

# Market information services

Theory and practice

ISSN 1010-1365

FAO  
AGRICULTURAL  
SERVICES  
BULLETIN

125

Food  
and  
Agriculture  
Organization  
of  
the  
United  
Nations



# **MARKET INFORMATION SERVICES**

## **Theory and Practice**

by

**Andrew W. Shepherd**

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**Rome, 1997**

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## **PREFACE**

Recent years have seen an increased interest in the provision of market information. In part, this reflects the movement away from state-sponsored marketing in many countries and especially those which have been undergoing structural adjustment. This has been accompanied by a recognition that if marketing activities formerly carried out by the state are to be taken over by the private sector then some government support needs to be provided to promote the creation of a competitive market. Even countries in which the private sector has always played a thriving role in agricultural marketing are increasingly coming to recognise the need for a greater measure of official assistance in areas such as legislation, infrastructure provision, marketing extension and Market Information Services.

Efficient market information provision can be shown to have positive benefits for farmers, traders and policymakers. Up-to-date, or current, market information enables farmers to negotiate with traders from a position of greater strength. It also facilitates spatial distribution of products from rural areas to towns and between markets. Well-analysed historical market information enables farmers to make planting decisions, including those related to new crops. It also permits traders to make better decisions regarding the viability of intra and, perhaps, inter-seasonal storage. Moreover, information of this type assists agricultural planners and researchers and can make an important contribution to early warning of impending food security problems.

Market information can be regarded as a public good, particularly where there are numerous small farmers who are unable to pay for information. The availability of timely and accurate information to all interested parties is therefore essential, whether it be provided by the government itself or by the private sector. Many countries have attempted to provide market information but their success rate has been poor. Market Information Services have repeatedly proven to be unsustainable and where they have endured they have often failed to provide commercially useful advice, confining themselves to the gathering of, frequently unused, data.

This AGS Bulletin is not a manual for the operation of a Market Information Service. Rather, it attempts to review the main features which need to be considered at the outset if a commercially useful and sustainable service is to be estab-

lished. It is hoped that the Bulletin will prove to be a valuable starting point for senior officials in countries wishing to establish Market Information Services or to improve existing services. Donor organizations and consultancy firms working in this area should also find it useful.

A brief introductory chapter offers a definition of a Market Information Service. Chapter 2 then reviews in some depth the theoretical benefits of such services. This is followed by an evaluation of experiences with Market Information Services around the world, based, in part, on a survey conducted in all FAO Member Countries. Chapter 4 draws conclusions from those experiences and identifies points that must be reviewed in depth prior to the establishment of a new service. These include the need to research the way the marketing system functions in order to ensure provision of market information which is relevant to farmers and traders, identification of appropriate institutional arrangements for operation of the Service, including collection, analysis and dissemination of the data, the choice of products and markets to be covered and the frequency with which information should be collected, as well as issues related to produce quality, varieties and weights and measures.

## ACKNOWLEDGEMENTS

The author would like to acknowledge the trouble taken by the many organizations which completed the FAO questionnaire on Market Information Services. Following receipt of the completed questionnaires, certain countries were selected for more in-depth study and the contributions of those who carried out these studies are also much appreciated.

A shorter, draft version of this publication was presented to the South African Agriculture Outlook Conference, held in Pretoria in February, 1996 and the author is grateful to the organisers for the invitation to take part. Alexander Schalke collaborated with the author on that presentation and on an earlier study of the Indonesian Horticultural Market Information Service.

The author's colleagues in the Marketing and Rural Finance Service of FAO, Olivio Argenti, Stefano Farolfi, Jaime Novoa, Edward Seidler and Richard Roberts contributed to and commented on drafts. Former colleagues Hans Mittendorf and Eberhard Reusse also provided valuable insights. Aad van Tilburg of Wageningen Agricultural University and Clemens Lutz of the University of Groningen, both in the Netherlands, prepared a detailed paper for FAO on the theory underlying market information, which served as the basis for Chapter 2 of this publication.



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## Chapter 1

**Introduction**

For many years FAO and other organizations involved with the development of agricultural marketing have advocated the establishment of Market Information Services (MIS) as a means of increasing the efficiency of marketing systems and promoting improved price formation. Improved information, it has been argued, enables farmers to plan their production more in line with market demand, schedule their harvests at the most profitable times, decide to which markets they should send their produce and negotiate on a more even footing with traders. Other benefits have been seen for traders. Improved information should enable traders to move produce profitably from a surplus to a deficit market and to make decisions about the viability of carrying out storage, where technically possible. With few dissenting voices<sup>1</sup> these arguments are generally accepted and a large number of countries in the developing world and, increasingly, Eastern Europe and the former Soviet Union have established or are establishing Market Information Services.

Unfortunately, the track record of such services around the world has not, on the whole, been very satisfactory. Prior to the preparation of this publication, FAO conducted a survey of all FAO member countries. This indicated that, while a large number of countries do operate some type of MIS, the vast majority of services cannot be considered to provide commercially useful information for farmers and traders. A large percentage of MIS are primarily data-gathering exercises, and even this is done inadequately. MIS suffer because they are frequently operated by government officials who lack a commercial approach. More importantly, the majority face significant resource constraints. Often set up by donors, they have proven to be unsustainable once donor support has been withdrawn. MIS planners have tended to “overdesign” services, paying little attention to the capacity of the organisation providing the service to continue to do so on a reliable basis.

A re-evaluation of Market Information Services would thus appear to be necessary. While there can be little dispute of the need for market information, the way

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<sup>1</sup> See Bowbrick, P. “Are Price Reporting Systems of Any Use?” *British Food Journal*, 1988, 90:2, pp 65-69

in which MIS have been planned and operated in the past raises doubts about the standard approach to information provision and new approaches clearly need to be explored. In designing a service, sustainability and commercial utility should be the prime considerations. This implies detailed research into the needs of those involved in the marketing system. It also implies tailoring the service to meet the resources available and only expanding operations when additional funds can be obtained on a long-term basis.

The remainder of this Introduction sets out FAO's definition of a Market Information Service and briefly reviews the main arguments in favour of having such services. Chapter 2 reviews in more depth the potential benefits of Market Information Services. On the basis of the FAO survey and other sources, Chapter 3 evaluates experiences with market information provision in FAO member countries. Chapter 4 then considers the issues involved in setting up a sustainable, accurate and effective MIS. Chapter 5 presents brief concluding remarks.

The emphasis here is on market information for both grain and fruit and vegetable markets.<sup>2</sup> This publication should be viewed primarily as a discussion document. While some advice is provided on the technical aspects of market information collection, processing and dissemination, this is not intended to be a manual on setting up and operating an MIS. This is, to a certain extent, covered by earlier GTZ<sup>3</sup> and FAO<sup>4</sup> publications. Detailed advice on the collection and use of grain market information for Early Warning purposes is provided in a manual prepared for SADC by two FAO field projects.<sup>5</sup>

In a 1995 publication on the Indonesian MIS,<sup>6</sup> FAO developed a working definition of a Market Information Service which, in a slightly amended form, is reproduced below:

*A service, usually operated by the public sector, which involves the collection on a regular basis of information on prices and, in some cases, quantities of widely traded agricultural products from rural*

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<sup>2</sup> For an interesting discussion on livestock and meat market information see Holtzman, John S, "Towards a Regional Livestock and Meat Market Information System" Abt Associates Inc., Maryland, USA, 1996

<sup>3</sup> Schubert, B. et al. "Agricultural Market Information Services, Guidelines for the Design and Management of Market Information Projects," BMZ-GTZ Rural Development Series, Eschborn, March 1988

*assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policymakers and others, including consumers.*

There are varying names given to activities that broadly fit in with the above definition. FAO has settled on the use of “Market Information Services” in order to differentiate “market” information from “marketing” information, the latter being a much wider concept which is likely to include details on potential market channels, payment requirements, packaging, quality and a whole host of information required by a producer to make a successful sale, including market information. We have also avoided the word “system” as this conveys a rather abstract data gathering exercise which is not necessarily oriented to providing a “service” to farmers and traders.

A Market Information Service is seen as providing “transparency,” i.e. a full awareness of all parties of prevailing market prices and other relevant information. This, in turn, can contribute to “arbitrage,” i.e. the act of buying at a lower price and selling at a higher price. In theory, when a marketing system functions efficiently prices at different markets are influenced by arbitrage activities of traders, i.e. “spatial arbitrage.” takes place. Traders take advantage of price differences until these differences decrease to the level of transaction costs. “Temporal arbitrage” is the storing of products in order to take advantage of expected higher prices later in the season or, in some cases, in subsequent years.

As is discussed in Chapter 2, in addition to the promotion of arbitrage, Market Information Services can have the following impact:

- They can facilitate efficient allocation of productive resources;
- The bargaining position of farmers with traders can be improved;

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<sup>4</sup> Schubert, B et.al. “Market Information Services,” AGS Bulletin No. 57, FAO, Rome, 1983

<sup>5</sup> Helder, Jan and Nyhoff, Jan-Joost, “Market Information for Early Warning.” Document presented to the 1994 SADC Early Warning System for Food Security Training Workshop, Harare, July 1994

<sup>6</sup> See Shepherd, Andrew W. and Schalke, Alexander, “The Indonesian Horticultural Market Information Service” AGSM Occasional Paper No. 8, FAO, Rome, December 1995

- Information reduces transaction costs (i.e. the costs of selling the produce) by reducing risks. Farmers with timely and reliable information and the ability to interpret it can decide to which market they should send their produce to maximise returns or, indeed, whether to send their produce to market at all;
- Lack of information is an entry barrier to both production and trade. Where farmers have had access to information, shifts in cropping patterns to higher value produce have been noted. In the area of trade, individuals find it difficult to begin trading without information, so reducing competition within markets;
- Market information can be particularly valuable where countries are changing over from a state-controlled marketing system to one of private enterprise, in that farmers and small traders are made more aware of market opportunities;
- By contributing to more efficient marketing, particularly improved spatial distribution, market information should be beneficial for consumers as well as farmers and traders. Information on retail prices may also, under certain circumstances, assist consumers to bargain;
- The essence of a good Market Information Service is that it should provide commercially useful information on a timely basis. Information produced by an MIS is, however, also useful to policy makers. This should, in the long run, improve policy formulation as the functioning of markets comes to be better understood;
- Market information is also an important component of Early Warning systems for food security as it can assist in identifying areas of possible shortage and can highlight whether prices are above or below normal seasonal trends.

## Chapter 2

**The Theory**

Chapter 1 briefly reviewed some of the arguments in favour of Market Information Services. It noted that an MIS can contribute to spatial arbitrage and open up the possibility of temporal arbitrage. Availability of information should encourage new entrants into the marketing system. Market information can assist farmers in negotiations with traders. In the longer term it should also provide farmers with the opportunity to plan and diversify their production in line with market demand and to schedule deliveries to the market at times when returns are most rewarding. Finally, market information can be a valuable input into Early Warning systems by highlighting food shortages which are reflected by higher prices and can also assist government planners in developing an understanding of the ways markets work. This Chapter<sup>1</sup> considers some of these justifications in more detail. It concludes that there are good arguments in favour of Market Information Services, which makes the existing weaknesses of state-run services, outlined in Chapter 3, all the more difficult to accept.

**The Role of Markets<sup>2</sup>**

Correct decision-making and planning depend on reliable information on variable market conditions, which are expressed by changing prices. Advocates of free market economies consider price flexibility in a positive light in that it reflects both supply and demand and seasonality in production and provides producers with incentives to adapt their production to market requirements. However, one of the preconditions for a market economy is that correct information on market conditions must be available and, within reason, accessible to all.

Markets should provide the necessary facilities and services to producers and consumers to enable price formation to take place and exchange to be facilitated.

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<sup>1</sup> This Chapter has been jointly prepared by Andrew Shepherd, Clemens Lutz and Aad van Tilburg.

<sup>2</sup> The “market” concept has many connotations. For geographers it usually refers to a physical area and denotes the place where commercial exchange takes place. For economists the concept often transcends the idea of a mere physical location and is used in a broader sense to indicate the meeting of supply and demand. The latter usage is employed here.

Markets should, in theory, supply food corresponding to consumer preferences. Simultaneously, prices that consumers are willing to pay for different commodities and grades should be transferred to producers in order to encourage production of that produce which is in demand. Price differences over time and between market locations should correspond to the marketing (transaction) costs incurred, notably those for storage and transport.

Prices are the result of the functioning of the market and are determined by supply and demand which, in turn, are influenced by costs of production, the costs of marketing and by consumer preferences, among other things. Prices act as signals for the allocation of productive resources in the agricultural sector. This is not, however, a straightforward process in many countries, where market conditions for agricultural commodities change as a result of seasonal production, where infrastructure (roads, telecommunications and the physical markets) is underdeveloped and where liberalised marketing systems are replacing state-controlled systems. These circumstances result in high risks and high marketing costs.

## **Current and Historical Information**

Information of use to those in the marketing system and to others is basically of two types. This chapter first considers the use and effect of information on prices which is as up-to-date as possible and which can facilitate bargaining and spatial arbitrage. This we refer to as “current” market information. Secondly, the chapter reviews the use of information which is compiled over time, often several years, and can be used for production planning, storage decisions, government planning and Early Warning. For the sake of simplicity this is referred to as “historical” information.

## **The Role of Current Information**

Access to timely information on prices and quantities plays a crucial role in reducing the risk of losing money on a market transaction. High risks lead to high marketing costs, as high margins are necessary to compensate for possible losses. In the extreme case, farmers with information can decide whether or not to harvest, so avoiding sending produce to market in times of glut only to discover that the price received does not cover harvest, packaging and transport costs.

Accurate and timely information should reduce the costs of food marketing. However, information cannot be perfect. Firstly, prices move too rapidly for available information to serve as more than a guide to likely returns. Secondly, the costs of improving information have to be offset by the additional benefits. Even when more precise information can be obtained, it might be too costly to obtain. This implies that those involved in marketing will always have to take decisions based on varying degrees of imperfect information.

All exchange relationships tend to have elements of market power on one side of the exchange or the other. In agricultural marketing transactions the party with more knowledge usually, but not always,<sup>3</sup> sets the initial price. The other party then decides whether to accept or reject the offered price. If only limited competition exists, there will be little pressure to set the offered price close to the actual costs. Competition, however, can increase the weaker party's knowledge of market conditions and trigger an adjustment in the price, either by direct negotiation or by the patronising of alternative dealers. In such a framework of price formation, market knowledge implies market power. One of the main steps governments can take to improve the fairness of market price formation is thus to ensure that timely and accurate information about actual market conditions is available to all.

It is important that the farmer should be able to sell his or her produce at a convenient stage of the marketing channel. For example, some farmers have the option of selling at farm gate, of delivering to a local assembly market, of supplying a wholesale market direct or of selling directly to retailers or even to consumers. However, a maximum value added for the farmer is not always an optimal solution. This depends on the costs (e.g. transport, risk bearing and time) involved when the farmer decides to sell in a market segment closer to the final consumer. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market.

## **Current Market Information and Spatial Arbitrage by Traders**

Market performance is related to the functioning of arbitrage.<sup>4</sup> Spatial arbitrage should equalise supply and demand at different market places until price differ-

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<sup>3</sup> See, for example, the situation in Indonesia, Shepherd, Andrew W. and Schalke, Alexander, *op. cit.*

<sup>4</sup> Arbitrage is the process of exchange of commodities with the objective of taking advantage of price differences that exceed transaction costs.



ences are reduced to the level of transport costs. The higher the level of transaction costs between markets, the smaller the probability that exchange will take place between them.<sup>5</sup> Links between markets thus become more likely as transaction costs decrease.

When risk or the cost of identifying market outlets is reduced because of the availability of market information, transaction costs will go down. Lower transaction costs thus influence quantities and prices in the market. For example, when transaction costs go down, supply to urban areas will increase and prices decrease. As a consequence, demand will increase. In rural areas, prices and quantities traded will also tend to increase. Urban consumers and rural producers will thus benefit from reduced transaction costs, while rural consumers will experience higher prices. Where there are producers closer to urban areas, these will obtain lower prices than hitherto.

The above considers the case when information promotes the flow of produce from rural to urban areas. Availability of market information will also encourage spatial arbitrage between two markets, especially in cases where information and transport costs are relatively low. If no trade exists between two markets, both will clear supply and demand at their respective equilibrium prices. When price differences between the two are larger than the transaction costs, trade relations will be developed if there are no controls to inhibit exchange. A new equilibrium price will be determined for the combined market for the two regions.<sup>6</sup> The level of transaction costs thus influences trade flows and prices in the markets. When transaction costs go down, as a consequence, for example, of the availability of price information, efficiency gains are achieved. The availability of correct price information will lower the traders' cost of information gathering, as well as the risk of sudden unfavourable price changes. Consequently, they will have more opportunities to prevent unprofitable transfers and this should ultimately lead to a reduction in their gross margins.

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<sup>5</sup> "Transaction costs" are sometimes used to refer just to the costs of doing business or making the transaction, i.e. costs of obtaining information, financing trade and organising necessary documentation. In this publication, however, the term is used synonymously with "marketing costs."

<sup>6</sup> It is possible to show that trade will have positive welfare effects for the regions of both markets. The rationale behind this is that some of the resources in one region are no longer needed to produce the 'imported' commodity and can be allocated to alternative economic activities for which the region has a comparative advantage.

Marketing margins are relatively high in developing countries. There can be many reasons for this. For example, marketing by a large number of small traders will, in theory, be economically less efficient than trading carried out by a limited number of large traders, although it may offer other, more social, benefits. However, lack of information is generally seen as being one of the main reasons, apart from transport costs, for high transaction costs. When no formal MIS exists, information has to be collected by the traders themselves. This is especially costly for small traders. In many cases, information is gathered through personal networks based on mutual trust and by personal visits to markets. Due to the time involved, the information received is often dated. Large traders, on the other hand, do have access to telecommunications and have a scale advantage in that they can spread the costs of information over much larger quantities of produce.

## Current Market Information and Farmers

Farmers often have limited outlets for their produce and are often bound by traditional trading relationships, which may include an element of credit provision by the trader. Opportunities for most farmers to take advantage of spatial arbitrage possibilities are therefore restricted. Such opportunities are further hindered by the small quantities produced by most.

While there may be few spatial arbitrage opportunities for small farmers, it cannot be concluded that market information is of little value to them. Indeed, while the opportunities for arbitrage may provide much of the *theoretical* justification for the provision of market information, the reality is that traders often already have accurate and widespread information networks and the introduction of an official MIS may add little to arbitrage possibilities. However, the *practical* benefits to farmers are often much greater than the arbitrage possibilities for traders which can, theoretically, result from MIS.

At the simplest level, the availability of market information can enable farmers to check on the prices they receive, vis-à-vis the prevailing market prices. This is the case in Indonesia, where horticultural market prices are broadcast daily for all major production areas. If farmers receive prices lower than those broadcast they may, for example, conclude that they should seek out other traders in future, negotiate more forcefully or try to improve the quality and presentation of their produce. Broadcast prices are also used as a starting point in negotiations with traders

the following day and the availability of the Indonesian MIS does enable farmers to negotiate from a position of relative strength.

Farmers in Indonesia have available an MIS which provides prices at close to the farm-gate level. Few other countries have either the concentration of horticultural farmers in a limited number of production pockets or the resources to contemplate such a service. Nevertheless, even a simple service offering regular price information for one or two terminal markets can be beneficial to farmers in several ways. Information reduces the costs of selling the produce by reducing risks. In the extreme case, farmers with information can decide whether or not to harvest.

Information on market conditions may change farmers' marketing strategies. While, individually, farmers may be unable to take advantage of spatial arbitrage possibilities, collectively they may be able to organise transport to more distant and profitable markets. Group marketing by farmers is not, of course, without its problems and while offering some attractions has not been widely taken up in practice. Improved availability of information may, however, encourage more group marketing initiatives.

## **Current Market Information and Small Traders**

The early part of this chapter reviewed the theoretical impact of market information on spatial arbitrage. In practice there are likely to be few actual situations where the introduction of an MIS will open up completely new spatial arbitrage possibilities. While there may be cases where no trade presently exists between two points and such trade can be promoted by market information, the likelihood is that a Market Information Service will bring new entrants into existing trading areas rather than open up new markets. Thus, when the market is imperfect, market information may encourage market entry and make the market more competitive and more efficient. Current market information can be expected to be of greatest value to relatively small traders. Unlike larger traders, small traders lack the resources to monitor markets on a regular basis (see Box 1).

## Historical Market Information and Temporal Arbitrage

Storage costs, such as labour, maintenance, chemicals, depreciation of storage facilities and costs of invested capital, can be considerable. However, price changes over time depend not so much on storage costs as on how much of a product is stored for subsequent release onto the market and on seasonal production levels. The highest prices during a year do not necessarily correspond with the end of the lean season, as prices in other regions or countries also influence market conditions. Variable climatic conditions between regions and between neighbouring countries can complicate the picture by opening up opportunities for spatial arbitrage, thus making storage a risky activity. It is here that market information concerning spatial price differences, stock supply conditions and forecasts of the coming harvests, can play an important role. But even at the simplest level of market information, i.e. prices, knowledge of past price trends can enable traders to form an opinion about the likely viability of storage and its associated risks.

## Historical Market Information and Farmers

Market information can facilitate optimal decision-making based on market incentives. A lack of information will hamper the farmer in taking decisions concerning the crop and the quantity to produce and concerning the best time to produce to maximise returns. Information on price fluctuations will also give insights into the risks associated with producing different crops. Consequently, better information should lead to higher profitability although, for most small farmers, information services will have to be supplemented by extension services which are able to assist them to interpret price data. Lack of information is an entry barrier to both trade and production. Where farmers have had access to information they are able to move beyond subsistence production. Shifts in cropping patterns to higher value produce have also been noted, especially in vegetable production.<sup>7</sup>

Market information can be particularly valuable where countries are changing over from a state-controlled marketing system to one of private enterprise. Box 4

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<sup>7</sup> See, for example, Holtzman, J.S. et al, "Market Information Systems and Services: Lessons from the AMIS Project Experience." (Chap. 2 - The Philippines) Abt Associates, Bethesda, Maryland, 1993

### Box 1, Costs of Information<sup>8</sup>

In Benin there was until recently no Market Information Service, so farmers who wanted to sell their surpluses had to search for information about market conditions. It is easy to gather information on local markets as these are visited regularly to buy consumer goods. Information on conditions in markets further away was more difficult to obtain. These markets were visited less regularly by members of the household or other inhabitants of the village. The costs of a journey to visit these outlets and gather information constituted an entry barrier, as the quantities handled were often small (less than a few hundred kilograms).

Small traders, quite numerous on the Benin maize market, faced the same type of problem. Traders collected small quantities in the villages (often less than 100 kilograms) and sold these at the nearby regional market centre, the only market for which information was available. Even wholesalers had a small area of intervention as quantities handled were limited (less than 1000 kg. per market day). They often operated in a network of a few market places. Information on market conditions was collected by personal contacts in the market place. Generally, traders visited the market in person and decided whether it was profitable to buy or sell. Information costs consisted mainly of transport costs (taxi) of the trader and the opportunity cost of labour. Transport costs could be significant, especially when only small quantities were traded daily. Moreover, in case of changed prices that precluded profitable exchange, information costs became a loss that had to be recovered from future transactions. For most traders, gathering information on alternative outlets was costly, because of limited turnover and because of the risk of such a loss.

in Chapter 3 discusses the MIS in Zambia, which has played an important role in highlighting marketing possibilities for farmers who, until a few years ago, had a guaranteed outlet for their maize through the Government parastatal and cooperative movement. Under the liberalized marketing system, farmers not only now have to seek market outlets but also have to carry out storage for longer than in the past. In most rainfed production systems, the cropping calendar limits the cultivation and harvesting period to several months during a year. The question “when to produce” is thereby limited to a fixed period. However, this makes the question “when to sell” more important. Availability of information about seasonal price

<sup>8</sup> Lutz C., “The functioning of the maize market in Benin: spatial and temporal arbitrage on the market of a staple food crop”. University of Amsterdam, Department of Regional Economics, 1994

**Box 2, Spatial and Temporal Arbitrage Interaction<sup>9</sup>**

There are times when spatial and temporal arbitrage interact. An example comes from Benin where harvests depend to a large extent on the level of rainfall. In the south of the country, two maize harvests are possible (July-August and December-January), while in the north there is only one harvest (September-November). The fact that harvest periods do not coincide, while distances between markets are a maximum of 500 kilometers, makes interacting spatial and temporal arbitrage possible.

However, rainfall is unreliable. It may arrive early or late, and harvests may be mediocre or abundant. Generally, surpluses in the north are transported to the south at the end of the lean season in April/June. When harvests in the south are abundant and early (due to early rains), prices may reach their highest levels in April as stocks are liquidated during a relatively short period before the start of the new harvest. When harvests in the south are mediocre and late, then prices can rise to very high levels up to July, and this attracts surpluses from the north or even further away from Nigeria. After the beginning of the harvest period, prices will decrease in the south, while prices in the north will stay at a relatively high level since the harvest will start later in this region. These conditions make storage risky and consequently the value of correct information all the more important.

movements should, in time, facilitate decisions about when to sell the crop. The Zambian MIS also concluded that farmers required more than provincial price information if they were to be fully incorporated into the market. In the initial stages of liberalization they would also benefit from information about who was purchasing the crop, where, at what price and under what conditions (e.g. cash, credit, with or without bags). The MIS embarked on the development of provincial newsletters to provide this kind of information.

**Historical Market Information and Policymakers**

Traders in developing countries are often accused by policymakers of exploitative behaviour because large differences between farm-gate and retail prices are observed. It is assumed that the unbalanced relationship between farmers and traders, or between traders and consumers, based on better market and price

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<sup>9</sup> Lutz C., *ibid.*

knowledge of traders, together with imperfect competition, results in abnormally high profits for traders. Often, it is very difficult to substantiate these accusations because of the lack of clear information. Reliable price information is absent and estimates about the costs and risks traders have to bear are difficult to obtain. Moreover, the risk premiums necessary to deal with price fluctuations are hardly taken into account by policymakers making the accusations. Market information offers the opportunity to judge the performance of markets for agricultural products and to determine micro-economic constraints, although additional information on, say, marketing costs will be necessary to form a reliable opinion regarding the efficiency of the market.<sup>10</sup>

All governments play a role in facilitating food security. Policies to improve availability of and accessibility to food have to take into account the functioning of markets. An efficient marketing system can often be used as an instrument of food security policies: supply of food can be augmented by the market when local supply is insufficient. An efficient marketing system will enhance food security: however, government facilitating services such as market information are likely to be necessary to improve the functioning of the system.

## Using Current and Historical Market Information for Food Security

### -Early Warning<sup>11</sup>

Two areas where market information is particularly important are the provision of early warning of food shortages and the management of food security reserves. In the former case, price trends can be used to confirm indications, which are available from other sources (e.g. rainfall and crop forecast data), of possible food shortages. Comparison of seasonal price movements in a particular year with previous years can often provide indications of the seriousness of food deficits. Where extensive price data collection is undertaken, this can be used to identify localised shortages, which may be missed by other methods. However, it should be realised that open-market prices are usually rather late indicators since they reflect current supply and demand. Additionally, open-market prices only reflect effective or commercial demand and tell nothing about families who lack

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<sup>10</sup> For advice on marketing cost calculation see Shepherd, Andrew W., "A Guide to Marketing Costs and How to Calculate Them" AGSM, FAO, Rome, 1993

<sup>11</sup> For more information on this subject see Helder, Jan and Nyhoff, Jan-Joost, *op. cit.*

resources to purchase food. One approach to early warning is to monitor prices of items other than the main food staple. For example, a likely response of farmers to an emerging food shortage is to sell livestock to raise cash to purchase staples. Thus a developing food security problem can often be indicated by declining livestock prices.

### **-Food Security Reserve Management<sup>12</sup>**

Managers of food security reserves require detailed current price information and price forecasts, together with historical information on seasonal price patterns, in order to decide when to release stocks onto the market and when it may be opportune to carry out stock replenishment. While the need for such security reserves perhaps increases when grain markets have been liberalized, it is essential that their operation does not disrupt commercial market operations. Thus reserves need to be operated on the basis of clear rules governing the purchase and release of stocks. Detailed information on market prices is essential if these rules are to be applied and if arbitrage activities by the private trade are not to be disrupted.

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<sup>12</sup> For a discussion of the use of market information in the management of food security reserves, see “Strategic Grain Reserves - Guidelines for their Establishment, Management and Operation” AGSM, FAO, Rome, 1997



## Chapter 3

## Experiences with Market Information Services

Given the apparent benefits of market information, it might be thought that most countries would have a flourishing Market Information Service. Judging by the results of FAO's survey, that is far from the case. Adopting very undemanding criteria as to what constitutes an acceptable service,<sup>1</sup> we managed, from a survey of 120 countries, to identify only 53 functioning Market Information Services. Moreover, from the information received, the utility of many of those services that meet our criteria must be open to some question.

The absence of or poor performance of such services does not seem to be due to any lack of appreciation of their importance, at least among those concerned with marketing. FAO constantly receives requests for assistance with setting up or improving Market Information Services. However, problems with operating MIS are numerous. The main constraints appear to stem from lack of resources, not so much to establish an MIS, where donors are often prepared to assist, but to maintain it in efficient operation after the donors have left. Particularly in this day and age when governments are under strong pressures to cut expenditures, it is often difficult to maintain political support for services with few visible benefits.

### Data Collection

Market Information Services stand or fall on the quality of their information. Frequently, however, this aspect of the service is given inadequate attention. Training of data collectors, after the initial enthusiasm of setting up a service, is often forgotten. With inevitable staff turnover, there is a danger that within a few years most of the collectors are people who have had no training. Data collectors frequently lack resources for transport to and from their markets. Where donors have provided transport, e.g. motorcycles, local budgets are often insufficient to meet fuel and maintenance costs. In Yemen, price collectors in Sana'a were paying their own transport costs to and from the market, in expectation that they

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<sup>1</sup> At least weekly price collection and dissemination in the case of horticultural crops and fortnightly in the case of staples

would eventually be reimbursed when funds were allocated. Resources restrict the training that can be carried out and also restrict the ability of head office to send out inspectors to check on the work of field staff. Salaries can be very low. A consequence of all this is that price reporting can become mechanical, with reporters paying little attention to the accuracy of their work. An additional factor is that the peak time for market trading is often early in the morning, whereas government officials usually prefer to work from nine to five. There is a temptation not to visit the market regularly but to guess prices.

The question arises as to who should be responsible for collecting the information. Ideally, they should be people who are solely responsible for market information and have no other job. This is one of the strengths of the Indonesian Service that is described in Box 3. At the same time, full-time market information staff puts up costs and countries are thus often forced to use the services of government officers who have other responsibilities. This was noted as a weakness of an MIS in Benin, for example, where staff of the central MIS unit felt they had little control over those collecting the data. In Mongolia, prices were collected by the same people who collected fees from the market traders. As the fees were based on a percentage of the trader's turnover, there was a clear incentive for the traders to report very low prices, leading to inaccurate market information.

Apart from having to overcome the natural suspicion of government officers (many traders try to evade taxes!), price collectors have to face problems such as calculating the weight of the produce (in many countries trading is conducted with traditional measures that can vary widely, or by "heap" that can change size hourly) and identifying the variety. They then have to get the price right. How to do this can be a problem in societies that tend to function on the basis of bargaining. In Kenya, price collectors were found to be using the first price given by the trader and not bargaining.<sup>2</sup> This is understandable as, if the collector is going to the market every day, the value of bargaining with traders who know perfectly well who he is may be open to some question. Many markets carry out both wholesale and retail functions. Mistaking the two prices is a common mistake in data collection. Furthermore, prices can fluctuate significantly during the day, both due to supply changes and to the need of traders to sell produce before it becomes unsaleable. The MIS in Indonesia, for example, is frequently criticised

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<sup>2</sup> Holtzman et al, *op. cit.* (Chap. 3)

by traders on the grounds that it presents only one daily price, whereas prices in the assembly markets fluctuate hourly.

An internationally recruited advisor working in Sierra Leone considered allocating a sum of money to wives of local government officials so they could shop in the market. The plan was that they would record the prices paid and then return to their husbands' offices to weigh the produce, before taking it home. This overcame the problems of not getting either the weight or the price right in that the women had every incentive to get the lowest price and it was possible to accurately weigh produce on good scales in the office. It also addressed a problem faced in Ghana, where traders were becoming increasingly frustrated with people asking the price but not buying anything. However, its long-term future as an efficient price gathering technique is doubtful because of the cost of daily purchases.

## **Data processing and transmission**

Delays in transmitting, processing and disseminating price data can undermine the credibility of an MIS. Out-of-date market information is of little value to market participants. In the days when communication between major cities and government officers in the "field" was largely by government radio, transmission of information for Market Information Services presented many problems, not least of which was obtaining access to a radio, which often had to be shared by all government departments. In these days of modern communications by 'phone and fax, computer modem and, increasingly, E-Mail, the problems associated with transmitting information from the market where it is collected to a central processing unit should be less. Nevertheless, problems remain. Although many countries have sophisticated communications systems in place, government departments often cannot afford basic equipment, such as fax machines, and in countries where the power supply is unreliable, equipment often cannot be used or breaks down quickly. Where donors have provided equipment, recipient countries often experience problems in replacing it when it breaks down after, or even before, the donors have left. In countries with limited resources, a well-supplied MIS could often be better equipped than the office of the senior civil servant in a town or district. It is not unknown for MIS equipment to be commandeered by a senior officer, with a consequent breakdown in the service. A further problem is that budgets

### Box 3, The Indonesian Market Information Service<sup>3</sup>

The Indonesian Service was set up in 1978 with technical assistance from the German Government. Lengthy and extensive participatory fieldwork was carried out to identify the needs of the potential users of information and considerable attention was paid by the Germans to the planning process.<sup>4</sup> The results of this fieldwork were that it was decided to place emphasis on prices at the farm level, either at the point at which traders met farmers or at the local assembly market. Research showed that prices at this stage were the ones farmers most wanted. It was also decided to concentrate on vegetables, as these were cultivated commercially while, at that time, fruits were just backyard crops, at least as far as small farmers were concerned.

Indonesian vegetable farmers enjoy many advantages. Volcanic soil and reliable rainfall mean they can get three crops a year and have time for a 60-day fallow period. Consequently, seasonal price fluctuations are relatively minor. Market information is thus not so much required by farmers for long-term planning as for purposes of negotiation with traders. They use the Service to check that they bargained successfully the previous day or to get an indication of the price they should ask for the next day.

In contrast, the Service does not appear to be widely used by traders. They have their own information networks: phone connections are good and the markets they supply are generally no more than five hours away from the growing areas, with the result that either they or their employees visit the terminal market daily. Even though the MIS is an efficient one, traders tend to be more up-to-date with the prices.

The Indonesian MIS collects prices from Monday to Friday in nineteen production areas and at twenty wholesale markets in eleven of the country's 27 provinces. Price collectors receive training annually. Despite having to work outside normal hours and receiving an average salary of just \$75 a month, the field staff appear well motivated and have good relations with farmers and traders. Prices are collected at different times of the day depending on the location. Usually, prices in production areas are collected in the mornings, while prices in wholesale markets are recorded in the afternoons when supplies from the production areas have arrived. Average prices are

<sup>3</sup> See Shepherd, Andrew W. and Schalke, Alexander, *op. cit.*

<sup>4</sup> A detailed description of the planning process can be found in Schubert, B. et al. 1988, *op. cit.*

then sent to provincial headquarters where they are compiled into reports for broadcast on local radio stations in the vernacular, at 19.30 on the same day. They are also forwarded to the main MIS Unit in the Ministry of Agriculture in Jakarta. Transmission of data is mainly by radio, with telephone and fax also being used.

The Jakarta Unit prepares selected prices from around the country for broadcast on national radio in the national language every night at 20.05. It also sends prices from around the country to provincial headquarters for broadcast, where relevant, on local radio. Prices are also published in newspapers and the Unit prepares a quarterly report and an annual volume that contains monthly averages for all the prices collected. Price collectors are responsible for daily updating of notice boards with local and regional prices, although these appear to be less well appreciated by farmers than are the price broadcasts.

The Indonesian MIS has proved remarkably sustainable and provides a valuable service, most notably for farmers. A measure of its impact is that the Ministry of Agriculture has since copied its approach in setting up Market Information Services for meat and fish. The current cost of running the Service is around \$850,000 a year which equates to about 0.1 per cent of the value of vegetable production.

available to pay for 'phone calls or faxes are often limited. Difficulties in meeting 'phone bills are frequently faced, particularly where access to 'phones is not rigorously controlled.

Some countries still process market information data by hand, with the help of pocket calculators. While such days are numbered, the use of computers can be less than perfect. One problem is the software used. In setting up information services, donors have in the past provided the assistance of computer specialists who have written their own software. With the departure of the specialist, there has often remained no one to support the software. When problems are encountered the MIS does not know how to solve them. Some standardisation is now beginning to take place, largely permitted by the widespread availability of good spreadsheet and database software. USAID-funded projects have tended to use SPSS while FAO developed FAO-Agrimarket, a run-time version of dBaseIV, and is now moving towards the use of Windows-based programmes.

Many MIS have used Lotus or Excel spreadsheets to store market price data, and generate daily or weekly bulletins. While a spreadsheet system can be quickly and easily set up for immediate data input and reporting of market data with minimal training for data operators, there are problems in using spreadsheets for market information. In Guyana, for example, an Excel system was initially set up by FAO using a system of inter-connected sheets and making use of the cut and paste facility of Windows. Macros were developed to facilitate this cutting and pasting of data from one sheet to another. These macros, however, required maintenance which was beyond the scope of the data entry personnel, and they were soon abandoned. Setting up macros to work in spreadsheets is always a tricky business, since they do require some input from the operator and can never be totally automatic.

A problem with many MIS is that they become obsessed with processing and analysing the data and tend to ignore the main purpose of gathering it in the first place, i.e. to provide speedy and useful information to farmers and traders. This is often a reflection of the lack of a commercial orientation among Ministry officials, particularly those from formerly centrally planned economies, who see data primarily in terms of its use for planning and control purposes. The strength of the Indonesian service described in Box 3 is that information is disseminated within a few hours of collection. The Indonesian service is relatively weak on subsequent data handling, but it certainly fulfils its prime function of informing people of prices on a timely basis.

## **Dissemination**

The survey identified only thirteen countries that have daily dissemination of price information. In many circumstances, daily information would appear to be a pre-condition for a commercially relevant MIS. For example, where markets are held daily for horticultural produce there is very little relevance for the farmer in prices of three days earlier. Staples, on the other hand, are generally far less perishable and thus prices change more slowly. In these circumstances, a weekly service would appear adequate.

Problems with dissemination are associated with guaranteeing that the information is accessible to the target audience and ensuring that the information is in a form in which it can be understood. Again, lack of resources is the major constraint to effective dissemination. Almost all countries surveyed by FAO reported that they

were experiencing difficulties in this regard. Many services find that they do not have the resources to finance price broadcasts on the radio which, in most countries, is by far the most effective way of accessing small farmers. Radio stations, on the whole, do not regard market information broadcasts as news services but more as potential paid advertisements. This problem is growing as, under structural adjustment reforms, radio stations are being privatised or are expected to cover an increasing part of their operating costs and are demanding payment to carry broadcasts. However, Market Information Services have few opportunities to raise the funds, although they have tended to be very slow in exploring the possibility of sponsorship.

Many countries have technical problems in broadcasting country-wide. In southern Africa, for example, both Lesotho and Zambia experience problems. For farmers and small traders, alternative methods of announcing prices, such as newspapers and bulletin boards, do not have the same immediacy. Other problems with information dissemination include ensuring that the broadcasts are at a time when farmers and traders can listen to them. In Ghana, for example, prices are broadcast at 17.45, when most traders are in the markets, while in Benin broadcasts are at times when farmers would usually be expected to be in their fields. In the Caribbean, the MIS of Dominica surveyed market information users and concluded that the price broadcasts were at the wrong time. It was unable to rectify the situation as it could not afford to broadcast at a time favoured by farmers as radio programmes at that hour were too expensive. It is also essential that the broadcasts are in local languages or only a few large traders will benefit. As just one example, in Guinea Bissau prices are broadcast in Portuguese, but the bulk of the farming community speaks Creole. Use of more than one language inevitably increases the amount of air time required and hence the cost.

In most countries radio ownership is not universal. This has prompted MIS developers to use notice boards to publicise price information, with mixed results. In Indonesia, price boards in producing areas are used by farmers, although boards in urban markets are consulted much less. In Malaysia price boards were poorly utilised. This was attributed by the Federal Agricultural Marketing Authority (FAMA) to the fact that only price information was provided. FAMA therefore started to also post information on supply, demand, market potential and local agricultural activities.<sup>5</sup> In some other countries, boards are a visible indication of

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<sup>5</sup> Singh, Mukhtiar, "The Malaysian Experience in Developing a Market Information System for Horticultural Products," FAMA, Kuala Lumpur, 1991

the weaknesses of the MIS. They are often not maintained and prices are rarely updated. They are frequently sited close to Government offices and far from the markets. Even where boards are updated regularly, they are useful only when farmers gather in one place to sell their produce. Where itinerant traders visit villages to buy crops, boards in provincial and district centres are next to useless. A further problem is that in order to use price boards farmers have to be literate. In many countries widespread literacy cannot be taken for granted. Thus, while price boards are inexpensive and an indication that something positive is being done to promote market information, they should only be erected when a regular flow of up-to-date information can be guaranteed, when they are sited at places where farmers congregate and when farmers are able to understand them.

Units of measure used can cause problems of understanding. Holtzman<sup>6</sup> reports that one Kenyan trader rapidly lost interest in published prices when he found out the hard way that a “bag” in Nairobi was nearly three times the size of a “bag” in his home town. Thus there is a need to find ways of standardising the information presented. This should not, however, go as far as an attempt to force the marketing system to change its established measures in favour of something more convenient for the MIS. In Yemen, an FAO project instituted regular monitoring of standard trade units; price data was reported in kilos but collected according to the trade unit (e.g. carton or box) and there was a need to ensure that these packages remained constant in size.

## Utilisation

Information needs to be relevant to the target audiences. This means that considerable care must be taken to make sure that the type of price information provided is that which the user finds most useful. Small-scale farmers, for example, may find data on prices in their local assembly markets much more relevant than major city wholesale market prices. Uganda and Benin are two countries where farmers have complained that prices broadcast are not relevant to them because they lack transport to major city markets. Where governments have in the past or still do set official prices, farmers can mistake the prices broadcast for the official price. This implies that the introduction of an MIS must be accompanied by an extension and media campaign to explain to farmers the meaning of the prices being broadcast,

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<sup>6</sup> Holtzman et al, *op. cit.* (Chap. 3)



and that such a campaign must be repeated on a regular basis. Some services would like to target consumers, but they generally only broadcast wholesale, not retail, prices. A survey in Senegal, for example, found consumers very critical of the output of the national MIS.

Price information would be much more useful if it were accompanied by a range of other information regarding, for example, quantities available at the market or in major producing areas, supply-demand trends, and problems with transport, such as road blockages. In Sri Lanka, the MIS started reporting on the number of trucks arriving at the wholesale market. However, it must be recognised that it is better to provide no information than inaccurate or misleading information. For example, without the sort of sophisticated reporting system that exists in South African wholesale markets it would be very difficult for a private MIS to report accurately on quantities arriving at markets. In Indonesia, twelve different products loaded on the same truck would make life very difficult for a market reporter asked to record quantities of each arriving at Jakarta wholesale market. The FAO survey of the MIS in Senegal noted the absence of a suitable methodology for dealing with quantities and felt one needed to be developed. One problem with this, however, is that while collection of price information by government officials may well arouse suspicion amongst traders, collection of quantity information almost certainly will. In Mexico, for example, information is collected on fruit and vegetable prices in 26 wholesale markets, but in only three of these is quantity information collected. The reason given for this is that wholesalers refuse to cooperate because they believe that the information could assist tax collectors.

## **Duplication of Activities**

While many countries lack functioning MIS, in several there is a significant duplication of information activities. In Benin, for example, there are at least four national institutions collecting price information and disseminating it through various bulletins. This can cause confusion, particularly when there is no consistency between the data sets. In Cambodia in early 1996, data on agricultural prices were collected by the Ministry of Agriculture, the Ministry of Commerce, the Statistics Service for Retail Price Index (RPI) purposes and by a local radio station (see Box 8). Only the radio station was disseminating the prices in a form useful for farmers and traders. In countries which lack the resources to operate a reliable and sustainable MIS which is commercially useful, duplication of data gathering would

#### **Box 4, The Zambian Market Information Service<sup>7</sup>**

As in most of Eastern and Southern Africa, agricultural marketing in Zambia is undergoing a major transformation. The country has liberalized maize marketing and is in the process of liberalising input marketing. The Market Information Service, set up by the Ministry of Agriculture with FAO assistance, has played an important role in facilitating this process, particularly in the case of maize produced by small-scale farmers.

Unlike Tanzania, for example, which prior to liberalisation had a flourishing parallel market in grains, maize marketing in Zambia was entirely controlled by the Government, first through NAMBOARD and subsequently through cooperatives. In Tanzania it was easy for the private sector to take over the parastatal's trading activities but in Zambia traders were expected to start from scratch. The provision of market information was considered an essential step in encouraging such trade.

ZAMIS started operating in May 1993, although several of the staff had previously been operating a cooperative stock-management information system. Initially, priority was given to the needs of traders but it was always intended that ZAMIS would be extended to cater for farmers and by the end of 1995 this was being done. The Service is coordinated in the Ministry of Agriculture in Lusaka and price and supply information is collected in the field by Provincial Marketing Officers and their colleagues in the districts.

The Service collects and disseminates wholesale and retail prices for maize, maize meal, other food crops, fertilizer and seeds. In particular, the maize wholesale prices serve as reference prices for the private sector and, as such, play an important role in promoting produce movement from production to consumption areas.

With the launching of ZAMIS, information on prices and market developments was disseminated through three channels: weekly radio broadcasts, weekly market bulletins and price boards. All ran into problems. Debts by a different section of the Ministry meant that the radio station stopped accepting all material for broadcast.

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<sup>7</sup> For more information, see "The Agricultural Market Information System in Zambia" Market Liberalization Impact Study No. 9, Ministry of Agriculture, Food Security Division, Lusaka, July 1995

An increase in postal charges of 400 per cent made it impossible for the Ministry to finance distribution of the weekly market bulletin and the price boards did not generally find favour with farmers. Many of these problems were eventually resolved and the information returned to the radio and twice-weekly reports in a national newspaper were introduced, while the bulletin continued to be published thanks to sponsorship from a local bank. Future sustainability will depend very much on attracting and retaining such sponsorship.

ZAMIS has recognised that it is not sufficient just to publish prices. Farmers must be able to interpret the data and must also be aware of potential market outlets. For that reason, the Ministry is trying to introduce local newsletters on a provincial basis to advise farmers on which traders are buying and where. A small FAO project also trained extension workers and farmers in how a liberalized market functions. The project paid attention to improving on-farm storage, which is becoming increasingly important now that farmers have no outlet for their crop immediately after harvest.

appear indefensible. The first stage of any improvement programme is a consolidation of existing activities. With Ministries often reluctant to give up “territory” this may be easier said than done.

## **Political and Other Interference**

As countries liberalise their agricultural markets, price setting by governments becomes less common. However, in countries which have in the past established “minimum” or “official” prices, farmers are reported to have difficulty in understanding the meaning of prices broadcast by MIS. Many still look upon such prices as government imposed. Some MIS have had difficulties in reporting accurately on prevailing prices, particularly of staple crops, because the market prices have been above the official government price and sections of the government have been reluctant to allow actual prices to be broadcast. If it is accepted that MIS can increase the bargaining power of farmers then it follows that, at least in this aspect, MIS can lead to a reduction in traders’ margins. Further, larger traders may oppose an MIS because they have invested in obtaining their own information and an MIS will reduce their competitive position in relation to smaller traders. Thus some traders have in the past adopted tactics of providing deliberate-

ly misleading price information. More extreme actions have included attacking price notice boards at some markets.

## **Charging for Market Information**

The vast majority of MIS in developing countries and emerging economies are public services. Obviously, public provision has limitations of cost and if users require more than very basic information they should be required to pay. For example, in Colombia a new MIS generates market information on ten wholesale markets on a daily basis. This information is transmitted to Bogota by satellite and a detailed bulletin is prepared by noon of the same day. This is available, at a price, to traders and anyone else who wishes to pay for it. The same information, in summary form, is subsequently published in several newspapers and broadcast on the radio. In China market information is distributed through a dedicated 'phone line or a computer modem connection. Callers pay for the information through the cost of the 'phone call, with the MIS company receiving revenue from the 'phone company.

People who are prepared to pay for market information do, by definition, require more information than is available publicly. They also require the information more rapidly. Thus a precondition for a commercial service is good and inexpensive telecommunications. In the long term, the potential offered by improved communications systems, such as the Internet, is enormous.

It is unlikely that an MIS that begins by offering a free service will ever make the transition to a commercial one. A New Zealand-funded project in Papua New Guinea set up an MIS with the intention that it should eventually become a commercial company. It quickly found, however, that the main users of its information were small traders and semi-subsistence farmers who were in no position to pay for the information. Even if they had been, it is not clear how they could have been charged, given that the most rapid system of dissemination to small-scale users is undoubtedly radio.

In Zambia, the market bulletin was favourably received by traders. However, when it became necessary to charge them for copies, very few took out a subscription, partly, perhaps, because much of the information was available in a national newspaper. One option considered for the future was that the subscription should be included in the traders' annual registration fee.

### **Box 5, Private Market Information in South Africa**

Agritel is a privately run information service supplying market information from South Africa's wholesale markets and 11 major abattoirs. The markets are computerised and all transactions (price and volume) are recorded. Agritel receives data daily on all the markets and it then processes and packages this in a more user-friendly format. The result is a comprehensive service covering both price and volume data for all commodities, varieties, classes, sizes, and packages.

Agritel has approximately 400 users who pay monthly fees ranging from US\$ 28 to US\$38 depending on the number of services and markets the user wishes to access. Users include producers, packers, caterers, butchers, wholesalers, market agents, and the markets themselves. In addition to paying the subscription fees, users must have access to Beltel, which is the national telephone company's electronic transmission network. Access can be obtained through a terminal hired from Beltel, or through the use of a personal computer and modem. The telephone call to Beltel is toll-free.

The Agritel service is completely menu-driven and easy to use. The system provides the following information for the current and previous days' trading for each market:

- the highest price and the volume traded at the highest price
- the weighted average price for the day
- the lowest price of the day and the volume traded at the lowest price
- the volume traded between the average price and the highest price of the day, and the weighted average price of these transactions
- the volume traded between the average price and the lowest price of the day
- the volume on offer at the beginning of the day
- the total quantity sold for the day
- the volume unsold and carried forward to the next trading day

In addition to the current trading data, users can access historical information using a graphics package supplied free of charge by Agritel to its larger customers. The historical information shows trends since the start of the service. Agritel allows the use of market information to its fullest potential. It is, however, only cost effective because of the ease of access and availability of fully computerised data. It is unlikely that Agritel would be commercially viable if the company had to collect the information itself, rather than being able to rely on available data sources.

## Chapter 4

## **Setting Up a Market Information Service**

On the basis of the discussion in Chapter 3, it must be clear that developing an efficient, relevant and sustainable MIS is far from easy. While the benefits of such services appear unarguable, the failure of many countries to operate reliable, accurate and lasting services does question the wisdom of FAO and other agencies in promoting MIS in all circumstances. Attention needs to be paid to the capacity of the country and the counterpart organization to operate a service, both in terms of technical capacity and in terms of ability to meet recurrent costs. Institutional arrangements need to be closely examined and the potential for private-sector involvement should be investigated. Basic steps can be taken to avoid some of the obvious problems. The greater the level of research at the beginning, the more likely is the MIS to prove valuable to its target users. Tailoring the size and scope of the service to available budgetary resources is likely to result in greater sustainability. Ensuring that all operatives are fully trained should result in a more accurate MIS.

The following pages are not designed to be a manual for MIS establishment and operation. Rather, the Chapter aims to discuss those issues which need to be addressed at the outset if an efficient and sustainable MIS is to function.

### **The Institutional Structure**

The most sensible institutional setting for an MIS will vary from country to country. In some, it may be preferable to utilise the Statistics Service because such services tend to have in place a network of trained data collectors. Against this, it must be said that government statistics agencies are not generally known for the speed with which they publish their data and may not, therefore, be too efficient at daily price dissemination. Agricultural ministries also usually have extensive field networks, but such staff may neither be well qualified for price-collection work nor be particularly motivated to do it. When agriculture ministries operate MIS, it is often the case that statistics ministries continue to collect market price informa-

tion for their own purposes, thus duplicating scarce resources. Such a situation clearly needs to be avoided, and requires a willingness to collaborate on the part of the respective ministries.

An economic solution to the problems of sustainability many MIS face would be to oblige users to bear the costs by charging for the information. However, particularly in most developing countries, produce is mainly offered by farmers in small quantities. Such farmers lack information and are in a relatively weak bargaining position. It is neither feasible nor necessarily desirable to charge them for information. Thus, the vast majority of Market Information Services world-wide are run as free public services. Market information is seen as a public good, i.e. something like roads or clean water, which should be made available to all, not just those willing and able to pay.

While public services can, to a certain extent, go commercial by attracting advertisements and sponsorship, it is unlikely that many will be able to fully cover their costs, let alone make a profit. Thus opportunities for private provision of market information, of the type described in this paper, are probably few. Private Market Information Services appear to work best when they are able to use already available information; dissemination costs being usually a good deal less than collection costs. Thus, as already mentioned, private services in South Africa can access the databases of the wholesale markets. A similar operation is carried out in Beijing, with private distribution of information gathered from public wholesale markets.

It may be preferable for governments to aim to steer a path between an MIS fully operated by the state sector and one left to a private sector which provides information only to those who can afford it. An autonomous, semi-governmental organization offers this possibility. Such organizations can have a number of advantages. For example, revenue generated by government departments often has to be paid to the Treasury or Ministry of Finance whereas autonomous bodies can generate and retain revenue. This gives them the incentive to seek commercial support for an MIS, which would be lacking in a Ministry. Such organizations can also often be free of restrictive public-service employment regulations, which gives them management flexibility and the opportunity to be more cost effective. An alternative approach may be for a government to finance the service, but for the work of data collection and dissemination to be done by the private sector.

## **Ensuring Sustainability**

The FAO survey found numerous Market Information Services that had been established by donors, but had subsequently run into problems once the donors had left. Several existing services presently operated with donor support would appear likely to follow the same route. Free computers, fax machines, cars and motorbikes can be very attractive, until they have to be replaced. Recognising the very real problem of low Government salaries in many countries, donors have also often paid salary supplements to MIS staff. Unfortunately, when the donors leave so, if they can, do the staff who are unwilling to return to lower government salaries. Thus an efficient, donor-supported MIS can often be illusive, as salary supplements and other benefits are often the main reason for maintaining staff morale. Housing an MIS in an autonomous body not subject to government salary controls may avoid this, although the problem would still remain of how to generate sufficient funds to pay for its operation.

Despite the difficulties associated with sustainability after donor assistance has ended, there appears to be a strong need for technical, and some financial, assistance to most countries seeking to begin MIS from scratch. However, there is a general trend world-wide towards reduced technical assistance and projects are tending to have a shorter time frame. FAO's experience bears out the view that few countries can be assisted to establish an MIS on the basis of short-term consultancy input. For most countries a one-year project with full-time technical assistance input is the minimum required.

Funding of information dissemination is in future likely to be one of the main areas which threaten MIS sustainability. Services can no longer take for granted free access to government-owned radio stations and will increasingly have to explore ways of obtaining funding for broadcasts. Many countries have already run into problems because they could not, in the long run, afford to finance dissemination. Thus at the design stage of an MIS, an early port of call should be to the media to find out their charges, and these charges should be budgeted. At the same time, possible sponsors should be identified. There would appear to be no reason why sponsors could not be found for market information broadcasts. Indeed, in Sri Lanka, vegetable wholesale prices are broadcast on a commercial radio station and this programme is sponsored by a private fertilizer company. The possibility that more detailed information than that broadcast on the radio could be sold should also be explored.



## **Analysing the Marketing System and its Information Needs**

In theory, no MIS should be planned without a detailed understanding of how the marketing system works. Developing such an understanding does, of course, assume that there is a marketing system in place to understand, which in the case of some countries undergoing marketing liberalization may not be the case. However, in normal circumstances a detailed survey of the marketing system should be undertaken in order to assess information requirements of each category of participant in the system. These include farmers, traders and commission agents, exporters, retailers, consumers, extension services and government departments. The survey should endeavour to identify the type of information each category requires, the form in which the information should be presented, the frequency the information is required and the times of the day when dissemination should take place.

The role which an MIS can play will depend on the way in which the marketing system functions. Research is essential as there are almost as many marketing systems as there are countries and it is therefore not possible to specify a “model” MIS. It is necessary to have information about the flow of products between farm and market and between markets as well as about the functions of the various intermediaries. It is essential to know how prices are determined at each stage of the marketing chain and the qualities and quantities being traded. It is, of course, vital to know what weights and measures are being used, both to plan accurate data collection and relevant dissemination.

The importance of research is well illustrated by the Indonesian MIS (see Box 6) which was only set up after considerable research into the needs of the potential users. It was this approach which led to the decision to collect price information in the producing areas, although most existing price information services had tended to concentrate on wholesale prices in major markets. Also resulting from this approach was the decision that fruits were not a priority and, initially at least, that the MIS should concentrate on vegetables rather than fruits and on a relatively limited range of vegetables. In Indonesia, traders who buy from farmers have long-standing links with particular traders in the terminal markets. They are rarely interested in selling to other markets and would therefore not wish to use an MIS to identify arbitrage possibilities. In many countries, traders sometimes buy the production from the farmer while it is still in the ground or on the tree. In these

circumstances, information on daily prices would appear to be of little utility to the farmer.

One problem with assessing farmers' information needs is that they often do not, at the outset, appreciate the value of information. Thus the participatory approach adopted in Indonesia provides MIS developers with the chance to explain the implications of an MIS and then discuss with farmers in what form they would like to receive the information.

In researching the marketing system, it should not automatically be assumed that a Market Information Service is required. "Who would benefit?" is an important question to ask. In the UK, for example, there is no publicly provided daily service. A gut reaction may be that setting up one might be a good idea, until it is realised that over 60 per cent of horticultural produce is supplied direct to supermarkets and that farmers supplying wholesale markets tend to get their information by phoning agents in the markets. In the Netherlands almost all farmers are linked by computer to the auction system and thus have "real time" access to prices. A government agency does collect and disseminate prices but the main purpose of this activity is to ensure that EEC price regulations are being complied with and the Government information service is not the prime source of farmers' information.

Once it is clear that there will be beneficiaries, either existing participants in the marketing system or potential new entrants, it is then necessary to clarify their exact needs. For example, it is important to identify the most relevant price to the farmer. In the case of Indonesia, as noted, the local price is considered the most important. Farmers do not attempt to interpret what wholesale market prices mean to them. In Sri Lanka, on the other hand, an FAO project discovered that farmers found broadcasts of the wholesale price in the capital, Colombo, extremely useful, and were well able to translate these prices into farm-gate prices.

Other points, touched on earlier, also need to be reviewed. While an MIS should clearly not be static, and must evolve over time, all of these questions should be addressed at the outset:

- How many products should be covered and which varieties?
- What weights and measures will be used?

### **Box 6, Setting Up an MIS - A German-funded Project in Indonesia<sup>1</sup>**

Between 1978 and 1985, the German Government set up a Horticultural Market Information Service for Indonesia. This Box describes the steps that were taken in preparing for and implementing the project.

#### **Project Identification and Needs Assessment**

Identification of the project started with an assessment of the need for a Market Information Service. Prevailing information dissemination was reviewed and it was concluded that market participants suffered from information deficits concerning current prices and other factors. A pre-feasibility analysis was then carried out. This consisted of checking whether there were constraints to the effective use of improved information and whether the proposed institutional basis was suitable for the MIS. Part of the pre-feasibility analysis was a Cost-Benefit Analysis.

#### **Initial Project Planning**

Initial project planning had the following three components:

1. A Situation Analysis. This was based on a rapid appraisal of the marketing system in order to facilitate decisions on priorities with regard to products, areas and type of information required. Further, a thorough assessment of the strengths and weaknesses of the Ministry of Agriculture was carried out to determine whether institutional strengthening had to be included. Finally, the situation analysis involved an assessment of existing agricultural market information activities;
2. An Outline Plan. This component established an outline for the operation of the project. This determined the medium and long-term objectives of the project. Finally, the Outline Plan contained the specification of the resource requirements for the different project phases;
3. The Pilot-Phase Plan. Before implementation started, a pilot phase was planned in detail. Furthermore, a Plan of Operations was prepared allocating time, resources and costs to the activities.

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<sup>1</sup> See Schubert et al.(1988) pp. 51-82 *op. cit.* and Shepherd, Andrew W. and Schalke, Alexander (1995) *op. cit.*

## **Project Implementation**

The project introduced a Project Management System (PMS), which consisted of:

Organizing assured every provision necessary for sustained, reliable and effective operation while ensuring that this was achieved in the most cost-effective way. This was facilitated by the compilation of a detailed Manual of Operation<sup>2</sup> with all organizational and operational details.

Allocating resources for the activities was done bearing in mind that the quality of the data collectors determines the quality of the entire Service. The proper running of the Service depended on the availability of equipment and access to the public telephone system for data transmission and access to mass media for dissemination. The pilot phase had shown that field activities suffered primarily from inadequate management of operational funds. These, therefore, had to be guaranteed to be channelled to the field level.

Leading of the Service required a management attitude to sustain or increase the motivation of the officers working in the Service.

Linking was achieved as the project management established and maintained good relations with target groups (especially farmers and traders) and with cooperating agencies (e.g. mass media and the extension service). A participatory approach was adopted and good public relations emphasised through meetings, press releases and leaflets.

Controlling had to ensure that implementation occurred according to the plan. By monitoring the inputs, activities, assumptions, outputs and effects, mistakes were corrected through re-allocation of resources, changes in procedures and adjustments to the plan of operations. A yearly internal evaluation was carried out and activities were redesigned when required.

## **Handover**

In the phasing-out period of three to four years provision of “trouble-shooting” short-term technical assistance was provided when needed.

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<sup>2</sup> Haerah, A., Gani, R., Schubert, B. And Zehrfield, E-H “Manual of Operations for an Agricultural Market Information Service,” Indonesian-German Technical Cooperation Project ATA 85/86 Publication No. 7, March 1979.

- How often do farmers and traders require the information and through which media?
- Do all potential beneficiaries have access to the media chosen?
- Will farmers be able to use the information effectively, or is some sort of marketing extension service required to assist them?

## **Products and Markets**

The golden rule should be to start on a small scale and work up as resources permit. For instance, depending on the analysis of the marketing system, it may be desirable to initiate a service with information on prices in a few important wholesale markets, gradually expanding to include other wholesale centres and some assembly markets. When donor assistance is not used it is perhaps easier to avoid the trap of trying to do everything at once. When donor help is available, not only do the donors tend to want to develop impressive services but the recipients also want to take advantage of the assistance while it is available. This is understandable because, if a gradual approach is adopted, the donors may not be around when it is time for expansion.

Tanzania collected data for 27 commodities from 45 centres. Many of these prices were never used. Ghana collected prices from over one hundred markets. In responding to the FAO survey the Ministry of Agriculture reported that it had stopped training field staff in data collection, for lack of funds. It still has over one hundred full-time employees. Thus the more markets covered, the more likely it is that an MIS has an unmanageable amount of data to handle, staff whose salaries cannot be paid and whose training cannot be afforded.

Crops to be included in an MIS should be those which are commercially important. In some cases this will include more than one variety (e.g. red and white onions). The tendency to want to maximise the number of crops in order to build up a strong statistical database should be resisted. As the number of crops covered increases costs rise, with minimal extra utility, data collection becomes more complex, data transmission and processing becomes slower and information dissemination on the radio takes longer and, for the bulk of non-farming listeners, becomes more boring. Where crops have only a limited demand, those farmers producing them will probably already have good market information and market

contacts. In developing countries, crops such as asparagus and salad greens probably fall into this category. While publicising market prices may encourage new producers, the prices will be of little interest to the bulk of producers and thus the benefits of providing the information may well exceed the costs.

The locations in which price information is collected will depend firstly on research about information requirements of the target users of the MIS. For example, if farmers want information on prices as close as possible to the farm gate, it makes little sense to collect retail prices. Ideally, the locations chosen should be those which provide maximum coverage in terms of quantity traded. Again, costs have to be balanced against benefits. It should be realised at the outset that every market chosen for price collection not only increases the number of collectors required but also increases the need for supervision, training and data processing and, where radio broadcasts are paid for, increases the duration of the broadcast. Costs of supervision and training can be particularly high; in large countries travel and subsistence costs for head office staff to supervise field officers could well approach the salaries of the data collectors.

In Indonesia, the research-based decision to collect prices at local assembly markets or close to the farm gate inevitably meant that costs of operating the MIS were going to be high. Indonesia is fortunate in that it has the resources to sustain such a detailed Service. Other countries may not be able to finance the necessary inputs. However, in the case of many countries, price collection at source may not be so relevant nor, indeed, feasible. Where farmers are scattered over a large area and sell to traders at the farm gate or at very small assembly markets on an irregular basis, the local price may be both difficult and prohibitively expensive to collect. Under such circumstances, it may be preferable to broadcast wholesale market prices and, through the extension services, assist farmers to interpret them. However, as noted above, this needs to be considered in detail at the design stage.

Coverage by an MIS should be flexible. Services should periodically review crops and markets covered to take account of changing patterns of demand and production. As was done in Indonesia, this may necessitate introducing new crops into the MIS. In the long run, it may require removal of a market from the list of those covered and replacement with another which is more active and more relevant to producers, traders and consumers.

## **Market Information for Consumers**

There is a school of thought that MIS should pay much more attention to the information needs of consumers than has hitherto been the case. Examination of the feasibility of this does need to be carried out but there are several reasons for believing that a consumer-oriented service would experience difficulty in providing useful information. Firstly, an MIS which is oriented to the needs of farmers and traders will concentrate on assembly and wholesale markets. Prices from such markets are of little interest to consumers and thus an MIS seeking to assist consumers would have to carry out parallel price collection activities in retail markets. This would significantly increase costs although, on the other hand, it may be easier to attract sponsors for retail price information provision.

Secondly, information collected from retail markets may not be of much use to the bulk of consumers. In a city of 10 million people, for example, there will be a large number of retail markets. Prices in these markets will vary according to the distance of the market from the source of supply (usually the wholesale market) and according to the quality standards in the particular market which will, in turn, be determined by the purchasing power of the neighbourhood. Moreover, many consumers do not buy at retail markets but make their purchases at local shops, which have different pricing structures to those of markets. Under these circumstances it is difficult to see how an MIS could broadcast useful prices for consumers, who would be far more likely to obtain information by comparing prices among local retailers than by listening to the radio.

Where an MIS could perhaps provide a useful service to both consumers and farmers is by occasionally highlighting products which are in glut and should therefore be good value. Low farmer prices caused by gluts are often fairly slow to translate into low retail prices. Publicity about crops which should be cheap may encourage retailers to reduce prices and thus increase consumption.

## **Who Should Collect Market Information?**

Market information should ideally be collected by people who both have the time available to do the job accurately and have an interest in ensuring the success of the service. Price data collectors in Indonesia, for example, are employed full-time on the job and have built up good relationships with the farmers and traders. This

is likely to result in better quality data collection than that by a reluctant employee of a Statistics Service who is sent to the market once a week. There would appear to be a strong case for, wherever possible, linking market information collection with officers responsible for marketing extension. Where information is collected daily the officers responsible would be in an ideal position to advise farmers and other extension workers about price trends. Where weekly collection is deemed adequate, using marketing extension workers to do this work would ensure that information was collected by people who appreciated the importance of the MIS and understood the marketing system.

Given that traders, in particular, are likely to be very suspicious of Government officials of any type, it is important that they understand that the information collected from them will be averaged or aggregated and that no individual records are kept. It is also important that the people collecting the information can be seen as being uninterested in individual information. More than one country has arranged for market information to be collected by officials who also had a tax collecting function.

In some circumstances it may be possible for the trade itself to take responsibility for price collection. It has already been noted that some markets make available information on daily transactions. Such information can either form the basis of an MIS operated by the market itself or used by a governmental, semi-governmental or commercial MIS. It is also feasible for information to be provided by market traders through, e.g., traders' associations or chambers of commerce or agriculture. However, any MIS using such information from the private sector would need to build in checks for accuracy, given the possibility that some traders would wish to bias information to their perceived advantage. Nevertheless, the lack of resources experienced by many governments suggests that, in future, alternatives to the standard design of an MIS will need to be considered. One of these could be a service which does not collect primary data but receives information from a variety of sources for subsequent dissemination to users.

## **How Often and When to Collect Market Information?**

As previously noted, information on grain markets probably needs to be collected less frequently than information on perishables. While in some countries grain market prices can change quite rapidly in, for example, situations where urban



storage is lacking and roads are blocked, the normal pattern appears to be for relatively small daily price fluctuations. This is primarily because grains are harvested, processed and subsequently stored and thus daily supplies to the market are not subject to the vagaries of climate, perishability, etc. Prices of non-grain staples can, however, change more rapidly, particularly those of fresh cassava which is highly perishable.

Horticultural produce prices can change quickly. As quantities of particular varieties handled at a market can be relatively small and as products are perishable, the arrival of a new consignment can often have a significant impact on prices. Moreover, while demand may change little on a day-to-day basis, production levels can fluctuate significantly, depending on the suitability of weather conditions for ripening and harvest or, simply, on how many farmers decide to harvest on a particular day. Thus dissemination of horticultural market prices on a weekly basis is unlikely to make a significant contribution to improving market transparency, other than to indicate the general trend of prices as a result of seasonality and other factors.

Ideally, horticultural prices should be collected and disseminated on every day on which the relevant market functions. In practice, a government-operated MIS will rarely be in a position to collect prices at weekends when government offices are closed, even if the markets are functioning on those days. Thus, in many countries data collection from Monday to Friday is likely to be the norm, while in Arab countries collection from Saturday to Thursday should be possible. Daily collection does, of course, imply the use of more-or-less full-time data collectors. Where resources do not permit this, it may be necessary to reduce the frequency of collection. In making such a decision, the option of lowering costs by reducing the number of markets covered needs to be considered as an alternative to reducing the frequency of collection in all markets.

Data should ideally be collected during the peak trading period for each market. In practice, many MIS will find it difficult to adhere to this rule. For example, paying staff overtime to work very early in the morning may increase costs unacceptably. Also, collecting data at the ideal peak time may cause problems with ensuring timely information dissemination. If the best time for disseminating information is early in the morning it may be preferable to broadcast the previous evening's market prices rather than the previous morning's. Where the peak market period varies

according to location, it may also be necessary to make compromises with regard to the time of collection in order to accommodate radio schedules.

The peak period is preferable for price collection because that is when both suppliers and buyers are at their maximum and when price formation is most reliable. Markets which operate on a 24-hour basis and receive new supplies regularly (e.g. those in many parts of Asia) may experience very limited daily price fluctuations, as may those which dispose of the produce in a short period at a set time of the day (e.g. those which use the auction system). However, markets which are open to buyers for much of the day but receive most of their supplies at a particular time (e.g. early in the morning) may well see prices decline as the day goes on, the produce becomes less fresh and farmers and traders try to sell old stock in advance of new produce arrivals. While peak-period prices may therefore not be indicative of the average price a farmer is likely to receive, it is not feasible for an MIS to collect prices and quantities traded throughout the day in order to obtain reliable weighted averages. Under these circumstances, the peak-period price provides the target price to which the farmer should aspire. Clearly, however, price broadcasts and newspaper articles must explain to users that the price used is the price at a certain time of the day and not necessarily an indication of the average price over the whole day.

More important than ensuring data collection during the peak trading period is the need for data to be collected at the same time every day. The information disseminated must be consistent to permit comparison from day to day. This will not be the case if prices are collected in the morning on one day and in the afternoon of the following day. Thus a collection time, once decided, must be adhered to and the MIS needs to arrange for close supervision of data collectors to ensure that this is done.

## **Product Varieties**

It was stated above that an MIS needs, at an early stage, to decide on the crops to be covered. It also needs to decide on the varieties which are to be reported on because in many cases there will be significant differences between prices for different varieties. In much of Africa, for example, there are many different types of bean available, all of which command different prices. An MIS which simply reported on the daily price of “beans” would have no significance for farmers or

traders and would rapidly come to be viewed as irrelevant. If resource and other considerations limit the number of crops that can be reported on, then it is essential to select the most important varieties of each product, to the exclusion of the others, and name those varieties when the prices are disseminated.

## **Product Quality**

In any market a wide variety of qualities of a particular product is likely to be available at any one time. Prices for different qualities could well vary widely. In the absence of agreed and widely recognised quality standards, which are only available in very few countries, product quality could well cause confusion in the interpretation of price information. Producers of relatively poor quality fruit, for example, might complain bitterly about the accuracy of an MIS which reports prices of the top grades without making this clear on radio broadcasts.

MIS should aim to collect and disseminate prices for produce of Fair Average Quality (FAQ). This requires a considerable amount of training of data collectors in order to arrive at a common understanding of what constitutes FAQ, as there is clearly a need for consistency both between collectors in the same market and between markets. It also requires an extension effort to ensure that both farmers and traders have a clear idea of the quality which is being referred to in price broadcasts. When produce which does not fit the FAQ description is unavailable on a particular day, it is preferable that no price information is recorded rather than prices of inferior or superior quality.

## **Weights and Measures**

In a large number of developing countries the marketing systems do not use standard weights expressed in terms of kilograms. Farmers sell, and traders trade, by the bag, carton, box, bundle or tin. At the retail level, sales are often made by the "heap" with supply and demand conditions leading to changes in the size of the heap rather than changes in its price. Under such circumstances the provision of accurate and meaningful market information can be very risky, particularly where participants in the marketing system have no concept of standard weights.

Attempting to change time-honoured marketing practices in order to facilitate the operation of a Market Information Service would probably be an exercise in futility. The adoption of weights for trading purposes is only likely to take place when

the participants in the marketing system see a need for it. Where farmers and traders fully understand units of weight (i.e. kilograms) then it should be possible to disseminate information about prices on a per kilogram basis, although care must be taken to ensure that conversion rates from trading units to kilograms are accurate. It should not be assumed, as already indicated in Chapter 3, that a container will have a uniform size throughout a country or from year to year. Local price collectors will have to verify and constantly update conversion rates. Where farmers do not have a clear idea of units of weight then prices should be disseminated with reference to the standard trading measure. Again, any regional variations in these measures need to be pointed out in price broadcasts.

It is preferable that the use of scales to measure the weight of produce on offer at a certain price be avoided. Carrying scales around on a daily basis makes the price collector highly visible and may corrupt the accuracy of prices obtained. Traders are also unlikely to have much patience with collectors who want to “waste their time” by weighing produce without buying any of it. Thus, wherever possible, prices should be collected with reference to the container used, not by weighing the produce. However, when produce is traded, particularly at the retail level, in “heaps” or “tins” then weighing at the time of price collection is probably unavoidable.

## **Quantity, Stock and Other Information**

We have largely concentrated on the role of an MIS to provide price information which, in almost all circumstances, will be the most important function. Nevertheless, an MIS with adequate resources does have a legitimate role to play in providing users with additional information to enable them to make necessary marketing decisions.

Quantity information can help farmers and traders to make informed guesses about likely trends in prices. The main problem here is that such information can be time-consuming to obtain and accuracy can be almost impossible to achieve. While a price collector may be able to collect daily prices by spending about one hour in the market, the collection of detailed supply information can, depending on the way in which the market functions, be a full-time job. In some cases markets themselves maintain records of all arrivals and transactions and this information can be accessed by an MIS. However, unless fairly sophisticated monitoring is carried out, as is done, e.g., in wholesale markets in South Africa, or all arrivals

are in “standard” packages, the information provided is likely to be relatively unreliable. Monitoring of produce arriving in a market is often complicated by the lack of a weighbridge, and by the difficulty of identifying weights of individual products when several are carried on the same truck.

The data collection task is made easier when deliveries to a market are confined to a relatively short period of each day but, even then, obtaining accurate figures can be difficult. While detailed information on quantities supplied to a market would undoubtedly be useful for planning purposes (e.g. to assess demand for a new market; to understand production patterns), in most circumstances such information is not required by farmers or traders. In practice, a fairly subjective assessment on the part of a trained data collector regarding the supply situation will probably be adequate for short-term commercial uses. MIS should therefore aim to supplement price information with supply information, such as “the market was oversupplied with tomatoes today,” or “stocks of onions are low” or “few watermelons arrived in the market today” rather than attempt to give precise figures.

In countries where road communications are frequently disrupted by bad weather, an MIS can provide a useful service by advising farmers and traders of the disruptions. This could serve two purposes: it would alert farmers in some areas to the fact that their perishable produce is unlikely to reach the market and it would alert farmers and traders in areas not subject to transport problems that prices in the market are likely to rise.

Information of supply availability is of use to traders to assist them in locating new sources of supply, especially if produce is short. In a country where imported staple products form a significant component of the diet, an MIS should also consider providing advice about expected arrivals of food shipments at the country’s port(s). This is particularly important in the case of food-aid shipments which can, if handled badly, seriously disrupt marketing arrangements and prices for various crops. In addition to providing advance notice to the market concerning expected sale or distribution of food aid and the locations where this will take place, an MIS operating in a country with a food security reserve should also make information available concerning planned release of reserve stocks.

## **Data Accuracy**

Where price information has to be collected from scratch, i.e. where it is not generated daily as a result of the market recording all transactions, then considerable attention needs to be paid to making sure that the data collectors are fully trained in price and other data collection techniques. Repeated “refresher” training will also be required. Information collected must be speedily transmitted from the collector to the processor and on to the user. Collectors should be issued with data sheets to fill in, and provided with strict instructions regarding the quality of produce to which prices should refer and the calculation of averages (it will normally be necessary to collect at least five prices daily for each product covered). Where significant price differences are observed an average price may have little meaning unless it can be weighted. An alternative approach to using averages is to broadcast the “most common” or the high and low prices. Again, these prices should refer to FAQ produce and the low price should not be the price of old and/or damaged produce.

## **Data Transmission and Processing**

MIS officers should be provided with a timetable which spells out exactly at what time market information should be collected, when it should be put onto the computer and when it should be delivered to the radio station. That this is being done should be monitored by supervisors, who should also listen to radio broadcasts to check that they are going out and to control them for accuracy.

The motto “keep it simple” also applies to data processing. It is necessary to keep computer experts under control or they will tend to design systems so complex that only they can understand them. While the designs should recognise that some expansion of the service may take place, they should not be so complex that those operating the MIS on a day-to-day basis cannot handle them easily and solve any problems that may arise.

Handling the time factor in market data requires careful design of the system, to enable the generation of daily, weekly and monthly reports with meaningful comparisons between the different time periods and markets. The other major problem is the security of data. To protect any cell ranges with formulas from being accidentally over-written, these cell ranges can be locked to prevent unauthorized

**Box 7, Tips when setting up spreadsheets for market information<sup>3</sup>**

1. Keep things very simple
2. Document the entire system, including whatever formulas are entered
3. Protect the cells containing the formulas
4. Password the files
5. Don't use macros unless the data entry personnel at the site have been properly trained in their use, and there is some one who can troubleshoot the macros
6. Concentrate on the building up of a data file(s) which will have a weekly series of information for all commodities/markets
7. Don't allow direct manipulation of this data file for reports, but allow the extraction of subsets of the data file to compile reports
8. Provide year-end and back-up routines

Using a relational database management package, such as Access or dBASE, is probably best for manipulating market information data. Direct access to data can be more rigidly controlled and data entry routines can be built in to include error checking features. Reports can also be set up to extract any subset of data automatically with the minimum of manipulation of the database by the operator, i.e. any series of commodities, markets, time periods. Database solutions, however, require a higher initial investment in terms of time and skilled manpower than does using spreadsheets.

access. Entire files can also be passworded to prevent unauthorized access. But it is almost impossible to protect the data, which must be routinely manipulated from sheet to sheet or cell range to cell range. It is also difficult to set up automatic checks on the data as it is being entered.

## Dissemination

The media must be relevant to the user of the information. For example, confining information to newspapers is pointless if many farmers are illiterate. It is insufficient just to arrange for radio or television broadcasts or newspaper columns and then sit back and think dissemination is taken care of. Considerable attention

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<sup>3</sup> Bridget Poon, pers. com.

**Box 8, Collection and Dissemination by a Local Radio Station in Cambodia**

In Cambodia in 1996 market price information was collected by a wide range of Government and semi-Government agencies and there was considerable duplication in their activities. However, very little of the information collected was disseminated in any commercially useful way.

The most farmer-relevant market information was provided by a private FM radio station in Phnom Penh which sent a reporter every day to one of ten markets in the city. The reporter identified prices of a list of 49 products which he reported live from the market, compared them with prices from the previous day and then interviewed some of the traders about the market conditions. Transmission from the market to the radio station was by mobile phone and the programme was sponsored by a mobile phone company. At that time the station had a range of around 150 km and claimed that a high proportion of farmers listened to the price information.

While providing a very valuable service, this initiative suffered from some problems which indicated that it could be no substitute for a more formal MIS. Firstly, the coverage of the country was limited; secondly the opportunity to develop time series of prices was constrained by the fact that different markets were visited; thirdly, the station found the exercise to be expensive and not fully covered by sponsorship. Finally, the programme seemed to result from the individual initiative and enthusiasm of the station manager and could not be considered to be institutionalised in any way. Nevertheless, official steps to improve MIS in Cambodia should be able to build on the pioneering work of this radio station and incorporate it in any new MIS.

needs to be paid to the way in which the data is presented. In newspapers, the layout is very important, and comprehension can be greatly improved with the use of graphics. On the radio, the reading of long, boring lists of prices can rapidly reduce the audience. Radio broadcasts could concentrate on the most important crops and/or on crops where prices have changed significantly. Newspapers can be used to give more comprehensive information. Price broadcasts should be interspersed with some analysis of market conditions and opportunities, as done, for example, by the MIS cited in Boxes 8 and 9. Admittedly, this may lengthen the



### **Box 9, A Private-Sector Service in Moldova**

In the former Soviet Union state of Moldova, USAID funded the establishment of a Market Information Service designed to provide Moldovan exporters with information about markets in Moldova and in neighbouring countries. This was done in the form of a contract with two local entrepreneurs who obtained weekly price information and prepared an innovative ten-minute radio programme which highlighted the main arbitrage possibilities and advised exporters of the costs of exploiting those possibilities.

It had been hoped that the MIS would succeed in generating commercial demand for market information or, alternatively, commercial sponsorship. Unfortunately this had not been achieved by the time the relatively short-term USAID funding ran out. A sustainable commercial service thus seemed unlikely, at least in the short run. While exporters were prepared to pay for information, the amounts they were prepared to pay were inadequate to cover the cost of the service.

programme and increase costs. Finally, and perhaps obviously, it is essential that prices are broadcast in languages which people can understand.

Farmers are often confused about the prices they hear on the radio. There is frequently an insufficient understanding of the difference between retail prices and wholesale prices or, indeed, between wholesale and producer prices. When a market information service begins radio broadcasting, the first programme of market information should be preceded by one or two programmes which describe the service and provide farmers with the information necessary for them to interpret the prices broadcast. These programmes should be repeated on a regular basis.

Market Information Services rarely conduct studies of the impact and acceptability of the information they broadcast but this should be an ongoing exercise. Studies conducted for FAO, as part of our survey of MIS around the world, carried out interviews with farmers and traders. While some MIS were generally found to be well appreciated by the target audiences, others were either rarely listened to or not understood.

## Utilisation of Data

Utilization of MIS information by smaller farmers can be enhanced if extension workers are in a position to advise them on how to interpret the prices and seasonal price trends. For example, if the price in the main city is so much, what would be a realistic price close to the farm, after taking account of marketing costs? At a more sophisticated level, extension workers can plot prices over several years and advise farmers when to plant and harvest to take advantage of high-price periods. FAO has, in recent years, developed a set of training materials aimed at extension workers to help them come to grips with marketing matters.<sup>4</sup> Production not related to market requirements has to be avoided and all extension workers require a basic understanding of marketing if they are to provide meaningful advice to growers.

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<sup>4</sup> "Horticultural Marketing," AGS Bulletin No. 76 Rome, 1989, together with two training videos.

## Chapter 5

**Concluding Remarks**

Previous chapters have concluded that information plays an essential role in a market economy. Moreover, for reasons of equity, in order to promote development on as wide a basis as possible, and to overcome possible abuse of market power through preferential access to information, it is desirable that market information be available to all who can use it.

It is, however, a big leap from identifying a need for market information provision to actually meeting that need. In recent years, many countries have experienced great difficulties in making that leap, and relatively few developing countries presently have Market Information Services that offer commercially useful information on a timely basis. Public-sector MIS suffer from all of the problems faced by bureaucracies in poorer countries. They nearly all face staffing constraints. Most lack resources to carry out day-to-day operations and this tends to lower staff motivation. While the weaknesses of bureaucracies are often not particularly visible to the outsider, the failures of an MIS are there for all to see. Notice boards which are rarely updated and have not been given a coat of paint in a decade, newspaper columns which do not appear and daily radio broadcasts which suddenly become weekly broadcasts are all obvious evidence of problems. Once an MIS begins to go downhill it becomes very difficult to reverse the direction, and many MIS are now services in name only.

Chapter 4 addressed the issues that must be faced if an MIS is not to suffer the same fate as so many others. A gradual approach is strongly recommended. Having decided to set up a service, governments, in their initial enthusiasm for the subject, often want to maximise coverage, both of products and markets. This enthusiasm for a comprehensive approach is frequently nourished by donors, who want to see impressive results from their assistance in as short a period as possible. However, such an approach is often adopted at the expense of long-term sustainability. Governments' recurrent budgets are unable to maintain the level of staffing input in the initial design. Staff are transferred to other responsibilities and

are either not replaced or are replaced with untrained workers who cannot be trained due to lack of resources. Computer and other equipment is not replaced when it breaks down, again because of insufficient allocation in the recurrent budget. Costs of information collection and dissemination go up; for example, due to devaluation increasing fuel costs or as a result of state-run radio stations or newspapers suddenly demanding payment to carry market information.

Many MIS are designed with the main aim of providing statistical information to government departments rather than commercially useful information for market participants. Using the typology adopted in Chapter 2, they have more of an “historical” orientation than a focus on “current” needs. There is always a danger that new MIS will follow this path, particularly when based in Ministries which historically have had a strong focus on statistics and a limited appreciation of commercial realities. Awareness of this as a possible problem is perhaps the best defence against it. MIS designers should endeavour to position the new Service in the section of a Ministry which is most aware of the needs of farmers and the commercial community.

A Market Information Service with the necessary commercial focus should initially concentrate on just one or a few principle wholesale and assembly markets. Product coverage should be limited to those crops which have a sizeable number of producers, are seasonally important and which are much in demand. Speciality crops, such as herbs, where demand is relatively small and where measurement of the price is complicated by lack of standard units, should be avoided. The MIS should plan to provide information on a daily basis, even if this necessitates staff working outside normal office hours. The need to provide up-to-date price information is particularly essential in the case of perishable produce and where prices change continuously. Only when a service is able to carry out these limited activities on a visibly sustainable basis should expansion be contemplated.

This publication has raised the possibility that Market Information Services could be provided by the private sector. The advantages of private or even semi-private MIS are that they are not constrained by public-service regulations which effect terms and conditions of staff and the ability of a service to remove unsatisfactory workers. Moreover, private-sector MIS can, by definition, generate revenue whereas government services often find that any financing they obtain for an MIS has to be paid into the government’s central revenue account. The disadvantage of

a private-sector operation is that it is likely to cease operation as soon as it becomes unprofitable, even if this is only a short-term unprofitability. Despite sustainability problems, governments can be expected to have a longer term commitment to providing market information.

In countries where there are a large number of small producers, market information should ideally be available to all, not just those who can afford to pay for it. If a private service were able to attract sufficient sponsorship it could consider making price information freely available through radio broadcasts and newspaper insertions. Unfortunately, relatively poor farmers and traders do not have the sort of purchasing power likely to attract sponsors or advertisers. It may just be possible to overcome this problem by directing part of the information provided towards consumers, although the difficulties associated with this have already been noted. There is also the possibility that a private MIS could sell (by Internet, other electronic means or phone) detailed information to the larger, most commercial farmers, while providing a limited range of free information through the media for smaller farmers.

Whichever method of information provision is adopted in a particular country, it is important that regular, timely and reliable market information is collected and made available and that the users, particularly farmers, are assisted with interpretation of the data. Mistakes have undoubtedly been made in the past; it is hoped that this publication will mean that some of those mistakes can be avoided in the future.

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