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Introduction to agricultural market information systems

This is one of a series of information sheets for people designing and implementing agricultural market information systems in Africa.

An agricultural market information system collects, analyses, packages, stores and disseminates prices and other information relevant to farmers, traders, processors and others interested in agricultural commodities. It may also be called a market intelligence system, market information service, or in short, an MIS.

It may use various **channels** to get the information to these users: nowadays especially mobile phones and the internet, as well as more traditional methods such as radio, television, print media and noticeboards.

The system **gathers data** from various sources – markets, major buyers and sellers, government monitoring services and other sources. It **analyses** the data to check that it is credible, determine trends over time and variation from place to place, and discover the causes of this variation. It then **delivers** the information to the users in a form that they can understand and use – for example as a short message or a graph showing prices.

Market information systems may focus on a **single commodity** (such as maize), or a wide **range of products** (cereals, vegetables, fruit, textile and beverage crops, etc.).

They may cover farm **outputs** (crops, livestock) and **inputs** (fertiliser, seed, pesticides).

They may expand beyond market-related information to a wide range of other products and services – including weather updates, production tips and services for users.

Why are market information systems useful?

- The more information people have, the better decisions they can make.
- Farmers can choose what products to produce, and when, where and to whom to sell.
- Traders can decide the best time and place to buy.
- Processors can plan their purchases and activities.
- The government can detect food insecurity problems quickly.

Information is power. In theory, it gives people the ability to bargain for a better price or negotiate the conditions of a deal. If people lack accurate, timely information, they may not be able to make the best decisions: they may sell or buy the wrong types or amounts of products, and they are at a disadvantage when dealing with competitors and trading partners.

Information reduces poverty. That is especially important for the poor, such as small-scale farmers and traders. For them, knowing the current price may mean the difference between a successful season and a mediocre one. They are often ready and willing to pay for good-quality, reliable market information that can help them make money.

Information makes markets more efficient. Traders can use price information to spot opportunities. A rise in prices in one location gives traders an incentive to move produce there for sale. The traders make a profit, local people get food, and the increased supply pushes prices back down.

System or service?

The terms **market information system** and **market information service** are sometimes used to mean the same thing. But it is useful to distinguish between them:

- A market information **system** is the process by which information is collected, processed and disseminated.
- A market information **service** is what the service provider offers to the user: for example, information on markets, delivered via a mobile phone or other channel.

Information avoids crises. Governments and relief agencies also monitor prices so they can spot problems early. Perhaps the harvest has been bad and local people are in need of food but cannot afford it. The government or relief agency may have to ship in food to cover the shortfall. In some countries, the price of livestock is a key indicator. Declining prices may mean that herders are selling animals to buy cereals to eat.

Information is valuable. Designed right, market information systems generate income for their users, and at least some users are willing to pay for the information they get.

Types of market information systems

Market information systems fall into three main types: government, project, and commercial.

- **Government** systems regard information as part of the infrastructure that improves the lives of people ("public good") – similar to roads or security services. They tend to provide services such as information on prices or the weather for free.
- **Project**-based systems are set up by development organisations and are supported largely by donor funding. They tend to be specific to a particular area or commodity. They also tend to be short-lived: it is difficult to sustain them after the project funding ends.
- **Commercial** systems rely on a mix of user fees, advertising, subsidies and income from additional services (such as training). They believe that by supplying information that is accurate, timely and well-packaged, they can persuade enough users to subscribe to cover their costs or even generate a profit. While the majority of users appreciate the information they get, only some are able and willing to pay for it. Most providers are still seeking ways to make their businesses profitable.

For more, see the sheet on *Deciding on your business model*.

What makes a good market information system?

Market information systems must be:

- **Relevant.** The system must provide information that the users actually want.
- **Timely.** The information must be up-to-date and available when the user needs it.
- **Accurate.** The information has to be correct. Users will naturally compare what a market information system says with other sources of information – and with competing systems or media sources.

■ **Reliable.** Users must be able to trust the system to provide accurate information on a regular basis so they can use it to make decisions.

■ **Usable.** Users have to be able to get the information they need easily, without having to sort through vast amounts of irrelevant information or complex menus. The service must be easy to use, even for users who are illiterate or have little formal education.

In addition, here are some other critical characteristics of market information systems.

- **Sustainable.** A commercial market information system should be financially sustainable: it should not have to depend on continued funding from the government or a donor.
- **Low cost.** Collecting and disseminating information can cost a lot and be very time-consuming. By keeping such costs down, service providers can keep the prices they charge users low and thereby attract more users.
- **Targeted.** Most users do not want reams of information about commodities or regions they are not interested in. And farmers have different needs from those of agro-dealers, warehouse managers or processors. While a market information system may serve different user groups, the information it presents to each group should be tailored specifically for that group.
- **Available to all.** Africa has millions of farmers and small-scale traders who could benefit from improved access to information. But they cannot (or do not feel they can) pay for it. Market information systems should find ways to help them get the information they need. The profits from selling information to large traders and agribusinesses can make it possible to cross-subsidise the "bottom of the pyramid", helping the smaller actors to grow and become valuable customers in the future.

Parts of a market information system

A market information system has three main parts: data collection, processing and dissemination.

Data collection

At its simplest, a market information system gathers the prices of a particular commodity (say, maize) from one or more markets on a regular basis (daily or weekly). It then tells the customers who use the service what the price is so they can make business decisions.

Prices may vary widely from place to place, from one buyer and seller to another, from day to day, and even within the same day. Different volumes and grades attract different prices. The farm-gate price is different from the price at the market or

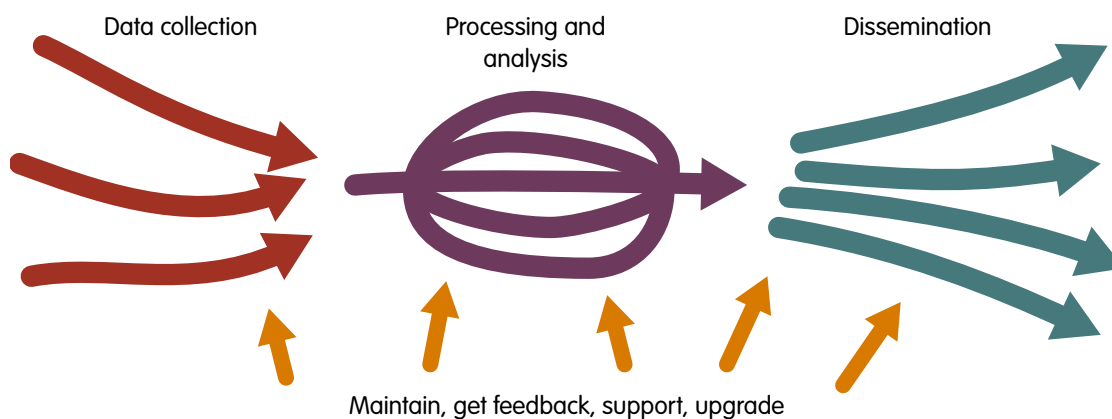


Figure 1. Stages in implementing a market information system

warehouse. So the information has to be collected in a **standard** way, at a set time, using a standard template, so users can compare like with like.

It is possible to gather information in various ways. When commodities are traded on an exchange, the required information is generated automatically as it reflects actual transactions: prices, grades, volumes, etc. But much trading still takes place face to face, sealed with an exchange of cash and a handshake. That does not create an electronic trail, so getting such information is a challenge.

A common approach is to employ **enumerators** or monitors at each location. They keep in touch with buyers and sellers, collect information on the prices and other aspects, and send the data to the market information system. They can use paper forms or electronic devices to do so.

Some types of data (such as prices) are easier to gather and tend to be more reliable than others (such as volumes). Absolute accuracy is neither necessary nor possible – after all, prices vary all the time, and it is not possible to control for all sources of error.

Governments gather data on various topics, including prices, volumes and cross-border trade. They generally make this data available for free. They are useful input for market information systems. But the system managers must be careful of data quality: official statistics do not necessarily reflect actual values but tend to give aggregated values or averages.

A more complex market information system uses information collected from many **different sources**: individual producers, traders, marketplaces, warehouses, the government, and so on. It may also incorporate things like short- and long-term weather forecasts, and projected supply and demand in other countries. It may outsource part of this data collection to specialised agencies or even gather it through “crowd-sourcing” (collating large numbers of observations collected by individuals).

For more, see the sheet on *Developing an agricultural market information system*.

Processing and analysis

After gathering the numbers, the market information system has to make sense of the data. It has to collate information from the various sources, clean out errors and outliers (extreme values that do not reflect the prices that most people pay), and validate the statistics by checking them against information from other sources.

This processing and analysis can use common applications such as spreadsheet or database software (e.g., Microsoft Excel or Access), or statistical packages such as SPSS or STATA. Various providers offer special software that you can feed data into. This software can be customised to your own needs and can contain checks that help prevent mistakes, for example in entering data.

Some of the analysis (such as calculating averages) can be automated. The rest relies on human expertise: obtaining information, asking questions, understanding events, and distilling it into short, meaningful statements that users can understand.

This produces various types of information:

- **Simple numbers.** For example, the price of a tonne of Grade-A maize in Nairobi last Saturday.
- **Trends and comparisons.** Examples: the price of maize in Nairobi compared to that in Kampala, Mombasa and Dar-es-Salaam; how the price has changed over the last 3 months; how the price has changed over the last 5 years.
- **Analysis.** This includes news summaries, explanations of the trends, discussion of what is happening in the industry. Some systems even give advice to users on whether to buy or sell (though this is risky!).

For more, see the sheet on *Data analysis and packaging*.

Dissemination

This is how the users get the information. Market information providers distribute data through both traditional and non-traditional channels.

- **Display:** bulletin boards, notice boards and electronic media boards at marketplaces
- **Printed:** newsletters, bulletins, magazines and newspaper articles
- **Broadcast:** radio and television
- **Computers:** websites, email, social media and interactive kiosks (computer terminals that allow users to get certain types of information)
- **Mobile phones and tablets:** SMSs, apps, web-based mobile service and social media.

Of these, mobile phones are the fastest-growing channel. Increasing numbers of farmers in Africa have a mobile phone, and a growing percentage have smartphones. Geographical coverage and bandwidth are improving. Even if a farmer does not have a phone, he or she may be able to get information from someone who does.

The market information system may manage the supply of information itself. For example, it may produce and distribute its own bulletins, or develop its own website and mobile phone app. Or it may distribute the information through a third party, such as a newspaper, radio station or a dedicated market information service provider.

For more, see the sheet on *Disseminating information to your clients*.

Types of products and services

A market information system may offer three broad types of products to its users: information, services and tools.

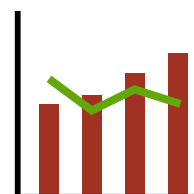
Information. These include information on prices, the weather, contact information of dealers, buyers and suppliers, farm tips and news.

Services. These include analysis (trends, comparisons, etc.), question-and-answer services, call centres, brokerage, etc. Many of the services are based on analysing and interpreting the data above.

Tools. These are the platforms or mechanisms that make it possible to gather, process or deliver the information – rather than the information itself. They include the software, website, bulletin boards, etc. The user provides the information that goes on the platform.

Some market information systems offer only one of these products and services; others offer two; a few provide all three.

For more, see the sheet on *Identifying clients and planning services*.



Agricultural market information systems in Africa

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