

**Upland Development Programme in Southern
Mindanao (UDP)**

Project No. ALA – 97/68

**An Overview of the Theory and Operation of
Agricultural Market Information Services**

**Prepared by Tom Cunningham
Market Information Specialist
June 2000**

An Overview of the Theory and Operation of Agricultural Market Information Services

1. Background

In recent years there has been an increasing emphasis placed on the importance of marketing and the necessity for agricultural production to become more market-led. This stems from a combination of increased competition in world markets, freer trade in at least some agricultural products, lowering or dismantling of national subsidies and a movement away from state-sponsored marketing in many countries and especially those which have been undergoing structural adjustment. Increased levels of competition means that the importance of competitive advantage, a fundamental principal of marketing, is increasingly recognised.

In countries in which the private sector has always played the major role in agricultural marketing there is an increasing realisation that the system has not benefited all participants in the marketing chain equally. In many areas such as the uplands of Mindanao traditional marketing channels have been a poverty reinforcing measure. The need for a greater measure of official assistance in areas such as legislation, infrastructure provision, marketing extension and Market Information Services is now being recognised.

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 better decisions regarding the viability of storage. Information of this type also assists agricultural planners and extension workers to advise farmers on appropriate crops to include in their farm plans.

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 paper is not a manual for the operation of a Market Information Service but attempts to set out the main points to be considered in setting up a commercially useful and viable MIS and to elaborate the advantages and benefits of a good AMIS

2. Introduction

This paper addresses a number of aspects of market information systems in general is aimed at the situation in the Philippines and in particular how AMIS can affect the livelihoods of upland communities in Southern Mindanao, where the Upland Development Programme in Southern Mindanao (UDP) operates.

For the purposes of this discussion we will take as given that we are functioning in a market economy and the role of markets are accepted. Also that farmers and others who will be assisted by the programme will be encouraged to adopt the market-led approach and will indeed base their decision making on this approach.

3. Market information

3.1. Difference between market information and marketing

3.1.1. Market Information

Market Information is seen as providing full awareness of all parties of prevailing market prices and other relevant information.

At the outset a distinction between market information and marketing information must be made.

3.1.2. Marketing Information

Marketing information will give information on such items as:

- ✍ marketing channels;
- ✍ quality requirements;
- ✍ packaging;
- ✍ shipping;
- ✍ trade regulations etc

i.e. providing information on how to market products. It will also include market information.

Marketing information will be used more at the planning stage and would not normally be disseminated on a regular basis at harvest time as would be the case with market information.

3.2. What is an Agricultural Market Information Service (AMIS)?

Having defined market information we can now define AMIS. The FAO defines an Agricultural Market Information Service as:

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 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.

3.3. The role of market information

Correct decision making and planning depends on, inter alia, reliable information on market conditions. Advocates of free market economies consider prices and price flexibility as the mechanism by which market information is conveyed and provides the incentives for producers 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. 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.

3.4. Categories of Market Information

Information of use to those in the marketing system and to others basically falls into two categories.

3.4.1. Current market information

Current market information which should be as up-to-date as possible and which can facilitate bargaining and spatial arbitrage.

Current information helps reduce risks, thus reducing marketing costs which in theory should reduce margin requirements. In the extreme case a farmer with information can decide not to harvest if prices do not cover marketing costs.

While more and better information can reduce marketing costs there will always be some risk as information cannot be perfect and the cost of collecting all available information may not be cost effective or possible in the time available.

Information can often deteriorate rapidly as prices can change daily or even hourly.

3.4.1.1 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, as is frequently the case here in the Philippines. 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. However, the *practical* benefits to farmers are often much greater than the arbitrage possibilities for traders which can, theoretically, result from AMIS. 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 and provide a guide for negotiations for future sales.

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. If additional marketing costs are equal or greater than the value added then there is no advantage in the increased price. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market.

Some countries may not have either the concentration of horticultural production or the resources to operate a very sophisticated 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.

3.4.1.2. Current market information and traders

Marketing margins are relatively high in developing countries. While there are a number of reasons for this, lack of information is generally seen as being one of the main reasons, apart from transport costs, for high transaction costs. When no formal AMIS 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. If poor information leads to losses these must be recovered from future transactions thus adding to margins. Improved telecommunications and especially the rapid spread of cellular phones is bringing about rapid change in this area.

3.4.2. Historical information

Historical information is compiled over time, often several years, and can be used for production planning and storage decisions

3.4.2.1 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, but

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.

3.5. Benefits of improved information

Improved information 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
- ☞* negotiate on a more even footing with traders

Improved information should also enable traders to

- ✍✍ move produce profitably from a surplus to a deficit market
- ✍✍ make decisions about the viability of storage where technically feasible

4. Price formation

In theory prices are the result of the functioning of the market and are determined by:

- ✍✍ ***supply and demand** which, in turn, are influenced by
 - ✍✍ consumer preferences
 - ✍✍ costs of production
 - ✍✍ marketing costs
 - ✍✍ environmental factors

* While it may be regarded as a fine point by many there is a strong case in a market led situation to restate this as **demand and supply** to emphasise the fact that the **market led approach** is demand driven as opposed to the production, sales or engineering approaches which are supply driven.

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, 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 above the absolute minimum. This latter scenario tends to be the case in the UDP programme area.

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.

5. Factors which can distort the market system

In practice however many factors can distort markets and as a result the perfect free market system so beloved by free-market economists from Adam Smith to Milton Friedman ceases to function efficiently. Many of these distorting factors, some of which are controllable and some not, are present in the UDP programme area e.g.:

- ☒ unpredictable climatic changes such as *el nino*
- ☒ poor infrastructure (roads, telecommunications and the physical markets)
- ☒ lack of information
- ☒ lack of the means of production such as affordable capital or technical knowledge
- ☒ barriers to competition in the marketing chain

These circumstances can result in high risks and high marketing costs and in many cases can prevent otherwise willing entrepreneurs from responding to market opportunities.

A number of different approaches are required to deal with the controllable factors listed above and the relative importance of each will vary depending on the situation. Market information will always be an important factor in the efficient operation of the market economy.

6. Justification for AMIS

6.1. Theoretical justification for AMIS

Much of the theoretical justification for market information services is based on:

☞ **spatial arbitrage** (*the process of exchange of commodities with the objective of taking advantage of price differences that exceed transaction costs*). In practice large traders are the entities most involved in spatial arbitrage, especially between widely dispersed geographic areas e.g. Davao and other areas of Mindanao and Cebu or Manila or even overseas markets. These traders tend to have their own information networks. They have access to telecommunications and have a scale advantage in that they can spread the costs of information over much larger quantities of produce. Small traders and individual farmers or small farmer groups lack the resources to support such information networks and are more in need of an AMIS supported by public funds. While the main advantages for these latter groups are mostly not concerned with spatial arbitrage there are other benefits more directly related to practical matters than marketing economic theory and we will concentrate more on these.

☞ **Temporal arbitrage** (*changing the time when product is brought to market i.e. storage*) while also a theoretical justification is not so important and especially for perishable horticultural products.

In theory then, when a marketing system functions efficiently spatial and temporal arbitrage takes place i.e. traders or producers take advantage of price differences in either space (markets in different geographic locations) or time (storage) until these differences decrease to the level of transaction costs.

6.2. Impact of AMIS

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
- ☞ 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 and reduces competition within markets.

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. This is perhaps one justification for public funding of AMIS, but as is discussed more fully in a later section presents its own problems.

There are other uses of AMIS for policy makers, Early Warning Systems etc, but these while not totally ignored for the purposes of this paper are not given the same prominence as other uses but should be considered for public funding justification.

However, **it cannot be overemphasised that *the primary purpose of an AMIS is to supply commercially useful market information to producers*** and any other potential benefit which detracts from this must be subordinated

7. Experiences with Market Information Services

7.1. History of AMIS

The history of agricultural market information services tells us that *while the needs and benefits are well recognised the practical application of AMIS is a far from simple task with little guarantee of success*

Many countries have now established Agricultural Market Information Services but a recent FAO survey of 120 member countries identified only 53 functioning Market Information Services and the utility of many of these was considered to be questionable.

The study concluded that the vast majority of these services cannot be considered to provide commercially useful information for farmers and traders.

The same survey concluded that a large percentage of AMIS are:

- ❏ primarily data-gathering exercises (usually not well done)
- ❏ are frequently operated by government officials who lack a commercial approach
- ❏ face significant resource constraints
- ❏ are often set up by donors and have proven to be unsustainable once donor support has been withdrawn
- ❏ AMIS planners have tended to “over design” services, paying little attention to the capacity of the organisation providing the service to continue to do so on a reliable basis.

Unfortunately the Philippines has been no exception.

While the importance of AMIS is well recognised numerous problems exist with their operation. Shepherd *et al* conclude that

"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".

8. Designing and setting up an AMIS

On the basis of the discussion so far, it must be clear that developing an efficient, relevant and sustainable AMIS 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 donor agencies in promoting AMIS in all circumstances.

Attention needs to be paid to the capacity of the country and the counterpart organisation 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 AMIS 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 AMIS.

It is important therefore to remember that

In designing a service sustainability and commercial utility must be the prime considerations, but these are not easily achieved.

In order to achieve these objectives two points are particularly important:

the needs of those involved in the marketing system must be determined (usefulness)

the service must be tailored to meet the resources available and only expanding operations when additional funds can be obtained on a long-term basis. (sustainability)

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

Some of the detail outlined here may be considered excessive and in the present situation probably is. It should be remembered that the project aims to bring about a changed situation and that this must eventually be provided for.

8.1. AMIS components

A good service will consist of a number of components which will need to be well designed and implemented. These include:

- ~~data~~ data collection
- ~~data~~ data transmission
- ~~data~~ data processing
- ~~data~~ data dissemination

8.1.1. 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. 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 do not start work until eight. There may be a temptation not to visit the market regularly but to guess prices.

The question then arises as to who should be responsible for collecting the information. In an ideal world they should be people who are solely responsible for market information and have no other job. 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.

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.

Data collection is usually the biggest single cost in operating an AMIS and is very often the first component to suffer when budgetary cutbacks are introduced. One of the reasons for this is that price collectors are often employed on a part time or contract basis and these staff are usually the first to be retrenched if there are any cutbacks or if savings have to be made to accommodate rising costs without an accompanying increase in resources.

Sustainability requires that an affordable price collection mechanism that can be maintained into the future without dependence on external inputs can be developed.

8.1.2. Data transmission

AMIS 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 or whatever media is to be used. 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.

8.1.3. Data processing

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 AMIS 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 overwritten, these cell ranges can be locked to prevent unauthorised access. Entire files can also be passworded to prevent unauthorised 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.

Generally speaking a software programme which is capable of automatically capturing and processing data and generating reports should be used. Spreadsheets are not really suitable for this purpose and cannot be used for manipulating and analysing data.

Only off the shelf software packages should be used for processing data. Custom written software programmes have a very poor survival rate. USAID-funded projects have tended to use SPSS while FAO developed FAO-Agrimarket, a run-time version of dBaseIV. FAO is now moving towards the use of Windows-based programmes.

Spreadsheets while initially easy to set up are difficult to maintain especially when sheets are linked and macros are used. They are also of little value in analysing and manipulating data and in generating time series data.

Spreadsheets can be used for entering the data at local level for transmission to the central processing unit.

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 and conflicting user requirements.

8.1.4. Data Dissemination

The FAO survey identified only thirteen countries that have daily dissemination of price information. In many circumstances (but not always), daily information would appear to be a pre-condition for a commercially relevant AMIS. For example, where markets are held daily for horticultural produce there may be 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 or perhaps even less frequent would appear adequate.

Where prices do not change much or only very gradually and where farmers are more interested in prices as a guide and an aid in negotiations with a local trader rather than to take advantage of spatial arbitrage daily prices are unlikely to be necessary.

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, Agricultural 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 including the Philippines have technical problems in broadcasting country wide. 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.

It is also essential that the broadcasts are in local languages. 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 AMIS developers to use notice boards to publicise price information, with mixed results. 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,
- ✍ they are sited at places where farmers congregate
- ✍ farmers are able to understand them.

Information should also be standardised. A "bag" should mean the same thing to all users of the system. 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 AMIS.

The media must be relevant to the user of the information. For example, confining information to newspapers is pointless if many farmers are illiterate or if newspapers are not delivered regularly to the area. 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 needs to be paid to the way in which the data is presented. In newspapers, newsletters, pamphlets etc. the lay-out 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. Print media can be used to give more comprehensive information. Price broadcasts should be interspersed with some analysis of market conditions and opportunities. Admittedly, this may lengthen the 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. Extension officers should conduct periodic training of farmers on price comprehension and interpretation.

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 their survey of AMIS around the world, carried out interviews with farmers and traders. While some AMIS were generally found to be well appreciated by the target audiences, others were either rarely listened to or not understood.

8.2. Utilisation of Data

Utilisation of AMIS 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. Production not related to market requirements has to be avoided. All extension workers require a basic understanding of marketing if they are to provide meaningful advice to growers.

Delays in transmitting, processing and disseminating price data can undermine the credibility of an AMIS. In these days of modern communications by telephone and fax 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. Problems can persist especially in more isolated areas. Government offices can lack equipment and 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 offices where the equipment supplied for an AMIS is better than the equipment being used by senior personnel there is always a danger of it being commandeered. A further problem is that budgets available to pay for 'phone calls or faxes are often limited.

Small-scale farmers, for example, may find data on prices in their local assembly markets much more relevant than major city wholesale market prices because they lack transport to major city markets. Farmers can have difficulty interpreting price information, especially in the early stages of an AMIS. The introduction of an AMIS must be accompanied by an extension and awareness campaign to explain to farmers the meaning of the prices being broadcast, and that such a campaign must be repeated on a regular basis.

For most small farmers, information services will have to be supplemented by extension services which are able to assist them to interpret price data .

Services could also target consumers and this might make public funding more acceptable. Generally though they only broadcast wholesale, not retail, prices. 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. However, it must be recognised that it is better to provide no information than inaccurate or misleading information. Information on quantities, especially quantities arriving at market centres is often particularly difficult to record. Apart from mixed loads and the sheer difficulty of monitoring product as it arrives traders often refuse to divulge information on quantities (something to do with the taxman or tax woman). It might be better just to say that supplies were heavy, light or moderate or perhaps supplies failed to clear.

8.3. Political and Other Interference

If it is accepted that AMIS can increase the bargaining power of farmers then it follows that, at least in this aspect, AMIS can lead to a reduction in traders' margins. Further, larger traders may oppose an AMIS because they have invested in obtaining their own information and an AMIS will reduce their competitive position in relation to smaller traders and farmers. If local politicians also happen to be major traders considerable difficulty could be experienced in securing public support for AMIS.

8.4. Charging for Market Information

The vast majority of AMIS in developing countries and emerging economies are public services. Obviously, public provision has limitations of cost. 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. The problem here, of course, is that the ones who can afford to pay for it then have an advantage and generally these are not the intended beneficiaries. Given that the most rapid system of dissemination to small-scale users is undoubtedly radio it is also difficult to see how they could be charged, even if they could afford to pay. It is

also unlikely that an AMIS that begins by offering a free service will ever make the transition to a commercial one.

9. Ensuring Sustainability

9.1. The Institutional Structure

If an AMIS is to be sustainable its operation must somehow be institutionalised. The vast majority of Agricultural 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.

This would suggest that the operation of the AMIS should become part of the normal activities of the public sector.

Private Market Information Services appear to work best when they are able to use already available information i.e. when the cost of information gathering is borne by someone else. Dissemination costs are usually much less than gathering costs.

One possible solution is for government to bear the cost but to contract out the operation of the service. Such an arrangement would free the operation from restrictive public-service employment regulations, thus giving them management flexibility and the opportunity to be more cost effective. Govt would have a monitoring role. However as costs escalate due to inflation or for other reasons government may not be willing to allocate extra resources.

As stated above numerous AMIS have been established by donors, but have not been sustained.

In an effort to address institutional shortcomings donors have intervened with grants and salary supplements, but these have contributed to unsustainability in the long run.

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 AMIS from scratch. However, there is a general trend worldwide towards reduced technical assistance and projects are tending to have a shorter time frame.

Donor funding should be for setup and training costs and not for recurrent costs.

The FAO from their experience recommend that for most countries a one year project with fulltime technical assistance input is the minimum required to set up an AMIS.

Funding for information collection and dissemination, including training, is likely to be one of the main areas which threaten AMIS sustainability. Services can no longer take for granted free access to government owned radio stations. Where privately owned radio stations undertake some of these functions on a voluntary basis, this seems to be done on individual initiative and has generally proved to be unsustainable. Sponsorship for broadcasts by agri-business companies is one option. Lack of purchasing power among the intended audience often discourages sponsorship. Including some information for consumers could help to overcome this, but again the collection of this information has its own problems and mixing wholesale and retail prices can cause considerable confusion.

A difficulty with private radio stations performing a voluntary role is that the AMIS does not become institutionalised. Personalities or circumstances at the radio station may also change.

9.2. Analysing the Marketing System and its Information Needs

In theory, no AMIS should be planned without a detailed understanding of how the marketing system works.

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. 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.

In cases where traders sometimes buy the production from the farmer while it is still in the ground or on the tree information on daily prices would appear to be of little utility to the farmer. In these circumstances a combination of historical market information, an analysis of price trends and if possible some data on production trends would appear to be more useful.

A participatory approach, providing the AMIS developers with the chance to explain the implications of an AMIS and then discuss with farmers in what form they would like to receive the information, is essential.

In researching the marketing system, it should not automatically be assumed that a Market Information Service is required or that one can be designed and operated which will fulfil the need.

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.

One problem with assessing farmers' information needs is that they often do not, at the outset, appreciate the value of information or necessarily know what information will be of benefit to them.

The temptation should be avoided here to try and gather and disseminate all kinds of information on everything. When farmers are asked what information they need, from where it is needed and on what commodities you can very easily end up with a wish list, most of which will have no relevance. The designers of the system must carefully analyse the stated needs and try and prioritise them. This is especially important in situations where resources are limited.

It is important to identify the most relevant price to the farmer. Is it local prices or prices in more distant markets.

Other points, touched on earlier, also need to be reviewed. While an AMIS 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?
- ⚡ How often do farmers or/and traders require the information and through which media?
- ⚡ Who should the AMIS be aimed at?
- ⚡ 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?

10. 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.

The more markets covered, the more likely it is that an AMIS has an unmanageable amount of data to handle, staff whose salaries cannot be paid and whose training cannot be afforded.

10.1. Products

10.1.1. Which commodities to include

Commodities to be included in an AMIS 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 and often 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 costs of providing the information may well exceed the benefits.

10.1.2. Product Varieties

It was stated above that an AMIS needs, at an early stage, to decide on the crops to be covered. It also needs to decide on the types of each to be reported on. The daily price of beans will have little meaning as there are several types of beans. 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.

10.1.3. 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 AMIS which reports prices of the top grades without making this clear on radio broadcasts.

AMIS 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.

10.1.4. Weights and Measures

It is important that weights and measures which are clearly understood by all users of the system are used. If there are any regional variations in measures, this needs to be pointed out in price broadcasts.

10.1.5. Quantity, Stock and Other Information

We have largely concentrated on the role of an AMIS to provide price information which, in almost all circumstances, will be the most important function. While detailed information on quantities supplied to a market would undoubtedly be useful for planning purposes, 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. AMIS 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 AMIS 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.

10.2. Locations to collect prices from

The locations in which price information is collected will depend firstly on research about information requirements of the target users of the AMIS. 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. 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 disseminate 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 AMIS should be flexible. Services should periodically review crops and markets covered to take account of changing patterns of demand and production. This may necessitate introducing new crops into the AMIS. 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.

10.3. 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. Full time collectors who can build up a good relationship with farmers and traders 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 AMIS 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.

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 AMIS operated by the market itself or used by a governmental, semi-governmental or commercial AMIS. 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 AMIS 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 AMIS 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.

10.4. How Often and When to Collect Market Information?

Information on grain markets probably needs to be collected less frequently than information on perishables. In some countries, including the Philippines, where grain prices are largely controlled by government grain price collection is hardly relevant. Prices of non-grain staples can, however, change more rapidly, particularly those of horticultural produce where prices can change quickly. 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 AMIS 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. Daily collection does, of course, imply the use of 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 AMIS 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 AMIS needs to arrange for close supervision of data collectors to ensure that this is done.

10.5. 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.

11. Concluding Remarks

Previous sections 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 Agricultural Market Information Services that offer commercially useful information on a timely basis. Public sector AMIS 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 AMIS 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 AMIS begins to go downhill it becomes very difficult to reverse the direction, and many AMIS are now services in name only.

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.

Often price collectors are not part of the plantilia and in times of financial cutbacks their contracts are not renewed.

Many AMIS are designed with the main aim of providing statistical information to government departments rather than commercially useful information for market participants. They often have more of an “historical” orientation than a focus on “current” needs. There is always a danger that new AMIS 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. AMIS 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 AMIS 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. In certain circumstances daily information collection and dissemination may not be necessary. Only when a service is able to carry out these limited activities on a visibly sustainable basis should expansion be contemplated.

This paper has raised the possibility that Market Information Services could be provided by the private sector. The advantages of private or even semi-private AMIS 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 AMIS can, by definition, generate revenue whereas government services often find that any financing they obtain for an AMIS 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 AMIS 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 paper will mean that some of those mistakes can be avoided in the future.

11.1. Market Information for Consumers

There is a school of thought that AMIS 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 AMIS 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 AMIS 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 AMIS 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 AMIS 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.