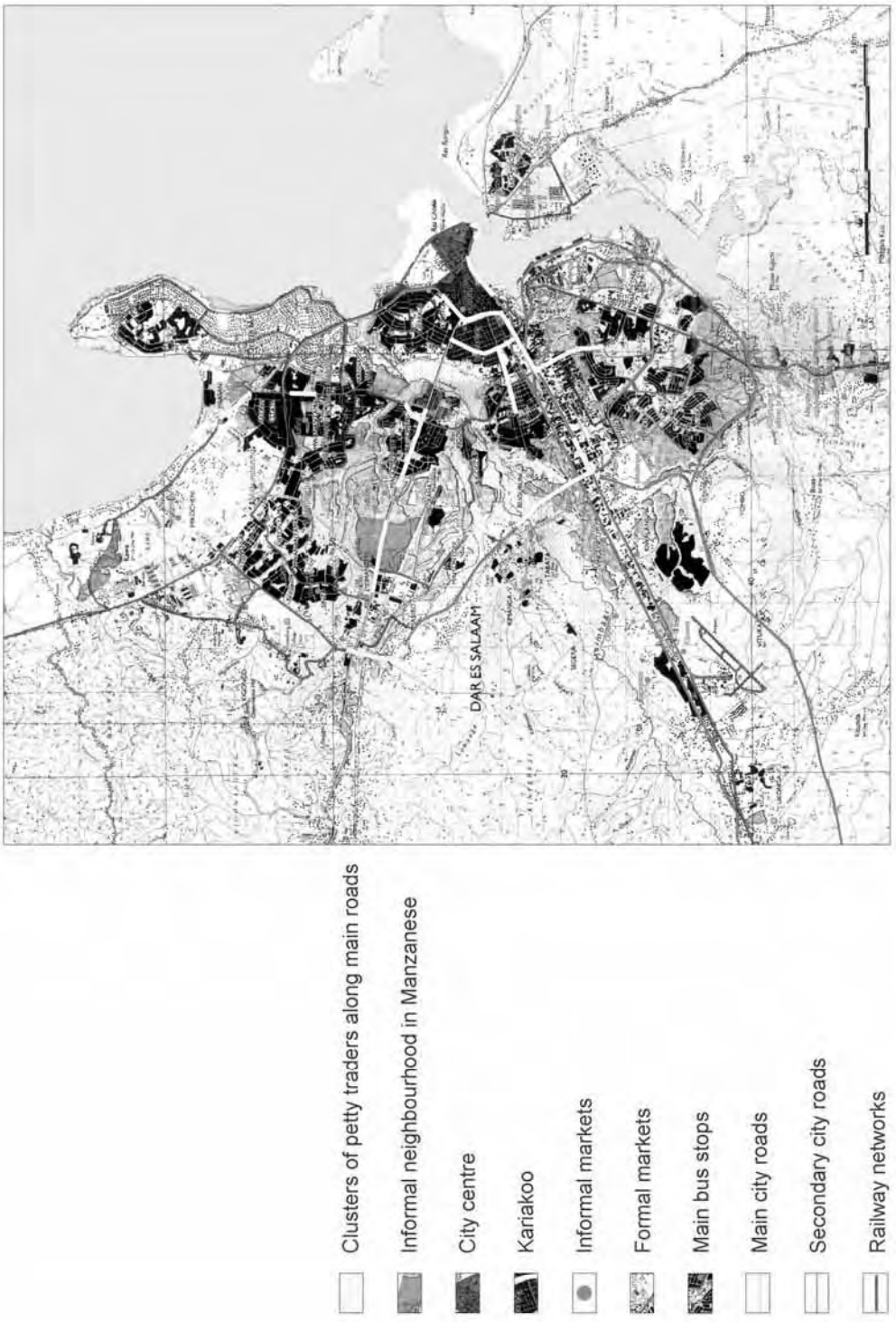


SITE LAYOUT
Scale 1/1000

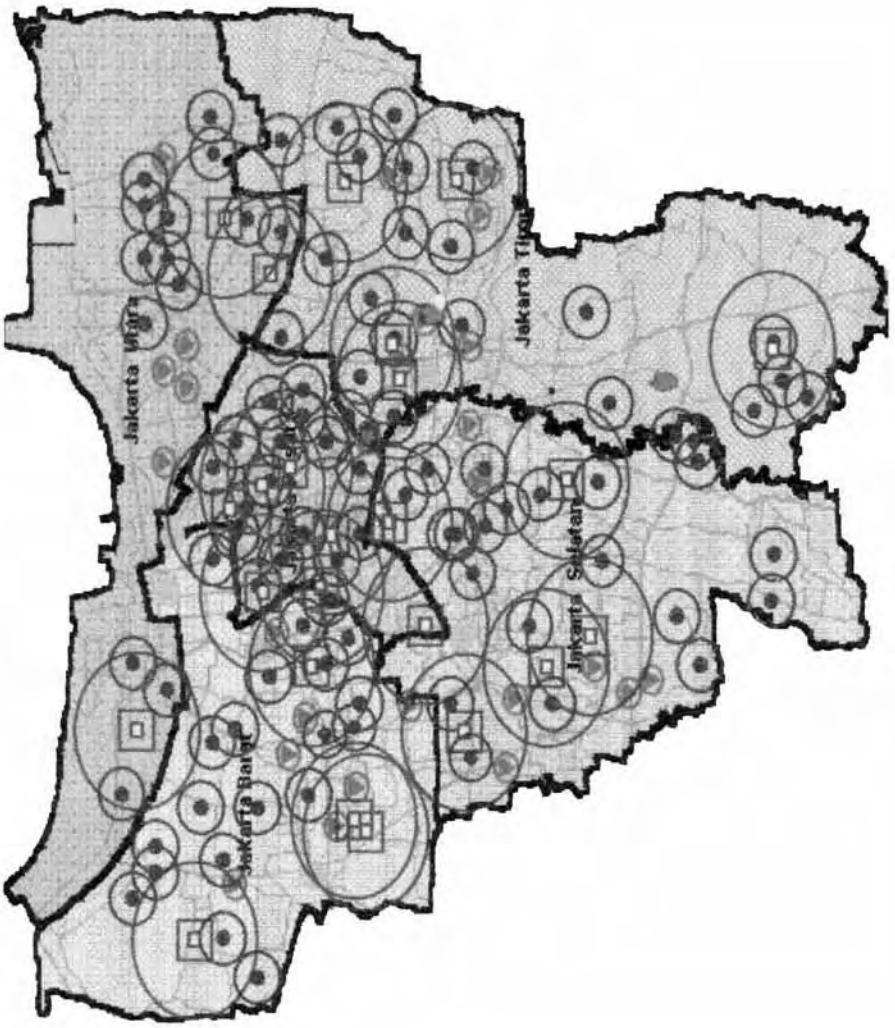
1 SERVICE PARKING
2 BUYERS PARKING
3 TOILETS
4 WATER TANK
5 ELECTRICITY GENERATOR

MUNICIPALITY OF GREATER AMMAN

Map 5
Dar es Salaam:
formal and informal markets



Map 4
Jakarta: location of markets

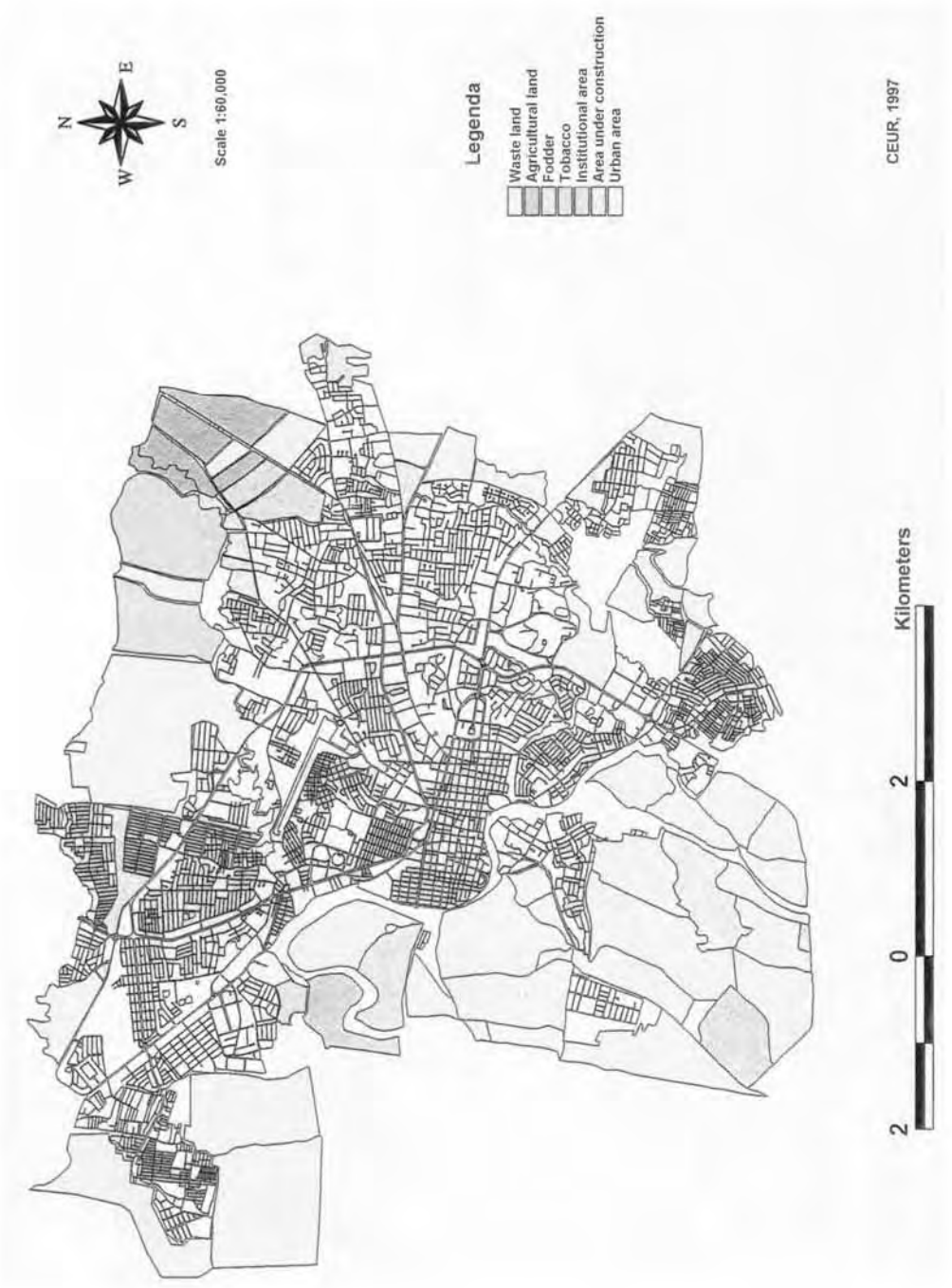


- WHOLESALE MARKET
- TRADITIONAL MARKET
- SUPERMARKET
- TRADE CENTER
- PRIMARY CENTER AREA :
  1. Glodok (Old City)
  2. Mangga Dua
  3. Gajah Mada and Hayam Wuruk
  4. Pasar Baru
  5. Segitiga Senin (Senin Triangle)
  6. Sabang
  7. Tanah Abang
  8. Tanjung Duren
  9. SPB Kembangan
  10. Blok M
  11. Jatinegara
  12. Kelapa Gading

Kind of market :

1. Wholesale Market	2
2. Tradibional market	150
3. Supermarket	46
4. Trade Centre	34
Total	**232**

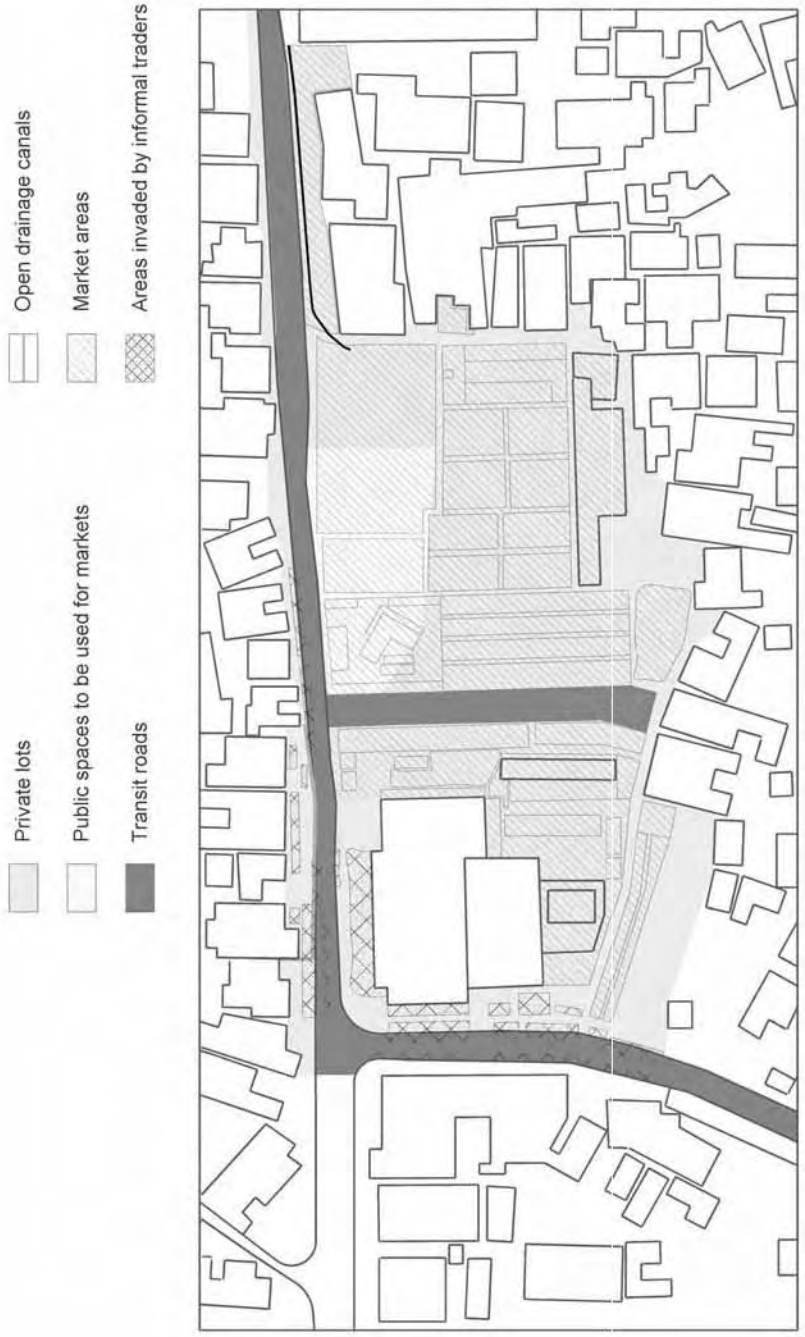
Map 3
Santiago de los Caballeros: suburban agriculture



Map 2
Santiago de los Caballeros: urban agriculture

Map 1
Santiago de los Caballeros: land use in periurban area

Map 7
Dar es Salaam:
Tandale wholesale market



Suggested reading

Amha, W. & Eshete, K. 2002. *Food Supply and Distribution System to Addis Ababa*. "Food into Cities" Collection, EC/154-02E. Rome, FAO.

Aragrande, M. & Argenti, O. 1999. *Studying Food Supply and Distribution Systems to Cities in Developing Countries. Methodological and Operational Guide*. "Food into Cities" Collection, DT/36-99E. Rome, FAO.

Argenti, O. 1999. *Urban Food Security and Food Marketing. A Challenge to Cities and Local Authorities*. "Food into Cities" Collection, DT/40-99E. Rome, FAO.

Argenti, O. (ed.) 1999. *Food into Cities: Selected Papers*. FAO Agricultural Service Bulletin No. 132. Rome.

Argenti, O. 2000. *Food for the Cities. Food Supply and Distribution Policies to Reduce Urban Food Insecurity*. "Food into cities" Collection, DT/43-00E. Rome, FAO.

Argenti, O. & Haroun, A. M. 1998. *Food Supply and Distribution to Accra and its Metropolis. Proceedings. AMA-FAO Workshop*. "Food into Cities" Collection, AC/14-98E. Rome, FAO.

Argenti, O., François, S. & Mouawad, H. 2002. *The Informal Food Sector. Municipal Policies in Support to Private Operators*. "Food into cities" Collection, DT/62-02E. Rome, FAO.

del Rosario, J. P. 2000. *El sistema de abastecimiento y distribución de alimentos en la ciudad de Santiago de los Caballeros*. "Food into Cities" Collection, EC/25-00S. Rome, FAO.

Eleperuma, S. D. 2000. *Challenges and Constraints Faced by Colombo Municipal Council in Supply of Meat and Poultry to the City*. "Food into Cities" Collection, EC97-00E. Rome, FAO.

FAO. 1999. *Regional Seminar on Street Food Development*. "Food into Cities" Collection, DHS/37-99E. Rome, FAO.

FAO. 2001. *Food Supply and Distribution to the City of Greater Amman (Case Study)*. "Food into Cities" Collection, EC/120-01E. Rome, FAO.

Hugon, Ph. 1997. *Multi-channel Food Supply Systems to Francophone African Cities*. "Food into Cities" Collection, AC/08-97E. Rome, FAO.

Leng, P. 2000. *Food Supply and Processing Issues in Phnom Phenh*. "Food into Cities" Collection, EC/81-00E. Rome, FAO.

Marocchino, C. 2002. *Il commercio informale e lo spazio urbano: il caso di Manzese a Dar es Salaam*. "Food into Cities" Collection, EC/136-02I. Rome, FAO.

RUAF. 2001. *Urban Agriculture Magazine. No. 4, July*. Leusden, the Netherlands, ETC RUAF.

Rupasena, L. P. 1999. *Food Supply and Distribution to Colombo*. "Food into Cities" Collection, AC/23-99E. Rome, FAO.

RUAF. 2002. *Urban Agriculture Magazine. Special Edition. World Food Summit five years later*. Leusden, the Netherlands, ETC-RUAF.

Schiere, H. 2000. *Periurban Livestock Systems. Problems, Approaches and Opportunities*. "Food into Cities" Collection, DT/48-00E. Rome, FAO.

Shaha M. H. 2000. *Food Supply in Karachi. Specific Problems and Workable Solutions*. "Food into Cities" Collection, EC/103-00E. Rome, FAO.

Shepherd, A. W. 1993. *A Guide to Marketing Costs and How to Calculate Them*. Agricultural Services Division. Rome, FAO.

Syrryeh, M. 2001. *Food Supply and Distribution Issues in Urban Planning in Greater Amman, Jordan*. "Food into Cities" Collection, EC/112-01E. Rome, FAO.

Sustainable Dar es Salaam Programme (SDP). 1995. *Environmental Planning and Management Process in Dar es Salaam. Integrating Informal Sector into City Economy.* Dar es Salaam, SDP.

Tollens, E. 1997. *Wholesale Markets in African Cities. Diagnosis, Role, Advantages, and Elements for Further Study and Development.* "Food into Cities" Collection, AC/05-97E. Rome, FAO.

Tracey-White, J. 1991. *Wholesale Markets. Planning and Design Manual,* FAO Agricultural Services Bulletin No. 90. Rome.

Tracey-White, J. 1995. *Retail Markets Planning Guide,* FAO Agricultural Services Bulletin No. 121. Rome.

Tracey-White, J. 1999. *Market Infrastructure Planning. A Guide for Decision-Makers,* FAO Agricultural Services Bulletin No. 141. Rome.

Wilhelm, L. 1997. *Food Supply and Distribution to Francophone African Cities. Synthesis of the Papers Presented to the FAO-ISRA Sub-Regional Seminar, Dakar, 14-17 April 1997.* "Food into Cities" Collection, DT/31-99E. Rome, FAO.

Wilhelm, L. 1997 *Food Supply and Distribution Networks and the Functioning of Markets in Africa.* "Food into Cities" Collection, AC/03-97E. Rome, FAO.

Wilhelm, L. 1997. *Food Transport and Intermarket Supplies in African Cities. Unknown Services to Users, Traders and Consumers.* "Food into Cities" Collection, DT/19-97E. Rome, FAO.

Wiwahari, S**.** 2000. *Food Resilience Province of DKI, Jakarta.* "Food into Cities" Collection, EC/78-00E. Rome, FAO.

Yasmeen, G. 2002. *Feeding Asian Cities. Proceeding of the Regional Seminar.* "Food into Cities" Collection, AC/37-01E. Rome, FAO.

Web site for downloading "Food into Cities" Collection publications:
www.fao.org/ag/sada.htm

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AGRICULTURAL MANAGEMENT, MARKETING AND FINANCE OCCASIONAL PAPER 3

Urban food supply and distribution in developing countries and countries in transition

A guide for planners

Urbanization often occurs in an unplanned and unregulated way: the city expands simply where there is space to cope with increasing population numbers, commonly in absence of infrastructure and services. These factors effectively impair the efficient functioning of food supply and distribution systems to urban centres. The demand for food in cities is growing and requires increasing quantities of food which need to be produced efficiently in rural and peri-urban areas. Moreover, existing market, storage and transport infrastructure is less able to cope with the growing quantities of required foodstuffs.

In such a context, planners may not only be asked to produce a town-planning scheme for the city or a plan for a market. Importantly, they are now expected to know about various aspects relating to food supply and distribution systems, so as to take the appropriate decisions which will contribute to reducing the cost of food to – and its access by - urban consumers, and low-income ones in particular, as well as minimising the negative consequences of food related activities to the city.

This Occasional paper describes the principal activities of food supply and distribution systems and suggests planning criteria for managing the physical and spatial dimensions of the city in order to improve the quantity, quality, variety and safety of food, and to help low-income urban populations to access it. The aim of this paper is not to provide prescriptive rules, but rather general guidelines that planners can adapt to their local situation and translate them into concrete action.

ISBN 978-92-5-106096-4

9 789251 060964

TC/D/I0388E/1/10.08/500