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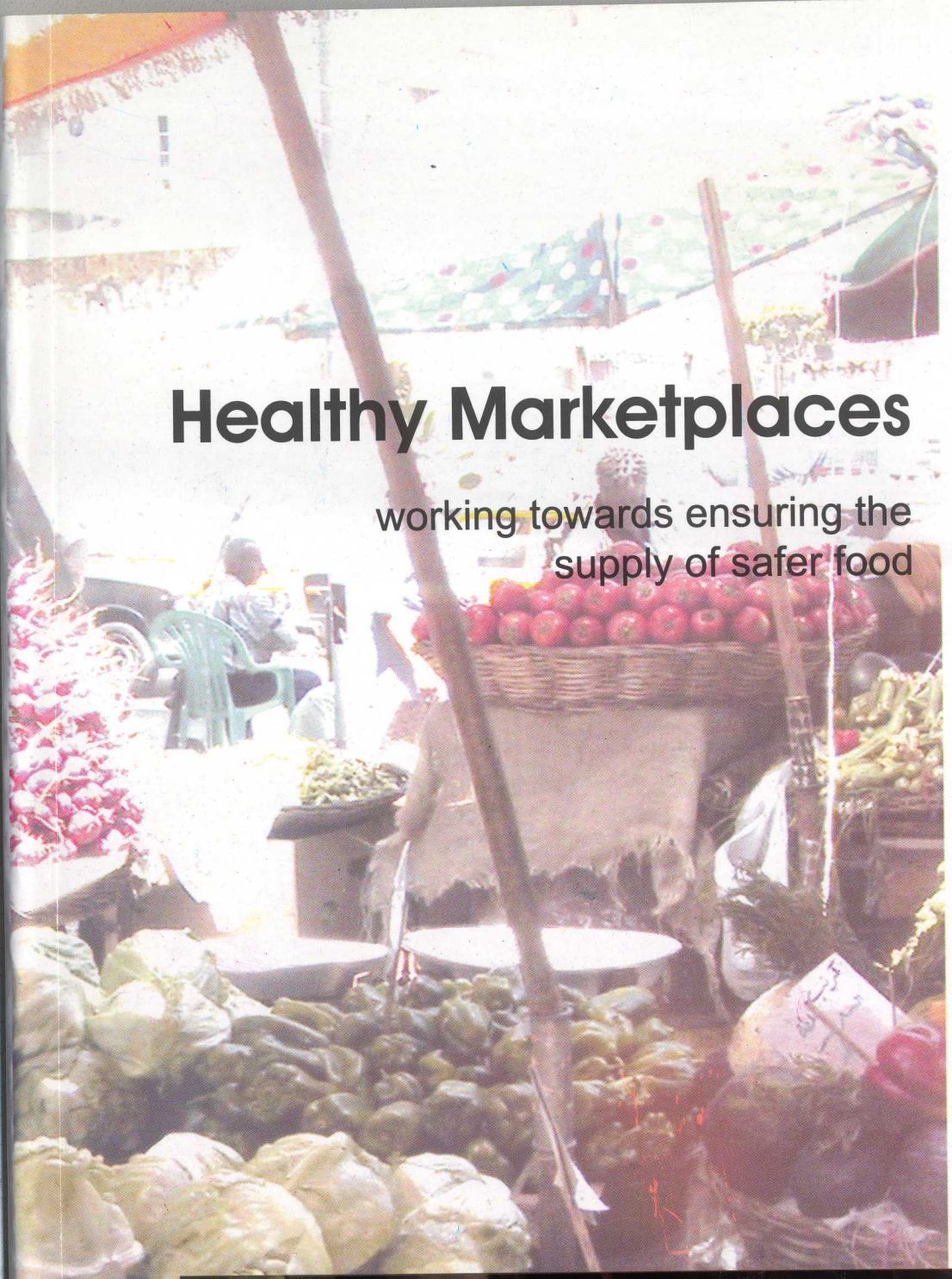
Distribution: General

Healthy Marketplaces

working towards ensuring the supply of safer food



World Health Organization
Regional Office for the
Eastern Mediterranean

Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH

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Preamble

Marketplaces as referred to in this document have one essential function in common, which is the provision of food. The implementation of a healthy marketplace project will be very different in different regions of the world, and this guide is meant as a point of orientation and reference. Marketplaces vary greatly, not only from country to country, but also even from district to district, which is one of their main attractions. This guide should not be seen as being prescriptive for each and every marketplace. Some principles do indeed apply to each market, whereas others should rather be seen in the particular local or cultural context.

Implementing a healthy marketplace project requires a community to establish its own, unique healthy marketplace vision. This guide is meant to serve as a reference point for establishing that vision.

We would like to encourage readers of this guide to send us any comments and feedback about the usefulness of the tools provided in this document, as well as any publications or reports on projects dealing with marketplaces, as these will be extremely valuable in the development of further guides.

1. Introduction

This guide has been prepared by GTZ and the WHO Regional Office for the Eastern Mediterranean, and is intended to provide practical advice for the initiation, implementation and evaluation of healthy marketplaces projects. It can be used to advocate the value of establishing healthy marketplaces as appropriate settings through which food safety-based health protection and promotion can be effectively focused, or as a practical guide enabling the actual implementation of healthy marketplaces projects. The aim of this guide is to initiate projects that ultimately result in improved access to safe and nutritious food in marketplaces. It is therefore not intended to improve the health of the marketplace as a setting as such. Furthermore, it is mainly concerned with the part of the food chain that is directly related to marketplaces and food safety, although options for linkages to the primary production sector are described. The guide can be used in urban settings as well as in rural settings, either by local communities or their authorities. It is based on the experiences gained in numerous ongoing projects and studies, most of which are set within communities that have undertaken steps to improve their marketplaces. Examples are provided that highlight successful approaches and possible barriers to success, as well as the means to overcome these barriers.

Health problems, especially in cities, are typically aggravated by unplanned, uncontrolled, and under-financed growth and development. Rapid urban growth has overwhelmed the capacity of many municipal authorities to provide basic environmental services and other minimum prerequisites for a healthy population. A growing number of people in cities, particularly the poor, are experiencing stresses and exposures that result in serious health problems. In view of the projected trends of increasing urbanization and deteriorating physical and social environments, in 1986 the WHO developed the concept of healthy cities as a vital tool for assuring that health is explicitly considered in urban management and development planning through community empowerment. The objective of the healthy city initiative is to improve the health of urban dwellers, especially low-income groups, by improving living conditions and public health services. The initiative operates by raising awareness of unsatisfactory environmental and health conditions, and by mobilizing community participation.

In addition to schools and workplaces, one of the most important settings in the healthy city initiative is the marketplace. The marketplace is considered as the commercial and social centre of any given community, reflecting the local culture and traditions of the people, and it therefore represents an ideal setting for health education. In marketplaces, food is handled and distributed. Access to safe and nutritious food is essential; indeed, it is the foundation of health. There has been much interest in the concept of healthy marketplaces in recent years, with pilot projects being implemented or planned in every WHO region[1].

It is expected that the guide will be used by local community leaders and health authorities who may or may not be familiar with the concept of healthy cities or healthy marketplaces, as well as by national authorities aiming to introduce the concept of healthy marketplaces to local authorities and communities. It should be noted that the guide has an urban focus, although the approach can be applied to marketplaces in rural settings as well.

[1] Ongoing healthy marketplace projects can be found in Brazzaville, Congo; Alexandria, Egypt; Port-au-Prince, Haiti; Maputo, Mozambique; Ibadan, Nigeria; Madang, Papua New Guinea; Paramaribo, Suriname; Dar es Salam, Tanzania; and Dong Ba and Hai Phong, Viet Nam.

2. Background

2.1 Healthy environments

The home, the school, the village, food markets, bus stations, the workplace: these are all typical settings where people live and work, and spend a certain amount of time in close proximity to each other on a regular basis. The health status of the population is determined as much, or more, by the conditions in these settings as by the provision of health care. Different holistic concepts have been developed in recent years that aim to make the environment supportive for health, not merely identifying hazards, but supporting and improving the settings in such a way that health is maintained and promoted. Some examples of these concepts include the WHO healthy city programme, as well as regional WHO initiatives such as the basic development needs initiative, or the healthy islands programme.

The basic development needs approach, which was developed in the Eastern Mediterranean Regional Office of the WHO, has initiated a process that aims at achieving a better quality of life by advancing the goal of 'Health for All'. The approach is based on the principle that health can contribute to the socioeconomic development of men and women through interventions in key areas such as water, food, health, family planning, communication, education, environment and security. Central components of the approach are community building and participation, the development of sustainable community resources, the provision of loans for income-generating activities, and the provision of education on health issues and general management. Currently, the approach is being successfully applied in mainly rural areas across 14 countries in the Eastern Mediterranean Region.

The healthy islands programme is being implemented in the Western Pacific Region of the WHO, primarily in the Pacific Islands. Like the healthy city programme, healthy islands is not based on pre-set strategic planning, but on full community integration with respect to the characteristics of the cultures of different population groups and to the needs of the community. It is implemented in the form of micro-projects in urban or rural settings.

GTZ has recently started to integrate the topic of 'national food safety' into its programmes on health, agriculture, trade and urban development. Several modules have been developed, notably on food legislation, restructuring and fostering the food control system, capacity-building in quality assurance in food laboratories (including certification and accreditation), strengthening consumer protection and consumer rights, and improving food production and handling.

2.2 Safe and nutritious food, a basic human right

Throughout human history, food safety has had a great impact on human health and food security. Despite the absence of scientific knowledge, methods to preserve and prevent food spoilage and contamination have nevertheless developed over time. One of the oldest and most well-known food safety measures is the ban on pork consumption imposed in Judaism and Islam. The contamination of pork with trichinas, or rather the long-term and grave health effects observed, led to its consumption being prohibited. Another good example is ergotism, which was a major source of food poisoning in the Middle Ages. The cause of ergotism, the fungus Claviceps purpurea, which grows on rye and other cereals, was only discovered in the 20th century; however, the solution of simply removing the ergots from rye represented an important food safety measure. Spices, which are rich in antioxidants and even bactericide substances, also continue to play a role in food safety. The hot curries and chilli

dishes popular in the tropics, where food safety is often compromised, tend to be high in such natural preservatives.

Diarrhoea is a major cause of childhood morbidity and mortality in the developing world. Global mortality estimates from diarrhoea and its complications range from 1.5 to 5.1 million deaths per year for children under the age of five. The most important causes of acute diarrhoeal illness are foodborne diseases. More than 200 diseases transmitted only or mainly through food have been identified. The agents that cause foodborne illnesses include viruses, bacteria, parasites, toxins, industrial chemicals, pesticides, metals and, most recently, prions. The symptoms of foodborne illness range from mild gastroenteritis to life-threatening conditions including cancer, birth defects, neurological, hepatic, and renal syndromes. It is difficult to reliably estimate the true incidence of all cases, because many episodes are not reported. Those most at risk are children, pregnant women, the immuno-compromised and the elderly. Outbreaks of foodborne diseases on virtually every continent demonstrate the public health significance of these diseases. The globalization of food trade makes it possible to become contaminated in one country and cause an outbreak in another, thus turning foodborne diseases into an international problem.

The growing disconnection between food production and food consumption, and the increasing availability of information, also has its costs. Consumers are more likely to overreact in cases of reported food scandals and misuse of agricultural technology if they know little about agricultural production processes. Producer-consumer communication can be more effective if consumers are well informed and can thus provide reliable signals to producers and vice versa.

Foodborne diseases have a major impact on economic development. Large amounts of money are lost – or rather, not gained – owing to absenteeism, expenditure on medical care, and the cost of investigating and controlling outbreaks. It is estimated that 2-3% of the cases of foodborne diseases lead to long-term ill health (e.g. reactive arthritis or kidney failure). Importing countries can reject unsafe food products, and contaminated food may damage the reputation of a country, for instance its tourist potential. According to the United Kingdom's Department for Environment, Food and Rural Affairs, gross public expenditures as a result of the bovine spongiform encephalopathy (or "Mad Cow" disease) crisis reached an estimated GBP 3.4 billion between 1996 and 2000. These facts are all the more regrettable if we note that food safety often serves as an indicator for sustainable development. In developing countries, food safety problems can seriously hinder economic development. Analysis of the economic impact of a Staphylococcus aureus outbreak in India showed that about 40% of the total cost of the outbreak was borne by the affected persons. The cost included loss of wages as well as lower productivity.

2.3 Why healthy marketplaces?

In most communities, marketplaces have emerged spontaneously at given locations. They have generally evolved, sometimes over hundreds of years, with limited involvement on the part of urban planners and little consideration for health protection and health promotion. Marketplaces, particularly in developing countries, are often one of the defining characteristics of a community, reflecting the local culture of the people. They commonly reflect community values, traditions and practices, and serve as an informal platform for the exchange of information. In many cities and rural communities, the marketplace is considered by most people to be a commercial and social centre. In addition, many marketplaces prove to have a great drawing power for tourists, who find in them a microcosm of the community they have come to discover and enjoy. However, the realities of modern life are sadly endangering the continued existence of marketplaces, with urban populations in particular increasing

and the demand for ease of access and assured food safety taking precedence over the need for social interaction that marketplaces also provide.

Marketplaces typically offer an array of local or regional street-vended foods, which form an important part of the daily diet of the surrounding community. Street-vended foods are not only appreciated for their unique flavours as well as their convenience, but they are in addition accessible and affordable for even the lowest income members of the community. Marketplaces are often essential for maintaining the nutritional status and health of urban populations, especially in developing countries. However, as colourful as markets may be, they also symbolize traditional attitudes and beliefs that are often at odds with practices that protect and promote health. There are various possible hazards2 to food in marketplaces, which can be biological, chemical or physical. A lack of water, sanitation and solid waste disposal can readily lead to improper hygiene, thus effecting the transmission of disease and the contamination of food.

From an economic point of view, a healthy marketplace offers the possibility of establishing linkages between development and health. If resources generated in the marketplace are used to improve health as well as to create demand for safe products among consumers, business in the market will improve, thus generating even more resources for further improvements. This mutually supportive dynamic can lead to sustainable long-term improvement in the health status of the population. In addition, a healthy marketplace will create a business culture that is in harmony with health and other needs of society. Because marketplaces also play an important social role in the exchange of ideas and knowledge, they offer a good opportunity for the practical education of both vendors and consumers on a range of health issues.

2.4 Vision and objectives

A healthy marketplace is a setting in which all involved parties collaborate to provide safe and nutritious food for the community in a health-promoting context, for the purpose of improving the health status of the population. All stakeholders, not only the consumers, but also local authorities, the market management, suppliers, vendors and other marketplace workers (including employees and contractors), must share this vision of a healthy marketplace.

A healthy marketplace project aims to:

- Ensure that the marketplace provides safe and nutritious food;
- Promote safe food practices in the home on the part of consumers;
- Help create knowledgeable and discriminating consumers.

These should be considered as the global aims of healthy marketplace projects wherever they are implemented, and should be kept in mind when analysing the situation and assessing the existing needs in any given marketplace and its surrounding community. However, at the same time, a

[2] Biological hazards are defined as bacteria, viruses and parasites, protozoa and microbial toxins. Chemical hazards include residues or traces of pesticides, herbicides, antibiotics, growth promoters, inorganic contaminants, lubricants, paints, disinfectants and environmental toxins, as well as improper use of food additives and pesticides. Physical hazards consist of glass, metal and wood fragments or other objects that may cause physical injury to the consumer.

successful healthy marketplace project that has been implemented following the guiding principles as described in this document will also probably seek to:

- Ensure that food safety promotion and health protection become an integral part of management practices;
- Create a healthy, secure and supportive environment;
- Foster health-conducive work styles, consumer behaviour and lifestyles;
- Provide sustainable income possibilities for all members of the market community on an ongoing basis;
- Reflect the culture of the region by orienting the community towards local, seasonal foods that have a good nutritional value;
- Create positive regional identification and foster environmentally-friendly behaviour and production, animal protection, education and infrastructure;
- Function as a lively social centre in the community;
- Serve as a model providing practical, lively education for people in food hygiene and other health and environmental issues, especially for children and young people, as well as street vendors, hotels, restaurants, etc.;
- Raise awareness and community participation in other health and public issues and increase social responsibility;
- Extend positive impacts to the local and surrounding community and environment;
- Indirectly promote good production, harvest and transport practices by primary producers, wholesalers and distributors;
- Operate as a concrete example of inter-sectoral cooperation, not only between participants in the food chain, but also between the various stakeholders, for example the administration, municipality, media, community, etc.

3. Fundamental rules for healthy marketplace projects

Not all of the people closely involved in the implementation of a healthy marketplace project will have the same level and depth of required knowledge, and therefore careful study and consideration of the fundamental rules is essential for each participant. Furthermore, most of the basic knowledge is of such a nature that it automatically becomes part of the overall 'food safety message' of the project, be it to vendors, consumers, or decision-makers.

In order to meet the primary objective of healthy marketplaces projects, namely to assure the provision of safe and nutritious food by the marketplace as well as the full commitment of all stakeholders and participants, projects should be based on the following two cardinal rules:

Rule 1. Promote food safety principles and risk reduction strategies throughout the farm-to-fork continuum; and

Rule 2. Assure the participation of all key stakeholders, and promote community participation.

Rule 1. Promote food safety principles and risk reduction strategies throughout the farm-to-fork continuum

The general and hygienic requirements for marketplaces should normally be based on the recommendations contained in the Codex General Principles of Food Hygiene, and on the basic principles of Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP). The latter principles are broadly focused and encompass many aspects of operational regulations. With regard to food safety, identifying hazards and discovering how to control them should be considered at each step of the farm-to-fork continuum.

Basic food safety principles should be applied: avoid contamination, minimize bacterial growth, and destroy pathogens. When implementing the project, all stakeholders and resource persons such as architects and urban planners should be made aware of basic food safety principles. These principles should guide project implementation, and be incorporated in the design for the improved or new marketplace.

A practical application of the food safety principles for consumers can be found in the 'Five keys to safer food' (see Annex 1). The rationale behind this approach is that a common educational message in a healthy marketplace project, as well as a consumer campaign, is extremely useful for enhancing communication with all stakeholders and thus the impact of the project, including members of the healthy marketplace Task Force.

The improper handling of food by people involved in the food chain is one of the main reasons that food can become unfit for human consumption. There are three main reasons for improper handling: firstly, a lack of knowledge concerning foodborne diseases, their causes, symptoms and implications; secondly, failure to perceive the extent of the threat or risk; and thirdly, an inability to change behavioural patterns. All these lacunae can be addressed by educating people about foodborne diseases, their causes and threats, long-term effects and their impact on human and societal development, as well as by promoting behaviour change among all involved partners. Awareness of food safety and health issues by all those who handle, prepare or consume food should be raised, and their behaviour should complement food safety principles. The first step here is to determine the target groups, then to develop the key messages and to select the tools to effect behaviour change.

The HACCP (Hazard Analysis and Critical Control Point) concept has been used in several healthy marketplace projects. The full implementation of the HACCP system, in its theoretical form, is rather complicated owing to its sophistication, and is therefore difficult to implement in marketplace settings, although it is useful in raising awareness of foodborne hazards and possible risks. Moreover, a lot can be learned from the application of HACCP to street food vending. HACCP should therefore be used in general as a learning tool, while its formal and complete application remains an option. (See Annex 2: Hazard Analysis and Critical Control Point (HACCP) in street food vending and marketplaces).

Since food is exposed to hazards at many stages of the food chain, coordinated efforts are required wherever possible to assure the safety of food. A holistic, feasible and structured approach to assure the safety of food sold in the marketplace should be developed, encompassing all levels of the farm-to-fork continuum. The safety and quality of food should be clear to the consumer in the context of this approach. If interventions are required which go beyond the immediate context of the marketplace, for instance at the primary production level, cooperation or at least exchange of information with the relevant institutions (e.g. extension service, Ministry of Agriculture) should be established as early as possible in the project. This cooperation should not be ignored, since it might become crucial when seeking to complete the final stage of the project.

In addition, it should be noted that an increasing number of urban dwellers are engaging in agricultural activities. This phenomenon has been witnessed all over the world, especially in the less developed countries. Agriculture and horticulture within and around cities is an activity for many, often unskilled, people. Individual households tend gardens on small plots, roadsides, terraces and patios, both to feed the family and also to sell through street vendors. It is estimated that 800 million people are engaged in urban agriculture worldwide, and they play an important role in feeding the world's cities. Because of its inherently 'casual' nature, this important aspect offers an opportunity to extend the project beyond the immediate sphere of a healthy marketplace project into (part of) the production sector. (See Annex 3: Good Agricultural Practices (GAP) and urban agriculture).

On a political level, all food safety activities require food regulations and their enforcement. On the local level, they require the provision of appropriate infrastructure and services. The active players in the food chain need the necessary information and assistance on how to assure food safety. The consumer should be aware of basic food safety concepts in order to handle food properly at home, and be educated to recognize the advantages of healthy food. The different components of a healthy marketplace project should address all these issues.

Rule 2. Assure the participation of all key stakeholders and promote community participation

It is possible that some consumers and vendors might not be interested in the healthy marketplace initiative, either because they do not recognize the problem of foodborne diseases, or that they consider them unavoidable. Diarrhoeal diseases are also seasonal, so that the perception of risk may vary. In addition, behaviour change is always inconvenient, even when knowledge about foodborne diseases exists. The interest and motivation of stakeholders are crucial to a project, since these attitudes determine its chances of success. Therefore, all stakeholders should be informed about, and if possible directly involved in, the healthy marketplace project. If all stakeholders are sufficiently involved, their views and concerns can be integrated, resources can be shared and problems can be prevented. Conflicting interests have to be identified, and agreeable solutions developed as a normal part of the planning process rather than on an ad hoc basis. All stakeholders should be informed about the project, and ways of ensuring their involvement in its implementation should actively be sought. The Task Force may consider forums for personal participation as well as other ways of participation, such as financial input and shared resources. The Task Force, core group and working groups should

constantly inform and network with all involved parties, and facilitate further contacts with other stakeholders and experts.

The healthy marketplaces Task Force should also ensure the active participation of food safety advisors, architects and experts in environmentally friendly construction, or at least seek their advice at all stages of the process. They should also keep up to date on the latest scientific developments, as well as locally established good practices and norms.

Problems might occur if a non-representative task force is used as the management structure for the implementation of the healthy marketplace project. This might cause a lack of participation and involvement in decision-making on the part of vendors, for example, since problems with communication, availability and time schedules are likely to occur. If a marketplace community is not closely involved, it will also be difficult to achieve behaviour change. A flexible and transparent working approach is therefore recommended for the healthy marketplace project.

Ideally, a healthy marketplace project should be carried out in a participatory manner. It should act as a model to mobilize and empower the market and its community to create a healthy marketplace that serves its needs and is sustainable. This can be achieved by orienting the project to the objectives and needs of the people who are directly involved and whose actions and behaviour determine its success: the vendors, the consumers and the market management. Decisions should be made according to their appraisal. Participatory designs with a co-decision-making structure are therefore proposed for every stage of the project. Common approaches for improving marketplaces have in the past focused on upgrading infrastructure. The construction of buildings and roads and the provision of water supplies and improved drainage, while expensive, are often attractive because such projects are relatively easy to implement, and obviously contribute to safer food. However, past results have been somewhat unsatisfying, reflecting the fact that a healthy marketplace is based not only on the improvement and integration of the sub-systems, such as water supply and drainage, but also on the integration of these systems with the behaviours of vendors, market managers and consumers.

Gender equality is not always a reality in communities, and the danger exists that women and children, and thus their interests, will not be reflected proportionally in the setting of goals for projects. It has been shown that women can contribute greatly to an improvement in health and development, even in settings where their involvement in decision-making is minimal. Women (and also children) tend mainly to emphasize health and environmental issues, and they are usually the food managers at home. Moreover, they are often motivated to take action, and their social role allows them more easily to reach out to their neighbours, the community, schools, etc. Therefore, all possible means should be used to involve them and to strengthen their views and position in the community. A healthy marketplace project offers the chance to achieve this in many aspects. Women can be encouraged to join the Task Force, representing consumers or vendors, and they can be educated to become teachers in their own direct environment. With the assistance of a micro-credit system, they could also become vendors themselves and generate their own income.

Problems are likely to occur if the physical layout of a marketplace is redesigned or changed without the involvement of the marketplace community. For example, some governmental attempts to relocate and improve the infrastructure of marketplaces have not been accepted by vendors, and after initial relocation they returned to the previous (unauthorized and unsuitable) site.

4. Project implementation and experience

4.1 Implementation phases

Preparation, planning, monitoring and evaluation are essential for the successful implementation of a healthy marketplace project. This section does not go into much technical detail, but describes the project phases. The terms of reference for a typical healthy marketplace project can be found in Annex 4.

a) Preparatory activities

Advocacy: In order to assure political commitment, an advocacy campaign will have to be considered, aiming at appropriate national, regional or local level authorities, not only informing but also involving them in the healthy marketplace project. Obviously, city and local authorities need to be made aware of the healthy marketplaces concept, and be persuaded of the benefits of a healthy marketplace project. This is the role of advocates such as national authorities, or key persons with the capacity to bring about change. Other possible advocates are the WHO, or national food safety or public health officials. In addition, a motivated consumer organization or vendor task force can also contribute to this goal. Once the commitment is secured, local authorities are expected to develop a strategy and plan of action to support the healthy marketplaces concept, and to actively promote it, not only in the well-defined areas of projects, but in all related activities as well. National or provincial authority leadership should actively support the local authority's actions with appropriate resources, and possibly establish a supportive network of local authorities. (See Annex 5: Advocacy tools).

Preliminary situation analysis: To obtain an overview of the specific situation and the feasibility of a healthy marketplace project, a preliminary situation analysis will have to be performed by the project initiators. The description should describe all relevant background data on the actual situation, possible partners, the areas of the authority's responsibility, the health and safety concerns of the resident population, together with the needs of the market community, vendors, employees, contractors and consumers. A preliminary feasibility analysis will then lead to the next step, whether or not actually to implement a healthy marketplace project.

Decision to initiate a healthy marketplace project: Based on the preliminary analysis, the decision to initiate a healthy marketplace project will have to be taken, weighing all the relevant pros and cons. As many contributors as possible should ideally take part in this decision, including the relevant local authorities, and the market community itself.

b) Planning

The project will require thorough planning to assure sustainability and prevent implementation delays. For this purpose, the following activities are recommended:

- The establishment of a healthy marketplace Task Force;
- A detailed situation analysis and needs assessment research;
- The prioritizing of activities and elaboration of a workplan;
- Resource mobilization.

Establish a healthy marketplace Task Force: One of the first activities once the decision to start a healthy marketplace project has been taken is the formation of a so-called healthy marketplace Task

Force. This functions as the central body that plans and implements the project. Its members must be drawn from representatives of all relevant stakeholder groups, so as to ensure a comprehensive approach and lasting impact. The healthy marketplace Task Force will form a core group for day-to-day work, which should ideally not have more than four to six members. Working groups on special topics can support the Task Force and its core group. These may consist purely of members from the Task Force, but they can also be strengthened with the addition of external experts, such as urban planners or architects, food scientists, economists and experts from international organizations. It should be noted that the actual structure has in each case to be determined according to the particular local conditions.

The key words for a successful project and a well-functioning Task Force are coordination, transparency, frequent communication, flexibility and adequate representation. These will contribute to an open and conducive atmosphere, and a sense of ownership by all stakeholders. Furthermore, frequent and transparent communication will ensure mutual understanding and thus further improve the commitment of all parties involved in the healthy marketplace project.

The development of the healthy marketplace Task Force will most probably be a gradual process. The roles and functions of all stakeholders will not be immediately evident, and care should be taken to complete a ‘map’ as far as possible, and to update it constantly during the implementation of the project. Representatives from each identified sector or interest group should be invited to join the Task Force and participate in planning and implementing the initiative. This may also be required for one of the technical working groups at a later stage.

In order to obtain full commitment to the healthy marketplace project, the concept must be fully understood by the marketplace community. Therefore the Task Force, in tandem with the national authorities, is responsible for increasing the recognition and understanding of the concept. Existing initiatives, committees and projects should be consulted, and where possible, activities should be integrated or at least coordinated.

The Task Force should initiate the required actions to establish working structures. It should identify personnel for the core group, who will provide leadership for the initiative and report on progress to the Task Force and the local authorities. Due to its multi-sectoral nature, and the different interests represented, the project will require effective leadership to bring about action and change. Leaders should be able to take a participatory approach with the marketplace community, and act as effective change agents and successful communicators with all stakeholders, including the coordinating body and local authority.

Detailed situation analysis and needs assessment research: To be able to plan activities in the healthy marketplace project, a detailed needs assessment is required, incorporating the problems and possible options for the marketplace partners. In addition to the needs assessment, a thorough situation analysis must be conducted to examine the prevailing practices and hazards within the existing marketplace, the risks associated with the market environment, and the practices currently employed. The input of persons with an interest in the market should be obtained (typical techniques include interviews, direct observation, questionnaires, consultation with persons in key positions and/or specific knowledge, review of relevant literature, focus groups, records and report studies, work samples, etc.). The resulting situation analysis will form the basis for the workplan. Marketplace community members should identify health and safety concerns, marketplace visions, and possible solutions and threats from their respective points of view.

The Task Force could also be trained in survey methods, and conduct a survey among the (market) community members, including the vendor groups they are responsible for, in order to obtain an accurate picture of the prevailing needs, problems and future visions concerning the healthy marketplace. The needs assessment should subsequently be validated with the input of (external) scientific experts. Typical techniques used to perform the initial needs assessment include brainstorming sessions, or more systematic approaches following tools such as a SWOT analysis or the Participatory Rapid Appraisal technique. Some of these approaches, as well as some survey techniques, are described in Chapter 6.

Prioritizing of actions and development of a workplan: At this point the marketplace can to some extent be visualized, thereby providing a basis to discuss changes, improvements, new arrangements, etc. If major structural changes are required, a three dimensional model of the proposed new market could be built. Furthermore, the situation analysis and needs assessment serve as the basis for discussions on priorities and activities designed to improve the existing situation.

The model should be based on the situation analysis, and serve as a basis for redesigning as well as for minor changes. Input and good/bad examples gathered from other marketplaces can then be compared against the model. This model could be displayed at the marketplace or another central site to generate further input from outsiders or to raise community awareness and participation. The healthy marketplace project could, for example, be officially launched in this way, inviting all stakeholders and collecting feedback.

The Task Force should develop a workplan schedule according to the situation analysis and the needs assessments. The working schedule should include:

- Priorities, goals and objectives;
- Time schedules for the tasks (short-term, medium-term and longer-term actions);
- Indicators by which progress can be monitored and evaluated;
- Responsibilities; and
- Requirements.

Resource mobilization: Project funding should include the facilitation of income-generating activities at the marketplace, and any improvements to marketplace facilities, such as refrigerators, display and storage equipment, or to the basic infrastructure such as safe water supply, sewage and health services.

The Task Force should plan the cost recovery, monitoring and evaluation of the project. It should agree on how to communicate the results to all stakeholders. For example, it might not be feasible for the market community itself to undertake the first steps in order to improve their marketplace, since they cannot afford basic facilities like refrigerators, storage equipment, etc. Therefore, funding should be made available to improve food safety in the marketplace; to establish shared infrastructure improvements regarding the water supply, waste disposal, health services; and to facilitate income-generating activities in the market.

In a healthy marketplace project, a revolving fund that can provide micro-credits might be a useful financing option. ‘Not-yet-vendors’ (persons who are considering setting up their own small vending business) could start up small businesses; others could improve their businesses by following the philosophy of a healthy marketplace; and the broader community could even improve the general infrastructure (such as shared transportation vehicles, streets, water supply, waste removal, etc.). Other options to provide financial resources could take the form of ‘market fees’, to be spent according to

common priorities and needs, as well as the provision of infrastructure, services and improvements by the higher authorities.

c) Monitoring and evaluation

One of the most important lessons learned from various healthy settings initiatives has been the need to continuously monitor and evaluate progress. To do so successfully, great attention has to be paid to the identification of appropriate and measurable indicators from the very beginning. Monitoring should be incorporated into the workplan, not added as an afterthought.

To evaluate a healthy marketplace project, a combination of internal evaluation by the marketplace community and external evaluation by the Task Force and/or external experts on a regular basis is strongly recommended. The evaluation process has to be thoroughly discussed in the Market Development Task Force in order to clarify in advance which roles these two evaluation procedures should play and which consequences will arise from which results.

Monitoring should be considered for the different components of the healthy marketplace project. Typical components include: hygienic food handling behaviour on the part of every participant in the (marketplace part of the) food chain; changes in market management and organizational structure; and improved health care and 'healthy' facilities. When, how and how often these will be evaluated should be clarified in the workplan, together with what possible consequences according to the outcome are envisaged. The workplan should also mention how outcomes will be communicated to all stakeholders, task forces etc., and how the workplan itself can be revised if necessary. The components do not necessarily have to be followed in chronological order: many actions can start in parallel or in a different order.

As part of the healthy marketplace project, management and evaluation systems should be built up and strengthened in order to provide an efficient self-sustaining system. The aim should be a marketplace that remains healthy thanks to ongoing monitoring and evaluation, allowing the initial healthy marketplace project to evolve as needs and priorities change. Encouraging an effective self-monitoring and evaluation system for the marketplace can achieve this. Marketplaces are logical points to establish cost-effective monitoring and control for a range of potential foodborne hazards, both chemical and microbiological, as well as to protect against adulteration of food and fraud.

There is no single measure that determines when a marketplace becomes healthy. Marketplaces vary tremendously in their stages of development and knowledge, as well as their resources and impediments. Is it good enough then to have in place a process in which everyone works together to achieve an agreed vision for health in the context of the marketplace community? Obviously not, for if the answer were 'yes', it would mean that simply by putting in place a strategy and action plan, a community would already have a healthy marketplace. Each community developing a healthy marketplace project is likely to have a unique vision with specific targets. It is the vision, the targets and milestones towards these targets that need to be developed in a participatory approach, and monitored and evaluated so that community can be considered a healthy marketplace. A healthy marketplace therefore is an organization of stakeholders that is conscious of its role in providing safe and nutritious food, and that continuously strives to improve the market, mainly through its own resources.

Each marketplace community must set its own short, medium and long-term objectives and indicators of success at the outset. These indicators need to be SMART (specific, measurable, appropriate, realistic and time-bound), and can include both process and outcome indicators. They need to have a clear measure of impact on health. Indicators should not only be set for the continuous self-monitoring

of the marketplace, but also to indicate that the healthy marketplace initiative has reached certain targets. The community itself must be the group that determines the point at which the marketplace can be termed a healthy marketplace. It is equally important that the community is able to communicate to others why it feels the marketplace meets the criteria set to determine this, although of course others may feel the marketplace may have a long way to go before it reaches such a goal. The subjective nature of deciding whether a marketplace is a healthy marketplace or not means that when community awareness alters, the community's assessment will change as well. If a risk not previously perceived as present or relevant is identified as a result of external advice, then the community should move to reinforce the marketplace's existence as a healthy marketplace by taking action to address this risk.

4.2 Collaboration with healthy cities projects

Can a marketplace become a healthy marketplace in a community that is yet to embrace the healthy cities concept? While the environment is likely to be more supportive if authorities have already embraced this concept, it is not an essential prerequisite. For instance, a core group of active vendors may have the vision of making their marketplace a 'healthy marketplace', and they may set out to do so independently of programmes and projects run by the local authority. The commitment of the vendors, who are the core stakeholders controlling many of the resources required to support a healthy marketplace project, is vital for success. It should however be noted that as far as public marketplaces are concerned, the commitment of the local authority and market management is also required. The introduction of a healthy marketplace project can be considered as a 'settings module' which can be implemented either within one of the existing concepts, or as a single project. As a single project, it may prove an incentive to establish a broader programme when success has been proven.

4.3 Healthy marketplace experiences

Alexandria, Egypt

Ibrahimiya Market is located in the Middle District of Alexandria Governorate. It is strictly a traditional market for the middle classes, and was built in 1912 by the Greek community of Alexandria. It is rather unique because it was purpose-built as a marketplace, and did not develop haphazardly into one. A healthy marketplace Task Force was set up for this market, consisting of the national and local authorities, academia and donors. The preliminary situation analysis results indicate interesting trends that could also apply to other traditional marketplaces in Egypt.

A survey of the levels of pesticide residues and heavy metals, as well as a microbiological analysis of vegetable and fruit present in Ibrahimiya Market, was carried out as part of the situation analysis. The microbiological screening indicated faecal contamination as well as parasitic infestation, especially shigellosis, thus demonstrating that sanitation standards, rather than other contamination factors, are not adequate and thus need improving. The contamination levels found were not alarming, except for products eaten without cooking. Here the need for the hygienic education of food handlers and consumers is very important.

Pesticide contamination was absent, although it should be noted that sampling took place in the winter season. However, alarmingly high lead and cadmium levels were found on fresh fruit and vegetables. This will require extensive preventive measures, and the Task Force is working with the relevant authorities to identify the exact cause of the contamination. The measures will possibly involve the

producers, as well as protection from heavy traffic roads, since it is believed that lead contamination may be due to the extensive use of leaded gasoline and subsequent air, water and soil contamination. It was recommended that soils and water from suppliers' agricultural land should be monitored. All products were, however, free of mercury contamination.

Paramaribo, Suriname

A WHO mission was undertaken to Suriname to promote the application of the healthy marketplaces concept to the marketplaces in the city. The mission supported and extended the ongoing efforts of the Suriname Markets Task Force, which has achieved significant improvements in regulation and vermin control in a number of markets in Suriname. The Government of Suriname, in recognition of the importance of the country's marketplaces for the health and development of the population, established in the mid-1990s a Markets Task Force to re-establish authority and order in the country's markets. Subsequently, members of this Task Force have initiated efforts to increase the viability of these markets and the safety and quality of their products. In light of this and PAHO/WHO's ongoing commitment to healthy marketplaces, the Government of Suriname, through the Ministries of Health and Regional Development, requested PAHO/WHO to provide financial and technical collaboration in this area.

Marketplaces in Suriname are colourful sights with their multitude of vendors of fresh produce, fish, meats, poultry and ready-to-eat food. However, these foods might become contaminated unless adequate precautions are taken. Because the majority of the population live in the urban and peri-urban areas of the capital Paramaribo, the purchase and consumption of safe and wholesome food in the markets is an important public health issue.

The mission, accompanied by the PAHO/WHO representative, first met with the Minister for Regional Development and members of the Markets Task Force and market authorities. It was agreed that, to effectively address the problems of food safety, a marketplace must first have an organizational structure which allows basic controls to be implemented, particularly as regards the safety of foods being offered for sale and their handling practices. In Suriname, the Markets Task Force and market authorities have already established important positions in a new organizational structure.

Subsequently the mission, in the company of representatives from the market authorities, visited other potential partners, including various government agencies. In these meetings it was noted that, given the volume of food being handled, marketplaces are logical points for health authorities to establish cost-effective monitoring and control of a range of potential foodborne hazards. To accomplish this, the Surinamese authorities were encouraged to examine the food safety content of their proposed market by-laws and to implement these promptly. The Bureau of Public Health was encouraged to involve their food inspectors and food analysis laboratories in improving the safety of marketed food. In addition, it was pointed out that marketplaces offer the opportunity of educating producers, vendors and consumers about a range of food safety issues that are vital for the safety of their products and the health of the consumer. The Deputy Director of the Bureau of Public Health stated that the healthy marketplaces concept provided a unique opportunity to focus the bureau's health activities on reducing the transmission of foodborne diseases, which he viewed as one of the most serious public health problems in Suriname.

During these awareness-raising meetings, other government personnel in such areas as agriculture and fisheries, the water supply, environmental control and solid waste management not only expressed agreement with the concept but also proposed to increase their collaboration with the market authorities. As a direct consequence of the mission's activities in this period, managers in each of these

areas committed additional facilities and/or services to assist in improving markets in Suriname. The mission also obtained commitments from the University of Suriname, private contractors, market vendors and the Belgian Cooperation Agency to collaborate in various capacities.

In a workshop featuring all stakeholders, it was concluded that, that while significant advances had been made in improving the management and hygiene of the Central Market in Paramaribo in recent years, much more work was required to ensure that the food for sale was safe and wholesome. In this regard it was recognized that the responsibility for future improvements lay not only with the market authorities, but also with a number of government agencies, producers, importers, processors, vendors, trade and technical institutions, and consumers.

Dong Ba, Viet Nam

To ensure that all aspects of the marketplace would be addressed, the Dong Ba Market project developed a management plan. This management plan, or workplan, is extremely useful because its 'generic' version is very comprehensive, and is therefore presented below in detail. Basically, a situation analysis of the marketplace is conducted to identify the following aspects:

- Hazards/ hazardous conditions
- Potential adverse health effects
- Possible preventative actions
- Time frame
- Responsibilities
- Monitoring.

These have been combined in a workplan for the various segments of the marketplace, which can be listed as follows:

1. Primary production and transport to the market

    - Fruit and vegetables
    - Fish
    - Dairy
    - Meat
    - Poultry
    - Dry food

2. Market site and external support systems

3. The design of buildings and connected areas in the market

    - Zoning
    - Infrastructure
    - Environment

4. Market maintenance

   – Market cleaning and sanitation programmes
   – Market solid waste disposal
   – Market cleaning and disinfection
   – Pest and domestic animal control

5. Vending units, equipment and utensils

   – Design, construction and maintenance of vending units, equipment and utensils
   – Cleaning and disinfecting vending units, equipment and utensils
   – Water and ice - sufficient and safe supply

6. Hygiene

   – Toilets and hand-washing facilities
   – Personal hygiene in the marketplace

7. Food preparation and processing

8. Consumer education

5. Food safety hazards in marketplaces

5.1 Where do food hazards occur in marketplaces?

Biological, chemical and physical hazards may arise in the marketplace as a result of poor marketplace design, construction and maintenance; unsafe food handling practices such as improper cooling, time lapses between preparation and eating, inadequate reheating, improper hot holding and improper cleaning of equipment and utensils; colonized or infected persons handling food, and a lack of hygienic facilities; a limited supply of safe water; improper waste disposal; inadequate pest control; and a lack of consumer awareness of food safety. In addition, food is occasionally adulterated and/or mislabelled in the market, leading to health, nutritional or economic problems for the consumer.

5.2 Pre-market introduction of food hazards

Food hazards associated with raw produce are most often introduced to the food during production, harvest and storage as well as during transport to the market. Chemical hazards present in food may arise from a diversity of sources during production and transport to the market, including industrial pollution of the environment (e.g. from lead, mercury, cadmium, arsenic, polychlorinated biphenyls (PCBs) and radionuclides), improper use of agrochemicals (e.g. pesticides, fertilizers and drugs used in animal husbandry), improper fishing and fish handling (e.g. histamines, shellfish toxins and formaldehyde), as well as biological sources (e.g. plant toxins, marine toxins and mycotoxins). Biological hazards such as bacteria, viruses and parasites may also be introduced from a diversity of sources, including the natural environment, polluted water used both to irrigate plants and wash food, improper slaughtering practices, and from poor harvesting, storage and transport to the market. (See Annex 3: Good agricultural practices (GAP) and urban agriculture).

5.3 Post-market hazards

Consumers often fail to perceive the nature of foodborne illness and the most likely pathogen source. They tend to assume that their foodborne illness was caused by water, rather than food, and if they blame food, it tends to be from outside the home. Approximately one-third of consumers thought food safety problems most likely occurred at food manufacturing facilities, and one-third blamed unsafe restaurant practices. Only 16% thought mishandling was most likely to occur in the home. However, food safety experts believe sporadic cases and small outbreaks in the home are far more common than recognized outbreaks. Failure to recognize the home as a likely source of foodborne illness is not unexpected, because illness traced to a food establishment usually affects many people and may receive widespread publicity, whereas illness that occurs at home is rarely reported unless severe.

Although many consumers recognize the potential seriousness of foodborne bacteria, they lack information on safe handling and storage of food products. If consumers fail to perceive the nature and origin of foodborne illness, they will not be easily motivated to change their own behaviour. Motivation for proper food handling requires viewing the mishandling of food as posing a direct threat to one’s health. The failure to associate mishandling of food in the home with foodborne illness interferes with foodborne disease education efforts. Taking individual responsibility for the safe handling of food in the home and at local markets or street vending business is crucial if the incidence of foodborne diseases is to be reduced.

6. Improving market environments

6.1 Infrastructure

Infrastructure-related interventions affect the physical and operational environment, the health services provided, and the extent of the impact the market has on its environment. Improving the infrastructure can be accomplished either by improving or relocating an existing market, or by setting up a new market. In all three cases, the same basic approach applies, with one basic difference between working with an existing marketplace and creating a new one: interventions in new marketplaces are not based on any previous experience or 'bad practice', and can therefore serve as examples for future improvements. Thorough review and evaluation is imperative in such situations.

The physical infrastructure of the marketplace contributes to health protection and the promotion of food safety as well as to the health and safety of the market participants. In designing, constructing and maintaining the physical environment (buildings, floor plans, equipment, ventilation, fire control, etc.), the marketplace community should respect basic health and safety rules as major considerations, and all local building codes must be complied with. The materials used in the construction of the market should not be hazardous to health, and should be easy to maintain and clean. The market fencing or perimeter should be designed and constructed so that adequate light and ventilation is provided to enable healthy and safe operations. Switches, electrical wiring and electrical equipment should be in accordance with the relevant codes, and must be properly located, constructed and maintained. A fire prevention plan should be prepared and implemented. Health amenities like rest areas, changing rooms and designated eating areas should be provided. Sufficient and appropriately placed toilets for both men and women with adequate designated hand-washing facilities should also be available. An adequate (in terms of safety, quantity and pressure) supply of water needs to be available for washing and disinfecting; potable water should be at least available for drinking. Drainage should be appropriately designed to meet the various needs for washing across the marketplace, and should be regularly maintained to prevent blockages and ensure that timely corrective action is taken when necessary. Solid and liquid waste should be removed in a timely fashion (at the very least on a daily basis) from vending units and public spaces and stored in closed containers that do not offer access to pests. A marketplace maintenance programme should be put in place and adequately resourced.

Basic health services should be available to vendors and market employees. The local health services should collaborate with the healthy marketplace project to make basic health services more accessible to vendors and employees. Training in first aid should be provided to market vendors and employees, and local health services personnel could also offer training in relevant public health topics. In markets selling prepared food, training in food hygiene and safe food handling practices, as well as awareness-raising regarding preventive measures, including immunization, should be provided to the handlers. In situations where the vendor could transmit a disease to the consumer, for instance hepatitis A or typhoid, or is suffering from certain symptoms, medical attention should be available and, if necessary, the handler should not be allowed to handle food items until s/he has recovered and is no longer transmitting pathogens.

The local authority and market management should develop an environmental management strategy to minimize the negative impacts of the market on the external environment. Public health measures should include pest control programmes that need to be regularly applied, monitored and evaluated. If applicable, noise control programmes should also be considered. Solid and liquid waste from the market should be managed appropriately to minimize the impact on the environment. Attention should

be paid to the possibility of implementing practices such as composting and recycling of materials. Effluent should be treated in such a manner as to minimise cross-contamination, thereby ensuring that the external environment is not polluted as a result; in similar fashion, efforts should be made to ensure that hazardous materials are handled safely in order to minimize cross-contamination and contamination of the external environment.

6.2 Operational environment

Market operations should be conducted in a manner to protect and promote health. The marketplace should have a well-established administrative system. Ideally, market operations should be zoned to more effectively protect selected commodities from contamination, e.g. live animals, raw foods such as meat, fish and poultry and ready-to-eat food should be separated in order to protect ready-to-eat foods from contamination from the hazards carried by animals and in raw food. Food products generating large quantities of solid and liquid waste should be located so as not to cross-contaminate other foods.

Motor vehicle access should be planned to enable ease of vendor, supplier and consumer access while also limiting the capacity of the vehicles to contaminate products and harm marketplace users. The marketplace should have tools to communicate food safety issues and receive feedback for customers and vendors. Ideally, food should enter the market through a separate entrance, away from waste storage and disposal areas.

Local authorities should implement a programme monitoring the water quality provided to and used by the marketplace. Veterinary authorities should provide appropriate monitoring and control at the point of slaughter, while the health authorities should monitor the safety of food sold in the marketplace, as well as of other commodities sold in the marketplace. Food inspection by food control officials in a marketplace ideally provides systematic independent examination of food businesses to determine compliance with existing legal requirements, as well as advice on construction, layout, maintenance and environment sanitation plus safe practices for food handlers. Food control authorities, or the inspectorate, should be actively involved in an advisory role.

7. Training and education

7.1 Methods for inducing behaviour change

Proper handling of food along the entire food chain is necessary to assure food safety. In order to guarantee the outcome of a healthy marketplace project, and to promote safe food behaviour, a thoroughly planned strategy designed to induce behaviour change will have to be prepared. Possible strategies for inducing behaviour change include motivational interviewing; participatory approaches for behaviour transformation; social marketing techniques and health education.

Motivational interviewing is a direct, 'client'-centred counselling style designed to elicit behaviour change by helping clients to explore and resolve ambivalence. This might seem a rather sophisticated approach for a healthy marketplace setting, as it involves highly qualified interviewers; however, motivational interviewing has had very positive results in motivating people for a CDC water safety programme, and seems a suitable method that can be applied to similar settings. Even if it is not financially possible to train health workers in motivational interviewing, it could be helpful to know some principles in order to facilitate the initial approach of vendors and consumers.

For the healthy marketplaces initiative, typical motivational interviewing techniques could consist of:

- Starting with simple and brief explanations and campaigns;
- Training health workers, Task Force members etc. to conduct motivational interviewing among vendors and consumers;
- Using 'teaching moments'. For example, doctors should be able to explain the link between food safety and diarrhoea when they see patients with this symptom; marketplace controllers, for their part, should be able to teach vendors why food became contaminated. These teaching moments should be supported by theory and facts, such as laboratory results etc.; and
- Setting an agenda for mastery experience and motivation (preparation, action and maintenance which can be supported by a participatory approach).

Community participation is a recognized approach in behaviour transformation. Scientific models trying to explain behaviour transformation or change identify three main components that determine motivation for change: self-efficacy, outcome expectancy and perceived risk. Self-efficacy is the strongest predictor of long-term behaviour change. In a healthy marketplace project, the priority should be to enhance the self-efficacy of the target group, people handling food. Three factors contribute to the enhancement of self-efficacy. The strongest experience is that of mastery experience, i.e. the experience of success. This can be fostered by a sequence of setting goals that are not only achievable in theory, but can also be accomplished in practice. They can be set by an external adviser at the beginning, and later by the people themselves.

The tool for all of this is participatory design. People set their own goals and see that they are achievable. At first the goals are set with the help of the facilitator, but at a later stage the participants themselves should formulate them. A WHO publication that applies this philosophy is 'PHAST: A method for participatory hygiene and sanitary transformation'. (A draft guide for the application of PHAST in the marketplace, entitled 'PHAST Food, a participatory approach for safer food in the marketplace', can be found in Annex 6).

Social marketing is an adaptation of successful techniques used by commercial marketing in the field of health communication. Social marketing is a process that aims at inducing change. The application

of social marketing considers the social marketing "P's": product, price, profit, place, promotion, partnerships, policy and politics. For a healthy marketplace setting, this has been reformulated as follows:

- Product: infrastructure improvement, behaviour change;
- Price: money, and possibly inconvenience;
- Profit: safe and nutritious food;
- Place: marketplace, home, rest of the food chain;
- Promotion: public service announcements, billboards, media, events, community outreach;
- Partnerships: women's clubs and women's health organizations, the municipality, health organizations like hospitals, health centres, schools, medical schools, service clubs;
- Policy: enforcement of food safety laws, improvement of water supply, waste disposal; and
- Politics: community consensus to support a healthy marketplace project.

When developing campaigns, it is important to maintain a recognizable look, as well as catchy slogans (such as the "five keys to safer food"), which should be regularly used. The key messages for a healthy marketplace initiative should be consistent, science-based and personalized; they should include the fact that microorganisms are ubiquitous, and provide a comprehensive description of foodborne illnesses and prevention strategies; and finally, they should aim at convincing people that they can control and reduce food safety risks. Through the information provided, people should be able to recognize unsafe food-handling practices and the symptoms of foodborne disease and their seriousness. They should also understand how to protect themselves by monitoring kitchen, food and personal hygiene, including thorough and frequent hand-washing, time and temperature control, and by opting for safe food choices such as those processed by heat or energy pasteurisation.

Generally, consumers obtain most of their information on food, nutrition and science from the media. In many countries, television is most frequently cited, immediately followed by newspapers and magazines. Brochures enforce messages and serve as a useful reference point, although they are not as widely disseminated as media stories. Consumers judge a message by the credibility of the person conveying it, its appeal to their common sense, and the frequency of the message. Media presentations can motivate people to listen and change their behaviour. Information on safe food handling should be motivating and memorable. Stories that capture the public's attention should be personal and related to life experiences of people with whom the public can identify. Stories of the consequences of mistakes can be particularly memorable. Since many consumers, particularly in developing countries, frequently visit the market, it is recommended to address people at the marketplace directly.

Examples of how the marketplace can be used to address the public can be found in various projects. One such example is UNICEF's sponsoring of a small kiosk in the Bodija Market in Ibadan, Nigeria to distribute oral rehydration salts at a nominal price in order to promote better case management of diarrhoeal diseases in children. Since a significant proportion of such diseases are thought to be caused by foodborne pathogens, an effort is being made to educate mothers about the precautions that need to be taken in the preparation and handling of foods for infants. Another example is the Paramaribo Central Market, Suriname. The Ministry of Regional Development and the healthy marketplace Task Force identified the need for a "Market Radio" as an educational tool. At the time of a joint WHO/PAHO mission in 1999, the Minister of Regional Development was seeking support for the installation of a public announcement system in the Central Market for this purpose.

Ideas and typical settings for social marketing campaigns include:

- Panels, posters and booklets with information on health and nutrition for the community, containing aspects of hygiene for the different types of food sold in the markets, and recipes to promote the use and consumption of regional foods;
- Multimedia kiosks can provide information through interactive programmes: for housewives, on matters related to hygiene or recipes using regional products; for schoolchildren, with games targeting nutritional issues and the natural science of foods, with the emphasis on local products; and for merchants, on suppliers, new products, prices, advances in health technology, and micro-enterprise management;
- Local marketplaces can be promoted by including them in tourist itineraries and promotional literature distributed by travel agencies and tourist centres;
- Young people could be reached through specific school curricula (such as personal hygiene and special "living skills" units that address food safety and diet), competitions, etc.; and
- Booklets could be produced for children in kindergarten and primary school, with stickers that tell stories adapted to the natural sciences about types of food, plus crossword puzzles and anagrams, a dictionary for the stories, and educational messages on ethics and the rights of children. Special school curricula could also be developed.

7.2 Health education

Health education, within the healthy marketplace project as well as in the surrounding community, will strengthen the impact of the project considerably. Education, or training, essentially consists of instructing others in information new or already known to them, and showing them how to apply this information in practice. It involves the teaching of new skills, methods and procedures. Training in a healthy marketplace initiative should ideally follow the rules of adult education.

The most important element in a training situation is the trainer. A trainer who is enthusiastic, energetic and genuinely interested in both the subject and getting his or her message across will evoke the greatest response from the trainees. Any training situation contains a transmitter (speaker/writer), a message and a receiver (listener/reader). All three elements have to be chosen carefully. Three types of transmission codes can be identified: spoken, written and body language. The latter category is particularly important, as it is believed to convey 40% of the full meaning of messages. Many food safety problems in the marketplace, such as smoking, blowing one's nose when handling food, not bandaging cuts or abrasions on the hand, touching food with unclean utensils, coughing or sneezing over food, not disposing of rubbish properly, etc. cannot really be addressed by controls, but instead require hygiene training in order to instil awareness and change behaviour.

The purpose of healthy education in a healthy marketplace project is to communicate the principles of food safety and hygiene, in order to promote appropriate hygienic behaviour among all participants in the food chain (farmers, harvester, transporters, vendors and consumers). Education strategies and materials for food handlers and consumers should be developed according to the existing levels of awareness, and the opportunities for inducing behaviour change within the different target groups. In order to effectively promote healthy lifestyles among vendors and consumers, priority issues such as tobacco, alcohol and drug use, nutrition, food safety, reproductive and sexual health, mental health, etc. could be considered by the healthy marketplace Task Force as part of a holistic health education programme.

7.3 The five keys for safer food in healthy marketplaces

Based on the 'Five keys to safer food' (Annex 1), the 'five keys for safer food in healthy marketplaces' contain core messages which can serve as a template for education activities in a healthy marketplace project. Depending on which kinds of raw and prepared foods or live animals are on sale, the following keys can be used as the basis for messages that should be modified to the local situation. Care should be taken in the practical application of these keys, keeping in mind the existing local situation, the size and nature of the population to be served, the food commodities and quantities to be sold, etc. It should be noted that the five keys are intended to cover all aspects of a food market.

Key 1. Keep clean

- Provide basic infrastructure to promote sanitation, such as toilets and hand-washing facilities, safe water supplies, cleanable walls and floors, and drainage;
- Ensure sanitation of stalls and equipment;
- Ensure that all waste materials, including solid and liquid waste, are collected and disposed of regularly, ideally at least once daily;
- Protect market areas and food where possible from environmental hazards, including rain, sun, dust, insects, rodents and other animals.

Why? While most microorganisms do not cause disease, some dangerous microorganisms are nevertheless widely found in soil and water, and on animals and people. They are carried on hands, wiping cloths and utensils, especially cutting boards, and the slightest contact can transfer them to food and cause foodborne diseases. Waste, including liquid waste, contains a multitude of disease-causing organisms, and therefore has to be stored adequately and removed regularly, in a timely manner. Cleaning the market area on a daily basis is strongly recommended. The following key concept needs to be introduced: the responsibility for keeping the market clean lies with all those that use it, not only the appointed cleaning crews.

Key 2. Avoid contamination

- Separate clean and contaminated food areas as much as possible. For example, cooked foods, dry foods, dairy products, fruits and vegetables, raw meat, raw fish, raw poultry, live animals and food waste represent a gradient from clean food to contaminated food, and the market should be organized to reflect this;
- Separate ready-to-eat food (which can be prepared or raw) from potentially highly contaminated food and/or food highly susceptible to contamination, such as raw meat, fish and poultry;
- Separate equipment and utensils, such as knives and cutting boards for handling raw and cooked foods;
- Promote proper personal hygiene by vendors, such as hand-washing after going to the toilet;
- Ensure that displayed and stored foods are separated, to avoid contact between raw and cooked foods.

Why? Raw food, especially meat, poultry and seafood, and their juices, as well as live animals and, on an even larger scale, food waste, usually contain dangerous microorganisms, which may be transferred onto other foods during food handling, preparation and storage. Thus, maintaining the 'order' of cleanliness of the foods will prevent contamination of clean foods by dirty goods. Proper hygiene behaviour is essential to avoid contamination of food by vendors.

Key 3. Destroy hazards when possible

- Cook food thoroughly, especially meat, poultry, eggs and seafood;
- Bring foods like soups and stews to the boil to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer;
- Reheat cooked food thoroughly.

Why? Proper cooking kills almost all dangerous microorganisms, and destroys certain toxins. Studies have shown that cooking food to a temperature of 70°C can help ensure that it is safe for consumption.

Key 4. Minimize growth of microorganisms in food

- Promote the cooling of all raw meats, fish and poultry through refrigeration, storage on ice and protection from heat;
- Do not leave cooked food at room temperature for more than two hours; or better still, refrigerate promptly all cooked and perishable food (preferably below 5°C);
- Keep cooked food piping hot (more than 60°C) prior to serving for immediate consumption;
- Do not store food too long even in the refrigerator, and do not thaw frozen food at room temperature.

Why? Microorganisms can multiply very quickly if food is stored at room temperature. By keeping food at temperatures below 5°C or above 60°C, the growth of microorganisms is slowed down or stopped. However, some dangerous microorganisms still grow at below 5°C.

Key 5. Use safe water and raw materials

- Use safe water, or treat it to make it safe;
- Ensure that supplied food is from safe and reliable sources;
- Select sound and undamaged fresh foods, as well as foods processed for safety, such as pasteurised milk;
- Wash (and peel if applicable) fruits and vegetables, especially if eaten raw;
- Do not sell, buy or use perishable food beyond its expiry date.

Why? Raw materials, including water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Care in the selection of raw materials and simple measures such as washing and peeling can reduce the risk.

8. Background documents, useful websites and further reading

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Annex 1

WHO's five keys to safer food

Key 1. Keep clean

- Wash your hands before handling food and often during food preparation;
- Wash your hands after going to the toilet;
- Wash and sanitize all surfaces and equipment used for food preparation;
- Protect kitchen areas and food from insects, pests and other animals.

Why? While most microorganisms do not cause disease, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards, and the slightest contact can transfer them to food and cause foodborne diseases.

Key 2. Separate raw and cooked

- Separate raw meat, poultry and seafood from other foods;
- Use separate equipment and utensils such as knives and cutting boards for handling raw foods;
- Store food in containers to avoid contact between raw and prepared foods.

Why? Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms, which may be transferred onto other foods during food preparation and storage.

Key 3. Cook thoroughly

- Cook food thoroughly, especially meat, poultry, eggs and seafood;
- Bring foods like soups and stews to the boil to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer;
- Reheat cooked food thoroughly.

Why? Proper cooking kills almost all dangerous microorganisms. Studies have shown that cooking food to a temperature of 70°C can help ensure it is safe for consumption. Foods that require special attention include minced meats, rolled roasts, large joints of meat and whole poultry.

Key 4. Keep food at safe temperatures

- Do not leave cooked food at room temperature for more than two hours;
- Refrigerate promptly all cooked and perishable food (preferably below 5°C);
- Keep cooked food piping hot (more than 60°C) prior to serving;
- Do not store food too long, even in the refrigerator;
- Do not thaw frozen food at room temperature.

Why? Microorganisms can multiply very quickly if food is stored at room temperature. By holding at temperatures below 5°C or above 60°C, the growth of microorganisms is slowed down or stopped. Some dangerous microorganisms still grow below 5°C.

Key 5. Use safe water and raw materials

- Use safe water or treat it to make it safe;
- Select fresh and wholesome foods;
- Choose foods processed for safety, such as pasteurised milk;
- Wash fruits and vegetables, especially if eaten raw;
- Do not use food beyond its expiry date.

Why? Raw materials, including water and ice, may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals may be formed in damaged and mouldy foods. Care in the selection of raw materials and simple measures such as washing and peeling may reduce the risk.

KNOWLEDGE = PREVENTION

Annex 2

Hazard Analysis and Critical Control Point (HACCP) in street food vending and marketplaces

Introduction

The HACCP system as such has not been implemented in healthy marketplaces projects. The complete adoption of the HACCP system in a marketplace is potentially over-ambitious and inappropriate. However, since it contains all the key principles for making food handling and processing safe, a lot can be learnt from it even without implementing it formally. Experience has been gained in the application of the HACCP system in the area of street food vending, which is, at least partially, applicable to marketplaces, as many of these experiences can be transferred to the latter.

Street-vended foods, or street foods, are defined as foods and beverages prepared and/or sold by vendors in streets and other public places for consumption without further processing or preparation. Street-vended foods provide a source of inexpensive, convenient and often nutritious food for the urban and rural poor, as well as a source of attractive and varied food for tourists. In addition, street foods provide a major source of income for a vast number of persons, particularly women, and represent a chance for self-employment with the opportunity to develop business skills with low capital. However, in contrast to these potential benefits, it must also be recognized that street-food vendors are often poor and uneducated, and lack awareness of what constitutes safe food handling. Consequently, street foods are perceived to be a major public health risk.

The HACCP system

The HACCP system is recognized by the Codex Alimentarius Commission as the most cost-effective approach for assuring food safety at all stages of food supply. HACCP enables the systematic identification of potential hazards and their control measures. HACCP also provides guidance on the selection of enforcement and education priorities, rather than general sanitation and superficial improvements. The benefits derived from improved food safety should justify the time spent on the initial hazard analysis and verification. However, implementation of the HACCP approach requires a change in attitude by policymakers and decision-makers, as well as the training of technical and inspection personnel in the application of HACCP to this sector.

The application of HACCP to street-vended foods can address many of the difficulties identified above, and offers additional benefits. The HACCP approach has the following important features:

- It is a proactive approach, which anticipates problems before they occur.
- HACCP provides control mechanisms that are rapid and easy to monitor.
- HACCP approaches to food safety assurance are inexpensive compared to chemical and microbiological methods of analysis.
- It focuses attention on controlling those aspects of the operation that are critical to safety, and alleviates some of the resource constraints for inspection and training.
- HACCP studies can identify critical food safety risk factors, which can serve as the basis for training and educating street food vendors as well as consumers.
- HACCP emphasizes the monitoring of critical control points by persons directly involved in the food operation.

– It can be used to predict potential hazards.

Successful HACCP initiatives require the cooperation of all parties involved and the recognition that each party has an important role to play. Although the industry is usually given the primary responsibility for the application of HACCP, in the case of street-vended foods the "industry" is comprised of a multitude of individuals who often lack collective organization or the resources to undertake HACCP studies. Consequently, government authorities at local and municipal levels may need to assume this task, at least until sufficient experience has been gained and adequate resources are available for the street vendors to take over.

Wherever possible, a team of persons with knowledge and skills covering the following topics should be assembled: (i) basic principles of food microbiology; (ii) street food vending flow operations; (iii) important factors that cause and contribute to foodborne diseases; and (iv) sources of contamination and transmission modes of foodborne disease agents. The skills of an anthropologist or a social scientist may be beneficial in understanding the underlying factors leading to risky behaviours and in making communication more effective.

The role of the vendors is to facilitate the HACCP process and implement the controls identified in the HACCP plan. During the HACCP study, this will be achieved by providing the HACCP team with all the information necessary for the description of the product and the method of preparation as reflected in the flow diagram. Vendors also have an important role in ensuring that any proposed monitoring procedure and corrective action can be put effectively into practice. After the HACCP study, vendors should implement the HACCP plan by monitoring the critical control points (CCPs) and taking corrective actions when necessary.

In most cases, a complete HACCP study cannot be undertaken for every type of street food: priorities must therefore be set. High priority should be given to foods that are common vehicles of foodborne disease, as well as to the types of vending operation where outbreaks of foodborne diseases have been reported. However, not all countries have foodborne disease surveillance programmes able to provide such data. In the absence of data, priorities should be based on the following four risk factors:

1. The intrinsic properties of the foods involved: some foods may contain toxic chemicals or microbial pathogens or their toxins because of the practices involved in the production of the raw materials. For example, raw meats may be contaminated with microbial pathogens at the slaughtering stage, while raw vegetables might be contaminated with microbial pathogens or toxic chemicals from fertilizers, pesticides, etc.

2. Preparation and handling: food operations that commonly contribute to the causation of foodborne illnesses are those which (i) prepare hazardous foods in advance of serving, (ii) store foods in a manner that might allow microbial growth, and (iii) inadequately reheat food to inactivate pathogens. On the other hand, commercially processed foods, especially those that are well packaged, may pose little hazard to the consumer when sold by street vendors.

3. Volume of food prepared: concern about the volume of food prepared relates primarily to the amount of food prepared in advance of sales and consumption. In street vending operations, this can be indirectly measured by the average daily sales, the amount of prepared foods on display, and the length of time that cooked foods are kept on display.

4. Susceptibility of consumers: infants and children, pregnant women, the hospitalised, immuno-compromised persons and the elderly are more susceptible to foodborne diseases than the general population. In some countries, under-nourished or malnourished population groups

frequently rely on street-vended food and are particularly susceptible to foodborne diseases. Those vendors who cater for these persons should be assigned higher priority than those serving the general public.

The HACCP system consists of seven principal activities. Each of these must be considered, but applied in a manner consistent with the needs and resources of the industry segment or sector under consideration.

- Principal Activity 1: Conduct a hazard analysis
- Principal Activity 2: Determine CCPs
- Principal Activity 3: Establish critical limits at each CCP
- Principal Activity 4: Establish monitoring procedures
- Principal Activity 5: Establish corrective action procedures
- Principal Activity 6: Establish verification procedures
- Principal Activity 7: Establish documentation procedures, as appropriate.

Street-vended foods

Strategies for improving street food should only be developed after appropriate studies have been conducted and other information on local foods, conditions and practices obtained. The factors that such strategies should be based on are best identified by preliminary studies of the street food system and the aforementioned HACCP-based studies.

Many countries currently license street food vendors; nevertheless, a significant proportion of vendors typically remain unlicensed. While unlicensed vendors operate outside the law, authorities often lack the resources to prevent them operating. Furthermore, consumers pay little attention to whether a vendor is licensed or not, as licensing rarely relates to the quality and safety of the food served. Licensing procedures are often complex, require expenditure on the part of the vendor with limited or no return, and are seen as a burden by many vendors.

Training of food handlers regarding the hazards confronting their products, safe handling and preparation of food and good hygienic practice, as practicable under local street-vending conditions, is an essential part of any strategy to improve the safety and quality of street-vended food. However, the low level of education of most vendors makes training difficult and, of course, precludes training them in HACCP principles. Consequently, quite different approaches must be taken when training industry personnel and street food vendors. For the latter group, training materials addressing simple messages must be developed and used to improve the safety of street-vended food. All vendors of high-risk foods should be trained in safe food-handling practices.

Through their purchasing power, consumers provide perhaps the strongest motivating force for vendors to alter their food-handling practices. Ultimately, it is the consumer who chooses what to consume and from whom. Consumers also bear the consequences if the food purchased is unsafe. Unfortunately, consumers are often unaware of the relationship between contaminated food and foodborne disease. Consequently, they must be involved in efforts to improve the safety of street-vended food. By identifying the critical food-handling practices of specific street-food vending operations, and by helping to rank operations based on risk, HACCP can be used to target consumer awareness programmes on the operations and practices where they should be most careful in selecting foods for consumption.

Annex 3

Good Agricultural Practices (GAP) and urban agriculture

Introduction

The increase in urban populations across the world has led to greater demand for food which, combined with a rising number of urban poor, has resulted in more urban dwellers engaged in agricultural activities, especially in less developed countries. Agriculture and horticulture within and around cities is an activity mainly for unskilled people. Individual households have gardens on small plots, roadsides, terraces and patios, both to feed the family and also to sell through street vendors. It is estimated that 800 million people are engaged in urban agriculture worldwide, and they play an important role in feeding the world's cities.

Public health risks

Urban agriculture can have both negative and positive effects on the health and environmental conditions of the urban population. Previous reviews or studies of health issues have tended to highlight the health risks of urban agriculture. This has served to reinforce the perception of many governments and municipal authorities that urban agriculture is a marginal activity that entails substantial health risks and should not be supported. Nevertheless, this activity is becoming increasingly popular and prevalent, since it provides employment and income for women and young farmers, as well as improved nutrition.

Recognising the important role that urban agriculture plays in improved food security, nutrition and livelihood, it is essential and urgent that adequate steps be taken to ensure its orderly and safe development for the benefit of the population and the environment. In most cases, city farming initiatives lack supervision and guidance. They tend to expand in a haphazard fashion, with farmers squatting on any available piece of land. Moreover, the uncontrolled use of agro-chemicals and doubtful irrigation water has on several occasions led to public health problems.

One of the main health risks in urban agriculture is the use of wastewater for irrigation, and solid waste as manure. Sound wastewater treatment and separation of waste with the subsequent composting of the organic part represent a possible solution to these problems. Disposal of waste is often a problem, since there are no systems for waste removal, and there is often a lack of space. Some locations or sites are not suitable for urban agriculture or the production of food. This is particularly the case if heavy metals or other pollutants have contaminated the soil, for instance due to former industrial activities. Air pollution from industrial plants or from traffic may lead to severe contamination of the foods produced. Residues of pesticides can be avoided by the use of alternative methods of plant protection or by following the principles of Integrated Pest Management (IPM). This includes the appropriate use of fertilizers, which minimizes the danger of groundwater pollution. Animal husbandry should only take place on suitable premises and in a hygienic manner. Finally, all handling of food should take the principles of hygiene into account.

Good Agricultural Practices (GAP)

Good Agricultural Practices (GAP) are the best way to avoid or minimize the risks mentioned above. These practices were originally developed for rural agriculture, but are transferable to urban agriculture and horticulture as well. The GAP concept seeks to apply available knowledge in order to utilize the natural resource base in a sustainable and humane manner to produce safe, healthy food and non-food agricultural products, while at the same time achieving economic viability and social stability.

Annex 4

Draft terms of reference for the Task Force for a healthy marketplace

The Task Force for the healthy marketplace will function in order to promote the health and nutritional status of the people by assuring access to safe and nutritious food. The Task Force will consist of representatives of market vendors, contractors, government officials, consumers, and other market stakeholders, including international and partner agencies (e.g. FAO, GTZ, WHO).

The Task Force will serve to coordinate interdisciplinary cooperation and collaboration in the healthy marketplace in ……., initially through the development of a workplan. The approach will be extended to other markets in ……. with appropriate revisions if necessary.

The functions of the Task Force include:

a. continuously assessing potential hazards and hazardous conditions associated with food sold in the market;

b. considering various preventive measures and actions which can be taken to eliminate or reduce to an acceptable level identified hazards and hazardous conditions;

c. preparing a comprehensive workplan for the healthy marketplace, based on selected preventive measures and actions, including the identification and involvement of sectors responsible for their implementation;

d. reviewing and monitoring the implementation of Plans of Action prepared by responsible sectors in response to specific items on the Master Plan;

e. preparing periodic progress reports;

f. updating and revising the workplan for a healthy marketplace as necessary; and

g. continuously promoting the concept of healthy marketplaces among the government, the private sector and non-governmental organizations.

Annex 5

Advocacy tools

The benefits of implementing a healthy marketplace initiative go well beyond the marketplace itself. There are of course enormous benefits for all vendors and consumers once a local authority and the market community itself are committed to the concept of "healthy marketplaces", and are prepared to effectively implement such an initiative. These benefits extend to the neighbouring community. The specific advantages of healthy marketplaces projects for specific beneficiaries or stakeholders are listed below, and should be considered in the development of advocacy messages and materials.

For **consumers** using the marketplace, a healthy marketplace will result in:

- Improved access to safe and nutritious food;
- Better understanding of hygiene and health protection issues;
- Exposure to health promotion activities; and
- Adequate hygiene facilities while shopping.

For the **health authorities**, the result will be:

- Improved nutritional status;
- Reduced incidence of foodborne diseases;
- Reduced community health-care costs; and
- Effective access to a broad range of community members for health promotion and protection activities.

For **vendors, marketplace employees and contractors**, it will bring:

- Improved business with more satisfied customers;
- Improved product safety and quality;
- Reduced production costs (reduced recall/wastage of food);
- Better understanding of health protection issues – an understanding that is applicable both within and outside the market;
- A safer working environment – with less risk of harm and theft;
- A health-promoting working environment;
- Enhanced self-esteem, improved morale and reduced stress;
- Increased job satisfaction; and
- Preserved traditions and ways of life.

For the **marketplace management**, it means:

- Improved marketplace business;
- Improved relations with vendors, contractors and consumers;
- Better understanding of health protection issues;
- More attention to due responsibility for safety and health; and
- More effective systems in place.

For the **general community**, the result of ongoing improvements in the marketplace will mean:

- Improved sources of safe and nutritious food;
- Increased community health and safety;
- Reduced community health-care costs;
- An increase in the educational level (mainly but not restricted to food safety, general hygiene, health and management); and
- Greater involvement of women and children in community issues.

And finally, **community leadership** will benefit because of:

- Greater community awareness of the leadership's commitment to community health and well-being;
- Better community health and safety;
- Enhanced economy through better business and more tourism; and
- New income activities and improved socio-economic and environmental standards.

Annex 6

PHAST-Food: A participatory approach for safer food in the marketplace

Introduction

Diarrhoea is a major cause of childhood disease in the developing world. Foodborne diseases cause a high percentage of these cases of diarrhoea, which indicates the need for improved food safety strategies. One of these strategies is the concept of "healthy marketplaces". The marketplace offers a good setting to educate both vendors and consumers on food safety issues in a very direct and practical way. The participation and empowerment of the community should be a guiding principle behind development initiatives. Different training programmes have taken this into account, one of which is PHAST (Participatory Hygiene and Sanitation Transformation). PHAST is based upon a participatory methodology called SARAR, which stands for self-esteem, associative strengths, resourcefulness, action planning and responsibility. The participatory techniques presented in the PHAST manual have proven very successful and rewarding for both communities and facilitators in combating diarrhoea. PHAST seems ideally suited to tackle food safety in the marketplace, and has been adapted as "PHAST-Food" for this purpose.

The participatory methods described in this guide should lead to increased knowledge about hygiene and transmission of diseases in the marketplace setting, as well as empowerment and responsibility for the marketplace community. This methodology will help to improve facilities in the marketplace as well as to change the hygiene behaviour of vendors and consumers.

The group

Participatory methods should be used with small groups (15-40 people). These groups can be mixed, including vendors and consumers from the marketplace, or an existing healthy marketplace working group or Task Force. Special problems affecting the different groups of vendors and other stakeholders could be dealt with separately, and discussed in sessions parallel to the group meetings. For some activities, the main group should be divided into smaller working groups of 5-8 persons, since they provide a greater stimulus and opportunity for participation.

Tools

This manual has been developed with the aim of helping a community realize the extent and seriousness of its food safety problems, and thus commit itself to addressing them. The material is basic and needs to be adapted to the specific local circumstances, which can be done by adding pictures from the community. A list of the various situations which require pictures has been provided, with the aim of enabling the organizers to prepare the PHAST-Food exercise more thoroughly. If more theoretical background on the method is required, we recommend that the workshop organizers read the PHAST manual. As well as pictures, workshop organizers can also use drawings, dramas, posters, texts, songs or any other appropriate means.

Some tips for the sessions are as follows:

1. Have all the support materials for each activity ready before starting.

2. Make sure the materials are visible to all participants.

3. Try to limit the size of your group to 20-30 participants, and do not exceed 40 persons.

4. Make sure that people can talk to one another easily; use a circle set-up if possible.

5. Be guided by the requirements of the group when facilitating activities.

6. Encourage and welcome the input that individuals make. Remember, there are no wrong answers.

7. Try to encourage the active participation of each participant. Be careful not to find fault or make critical comments when you respond to people.

8. Take into account the participants' literacy level and work out ways in which they can keep a record of what is discussed and agreed.

9. At the end of each activity, ask the group members to evaluate each activity on the basis of what they have learnt, what they liked and what they did not like.

10. At the end of each session, congratulate the group members on their efforts and explain briefly what will be covered in the next session.

11. At the beginning of each new meeting of the group, ask the group to review what it has done so far and the decisions it has taken.

The steps for PHAST-Food

The steps to be followed in the implementation of the PHAST-Food approach are as follows:

Step 1. Warming up
Step 2. Problem analysis
Step 3. Planning for solutions
Step 4. Selecting options
Step 5. Planning for new facilities and behaviour change
Step 6. Planning for monitoring and evaluation
Step 7. Preparing a workplan

Step 1. Warming up

Activity 1.1 Market community stories

Time: 1-2 h

Materials required: approximately 20 pictures or drawings of marketplace surroundings, for example, people (stakeholders) and the community, vendors, infrastructure, animals, farmers, fields, neighbourhood, streets, events in the marketplace, traffic in the marketplace, food, health services around the marketplace, schools and universities, media, private homes, etc.

Instructions:

1. Ask participants to form groups of 5-8 people.

2. Give the groups a set of material and give them the following task: “Choose four pictures. Work together and develop a story about your market community. Give names to people and places. Invent a beginning, a middle and an end.”

3. Ask people to tell their story the way they prefer (acting, telling etc.).

4. Let the other participants ask questions and the group answer them.

5. Final discussion (to stimulate debate, questions can be used, for example: “Are the stories a problem in our community?”, or “What other problems do we have?”).

Activity 1.2 Problems in our marketplace

Time: 1h

Materials required: 10 pictures or drawings of different people that can be found in and around a marketplace, for example, female and male vendors; vendors selling different items; market administration or cook; farmers; middlemen; other consumers, such as a baby, a child, a pregnant woman, an old woman, a man, elderly people, a family, etc.

Instructions:

1. Show pictures of the different people to the group members and give them the task: “These people are coming to the marketplace. Explain what these people do in the marketplace, what kind of food they handle or buy and which problems they might face. Problems should include a) problems in the marketplace, b) general lifestyle problems, and c) health problems.”

2. Ask the group: “Are there any problems we have forgotten?”

3. Ask the group: “Do you have any ideas as to why people might have these problems?”

4. (If there are any questions, redirect them to the group to answer. If they do not have answers, ask them to identify ways of obtaining the necessary information).

5. Ask the group: “Do you have any ideas about what could be done to prevent the causes of these problems?”

6. Ask the group to highlight those problems which could be prevented and which are related to food, water, and sanitation and hygiene practices. (Highlight them somehow!).

7. Ask the group to sort the problems into those that could be prevented by the people selling food (vendors, middlemen, farmers, etc.), by the consumer or by the broader community or external factors (municipality, media, science, etc.).

   (Note: Do not worry if the group "misses out" what you think is important. You will need to help group members discover this information by themselves).

Activity 1.3 "Five keys to safer food"

Time: 30 min

Instructions:

1. Put up the "Five keys to safer food" posters.

2. Educate participants on the five keys, basic hygiene, GMP.

3. More posters could be handed out to be put up in the marketplace and the community (group members can explain what they mean to the market community).

Step 2. Problem analysis

Activity 2.1 Mapping of the marketplace

Time: 1-3h

Materials required: paper and pens.

Instructions:

1. Give participants the task: "Map the marketplace in its current state. You need to include all important physical features like stands, tracks, buildings, roads, equipment, mobile vendors, hygiene facilities, water sources, sanitation, sewage, etc."

2. Give participants the task: "Divide yourself into two groups. One group is visiting the marketplace for the first time; the other group are the tour guides. The latter group should use the model to take the visitors around and to explain to them everything about the stands, the food sold, water, sanitation, how people do what and why."

3. Ask the group to display the map where it can be seen by the whole group for future reference.

4. Record problems and questions raised by observers.

Activity 2.2 What common practices are there?

Time: 1h

Materials required: pictures or drawings representing practices (selected from the pictures completed in Activity 2.4), which have been selected by the group, showing situations, infrastructure and

facilities related to the "Five keys to safer food in the marketplace" (showing consumers as well as various vendors).

Instructions:

1. Identify the practices the community would like to know more about (practice A, B, C, etc.).

2. Ask the participants to categorise their pictures according to the practices identified.

3. Count the pictures in each category, and sort them according to the following questions:

   – What are the methods most/least commonly used?
   – How do these practices compare with Activity 1.2 "Problems in the marketplace"?
   – What could be changed?
   – What changes would the group consider desirable?

Activity 2.3 How do diseases occur in the marketplace?

Time: 1h

Materials required: in total approximately 25 pictures or drawings representing transmission and contamination routes:

– Biological transmission routes: faeces, by hand, vegetables, fruit, meat, fish, poultry, flies, cockroaches, hands milking a cow, people washing fruit and vegetables in water, uncovered food, kitchen utensils, by mouth;
– Chemical contamination routes: factory, traffic, oil, lead, mercury, spraying of crops, rivers, sea, fish, ruminating cattle, goats, sheep, someone injecting animals/ feeding them antibiotics, someone painting a house and leaving paint on the soil, colourful food, additives, packaged food, by mouth;
– Physical hazards: light bulbs, metal devices and metal fragments, broken plates, stones, ready-to-eat food like soups, food with visible physical contamination, by mouth.

Instructions:

1. Form groups of 5-8 people.

2. Give beginning (A) and end point (B) of the routes in pictures and give the groups the task: "Use the rest of the pictures to create a diagram showing the different ways in which A might become a contaminated B".

3. After the groups have made diagrams, ask them to explain their work.

4. Discuss similarities and differences between diagrams.

5. Now examine the groups' own situation, and discuss transmission and contamination routes plus problem areas and behaviour in their own community.

Activity 2.4 "Five keys for safer food in the marketplace"

Time: 1h

Materials required: pictures or drawings showing situations, infrastructure and facilities related to the "Five keys to safer food in the healthy marketplace" (show consumers as well as various vendors):

Key 1. Keep clean:

- 2 pictures of waste materials disposed of properly (rubbish bins, containers with lid/cover at distance from food handling areas);
- 10 pictures of basic infrastructure: examples of toilets and hand-washing facilities (different conditions), water supplies (different options), stalls and market floors (different options), and drainage options;
- 5 pictures showing personal hygiene and sanitation of vendors, consumers and food handlers: washing hands, not smoking, using the toilet and washing hands afterwards, being ill and taking precautions while handling food, clean hands, hygienic towels, soap;
- 10 pictures of environmental hazards: examples of food protection against rain, sun, insects, dust, e.g. roofs, paved floors, air conditioning, plastic foils, barriers for flies, rodents and other animals.

Key 2. Avoid contamination:

- 5 pictures of options showing how cooked foods, dry foods, dairy products, fruits and vegetables, raw meat, raw fish, raw poultry, live animals and food waste can be zoned (map of a good physical layout, separation within a shop);
- 2 pictures of ready-to-eat food separated from raw meat, fish and poultry within a shop;
- 1 picture of separate knives and cutting boards for raw and cooked foods; and
- 2 pictures of separately stored raw and cooked foods (containers, physically apart).

Key 3. Eliminate hazards, when possible:

- 2 pictures of meat, poultry, eggs and seafood that are well-cooked (cutting areas, colour of meat, time/temperature, boiling facilities like pots and oven); and
- 2 pictures of meat and poultry with clear juices.

Key 4. Minimize growth of microorganisms in food:

- 5 pictures of refrigerators, cold rooms, iced fish and meat, proper cooling containers;
- 1 picture of refrigerated cooked food; and
- 1 picture of hot holding of prepared food.

Key 5. Use safe water and raw materials:

- 5 pictures of food from reliable sources: a fisherman that uses ice, middlemen and farmers shaking hands with vendors (to indicate that they are acquainted, and to serve as a basis for discussing the "farm-to-fork" approach), farmers using safe agrochemicals, labels on food;
- 3 clean water options;
- 2 pictures of fruits and vegetables being washed;
- 1 picture of fruit being peeled;
- 1 picture of the expiry date on a label (not overdue); and

– 5 pictures of particular local features – e.g. if there is a slaughterhouse in the marketplace, or certain events when a certain kind of food is served in a traditional way, be it safe or hazardous.

Instructions:

1. Form groups of 5-8 people.

2. Give each group the set of pictures and ask them to discuss the pictures and agree on which situations in their opinion lead to safer food in the marketplace.

3. Ask the groups to explain their choices.

4. Discuss different choices and the reasons behind them.

5. "Five keys to safer food" poster material (possibly an adapted version, either translated or edited) could be handed out again at this stage to be put up in the marketplace and in the community.

Step 3. Planning for solutions

Activity 3.1 Blocking the spread of disease

Time: 1h

Materials: pictures from Activity 2.4.

Instructions:

1. Use small groups of 5-8 persons.

2. Give the groups the task: "Now we know the ways that transmission/contamination can occur, we need to think about how to stop this from happening. Each group should take a set of pictures and decide where it is possible to stop transmission, defining the so-called barriers."

3. Ask the groups to present their diagrams and identified barriers, and ask them to explain their decisions.

4. Explain the concepts of

   – How to prevent contamination
   – How to reduce growth of germs
   – How to destroy germs.

Activity 3.2 Selecting the barriers to prevent disease

Time: 1h

Materials required: pictures from Activity 2.4.

Instructions:

1. Use same groups as in the previous session.

2. Give them the task: “Categorise the potential barriers according to the following categories: easy, moderate, difficult to implement.”

3. Discuss which barriers to prevent disease the market community might like to use, and the practicalities that would be involved.

Step 4. Selecting options

The outcome of this step should be communicated to technical support groups if an HMP initiative is in place (concerning actions which lie within their scope).

Activity 4.1 Choosing infrastructure improvements

Time: 1h

Materials required: 20 pictures or drawings of different sanitary options drawn from good and bad practice (marketplace partnerships): different toilets, different water supply systems, different waste disposal systems, options for cooling (common cold room, refrigerators, ice), options for washing hands and food (rubbing hands, rinsing hands, vigorous scrubbing, tabs and basins).

Instructions:

1. Form groups of 5-8 people.

2. Give them the first task: “Every group will receive a set of options concerning infrastructure and facilities. Discuss the order of these options, putting the worst options at the bottom, and the desired option at the top.”

3. Provide additional paper for any options that have not been provided, in case people want to add options.

4. Give them a second task: “Decide at which point your marketplace is now, and where it should be in one year, and again five years from now. Try to visualize the advantages, as well as the difficulties which might arise along the way”.

5. Discuss the similarities of the identified advantages and difficulties with all the groups.

Activity 4.2 Choosing improved hygiene behaviours

Time: 1h

Materials required: 20 pictures or drawings of different behavioural options (good and bad) related to “Five keys to safer food”: keep clean (washing hands with soap, drying them with clean towels, cleaning the floor and working areas), separate raw and cooked food, cook food thoroughly, keep food at safe temperatures, and use safe water and materials.

Instructions:

1. Form groups of 5-8 people.

2. Give them the first task: “Every group receives a set of behavioural options. These should be sorted according to the following categories: desired, acceptable and inappropriate behaviour.”

3. Provide additional paper for any options that have not been provided, in case people want to add them.

4. Give them a second task: “Decide where your community is now in terms of acceptable behaviour, and where it would like to be in a year’s time. Try to visualize the advantages and any difficulties which might arise along the way.”

5. Discuss the resulting diagrams of each working group with the whole group (examining the similarities, difficulties and advantages of each solution).

Step 5. Planning

Activity 5.1 Planning for change

Time: 2h

Materials required:

– map of the marketplace completed in Activity 2.1 as the “now” scenario;
– the chosen improvements as guidelines for the “future” scenario;
– 20 pictures or drawings of planning posters (e.g. on building a roof, digging holes, building a stand, building a water supply system, positioning garbage bins, building toilets, teaching peers).

Instructions:

1. Use the map prepared in Activity 2.1.

2. Integrate the changes prioritised in Activity 4.1 and define and build or draw a future model.

3. Integrate the changes chosen in Activity 4.2.

4. Use the planning pictures and give the group the task: “Develop a plan to “fill in the gap”. Arrange them in the order you think will bring about the desired change most effectively”.

5. Hold a presentation and group discussion about the possible difficulties of carrying out the steps, needed resources, time frames, etc.

6. Reveal the new proposed future ‘map’ of the marketplace and collect feedback.

Activity 5.2 Tasks for the marketplace community

Time: 1h

Instructions:

1. Put up the prioritized action lists in a single row.

2. Give the group the task: “These lists show the steps you decided are required to put our plan into action. Now you need to decide who should carry out each of the steps. Discuss the skills required to implement the activities. When you have decided who will be responsible for what, write down the names and stick them next to the corresponding activities.”

3. Initiate a discussion about the tasks of men and women and their respective roles in the community.

4. Discuss who will coordinate the implementation of the steps in the plan (write down the names of coordinators).

5. Invite selected coordinators to coordinate the rest of the meeting, which will cover the development of a time frame.

6. Discuss how the group can check if people are doing what they are responsible for, and what can be done if tasks are not carried out.

Activity 5.3 Identify what might go wrong

Time: 1h

Materials required: Paper slips and a 'problem' box.

Instructions:

1. Give the group the task: "Write down on a slip of paper a problem that you think might arise. Write this problem down in the form of a question or drawing. For example: 'What do we do if the person trained to do the maintenance leaves the market?'".

2. Collect all the problems in a problem box.

3. Pass the problem box to different group members and ask them to solve the problems.

   (Note: problems could be sorted into different categories such as social problems, technical problems, start-up problems, etc.).

Step 6. Planning to check the progress

Time: 1h

Instructions:

1. Ask the persons who were selected to manage specific tasks (Activity 5.2) to facilitate this activity and to fill in the monitoring chart, in which each activity is discussed, together with its method for monitoring and evaluation (including the time schedule). For the goals, use the sanitation and behavioural options chosen in Activities 4.1 and 4.2.

2. Discuss the workplan, and also the possibility of involving more community members in checking the progress and the achievement of project goals.

3. Ask the group to set a goal for the evaluation.

Step 7. Preparing a workplan

Time: 1h

Instructions:

1. Prepare a general workplan, incorporating the outcomes of the previous steps, clearly identifying roles and responsibilities, as well as the resources required.

2. Discuss and finalize the workplan.

3. Monitor and evaluate outcomes as per agreed-upon schedules, and convene new working groups whenever necessary.

Annex 2: Hazard analysis and critical control point (HACCP) in street food vending and marketplaces

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Annex 3: Good agricultural practices (GAP) and urban agriculture

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Annex 6: PHAST-Food: a participatory approach for safer food in the marketplace

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