

Session 4
Innovations in
market information
services

Market information and innovations

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The provision of basic market information is a service that aims to increase the efficiency of agricultural markets and contribute towards overcoming basic issues of market failure based on asymmetrical access to information. In its simplest form, it is argued that access to spot prices assists farmers to make decisions on where to sell their goods and to negotiate for better prices from a position of strength; traders also use this information to assist in facilitating arbitrage and the distribution of goods.

Longer-term trend data allow farmers and service providers to make decisions on which crops to grow and when to harvest, based on seasonal price trends. Historical data also enable farmers and traders to make more informed decisions on storage options, and finance institutions can use this information to assess risks of lending for speculative storage and trading options. Policy-makers and researchers use market information to review shifting market patterns and to assist in planning to foster market growth, making provision for marketing institutions and infrastructure, monitoring food security conditions, and for more accurate and timely provision of food relief. Due to the range of potential users and uses of market information, there is, in much of Africa, increasing demand for accessing such data if reliable, accurate and timely.

Despite these benefits, debate on the need for long-term support to a market information system (MIS) continues. Issues of quality and financial sustainability are paramount, and these are important because the provision of market information achieves best results when it is implemented as a long-term process. Any commitment to support such a service therefore has implications for locking in limited public finances over a considerable number of years. Consequently, many agencies and government departments are reluctant to undertake this responsibility.

Additional reasons for not supporting MIS include poor performance in many MIS projects, lack of income streams, and the problems associated with investors not being sure about the cost benefit of MIS. More recently, development thinking has also come to the view that services such as MIS should be undertaken by the private sector, and rather than supporting long-term public good services, projects should be designed to facilitate the transition of such services from being a public good to a private good. Current thinking is more focused on 'how' projects can be designed to make this transition: what level of capacity and competence is required of the existing MIS service, and whether there are certain local economic and political conditions that should be in place to achieve this transition successfully. In an attempt to answer some of these issues, a review of MIS in Uganda was undertaken to assess the usefulness, financial viability and cost benefit of MIS.

Survey results found that information related to the marketing of agricultural produce was being provided by many agencies, including development projects, private sector, NGOs, research centres, relief agencies, parastatal organisations, government departments, banks and other financial agencies. The types of information spanned a range of issues related to contract provision, productivity enhancement, market co-ordination, business planning, market links,

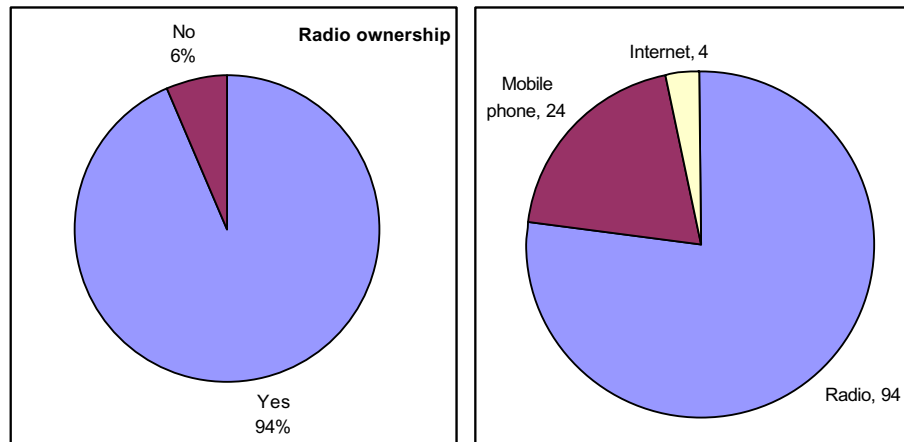
market information, credit allocations based on market options and market intelligence. However, only two or three agencies were providing ‘market information’, as defined by Shepherd *et al.* (1997) – a regular public dissemination of prevailing market prices, commodity volumes and market conditions and also available price trend data and analysis for specific commodities.

As part of this study, a quantitative and qualitative survey was undertaken to provide a measure of the accessibility, usefulness and utility of the current MIS, and to assess how this type of service may be financed and improved in the future.

The results showed that the overall evaluation of the MIS by farmers and rural traders was highly positive. In terms of access, survey results found that 94% of farmers own radios and approximately 70% of farmers gain MIS through radio programmes. Nearly 25% of farmers also own mobile phones and, surprisingly, up to 76% of farmers have access to mobile phones (Figure 1). The survey found that virtually all traders have mobile phones, a technology that has significantly improved business efficiency in Uganda.

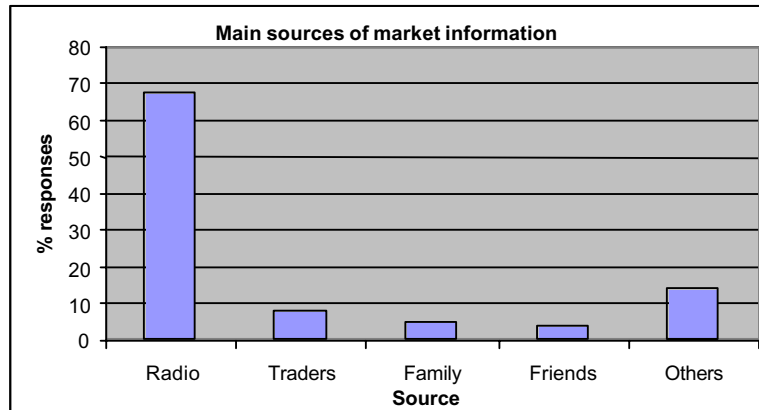
In the electronic survey, made up of traders, NGOs and analysts, it was found that 52% gain MIS data through e-mail and Internet, and many are using the SMS service. Up to 96% of those who receive regular market information through e-mail and Internet relay this information to their immediate clients.

Figure 1: Farmers’ group and asset ownership levels



These findings suggest that FM radio is still the most appropriate means of providing market information to the poorest group – the farmers and rural traders; e-mail for those with connectivity; and that SMS is slowly gaining popularity (Figure 2).

Figure 2: Farmers' main sources of market information



The priority 5 crops cited by farmers linked to their market activities and decisions are indicated in Figure 3. These crops are the most commercial agricultural products.

Figure 3: Farmers' main sources of market information

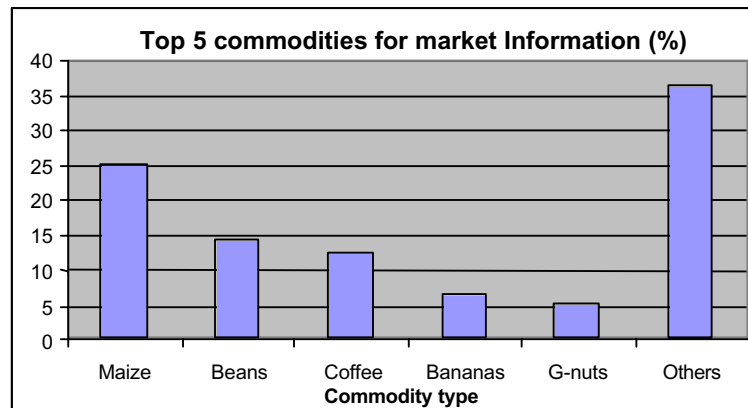
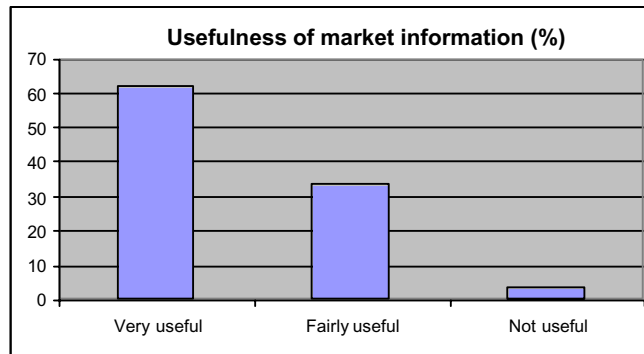


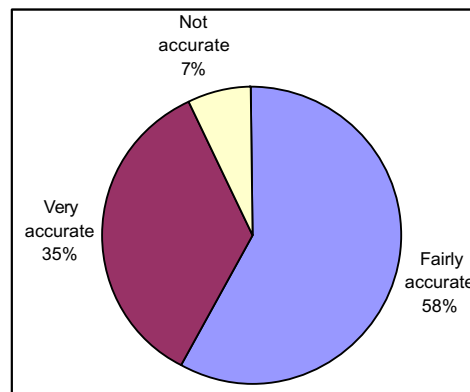
Figure 4 shows that 60% of farmers found the MIS very useful, and 33% found it to be fairly useful. This overall figure of 93% of farmers finding the service useful is a very strong endorsement of the service in terms of getting information to the client group and their being able to understand and use this information. Some critics of MIS suggest that farmers are unable to use basic price and market condition information, but that is not borne out by this evidence.

Figure 4: Farmers' perceptions of usefulness of MIS



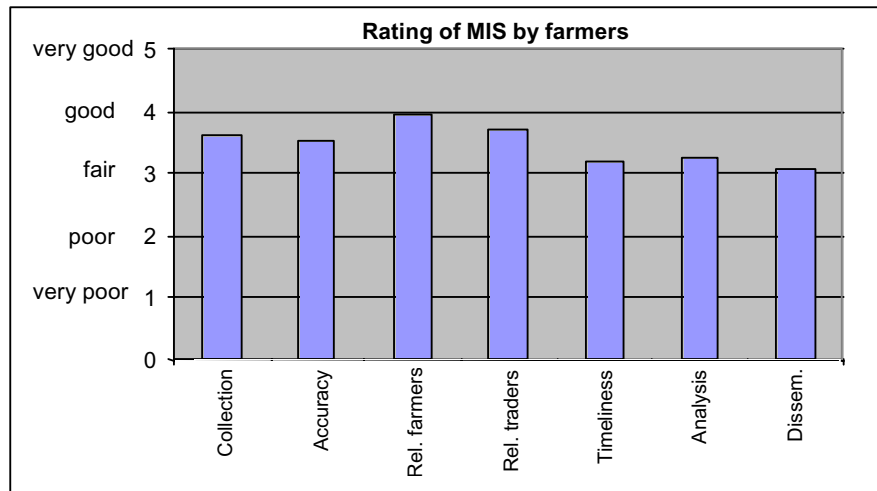
In terms of information accuracy, the findings show that 35% of farmers found the information to be very accurate and 58% found it to be fairly accurate. Again, this supports the view that those farmers who receive the information have considerable confidence in its accuracy (see Figure 5).

Figure 5: Farmers' perceptions of accuracy of MIS information



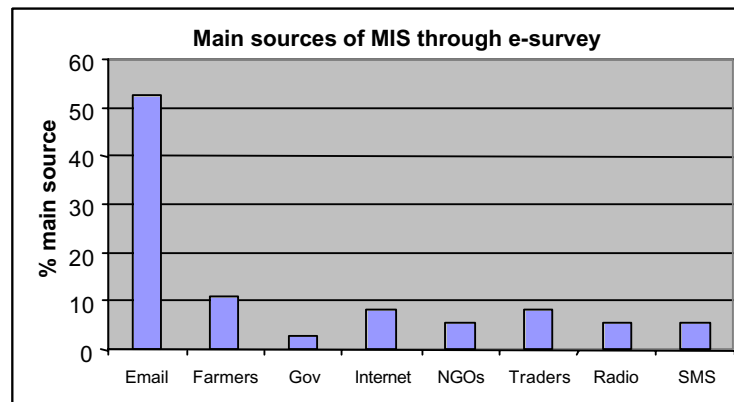
The overall assessment of the MIS was rated according to a five-point scale (Figure 6). This analysis found that, in all areas, the MIS rated between fair and good. Overall, the farming community is reasonably satisfied with the performance of the service, and in no area was the service clearly underperforming.

Figure 6: Overall farmers' rating of the national MIS service



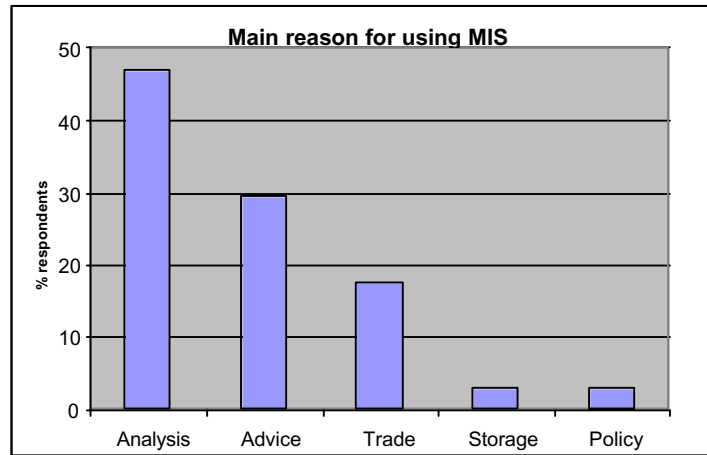
In a second type of survey that was conducted through an e-mail questionnaire, a different group of people were studied. This group was made up of all the people who receive the MIS on a daily basis, and comprised NGOs, larger traders, development projects, relief agencies, government and media houses, including print and radio. This group relies mainly on the e-mail service/Internet to receive its market information (Figure 7).

Figure 7: Main sources of market information from the e-survey



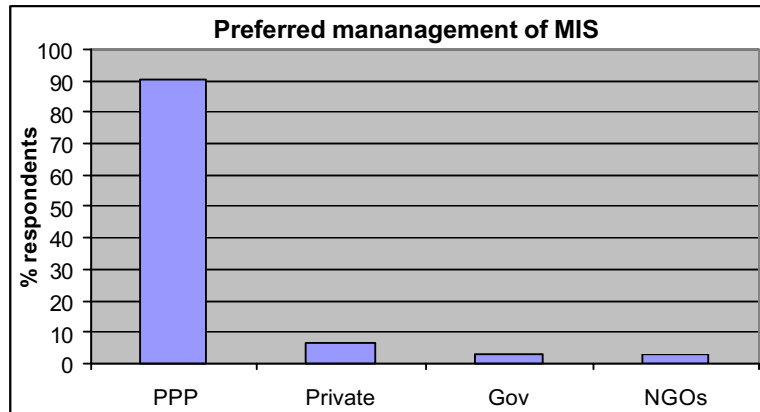
The main uses of the information were for analysis, advice and trade (Figure 8). On further analysis it was found that, essentially, all these areas are related to trading, in which case 98% of the responses were related to trading purposes.

Figure 8: Main reason for using MIS based on national MIS service



When asked about who this group felt should operate the MIS in the future, 90% of responses indicated that it should be operated through a private-public arrangement. Many responses indicated that a government department should not take the lead in this area, due to perceived poor past performance (Figure 9).

Figure 9: Overall farmers' rating of the national MIS service

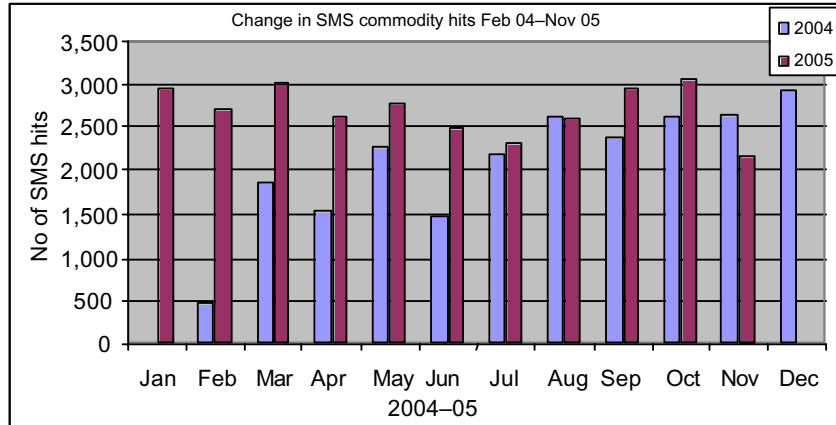


The priorities for crops from this group were more detailed, but confirmed the same priority crops identified by farmers.

The final survey was conducted on the use of SMS price data in Uganda. Due to the rapid expansion of the mobile phone services in Uganda, a pilot SMS price service was set up in 2001 that is available on the MTN network, through the SMS media service provider. The price service data are currently being shared across all three mobile phone networks in Uganda including Mango and CellTel. The number of hits in this service has steadily grown as mobile phone usage has increased, and people have become aware of that market prices can be viewed on the SMS platform. Mobile phone coverage in Uganda is relatively good, and there are approximately 1 million subscribers out of a total population of 27 million people.

However, on an empirical basis, the evidence for the past 2 years shows that there has been a steady increase in numbers of people using the service on the SMS, with average hits in the region of 4,000–5,000 per month (Figure 10).

Figure 10: Changes in number of SMS hits in 2004–05



Farmers also provided evidence of how they had used market information to make decisions on growing different crops, selling into new markets and gaining price premiums through the use of MIS information. These findings suggest that most farmers who receive this information understand how it can be applied, and many farmers, especially those organised into producer marketing groups, are able to make tangible financial gains through receiving market information.

Comparison of the three main types of MIS being studied, including local MIS, national and regional MIS, revealed interesting results. In terms of quality of service, the local MIS scored very highly in three different, independent impact assessments. The surveys in this study, which evaluated the broader use of MIS, found a strong endorsement for the national service from farmers and rural traders, and a wide range of other user groups⁸. The use of regional market information based on this analysis was less convincing, although several analysts indicated that information on informal cross-border trade was useful. The regional service also provides market intelligence rather than market information; however, this type of information is of most use to speculative traders, a small minority in Uganda.

On comparing the three services, it appears that the national MIS provides the best value, as it is the most cost-efficient means of disseminating market information to millions of users, many of whom have no other source of such information and cannot pay for services. Our calculations found the costs of the national MIS were approximately 27 Uganda shillings per household (1.5 US cents), given a total of 4 million households. Of those interviewed who provided information on business gains, through the use of MIS, levels of up to 70% gains were observed, although the

⁸ (i) Farmers, especially farmer groups, (ii) NGOs, (iii) development projects, (iv) radio broadcasters and media houses, (v) government and policy analysts, (vi) relief agencies, (vii) business development services, (viii) research, (ix) banks and MFIs, (x) donor group.

average gains were in the 0–12% range. The national service also offers prospects for introducing practical links between prices and quality of products, as a precursor to the use of grades and standards. From a financial perspective, the national service, more than any of the other services, also offers possibilities for being developed into an embedded service within the next 5-year period.

Based on this analysis, a series of recommendations were made that may have wider implications.

Policy support

It is extremely beneficial for MIS to be securely embedded in the agricultural policy framework if such services are to receive long-term support from government and donor agencies. This can be developed through strategic research that evaluates the information needs of farmers and rural traders, their current means and levels of accessing market information, and the local infrastructure and services that could be used to provide such a service.

In Uganda, research in the mid 1990s provided government planning with clear evidence of the need for MIS, and, from that point MIS was prioritised within the agricultural development policy framework, the Plan for the Modernisation of Agriculture (PMA). Based on this strategy document, implementing agencies were able to develop project proposals to access public funds to support the development of national and local MIS services.

Sequencing of MIS types and products

There are many types of MIS that can operate at local, national, regional and export levels. These types of MIS provide different types of information to specific end-users. Based on the findings of the Ugandan survey, it was recommended that a country first establish a national MIS service. This type of service should provide regular price and volume information on the leading commercial crops and agricultural products.

There are advantages to this type of service being linked to other sources of market information, from neighbouring countries and export destinations, in that once a national service has been developed, there are good opportunities to complement the information within the country with the addition of local MIS services and market intelligence services. These complementary services can be very effective as they can focus on the needs of a more defined user group, and provide capacity-building in aspects such as how to use market information, linking farmer collective marketing groups to new market opportunities, and options such as speculative storage.

There have been several attempts to construct MIS from the district level upwards. However, these have failed due to the high costs and difficulties of scaling up such projects, and the limited ability of local services to provide useful arbitrage options, if they are not integrated with a local service. Sequencing should also be considered in the selection of products. The simplest starting point when establishing an MIS is to focus on products that are storable, such as cereals and grains. As competence is gained, other products can be included, such as export products, through the direct linking of information streams from terminal markets. This may include products such as coffee, tea, cotton and oil palm, which are traded at specific auctions and exchanges. The inclusion of more specialised and perishable products should be added only

when there is sufficient expertise present in the service, as this can require considerable extra effort due to the short-term volatility of the produce prices and demand conditions.

Clients and beneficiaries of an MIS

The main target group of an MIS are the many millions of poor, atomised farmers and rural traders who have little opportunity and means to pay for such a service. Secondary users include development projects, larger traders, processors, media houses, consultants, agricultural analysts, NGOs, research centres, relief agencies, parastatal organisations, government departments, donors, banks and other financial agencies. The service should be designed to demonstrate bias towards the primary clients, as the aim of such a service is primarily to reduce the asymmetry of access to market information.

Scope and scale of an MIS service

A national service should focus on the most commercial crops and be limited to the minimum number of provincial towns that can provide a sound measure of market condition and food security. The MIS should focus on the more commercial crops, and seek quality in the data rather than quantity of data. For a country the size of Uganda, with a population of 25 million, the MIS collects information on 27 commodities in 18 market centres. However, this recent review suggests that this should be reduced to 10–15 products and 10 towns. The reason for reducing the scope of the products and towns is to provide better quality rather than quantity.

Timeliness of market information

The regularity of market price and volume information depends on the type of produce that is being reported on. For storable, cereal produce it has been found that a daily update of basic goods should be provided from the country's main terminal markets. This information can effectively be supplemented with weekly data from major provincial markets. If the MIS is providing information on perishable goods, such as fresh vegetables and soft fruits, this will require daily updates in all markets, and in many cases more than once a day, due to the more volatile nature of the prices of these commodities.

Quality and premiums

While price is probably the single most important piece of MIS data, an MIS should complement price with information on market conditions, product volumes and, where used, the premiums that link price with quality parameters. In most cases, this additional information is not provided, due to the considerable extra effort required. Therefore MIS providers should start with price and market conditions, and then add quality-based data only for the most commercial produce.

In Uganda, the MIS is experimenting with volume and moisture content. The advantage of adding volume information is that, when it is integrated with price data, it is possible for the user to judge effective demand. Measurements of volume are generally crude, such as counting the numbers of trucks that arrive on a particular day.

Quality

Use moisture content as precursor to more widespread use of grades and standards. This will require that moisture meters are purchased and provided to all MIS collection points in the country.

Links with stakeholders

Many MIS operate as stand-alone projects; however, to be more effective, efforts should be made to enhance the utilisation of market information through closer ties with leading development projects and other market-based service providers. These groups should be integrated into the process of information gathering and use by their clients.

Education of user groups

To improve the utility of market information, the MIS should make efforts to build the capacity of farmers' groups by training them in how to use market information. This training should be carried out via other service providers and NGOs possessing considerable experience and effectiveness. In order to increase the ability of farmers to use market information, the MIS in Uganda developed and promoted a number of practice guides including: *Collective Marketing for Smallholder Farmers* (Robbins *et al.*, 2004), *The Market Facilitator's Guide* (Ferris *et al.*, 2006) and *FAO's Guides on How to Use Market Information* (Shepherd, 2003). In some cases these guides have also been developed into 10-part radio series, which radio managers could use to complement the broadcasting of market information news updates.

Service quality

To ensure quality of the service and avoid complacency, the agency that provides the future MIS should report on a quarterly basis to a board that is made up of people involved in produce marketing and extension. The performance evaluation board could include an international research organisation (such as the International Food Policy Research Institute, IFPRI), a private sector person (head of Uganda Grain Traders or similar), a representative from the National Agricultural Advisory Services, the Uganda Agricultural Productivity Enhancement Program, the Marketing and Agro-Processing Strategy and the Export Promotion Board. The terms of reference of this board should include an evaluation of progress, dissemination, costs and reviews by field agents.

Housing of an MIS service

To be most effective, it could be argued that MIS should be maintained as an outsourced service. As stated previously, the view is that MIS should not be developed within an existing government department or parastatal, due to the perceived lack of innovation and poor past performance associated with being operated by government agencies in the past. The service should strengthen links with stakeholders to improve business performance and revenue opportunities, and also to increase stakeholder involvement in data collection and analysis.

Who should run the service

MIS services should be implemented by NGOs or a consortium of public- and private-sector people. Criteria for selection of who should operate the MIS should be based on: (i) experience in the provision of business support services; (ii) no conflict of interest in terms of provision of information and the ability to trade; (iii) ability to operate in a transparent and efficient manner; and (iv) a business design that fosters greater private-sector integration into the service. Through this process, the Plan for the Modernisation of Agriculture and the National Agricultural Advisory Services should establish a highly professional MIS that meets the needs of user groups identified in the study.

Project design

To promote performance and innovation of an MIS service, future projects should be designed, where political and economic circumstances allow, through a tender process that achieves basic goals: (i) maintaining a professional MIS; and (ii) privatising the service. In Uganda, the new MIS project will therefore start with a call and evaluation of proposals from public-private-sector partners that combine service quality with a business plan outlining how such a service could become self-financing, within a 5-year period. This may be achieved through the generation of resources, through means such as advertising, consultancy, or embedding the service into other business structures and services. Funds for the project should be made available through a tender process that is renewed on a 3-year basis. Funding should be channelled through a responsible agency, overseen by a local marketing and business development steering committee.

These ideas focus on some of the issues that should be considered when designing an MIS. It is hoped that such ideas will continue to maintain high levels of performance and innovation into the future. It is likely that donor funds for services such as MIS will continue to decline, unless new approaches are found that successfully integrate the business acumen of the private sector and still provide services to those in need, but are unable to pay for such services. Therefore developing these transitional projects and finding ways of facilitating the privatisation of business development service services is of the highest priority.

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Guidelines for building sustainable market information systems in Africa with strong public–private partnerships

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Many years of experience of working with the Malian, Mozambican and Zambian agricultural marketing information systems (MIS) indicates that there are at least six essential factors in the successful design and implementation process, as follows.

1. An initial political commitment to an MIS by country-level policy-makers as well as private clients, guided by a vision of how such a system can help both private and public sectors.
2. A persistent financial commitment over the medium term by local, national and external funding agencies to help establish and demonstrate the pay-off to such a system.
3. Constant targeting and reassessment of the information needs of users, which is essential to building long-term political and financial support of the system.
4. Development of local capacity within the MIS to acquire and use a thorough knowledge of the people and processes in the marketing systems of the country.
5. Development of the human capital for managing the system.
6. Choice of the appropriate institutional ‘home’ for managing the system.

Steps for MIS design and implementation by category of activity

Group discussions at a workshop of MIS professionals, held in Maputo in November 2004, identified four categories of action that help achieve and reinforce the six success factors discussed above.

Strategies and actions for achieving a customer-service orientation in the MIS

An essential element in building long-term support for an MIS is to instil within the organisation an entrepreneurial spirit that views the users of MIS information products as the organisation’s customers. Customer needs, rather than bureaucratic routines, should drive the MIS’s choice of products and services. It is this dedication to serving client needs (success factor 3 in the list above) that is part of the vision that leads to initial political commitment to support developing the MIS (factor 1) and the funding commitment that allows the MIS to establish itself (factor 3).

- From the beginning, it is important to identify target client groups in both private and public sectors, their needs, and appropriate means of communication and dissemination, setting priorities among them. Different MIS customers will have different information needs, and the most efficient means of disseminating information to them will differ as well.

- In addition to targeting the private sector (including farmers), an MIS has to involve, from its inception, as many strategic leaders as possible in the government, policy advisors, other key ministry people, and outside interested people, including donors. Such involvement is necessary because the system has to be in contact with policy-makers as well as private-sector clients in order to build trust in the system among the broad array of potential users of MIS. In order to build strong support for the MIS, the system should identify key policy-makers (local government, national government and donors) who will be vocal and supportive of the MIS, and be especially careful to meet some of their priority needs.
- A reputation of service and timely outputs is best developed when an MIS is kept simple and manageable, particularly in the beginning, with very specific objectives and narrow focus. Additional information and analysis products should be added in a stepwise process that is client-driven.
- Including basic information about agricultural inputs should be considered as an MIS grows, but a system can rapidly be overloaded when a large number of both commodities and inputs are covered during the early years of MIS operation. Decisions about input information need to reflect country-level production and marketing conditions, actual farmer use of commercial inputs and, perhaps most importantly, consideration of client information needs related to commercial inputs.
- Good raw data collection and management are critical from the outset, but, even in the beginning, there needs to be an emphasis on converting raw data into strategic information and knowledge products for a range of clients.
- In the process of developing an MIS, the implementing partner(s) must be able to look beyond such short-term objectives as covering the system's costs or generating a profit, and recognise that an MIS also produces important public goods that would not be necessarily produced by a purely private-sector organisation.
- The process of identifying which information products the MIS should produce needs to incorporate the following considerations:
 - (i) The ongoing process of prioritising needs of different stakeholders is critical if an MIS is going to build a reputation of service. A consultative process is necessary to reach consensus about priorities.
 - (ii) For many users, it is the local generation of information that will ensure local needs are met, using local means of communication, and this can be achieved through local-level partnerships.
 - (iii) To address regional needs beyond national boundaries, a co-ordinating mechanism to facilitate exchange and learning among the national systems is more likely to be successful than a new regional MIS run as a separate system. A co-ordination approach should give high priority to helping give visibility to the national systems, so that they and their national clients remain in the spotlight.
- A service orientation for public as well as private clients can be enhanced by developing a system of policy briefs or timely analysis that may act as a useful tool for policy-makers during critical events, providing technical advice to help avoid or mitigate crises and give assurances to private-sector clients that realities of market conditions are being considered by policy-makers. Such actions are needed to help establish the value to public and private

decision-makers of the MIS as a source of information that merits continued funding and improvement over time.

- (i) It is crucial that an MIS be alert to emerging crises or critical events, and that early in such events, it should start generating information products that analyse market conditions and potential roles for private and public people. Bringing such information to the attention of policy-makers can provide them with information to design appropriate responses.
 - (ii) Given the large number of net buyers of basic food commodities in rural as well as urban areas of many African countries, assessments of market improvements to lower the cost of food for consumers are very important. MIS analysts have important roles to play in using MIS information to help follow consumer markets, and to make assessments and recommendations.
 - (iii) Markets are always being restructured, either because of adjustments to changes in population and consumer income, or due to changes in the rules set by government policies about how markets can operate. MIS data and analysis are essential to help inform options about this market restructuring.
- Facilitating the interaction of private-sector buyers and sellers is important for an MIS, but an MIS is distinct from a commodity exchange. A commodity exchange may be developed based on an MIS, and uses the information from an MIS, but the objectives of a commodity exchange are more limited than the broader market development goals of a well designed MIS. The commodity exchange functions can be served by a strictly private agency operating under the profit motive.

Activities to promote outreach and dissemination of MIS products

The constant targeting and reassessment of the information needs of the users (success factor 3) also requires a strategy that effectively disseminates information to MIS clients and captures their feedback. Activities contributing to an effective outreach and dissemination strategy include the following.

- Establish reliable links between farmers and buyers through private-sector traders and processors, including their trade and farmers' organisations, by identifying the information needs of these groups, as well as the types of information they may be able to provide the MIS.
- Establish reliable links with farmers' associations and the NGOs that work with them, both as users and suppliers of information.
- Emphasise local-level participation in the MIS processes, seeking involvement as both suppliers and users of information, to ensure a balance of services for the different clients.
- A mix of products and dissemination channels will always be needed and, to be most effective, these need to be tailored to different client groups' most critical information problems. (i) For farmers, local traders, and consumers, radio is probably the most effective (decentralised, local languages, responsive to local needs); (ii) a whole range of traditional written outputs is typically needed to reach different clients; (iii) modern ICT tools, such as the Internet and cell phones, need to be considered and used. They do not always substitute, however, for conventional communication tools, especially for providing broad-based,

unbiased information to help improve the bargaining power of farmers (e.g. through rural radio) and in informing public decision-makers about how markets function in response to basic supply and demand forces, and how a lack of competition can affect market performance.

- MIS can facilitate local-level buying and trading by using voluntary information from each side that allows identification of major traders in specific products, posted on market bulletin boards or in printed bulletins (e.g. directories of traders in a given region). However, it is unlikely that MIS can provide daily information on who is buying or selling what. Here, commodity exchanges or electronic markets are better suited to provide and diffuse this sort of complementary information.
- Seek and develop best practices in training staff for MIS communication, in terms of both content and means. Collaboration with local journalists is particularly useful in ‘translating’ the MIS messages into a language that is easily understood by the system’s various audiences.
- Marketing extension can be accomplished through partnerships between MIS and public-sector extension agents, media producers, farmers’ organisations and NGO staff. Recent NGO emphasis on markets and agricultural production for market sales presents an opportunity for the MIS to partner with them for extension.

Steps to achieve capacity building and ongoing quality improvements in basic information and analysis

The fourth success factor listed above is the need to build skills within the MIS staff to (i) understand agricultural markets and how they are evolving; and (ii) effectively communicate that knowledge to various MIS clients.

- The MIS staff must develop thorough and practical knowledge of the market systems or channels of the country. Marketing channels and new buyer/seller arrangements evolve, and MIS staff must plan for time to study and understand these trends, ready to modify the mix of information products and services as the market changes.
- As discussed above, it is important for MIS to develop a system of policy briefs or timely analyses to inform policy-makers during critical market events. By providing technical advice to help avoid or mitigate crises, the MIS establishes itself as a valuable source of information that merits ongoing funding. But in order to produce such analyses, MIS staff must include some people who understand how markets work and have some comprehension of policy issues and policy levers. This has implications for investing in staff skills early on. Such investment cannot focus uniquely on statistical and computer skills, important as those are, but must also include understanding of market and policy processes.
- Develop a rolling 5-year strategic plan for staff development, including both skills enhancement for existing staff, and training of replacement staff for anticipated staff departures and expanded analytical needs for the MIS. Prioritising human resource development and retention of skilled staff, particularly in the early years, including staff at local level, is one of the most critical aspects for sustainability.
- Use the project-funded time to help build team spirit and a sense of mission, identifying staff members who are committed and capable, who will then sustain the MIS when it shifts from project to public-private-sector financing with a resulting increase in uncertainty resulting from the loss of ‘automatic’ project funding.

Guidelines for effective administration and implementation of MIS

The final two success factors noted above involve developing managerial capacity, and an appropriate institutional home for the MIS. These issues are closely linked to developing a viable strategy for financial sustainability of the system.

- Donors and special projects can be instrumental to help ensure medium-term financial support (5–10 years) that can adapt with growth in the system.
- MIS may start under special project funding, given high investment costs for the initial system establishment; however, the public sector has to work closely with the private sector to develop ownership of the system and eventually become joint promoters and funders of the MIS.
- Careful strategic planning is needed to conceive ways to enable transitions from project to a government and private client-supported MIS.
- In industrial countries around the world, MIS retain important public-sector and policy information objectives, as well as an orientation to key private clients. If the services to the private clients are effective, they will be more willing to help pay for some of the products and services, and will also become the best lobby and support group to pressure government to provide adequate and reliable public funding for the MIS.
- The appropriate institutional home depends on the environment in which the MIS is operating; however:
 - (i) it is important to place the MIS in a structure where users of its services can demand accountability and put pressure on the system for good performance
 - (ii) given the ‘public good’ nature of some of the MIS’s services, some public sector financial support must be provided, regardless of the system’s location.
- While the MIS needs to be accountable to its customers, it also needs significant managerial autonomy to carry out its tasks efficiently:
 - (i) management of the MIS must be fluid and efficient – if the system is under bureaucratic management, an MIS will be less able to adapt to market dynamics and respond to emerging needs
 - (ii) if the MIS is far down in a hierarchical structure within a ministry or other structure, then budgetary problems and periodic problems of a lack of liquidity are likely to occur, and resources intended for the MIS may be siphoned off for other purposes.
- The credibility of the MIS ultimately depends on the perception that it is providing objective, unbiased information. Therefore the system needs to have structures (‘firewalls’), such as external advisory and review panels, that help guarantee the objectivity of the information and prevent the perception (or reality) that someone in the MIS’s institutional home is manipulating the information for their own ends. Being able to guarantee the objectivity of the data and the analysis will be a critical factor in choosing the institutional home for the system.

National MIS: experience in the Pacific

Taimalietane Matatumua (Ministry of Agriculture, Samoa)

Market information can be used by those involved in the marketing process to make better marketing decisions.

The primary objective of an MIS in most South Pacific islands is to increase the degree of knowledge of market participants (farmers, traders and consumers) about the market. Improved access to information leads to an improved understanding of the working of the market. This means that decisions made by the participants should be more informed and the profitability of their operations should be enhanced. Government planners and policy-makers should also benefit by the provision of market information, in that policies and programmes should be based on an improved understanding of the market. An MIS must therefore focus on the information needs of the different target group.

Samoa's National MIS

In Samoa, the MIS is run and fully funded by the government through the Ministry of Agriculture and Fisheries. It is a newly established service and it is in its early stages.

The Ministry's aim for this MIS is to improve:

- decision-making for all stakeholders
- competition
- operational efficiency.

Data collection

Like any other MIS, the main focus is the collection of the following data:

- current prices of different crops and different varieties
- prices in different markets
- seasonal price trends
- historical price series
- quantities supplied.

Local agricultural data

The collection of data for the locally available agricultural supply and prices is conducted by the Central Bank of Samoa (CBS) and the statistics division of the Ministry of Finance. This has been an ongoing activity for these two government departments, and the statistical data collected have already been institutionalised.

Surveys are conducted weekly at the two major markets (Fugalei and Salelologa market) in order to collect quantities supplied and prices. Every Friday is chosen as a representative sample for

the whole week. The information gathered is published as a monthly news bulletin by CBS. A variety of agricultural crops are included in the CBS news bulletin. The main crops are: taro, taamu (giant taro), banana, taro palagi (xanthosoma), coconut, Chinese cabbage, head cabbage, tomatoes, pumpkin and cucumber.

The Policy Planning and Communication Division (PPCD) of the Ministry of Agriculture has recently made arrangements with CBS and the Statistics Division of the Ministry of Finance, in order for the PPCD to receive the raw data every week.

Agricultural export and import data

Samoa export and import data are collected by the Ministry of Revenue (Customs Department) and the Quarantine Division of the Ministry of Agriculture and Fisheries. This information is normally given out to their usual stakeholders on request, free of charge.

The Pacific Island Trade and Investment Commission in New Zealand and Australia produces a fortnightly list of average wholesale prices of various agricultural commodities.

The Ministry of Agriculture and Fisheries has access to world market prices each week. This has made possible by paid subscription for a *Public Ledger* newsletter published by Agra Informa Ltd.

It would be unlikely that the focus could be on all the available agricultural produce. For that reason, commodities will be prioritised or ranked according to level of consumer demand, prices and availability of markets overseas.

Data analysis and dissemination

The information gathered is analysed by Ministry of Agriculture staff into a simple format to be easily understood by the target audience in a fortnightly newsletter, *The Market Link*. This newsletter is then disseminated to other government departments, processors, importers, exporters, middlemen and farmers.

The Market Link is translated into two languages: English and Samoan. Due to the fact that most farmers are illiterate, the Ministry of Agriculture's weekly radio programme is utilised to deliver market information. The local newspaper is also used as a means of disseminating market prices and quantities supplied, as well as daily exchange rates.

Concrete measures for Samoa's MIS

The Strategies for the Development of Samoa highlights the development of commercial production, and this calls for the Ministry of Agriculture to respond to certain areas, including:

- initiatives to recommence taro and cocoa exports
- rehabilitation of the coconut industry
- efforts to develop fruit exports
- improvement in produce for the local market.

The development of these areas requires a good MIS. Marketing information not only helps farmers make profitable decisions in the short term on when and where to market produce, what prices to expect, and what to produce or grow – but it also plays a vital role in the functioning of

the whole market by regulating the competitive market process. By helping to ensure that produce goes to market where there is a demand for it, marketing channels are shortened, and this cuts down on transport costs. Advances in information technology now make it feasible to provide small-scale farmers with the marketing information they need. It is therefore not enough for marketing information to be collected, it must also be disseminated in a form accessible to farmers and adapted to their needs. An efficient and timely MIS enables effective and successful market development.

Constraints

- The main constraints to marketing in the Pacific can be attributed to a lack of infrastructure and marketing facilities.
- The remoteness of Pacific island countries and high transportation and shipment costs make efficient marketing difficult.
- There is competition between other, larger countries on certain produce.
- With the exception of sugar, ginger and other spices in Fiji; cocoa, coffee etc. in Papua New Guinea; squash and vanilla in Tonga; papaya and noni in Cook Island and Samoa; and kava, root crops, copra and coconut oil in other Pacific island countries, marketing systems for most other agricultural produce in the region are generally poorly developed.
- Post-harvest handling of produce is poor, due to lack of technology and knowledge.
- Quarantine restrictions are another limiting factor in marketing agricultural produce.
- Through the introduction of simple processing technologies, waste levels can be reduced, and the shelf life, economic returns and export earnings of produce increased.

All the above issues have been our concerns in the past, and that is still true today. Marketing agencies in Pacific island countries are small, and they also lack the necessary resources and market intelligence to organise and supply the right product at the right time. As a result, they are unable to exploit market opportunities fully.

But looking at the challenges beyond agriculture and marketing, health and environment are now becoming important new partners to the production sector.

MIS is therefore becoming even more important to Pacific island countries if we are to compete with other producers internationally.

Conclusions

Ultimately, the expected MIS for Samoa will play a vital role in the marketing activities and market issues of the stakeholders. Although there are likely to be constraints, there is a possibility that the advantages and opportunities for a well managed MIS will outweigh these problems.

Evolution of the West African market information platform, RESIMAO

Henning Knipschild (ZADI, Germany) and Gaston Dossouhoui (ONASA, Benin)

Réseau des Systèmes d'Information des Marchés en Afrique de l'Ouest (West African Market Information Systems Network, RESIMAO) has launched a web platform to exchange data among the national market information systems (MIS) in West Africa. Market information is monitored and displayed via GIS. The information is accessible by the public.

Members of the RESIMAO network are the official national market information authorities from eight francophone countries. RESIMAO (www.resimao.org) is an official instrument of the Communauté Economique des Etats de l'Afrique de l'Ouest (CEDEAO): Benin, Burkina Faso, Côte d'Ivoire, Guinea, Mali, Niger, Senegal, Togo, Nigeria.

This is a collaborative project of RESIMAO, CTA, Zentralstelle für Agrardokumentation und -information (ZADI) and USAID's Market Information Systems and Traders' Organizations of West Africa (MISTOWA) project.

Data collection – collaborative editing

How market price data are collected

Presently, the market information is inserted into the information system by nine official national market information authorities. These authorities are also in charge of providing annual reports on the countries' nutritional status to the FAO. Trained market observers regularly collect market information on 390 markets throughout the network (approximately 50 markets per country). Presently, the main focus lies in the collection of market price information for staple foods. Participating countries also provide information on cultivated land, expected yields, available stock and precipitation.

Collaborative editing

Information is inserted into the web-based system by different people in all partner countries. The system can distinguish between people with different editor rights. The data input can be done from any computer with Internet access, including Internet cafés. Geographic referencing of all the data (GIS) reflects data ownership throughout RESIMAO.

Setting up the network to collect all different kinds of relevant data

Presently the network is concentrating on the collection of market price information. It is envisaged that the mechanisms of collaboration within the network will be managed in such a way that, in future, observers can collect other relevant data, such as climate data and information on the status of agricultural production.

Three motors driving the collection of relevant data

The driving mechanisms of an operational collection of relevant data will be a functional network, an efficient financing system, and web-based collaborative collection of data. Presently, a controlling system is being designed, allowing for individual payment for every data set that is entered into the system. This will allow the partners of the network to provide a powerful service. Enquiries can be conducted through a network with radiating structure, the successful performance of data collectors is controlled via the web, and data holding is organised on a web-server.

According to the conditions experienced, it is of the utmost importance that the driving forces of an information system develop slowly in parallel, prospering through interaction. Only then can the correct balance be achieved between the people accomplishing the enquiries, the funding, and the data-holding, with the resulting provision of accurate information.

How to get data on and from the server

Depending on the region, access to the Internet has become more prevalent in recent years. Users publish information online or via e-mail. Because of difficulties in accessing the Internet, many other methods have been developed for communication between users and information systems. The intention is that our web-based information systems will also start distributing information via print and radio.

In collaboration with ZADI, the market price agency Office National d'Appui à la Sécurité Alimentaire (ONASA) in Benin has set up a server that sends market price information to the mobile phones of users. Users send a message code via SMS to a server, which indicates what kind of information (which market, product or variety) they would like to be informed about. On demand, a system can easily be developed where data are inserted into a system and sent via mobile phone to the server. This system has not yet been implemented, as the use of mobile phones in many countries is restricted to urban areas.

The knowledge resources of many people living in rural areas or isolated regions are of great potential, and could be presented to a wider audience if only contact with these people can be established. And by getting into contact with these people, information systems will assuredly be able to provide information that meets their needs and interests.

Main activities of RESIMAO – with specific focus on the information system

Area of intervention

Information providers (members of the RESIMAO network) are the official national market information authorities from eight francophone countries. As the network has observers on every market in the region (around 400 markets), the link between public administration and merchants may easily be established. Presently, an additional service is being transferred from a prototype status (running for approximately 2.5 years) to a broad status: a global system for mobile communications (GSM) server sends out SMS to registered public users to allow dissemination of price information.

Services provided

A web-based database for data collection, via collaborative editing, with various modules for data output, open to the public. Data ownership is reflected through geographic labelling via web-GIS – a dynamic map indicating market information.

Client profile:

- policy-makers (members of RESIMAO)
- information managers (members of RESIMAO)
- scientists (interested in market price information)
- the public with access to mobile phones and Internet
- the public reached via radio.

Information concept

How are clients/users identified?

The main users of the system are colleagues from RESIMAO, who have a defined task: to inform on market prices in the region. As the information system was built in cooperation with, and under the assignment of RESIMAO, which is a network which developed autonomously, the system was well accepted.

Are the services free, subsidised or paid by clients?

At present, the system is subsidised by different funding agencies and the governments of the member countries. Funding concepts are being developed.

How do people take advantage of your services?

As stated previously, market information is disseminated via the web, SMS and radio.

What is working work well, and what is not working well?

The information system could be established within a few months, and as it has been launched in cooperation with influential partners, it runs well.

Is the service area competitive or highly restricted?

The service is free to the public, and open. The area for content management is highly complex, responsibilities are shared by managers, and the area is password-protected, but accessible via the web.

How do farmers and traders take advantage of these systems?

Mechanisms for further dissemination of the information are being explored. ZADI also hosts a question-and-answer service for farmers (QAS, www.runetwork.de), which may be linked in future, but this concept is still subject to discussion.

MISTOWA: using ICTs to offer MIS that can promote the trade of agricultural products in West Africa

Patrice Annequin (MISTOWA/IFDC, Ghana)

The Market Information Systems and Traders' Organizations of West Africa (MISTOWA) project of the International Center for Soil Fertility and Agricultural Development (IFDC) supports regional agricultural producer organisations and trader organisations to facilitate the trade of agricultural products in the Economic Community of West African States (ECOWAS) countries. The strategy developed by MISTOWA relies on the one hand, on the common use of market information available in the sub-region; and on the other hand, on capacity building of producers and traders to enable them to access and use this information to develop their business. A considered use of new information technology will allow a noticeable improvement in the quality, accessibility and commercial use of market information produced by public and private MIS. The Internet and mobile telephony (SMS) are the two main media that allow organisations to develop, rapidly and simply, commercial information services, which their members at local, national or regional level can use.

For ECOWAS⁹, the efficient and developed trade of inputs and agricultural products would be a powerful tool to support the economic growth and the dynamism of the regional integration, improve food security, and reduce in a general way the poverty of its inhabitants.

Yet, in 2004, intra-regional exchanges of products and agricultural products were evaluated at approximately US\$400 million per year, whereas the internal market in the same economic area amounted to US\$24.4 billion, and exports outside ECOWAS represented over US\$6.7 billion (IFPRI, 2004). The very low level of exchanges within the region may be partly due to limited and inadequate access to the agricultural market information by economic traders and participants; to the lack of organisation of producer organisations and trader organisations; and to a political and economic environment that is not conducive to trade.

Mainly financed by the West African Regional Programme (WARP) of USAID¹⁰, and implemented by the IFDC¹¹, the MISTOWA¹² project's main aim is to promote the trade of

⁹ ECOWAS is a regional group of 15 countries of West Africa (Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo), accounting for 260 million inhabitants, of which half live in Nigeria. www.ecowas.int

¹⁰ The MISTOWA project, which covers the period 2004–08, benefits from an overall budget of approximately US\$15 million, of which 80% goes to USAID/WARP, the remaining amount being mainly distributed among Agriterro (The Netherlands) and bilateral missions of USAID. www.usaid.gov/locations/sub-saharan_africa/countries/warp

¹¹ IFDC is a public international organisation created in 1974 and has its headquarters in Alabama (USA). Lomé (Togo) has been its African Headquarters since 1987. www.ifdc.org

¹² MISTOWA's aim is to increase the value of trade exchanges by at least 20% by the end of the project. www.mistowa.org

agricultural products within ECOWAS. The implementation strategy consists of three key aims: first, pooling and improvement of the quantity, quality and accessibility of available market information within the sub-region; second, strengthened capacities of producers and traders to access and use this information to develop their businesses; and third, project collaboration with sub-regional institutions (ECOWAS; the West African Monetary Union; the Comité Inter-Etats de Lutte contre la Secheresse au Sahel) for the implementation of agricultural and economic politics and the development of infrastructure – transport and communication for instance – which facilitates agricultural trade.

Evolution and strengthening of agricultural MIS

In West Africa, especially in the French-speaking countries, most MIS arose out of the dismantling of the cereal offices. As a result of the liberalisation of these countries, and of the privatisations that have taken place over the past 20 years, these offices have been replaced by public structures in charge of managing food security stocks. These structures are backed by MIS, which informs about the price trend (and sometimes available volumes) related to cereals, based on a sample of markets that are considered representative (rural or urban markets, and terminal markets, for example).

Today these MIS remain public services that cover in priority the cereal products in their respective countries¹³. In 2005, the eight MIS members of RESIMAO¹⁴ used a network of surveyors, collecting on over 400 markets each week the wholesale prices for producers, and the retail prices for consumers.

Most of the operators of these MIS mention the following constraints to explain the very low use of those services, which are free of charge. Information is often obsolete when it reaches them; its reliability is sometimes uncertain; accessibility is reduced because dissemination is often limited or inappropriate; the number of monitored chains is limited. Moreover, the operations of these MIS are aimed at food security issues first and, using primarily the price factor, they do not provide other important information, such as direct supply and demand, the availability and costs of transport, the quality of the product or marketing conditions. The national compartmentalisation of MIS renders access to market information of the other countries almost impossible for traders operating at the regional level. Finally, each year there is uncertainty about their renewal, given the financial situation of many countries, as they may be operating budgets that are already very low.

¹³ This is the common case. Some MIS cover other products, such as livestock or specific fruits and vegetables.

¹⁴ Réseau des Systèmes d'Information des Marchés en Afrique de l'Ouest (West African Agricultural Market Information Network). The members of RESIMAO created in 1999 are ONASA (Organisation nationale d'appui à la sécurité alimentaire, National Organisation for Food Security) in Benin; SONAGESS (National Food Security Stock Management Company) in Burkina Faso; OCPV (Office d'Aide à la Commercialisation de Produits Vivriers) in Côte d'Ivoire; SIPAG (Système d'Information des Produits Agricoles de Guinée, Agricultural Products Information System of Guinea) in Guinea; OMA (Observatoire du marché agricole, Observatory of the Agricultural Market) in Mali; SIMA (Agricultural Information Market System) in Niger; and MIS/CSA (Commissariat à la Sécurité Alimentaire, Food Security Office) in Senegal. OPAT (Togo Agricultural Produce Agency) and DSID (Direction des Statistiques Agricoles, de l'Informatique et de la Documentation, Ministry of Agriculture) both represent Togo.

After having carried out detailed consultations with these MIS and the users during the project conception, MISTOWA committed itself to them, that it would use a strategy that would allow all economic operators to have an easy access, at a low price, to complete, reliable and updated market information that would cover all the countries and products of the sub-region.

This is possible especially thanks to the rapid development of the Internet and the mobile telephony¹⁵. To summarise the current situation, we could say that today, in West Africa, 100% of producers who have marketable surpluses have access to the radio; 100% of traders in a position to commercialise these surpluses on the main national urban markets or in adjoining countries use mobile telephony; and 100% of national professional producer organisations or trader organisations, to which these operators belong, have access to the Internet. In this way, the project tries to support the emergence of a regional second-generation MIS, able to 'regionalise' and also to 'decentralise' the agricultural MIS by using the available new ICTs, but also by using more traditional dissemination means.

It then agrees with its partners to:

- redefine roles, involving producers, traders and their organisations in the information-gathering and -dissemination processes
- share existing information at a regional level (regionalisation), based on public and private MIS that are decentralised
- use the new ICTs reasonably, especially the Internet and mobile telephony.

Supporting RESIMAO to bring together market information managed by public MIS for collective use

With the technical and financial support of MISTOWA and CTA, and the technical assistance of Zentralstelle für Agrardokumentation und -information (ZADI, a technical department of the German agricultural ministry; www.isicad.org, www.zadi.de), RESIMAO has developed a 'road map' for 3 years (2005–07). This road map includes:

- progressive common use of all the information collected
- harmonisation of the methodologies and of information-gathering and -processing tools
- development, according to an iterative process carried out by the MIS, of an electronic platform that allows information on prices to be put online, to process the information and to make it available
- progressive extension of the covered chains, such as livestock, fruit and vegetables, and fertilisers
- progressive extension of the geographical coverage to the 15 countries of ECOWAS, with the possibility for RESIMAO to become a specialised agency on agricultural market information.

¹⁵ Refer to the maps and documents in the regional atlas of ECOWAS transport and telecommunications: www.oecd.org and www.wa-agritrade.net

Today the MIS can already share most of their price data for over 50 main markets, on the same database and on the same RESIMAO website (www.resimao.org). The deadline for public availability has been considerably reduced. A GIS shows the prices on thematic maps and provides a direct and easy view of the regional situation. In November 2005, Nigeria joined RESIMAO through the membership of its National Agricultural Market Information Service.

In 2006, version 3 of the platform will be implemented, which will allow researchers trained beforehand to put the collected information directly online, and will allow users to receive information by e-mail, fax or SMS.

Developing tools that maximise dissemination of information based on new ICTs

The project is also implemented in collaboration with BusyLab, a computer company based in Accra (Ghana). Since 2002, BusyLab has been developing TradeNet (www.tradenet.biz), an integrated management platform of commercial information for the agricultural sector. It is on the basis of this software that the West Africa agri-trade network implemented by the MISTOWA project operates. The project seeks to put in common, and at the disposal of any potential user, the existing market information in the sub-region. This same software is also used by the MIS in Honduras and Uganda.

With less knowledge and computer equipment, this online platform allows any duly registered user to update, look for and disseminate prices, to search for professional directories, make bids or offers, or even disseminate news. Particularly innovative functions include the integration of SMS services for updating, sending and receiving prices or commercial offers; and the possibility of publishing information automatically (prices, offers, news) by e-mail or SMS for a group of operators. Any organisation that so wishes can personalise the tool to make it its own Internet information management platform – for instance by defining its markets and products, by specifying the information to be shared among its members and the information to be available to the general public or to other chosen organisations, or even by self-managing its system of dissemination of offers by SMS.

During the project, MISTOWA pays the cost of the TradeNet software licence for all the countries of ECOWAS and the professional agricultural organisations that wish to use it for their own needs. In tight collaboration with Busyland, the project team advises, suggests and tests the development of new possibilities, depending on the needs identified and expressed by the partner organisations of the project.

Thanks to www.wa-agritrade.net, the project has already enabled collecting and putting online most of the information available to the partner organisations. At the end of 2005, more than 30 correspondents, in Nigeria and Ghana, for instance, were providing the platform with new prices and other pieces of information on the main markets every day. The West Africa agri-trade network is also used as a particularly useful extension tool, because it allows all the professional partner organisations to discover the possibilities and advantages of such an information system, and to benefit from an online, free-of-charge and permanent distance-learning system.

Assisting producer organisations and trader organisations to develop agricultural MIS for their members

As professional organisations develop, many initiatives are created to put in place services for their members, market information and assistance to trade representing the top priorities for many of them.

Let us mention the example of ANOPACI¹⁶ in Côte d'Ivoire, which has developed a network of village information desks since 2003, or RECAO¹⁷, which co-ordinates the setting up of information and communication services within the agriculture chambers in seven countries, or also the association for the market development of Dawanau (DMDA in French, Kano, Nigeria) which relies on a community information centre to inform its approximately 50,000 active members about this market, which generates a turnover of almost US\$5 billion per year.

To back these private and public initiatives, the project has a grant portfolio of around US\$2 million. Thanks to the equipment grant available in 2005, some 18 partners of the project have purchased computer hardware and have been able to access the Internet, as well as utilise the technical training that is needed for its use. Competitive grants are also available to allow, for instance, a local association of professionals from the same sector to dispose of equipment or to put in place a network of surveyors; a cybercafé situated in a rural area to receive training to disseminate services and advice concerning trade, etc.

In this way, the project encourages and endorses the creation or capacity building of agricultural market information desks within producer organisations and trader organisations. As from 2006, over 60 information desks within the sub-region will be using these tools, allowing the dissemination of personalised market information to several tens of thousands of different producers and traders.

¹⁶ National Association of Professional Farmers of Côte d'Ivoire. ANOPACI is a member of Réseau des Organisations Paysannes et des Producteurs Agricoles de l'Afrique de l'Ouest, ROPPA (www.roppa-ao.org).

¹⁷ Regional Network of the Chambers of Agriculture of West Africa; it consists of the national chambers of agriculture of Benin, Burkina Faso, Côte d'Ivoire, Guinea, Mali, Niger and Togo.

TRADENET – developing market information systems for smallholders

Mark Davies (BusyLab, Ghana)

TRADENET is a stand-alone market information service (MIS) software. It is probably the first of a new generation of software products that offers institutions and organisations with an off-the-shelf solution to their information content, aggregation and distribution needs. This paper describes how TRADENET was started, what it is today, and where it is going in terms of strategy and development. Following a technical introduction to TRADENET, this paper seeks to explore some of the general issues about the role MIS can play, specifically in facilitating greater commercial thinking and decision-making for smallholder producers, and explores why marketing services need to be developed. The final section deals with opportunities and challenges that exist as this new sector reaches maturity, and strives for standardisation.

BusyLab and TRADENET

BusyLab is a small research and development company based in Accra, Ghana with a special focus on technology and development. Our current focus is on providing a set of tools and services to farmers and traders. This product is currently called TRADENET; it was launched in 2005 and is currently providing information on the Internet and via mobile phones for 11 African countries and two South American countries.

How TRADENET started

After 3 years of promoting ICT for development in Ghana (by building Africa's largest private technology centre, BusyInternet), there was some frustration in the lack of some simple but convincing stories to show how high-tech and the information highway could be usefully deployed in the field and help African communities in wealth creation. In discussions with Technoserve in 2004, it emerged that one avenue might be based on the needs of rural farmers who were seeking better price information for their commodities.

BusyLab started research into what products were available for farmers or NGOs supporting farmers in the area of market information, and was surprised to discover that basic Excel sheets were still being used, and that there were no software products available, and proposed that they took advantage of the new technologies, to allow information to be more easily collected, stored, analysed and distributed. Assuming such MIS would inevitably be required in each country, BusyLab initiated a pilot project to develop a simple price collection and distribution software, managed through the web, and distributed via e-mail, web and mobile phone.

BusyLab recognised the opportunity that mobile phone networks were offering in Africa, by extending communication into rural and semi-urban areas; and doing this much more quickly than incumbent telecommunications companies. In part funded by FAO, the BusyLab team started a collaboration with the FOODNET programme in Uganda, which had been developing MIS for the previous 4-5 years. They already had considerable experience in gathering and

distributing market information via radio, SMS and the web. They were also providing one of the only non-government national MIS in Africa, and were keen to find collaborators who could assist them in being a more efficient operator.

In our rapid survey of national MIS, several issues rapidly emerged.

- Most MIS were **not developed properly** with the appropriate functional specification or needs analysis common to professional software development. Rather, the tools were a mix of poorer technologies, that often required multiple entry, were prone to data loss and, in some cases, ran the risk of confusing data sets.
- The **target market was not clear**. Complex web interfaces were serving the needs of donors and partners, and it is arguable whether they were providing real value to end-users, if they were indeed traders and farmers. Only the very largest and most sophisticated of traders would have access to these types of application, and certainly not the millions of smallholder farmers who the service aimed to serve.
- The tools and information provided were benefiting only the most tech-savvy and well connected traders, thus possibly **further marginalising the smaller traders and producers** and providing advantages to the wealthier traders.
- National MIS were commissioning and paying for these systems, but without understanding the associated costs of software development on this scale, and frequently finding themselves in a position where they were **unable to support the ongoing development costs** required.

TRADENET 1.0

To address these issues, TRADENET was initially established to support a national MIS: allowing national players such as Ministries or NGOs that had been outsourced with this responsibility to use a set of tools to collect and distribute price information. Additional content ‘modules’ were added, as it became clear that news, archive documents, contact profiles and offers to buy and sell would all be appropriate. Foreseeing inter-country and global trading, the system was built with a set of standards for naming measures and currencies, which would allow any country to adopt the technology, and match commodity for commodity, despite local name variations, measures or other aspects. Further, in recognising the flexibility of the data, the system was designed as a ‘telescopic’ feature, enabling a view on the ‘content’ to come from either a smaller (town/market) or larger (sub-region) perspective, or to come from a commodity perspective (e.g. show me all the contacts, news, offers, prices for white maize...).

A pilot project was established with the International Institute for Communication and Development’s e-commerce project in Ghana in collaboration with Technoserve, focusing on shea butter and shea nuts. The project and software development were privately funded by BusyLab, with development support from the FOODNET project of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). At that time, the FAO had commissioned a study of methods to establish MIS, and this information was used as part of the design study (Ferris and Robbins, 2004). The TRADENET platform was integrated into the national Ugandan MIS in 2004, when CIAT also facilitated the establishment of an additional TRADENET site in Honduras.

TRADENET today

The features

Along with content modules for news, offers, prices, library, contacts... TRADENET allows countries to customise their web pages, by selecting which of these modules they would like to display. It also allows any organisation to combine any number of countries into a 'regional view' – collecting and combining all their content under one common custom interface. Powerful management tools have been developed to allow one organisation to easily manage and manipulate the content and configuration. This has been, in large part, due to the collaboration with USAID's Market Information Systems and Traders' Organizations (MISTOWA) project in West Africa, promoting regional trade between 10 countries.

The countries

TRADENET is currently deployed in Benin, Burkina Faso, Cote d'Ivoire, El Salvador, Ghana, Guinea, Honduras, Mali, Niger, Nigeria, Senegal, Togo and Uganda, and has regional web pages for Central America (www.agroemprededor.org) and for West Africa (www.wa-agritrade.org). In 2006 TRADENET will add the remaining ECOWAS countries.

The business model

TRADENET is a licensed software platform, and any country representative or group of representatives can license it annually for US\$5,000. This covers the cost of the software, its ongoing development, the servers on which it resides, and all the administration and systems supervision required for uptime-critical systems (such as this application requires). No special equipment, servers or hosting are required by any licensee. The licensee is responsible for data collection, distribution and marketing. BusyLab is responsible for the technology, databases and systems. This clear division of responsibilities is a key aspect of how TRADENET has been conceived, leaving the software developers (BusyLab) to maintain and extend the systems, and the agro-institutions to focus on content acquisition, education and distribution.

TRADENET tomorrow

In 2006, TRADENET will move further into providing a set of tools and services for individual producers and traders, to enable them to act on the information provided by such MIS services. With basic national information service tools in place that should serve the needs of the national statistics or information departments of NGOs or governments, the focus now shifts to enabling farmers or traders themselves, or their associations, to have a set of tools that will enable them to market their goods, contact new markets, advertise their buy-or-sell offers, etc. Storefronts for individual associations, custom-branded pages for associations, with a set of online tools to manage members and distribute information about products, services and events, etc. will be one set of features delivered. Much of the functionality of TRADENET will shift onto the mobile phone platform, allowing an individual or a group to publish news or offers. Through this process, the service will reach out to other categories of traders, or smaller 'trusted circles' of friends and partners.

The TRADENET development team would also like to combine the functionalities of products

like Yahoo Groups for associations, and would like to see more peer-to-peer activity, such as can be found on eBay. With the standardisation of TRADENET and its reach into many countries, we feel it has a unique position to offer trading opportunities via mobile networks, and customised interfaces for individual associations and traders/producers.

Along with these new sets of tools, a new pricing structure will be introduced that will enable fee-for-service payments, through mobiles or by individual subscriptions, avoiding one-fee-per-country obligations.

The broader market for market service applications

Key opportunities

Access to larger markets

One of the key opportunities afforded by these more sophisticated structured applications means that data can be shared and compared between and across regions of the world. This may be as simple as comparing the commodity *sim sim* in Uganda with *sesame* in Ghana. But as regional variations in language and categorisation can prevent users creating simple comparisons, so these relational databases can be structured in such a way that they link local names, local currencies and local measures and grades to standard definitions. Thus anyone in their own market wishing to compare something in another market will need to use the standardised index to be able to convert items into their own language. Such mappings will depend on standard definitions, which are woefully lacking in the African marketing context at this time. Very simply, what is a list of commodities, and how can they be compared? How can you compare commodities that are different in size, in weight, in quality? How can you compare something that is local or imported? Organic or not?

Better information about market trends

If data storage is designed correctly and 'normalised' (part of the design of a relational database), then computers can access the data in ever more powerful ways and present the data in insightful ways: comparing markets, trends, and predicting perhaps what may happen over the coming seasons (based on certain algorithms). Simply seeing price trends over time in Excel worksheets can be interesting, but difficult to manipulate if you want users to change some of the elements considered. Web-based charting can now enable analysts to compare any number of items in any number of currencies, over any period. Comparing price trends, as crops come to maturity, with what has happened over the past few years may give certain institutions powerful insights into how these price trends may vary in the future. This 'data mining' is dependent on well designed databases and a thorough needs analysis of how the data will be used.

More sales opportunities and fewer intermediaries

As ICT tools become more transparent and easier to understand, it is wholly expected that users will increasingly use these tools to market their goods and services. This may be a larger producer advertising its goods on a web page for international traders and purchasers, or simply a smallholder texting a 'circle of friends' that their crop is ready for harvest and advertising a price. There is likely to be some disintermediation of traditional trading practices.

The question of information utility is key in this context, and with the provision of a better information system, service providers should work with farmers' groups and associations to build their knowledge of how to understand and use this information. This can be done through training for local producers in collectively marketing their goods, using information to understand and target ever-increasing national and regional traders, and producing appropriate information about those goods and services online and on the mobile networks.

Sustainable market information systems

As market services and information begin to make a difference to the incomes of different categories of producers and traders, it should become self-evident that these services have value and can be paid for. As such, the market services could develop fees for service and use the new technologies to provide ways for collection and payment. For example, currently when some traders access prices on their mobiles, they pay a premium rate for that SMS and the extra revenue is shared between the mobile operator and the content provider. That concept can be studied and extended, so that a whole range of services, such as offers to buy and sell, or premium information, can be paid for by farmers or their representatives, by deducting micro-payments from their prepaid mobile account cards.

Any number of new opportunities for mobile commerce will be developed over the next 10 years, and there is no reason why these market services cannot be a leading example of how to use those networks to gather income to pay for the services. For us, this is a leading research issue that could be addressed by an organisation such as CTA.

Wealth creation

Needless to say - and it is not in the scope of this paper to address these issues - with better information farmers and traders will make better and more informed decisions. Markets will become more transparent, and new commercial relationships can be created. As markets, particularly international markets, become more competitive, African countries should seek to exploit their regional trade markets more effectively, and in many cases also their national markets. Increasing market efficiency will lead to wealth creation, and that must be the key focus and key opportunity that these market service applications offer.

Better preparation for export markets

With increasingly stringent requirements by the EU and other importing bodies, ACP farmers will increasingly be required to participate in systems that track and trace produce for export. This will probably be done by larger nuclear farms working in conjunction with smallholders. But new information tools must be developed that allow produce to be tracked appropriately to meet import regulations. Identifying where a crop comes from, where it is located by GIS technologies on a map, the quantity available, and what chemicals have been used, will increasingly be the responsibility of any potential supplier and exporter. Tying this into wider market service applications will enable this information to be standardised and available online to any potential buyer worldwide.

Better market positioning through collaboration

Being able to get your message out further and faster, to use these new technologies to market

your goods, and to make direct offers to sell and buy, will require that farmers collaborate to obtain the relevant training, gain access to the technologies and combine harvests to reach bulk pricing and meaningful use of the new communication opportunities. Thus groups and associations will have a new role in assisting farmers to develop their skills and perhaps acting as a proxy for them, again especially through training users and clients in how to integrate new technologies into their businesses and use these information and trading tools to better manage their associations.

Key challenges

Consensus-building

As mentioned above, one key requirement for standardising data across networks and databases is to enable different systems to recognise commonalities and enable users to know they are acting on similar items, grades and measures. This must be accomplished by the participants, who are building current MIS databases, joining together and establishing a common set of standards, to enable data-matching and sharing. A simple list of commodities is not available, either from FAO or from any other online resource. Yet *de facto*, each MIS must define its commodities. Rather than having several lists, and making matching a process that can be difficult, time-consuming and prone to error, there needs to be a concerted effort by CTA, or some other respected body, to issue a standardised set of commodities (taking into consideration weight, size, origin and other characteristics) so that the systems can be interoperable. This will enable many different systems to arise, and allow users to compare information easily across markets.

Editorialising content

Early on, it has been recognised that simply offering basic data is not enough. Moreover, it can have a distorting effect upon the market. All information that is delivered must be packaged in such a way that it is explained. Transport costs, grades and quality are all essential to understanding a market price. This can be accomplished through partnering with radio stations to issue news reports along with simple prices. It can also be achieved through the active participation of farmers' groups and associations. All MIS should be designed with this in mind and should accommodate news commentary to be placed alongside the raw data.

Localising content

Content targeted for communities that perhaps have little access to new technologies, have high illiteracy rates, and use local languages, must be customised to accommodate those communities, otherwise they may be further marginalised. Programmes should be put in place whereby local proxies (farmers' groups, extension officers, even cybercafé managers) can print out market reports that use graphical symbols as well as words for price information, and can be distributed via traditional methods (on market news boards, blackboards, etc.).

Understanding target markets

With so many stakeholders involved in MIS (government departments, analysts, researchers, farmers, traders, NGOs, etc.), it is absolutely crucial that MIS avoids the common mistake in technology development, which is to create a large portal that is everything to everybody and, in

the end, meaningless or too complicated for any one stakeholder. It is unlikely that farmers would want historical data going back 20 years (in some cases, the most they may want is the price this time last year), yet many MIS supposedly for farmers will incorporate sophisticated mapping and graphing systems for historical analysis. Research shows that technology is driven by the users, and on the web it will be the NGOs, analysts and largest traders who will use these systems and thus define the priorities. If these MIS are truly designed for smallholders, the developers must be ruthlessly focused on what those smallholders want, and how they may honestly access that content. It is too easy to be seduced by new technologies of mailing lists, event planners, GIS mapping and more, when the focus should be on whatever it is that the smallholder is requesting.

Understanding the software development process

Software development is a process and should be understood by various participants, so that they can interact most effectively in that process. A proper needs analysis, an extensive functional specification, a detailed technical specification are all required for good planning and a sturdy product. Too often this development process is done *ad hoc*, where people think a certain type of content or feature can be added as they go. This causes systems to be built in such a way that the code is not easily maintainable or extensible, and generally will require the product to be started from scratch again every 4 years or so. Taking some time to understand how software is built may enable people to be more successful in the long term in their attempts at intervention.

Avoiding revolutionary approaches

I would argue that all human involvement with technology should be seen as evolutionary and not revolutionary, especially in the light of the target audiences for MIS. The intervention of technology into a business/commercial process that has essentially remained unchanged for hundreds of years must be of benefit to, and improve, that tradition, not try and replace it. As such, traditional systems of barter and credit should somehow be supported and enhanced by the technology, not replaced. A good analysis of how this occurs, and how low-tech intervention can provably play a significant role in assisting traditional practices, will build enthusiasm for the new technologies and enable participants to adopt them more easily.

Involving the private sector to own and pay for services

If the value of these MIS can be demonstrated to the participants, then a strong argument can be made to the effect that some percentage of that otherwise-unrealised value can be contributed for the renewal of these services. The challenge all along has been that these services make marginal contributions; perhaps more importantly, no system of fee collection and administration is viable or affordable. Both these assumptions will change with the new MIS offerings. Real value can be demonstrated and arguments made for participants to contribute. And with the distribution and penetration of new mobile networks, micro-payment options are now possible without involving a large (or any) network of payment points. Already, some countries are passing off the cost of the service by making SMS requests a premium rate. That same concept can be extended further as the content itself is differentiated and becomes more valuable. Further, new forms of mobile commerce will enable stakeholders to pay for and maintain subscriptions to services via mobile payments from pre-paid cards. Finally, with the growth in distribution of the content, and further targeting to specialised and differentiated markets, advertisers may be more likely to sponsor that content, providing another avenue of potential revenue.

Shared branding

Presumably, content will become increasingly complicated. The source of the content will be shared, as more people are more easily able to submit content. The value of the content will become differentiated. Ownership of that content will become more important, so branding will be key and some level of auditing and accounting for any revenues earned from that content will be required. Finally, access to content may be limited, based on affiliation and subscription. Arguably, all MIS should consider this in initial planning and be prepared to brand content on the site and allow private areas and public areas, and use their powers to define where some content is free and some premium.

Collaboration with media outlets

To distribute the content in these ACP markets, mobile and radio networks will be the most promising delivery methods in the near future. The owners and managers of those networks must be involved early on in the design and implementation of these systems, as their networks will carry the content. Government can play a key role in lobbying and legislating for a certain degree of public access to these networks for services such as MIS. But shared business models and value creation for all stakeholders will be a more plausible and longer-lasting foundation on which to build participation and collaboration.

Conclusions

In the past 2 years of developing TRADENET, we have learned many lessons and gained the support of many partners from research and development. It is clear that there is considerable demand for better MIS, and also a real need for reliable and flexible technologies to support such services. However, as demonstrated here, developing the right product for multiple end-users, such as those from government, donors and NGOs, who often pay for such services, and also providing effective wealth-supporting services to a spectrum of large- and small-scale traders and farmers, is a challenge. We believe the service must be standardised; it should meet the needs of the clients, providing different portals for different types of user. Information needs to be packaged in a way that clients can use and, for the millions of atomised smallholders, training and promotion are critical to the appropriate use of new technologies. Other challenges still remain. Although mobile phones are rapidly becoming essential trading tools for the more organised farmers, many millions of farmers still rely on receiving their information through radio; in the future, these more traditional services need to be supported through innovative business arrangements. The goal of TRADENET is to be a leading software product that can be supported, used and adapted by many various agencies and private-sector organisations in developing countries, to the benefit of many millions of smallholder farmers and for the fostering of more efficient agricultural trade.

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MANOBI: increasing the incomes and life quality of farmers in Senegal through a multimedia mobile phone MIS

Daniel Annerose (Manobi, Senegal)

New communication and information technologies in the African rural sector

Most of Africa's population (70%) live in rural areas. An important part of this population depend, directly or indirectly, on incomes from agriculture, fishing or animal breeding. Globalisation of the economy and of trade has markedly affected much African agriculture, which was not prepared for these developments because it had been supported for a long time by the State. The situation of poverty seen in both rural areas and suburbs bears witness to the difficulty of reintegrating rural populations in their markets and in their local, national and international economy.

What part can the new technologies play in these circumstances to significantly improve the economic situation in these sectors? What approaches should be implemented to develop really helpful uses? What economic models can support those strategies and produce sustainable effects for the beneficiaries? Like most general services, such as water, energy and the communication infrastructures, the new communication and information technologies are considered as a priority for urban areas, whereas rural areas have little or no provision. Can this natural tendency be reversed, and through what mechanisms? Few answers to these questions are available today for the African rural populations due to a lack of pedagogical models to inspire their construction.

Manobi, a multimedia service operator for agribusiness and the rural sector, was created with a view to participating in the construction of these models. The object of the case study briefly described here is to show how solutions based on the exploitation of new communication and information technologies can contribute directly to the development of rural populations and their environment.

The multimedia MIS case study

Methodology

In Senegal, one of the main problems of producers and of middlemen (*banas-banas*) is the absence of reliable information on the situation of their products' destination markets. The product price is generally announced by word of mouth, and constitutes the main bone of contention between these two players. On one side, the *banas-banas* used to leave the market to go and get their supplies with some information already distorted when they arrived at the producer's. On the other hand, the producers, who only went to the market from time to time to check the actual price of their products, could not but doubt the sincerity of the *banas-banas*.

Manobi has developed the T2M, a system that enables both groups to use their mobile phones in order to know in real time both the price and arrival status of their products at the markets, and the availability of the same products in the production sites. The prices and arrival changes of products on the markets are collected twice a day. The data, which are sent to and held at a centralised base, are analysed in real time before they are broadcast to users through a multi-modal platform (WAP, SMS, voice XML, mobile and fixed Internet) specially developed by Manobi to provide value-added data services at lower cost with the mobile telephony operators' first-generation classical vocal networks. With this system, the Senegalese producers and *banas-banas* were the first WAP users in Senegal – something they mastered in a few days, even though the majority are illiterate and had never used the telephone before.

Results

The impact of this service was assessed on a sample of 50 producers and 15 *banas-banas* in the four-month horticultural campaign.

Improvement of income

The main result noted is a significant increase in users' income compared with those of previous campaigns. The producers immediately found a sale price for their products corresponding to the actual market prices. Because they could better seize the market opportunities with better information on the producers' offers, the *banas-banas* reduced their charges and sold their stocks more easily.

The service cost for the user corresponds to a telephone communication per day: CFA F200 per minute.

Thanks to this service, the group of producers studied increased their income on average by 15% after they had deducted the service access fees. In the 316 ha cultivated, there was a CFA F114 million (€174,000) increase, that is an average increase of CFA F361,284 per ha (€550). Calculated on the 8-month horticultural campaign, the net income average increase is CFA F722,500 per ha (€1,100) for a service overall cost of CFA F30,000 (€45).

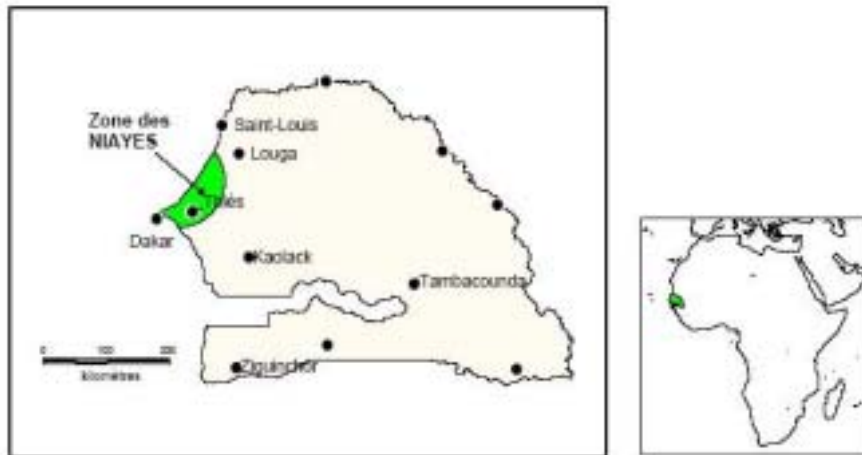
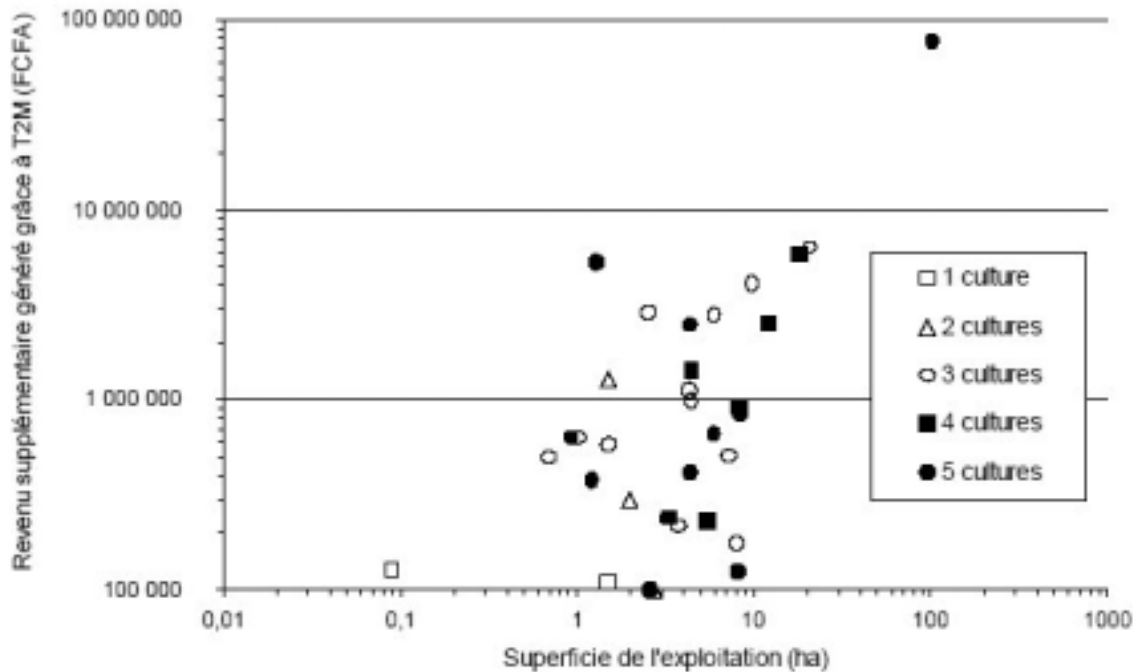
Many different situations were identified from the data: the size of the cultivated area determines the level of additional income generated, and producers with a large variety of crops can better exploit the information provided and generate important margins (Figure 1). Thus a small producer with a 1 ha farm, growing very diversified crops, once he knows the market situation in real time, can make decisions that enable him to increase his income to levels equivalent to, or higher than, those of a producer who works on 10 ha of undiversified crops. This shows that in addition to the true value of the information provided, its economic impact is determined by its use by the receivers.

Other important impacts of the service for beneficiaries were highlighted. They reveal interesting means of promoting innovative uses of new communication and information technologies for the low-income or poor populations.

Better time management

Important time is saved by T2M users, which they can devote to increasing value-generating activities.

Figure 1: Producers with a variety of crops can better exploit the information provided



More rapid negotiations

- For all beneficiaries, the information relayed by Manobi has become a reference. Trade between producers and the *banas-banas* is easier – their work has become more organised and with less conflict, and negotiations are now concluded quickly.

Optimisation of travel time

- Producers no longer leave their farm to go and look for information at the markets. The service enables them to avoid the 2-day trips to the market that they used to make every week, on average, to check the price of their products.

- Because they are confident of the reliability of the information, the *banas-banas* have reduced the time they spend on exploration and have organised to share their trips from production sites to markets.

Presence of producers on their farms

Because of the time saved thanks to this service, producers can spend more time on their farms and better supervise their employees and the family members who help them. This additional time has enabled many of them to:

- increase cultivated areas
- increase yields
- increase the quality of their products.

Better management of means

For the producer

The precision of the data provided by the system is an important tool that helps producers make decisions on:

- choice of priority crops, depending on market demand
- production diversification
- optimisation of the use of fertiliser stocks.

For the *bana-bana*

The T2M system enables the *bana-bana* to localise more rapidly and target precisely the products he needs and the producers who have them:

- trips are optimised
- destination markets are precisely targeted, based on the expected income.

Emergence of new activities

New jobs are also created around this service:

- ‘urban *banas-banas*’ exploit the data to organise urban market-resupply circuits by playing on the price difference of the same product on these markets – they contribute to rebalancing the availability of products on the urban markets
- in the production areas, producers and their professional organisations have entrusted to youths with horticultural education the charge of organising technical follow-up of producers – they act as technician-advisers to help producers derive most benefit from the service by maximising their farm management.

New ambitions, and new economic and social needs

The T2M system has enabled users and, in particular, producers to reintegrate their industry as full players each acknowledged by the others. By reappropriating a recognised role in the industry, they are discovering new ambitions, which we meet through the development of appropriate services. These concern namely:

- development of the sale of their products in the continent, and export to the countries of the North
- putting at their disposal tools to help them pilot their farms
- development of the product quality and traceability needed to develop their labels and the credibility of their origin.

The professional organisations of these producers have realised the changes these services have brought about in their members' behaviour and needs. They demand services that enable them to:

- develop their own management methods
- provide value-added services to their members
- better participate in and master the local development of the area they cover.

A new winning ecosystem

With this experience, we have succeeded in building a winning ecosystem for each participating player:

- **the rural communities**, who are the final users and whose income and living conditions are directly improved
- **the national telephone operator**, which now realises the prospects for developing activities in rural areas
- **Manobi**, which concentrates efficiently on developing uses that meet local needs
- **the equipment makers**, who have a vested interest in developing a new group of customers and providing the corresponding network infrastructure equipment (ex Alcatel).

More natural relationships between the private and public sectors are established. Thanks to this project, supported by the International Development Research Centre (IDRC), new services and new technologies can now be experimented with in conditions that facilitate both better care being taken of users' needs, and the design of viable associated economic models.

Conclusions

This case illustrates how the information technologies can contribute efficiently to the economic and social development of rural populations. For us, three key elements must be considered in order to answer efficiently the questions that currently limit dissemination of these technologies in rural areas.

- **Use versus access.** Identify first of all the uses that correspond to local needs, before promoting access.

- **Services versus technologies.** Design services while taking into account the users' particular situation (level of income, mobility, isolation) and mobilise adapted technologies (fixed, mobile Internet and its different modes) to provide this service in the best conditions for the user.
- **Rural versus urban.** Define realistic economic models for network extension and quality, as well as providing services that strengthen the role of rural communities in their markets, their industries, their economy and their social environment.

These conditions enable us to offer workable new prospects in using information technologies, mainly global systems for mobile communications, and services with high value added for all the players.

RATIN – regional market intelligence network in East and southern Africa¹⁸

Stephen Kiuri Njuki (RATES Project, Kenya)

Overview of RATES

The Regional Agricultural Trade Expansion Support (RATES) Program is a 5-year USAID/REDSO-funded programme implemented by Chemonics International Inc. Its overall goal is to increase the volume and value of agricultural trade within the East and southern Africa region, and between the region and the rest of the world. RATES is a commodity-focused activity and currently supports five commodity value chains, including specialty coffee, maize, cotton and textiles, livestock, and dairy. Through policy advocacy, lobbying, public relations and marketing, RATES is expanding private-sector contributions to regional trade initiatives in East and southern Africa.

Maize in East and southern Africa

In developed economies, most people associate maize with ‘corn-on-the-cob’ dripping with butter, crunchy breakfast cereals, sweetcorn in salads and, for cinema-goers, no movie is complete without popcorn. However, in many African countries maize is associated with food security: ‘where there’s no maize there is no food’. As a result, maize is the major food crop in the region and a key component of national-level food security strategies. Demand for maize in sub-Saharan Africa is expected to double from 27 million MT in 1995 to 52 million MT in 2020 (IFPRI).

However, it is not uncommon for certain parts of the region to be hit by severe seasonal food shortages, despite available maize stocks in nearby countries. The RATES Program undertook some value-chain studies for maize in selected key maize-producing and -consuming countries. The result demonstrates that, on average, the region produces 22,000,000 MT and consumes an estimated 16,000,000 MT, leaving a regional surplus of 4,000,000 MT. With such a huge surplus, why are our people suffering from food insecurity? Is it because we are not integrating our food requirements as a region? Are we denying our neighbouring states access to food, and discouraging larger markets for our farmers? Our conclusions were that the distance between the supply and demand of maize can be measured in terms of both kilometres from supply and the number of cross-border barriers inhibiting trade, plus lack of market information and correct supply-and-demand figures.

To address the regional impediments to cross-trade, the RATES maize programme has the long-term goal of improving the flow of maize and expanding availability within the region, with a view to stabilising the regional maize market and helping to reduce the large swings in maize

¹⁸ The author’s views expressed in this publication do not necessarily reflect the views of Chemonics International, the Agency for International Development, or the US Government.

prices seen during periods of deficit. This goal is anchored on a regional theme of ‘maize without borders’ as a concept launched by RATES through the auspices of COMESA. This initiative promotes free cross-border trade and regional harmonisation of maize policies, and been adopted as a COMESA policy to increase inter-regional trade in grain.

Trade links and market information

To address the challenges of managing ‘real-time’ market information and trade-links sites, the RATES Trade Office (RTO), dedicated to the upkeep and management of both the www.ratin.net and www.tradeafrica.biz sites, was opened in 2003. This office serves as the RATES ‘call centre’, where trade inquiries are proactively pursued through the Internet, e-mail, telephone, SMS and radio. All site ‘hits’ and trade inquiries are monitored and tracked for transactional viability and completion. The RTO maintains an extensive trade directory of private companies and public-sector agencies connected to the maize, bean and pulse trade.

RATIN

The Regional Agricultural Trade Intelligence Network (RATIN, www.ratin.net) is a market information platform within the RATES Program that provides timely, accurate and relevant market information to people across the agricultural sector, including cross-border traders, processors and policy-makers. The selected commodities are maize, beans and rice, and the focus is on Kenya, Uganda, Tanzania and Rwanda.

The information provided includes:

- daily, weekly and monthly wholesale prices for selected terminal markets in East Africa
- maize import parity prices for selected border and import points
- monthly regional trade analysis in the form of a monthly food and trade bulletin
- trade opportunities forecasts based on the regional production and inter-regional trade flows
- provision of the estimated regional maize availability balance sheet.

This information is disseminated through web, e-mail and posted mailings.

This trade links site continues to draw interest from the private sector, with inquiries to buy maize closing the year 2005 at US\$162.7 million for the year, representing 845,290 metric tons of grain. This is about a 20% increase on 2004. Offers to sell closed at US\$118 million, representing 724,000 metric tons. The www.tradeafrica.biz site is used for both domestic and regional transactions; hence the totals far exceed the volume of formal regional trade for the year.

Figure 1: TradeAfrica.biz



Figure 2: RATES trade network



The RATES Program has pushed the envelope on developing strategies for increasing grain trade within the region. The region has had some initial success in increasing inter-regional trade, in that formal maize trade increased this year from US\$31,252,068 to US\$47,476,232, and government policy-makers are beginning to change their attitudes towards the free movement of grain across their borders. The COMESA and East African Community (EAC) heads of state have endorsed the ‘maize without borders’ concept, which aims to improve the smooth flow of maize from surplus to deficit areas. Here are some examples of how the trade worked in the year 2004-05.

- Zambia and Tanzania remained key maize trade players in 2004, with US\$15,929,552 and US\$14,959,948 in formal trade export value, respectively.
- Most of Tanzania’s trade flowed north as Kenya’s main supplier (US\$6 million) and west to Burundi and Rwanda (combined total of US\$7 million).
- Uganda exported a significant amount of maize, with a value of US\$6,403,000 (up from US\$4,359,000 last year), but shifted its focus from Kenya – its traditional trade partner – to Burundi and Rwanda. This may be related to World Food Program food-aid shipments to those countries, which are recorded as formal trade.
- Ethiopia has come on the scene this year for the first time as a net supplier (although still limited) of maize to the region and the Middle East. Trade valued at US\$1,662,000 is significantly higher than previous years’ trade, valued at US\$48,000 in 2003 and US\$318,000 in 2002.
- Malawi, although considered to be a perennial maize-deficit country, followed Tanzania and Zambia as the third-largest maize-trading country at slightly over US\$7 million. Following the concept of ‘maize without borders’, Malawi traded freely with countries such as Zambia (US\$4.5 million) and Mozambique (US\$1.3 million), which are the same countries from which it procured maize between harvests. As a prime example demonstrating that trade bans are unnecessary, Zambia sold maize to Malawi valued at US\$6.6 million.
- There are several examples of maize import *and* export trade occurring between the same countries, supporting the RATES premise that free regional trade in maize is the best form of food security – every country has a different harvest season. The best examples are Kenya and Uganda, which bought and sold maize with Tanzania; and Malawi, which bought and sold maize with Zambia. The challenge for RATES is to convince the public sector and food-security operations that free trade is part of the process of maintaining and sustaining increased trade in the region that allows maize to flow freely from areas of surplus to areas of deficit.
- Of significant importance is the comparison of informal (unrecorded) maize trade with recorded formal trade. Taking into consideration that informal trade is only partially monitored, and values are conservatively estimated, total informal trade for 2004-05 exceeds US\$44 million – almost equal to the US\$47 million formally recorded by COMESA. The informal trade between Uganda and Kenya is almost US\$14 million, compared with recorded trade of US\$400,000.

Inter-regional grain trading has increased at various stages in the value chain. At the national level, a number of interesting initiatives are being explored, including contract farming schemes, forward contracting, warehouse receipt systems, and commodity exchange systems. All these efforts are prerequisites for establishing a more advanced system of regional trading. However, the pace of moving to a more liberalised environment has been somewhat slow, and these ‘new’

initiatives have not produced a formidable grain-trading platform. This slow pace has been hindered somewhat by government interventions (government participation in the market place), lack of capacity among private-sector players to fill the vacuum left by government marketing boards, and a lack of regionally focused distribution channels of grains from surplus to deficit areas. As a result, regional trading is still hampered by the dynamics of the past, where market principles and practices were monopolised by the state.

The absence of a well organised regional food-grain market constrains broad participation by genuine and reputable grain traders, slows adoption of productivity-enhancing technologies at the farmer level, and generally leaves the grain value chain exposed to price and quantity volatility risks. For the trade to move forward, market participation requires:

- broad regional participation – sufficient buyers and sellers in the regional market so that a single player cannot hold others to ‘ransom’
- rules of trade – qualification of buyers or sellers, and guidelines for orderly markets
- transparency offers and bids in the regional market are known to all potential buyers and sellers
- regional market intelligence – offers and bids in one area or country are known in other areas or countries in real time, so that trading between countries is facilitated
- knowledge sharing – information on the underlying regional supply, including food aid imports, and demand fundamentals.

Regional grain-trader summit, Nairobi; 12- 13 October 2005

RATES, in collaboration with COMESA and the EAC, held the first regional grain-trade summit to provide a forum for all key players in the regional grain industry to meet as a group (for the first time) to map out a regionally focused strategy for grain-trade market development within COMESA. Participants included key policy-makers, leading food-aid policy-makers and procurement staff, leaders of strategic grain reserves, private traders, producers, millers, bankers and donors. The event attracted over 300 participants from 20 countries, including COMESA, EAC and the Southern African Development Community (SADC), as well as Europe and the USA.

RATES is addressing trade-improvement issues head on through our ‘maize without borders’ initiative, and felt that the timing was right for the region to further develop strategies that encourage the development of a mature grain-trading system. To do this, the region needed to develop consensus on the right way forward among the commercial players in the value chain. In this regard, the regional grain-trade summit accomplished this objective. The theme ‘the future of grain trade in East and southern Africa’ formed the basis for all presentations and workshops. The four main topics that segregated the key summit presentations and workshop discussions were:

- public, private and donor sector investment/intervention options
- role of food aid and national grain reserves, and their impact on trade
- competitiveness – farm to market systems
- trade finance – collateral management, commodity exchange, and warehouse receipts.

Structured grain-trading system in East and southern Africa

The grain-trade summit concluded with a general objective of creating a structured trading system that will help foster the growth of regional agricultural trade, by creating a larger market for our farmers and other industry players along the value chain. The building blocks of such a system were identified as follows:

- clean and identifiable storage facilities
- aggregation of volume, especially from small-scale farmers
- standards and grading, use of recognised, e.g. East Africa maize standards
- contract-enforcement system
- legal and regulatory environment
- finance (role of banks)
- commodity exchange
- integrity.

To start the process of building a structured grain-trading system, the RATES Program has incorporated stakeholders actively engaged in structured trade systems in warehouse receipts and commodity-exchange initiatives, targeting collateral management firms, banks, trade associations and existing parastatal marketing agencies. One such group in Kenya, through the auspices of RATES and the Kenya Maize Development Program, a bilateral mission project, is actively pursuing the formation of a regional grain council (East Africa Grain Council). The Grain Council's objectives are envisaged as follows:

- promote a well functioning regional supply chain, focusing on trade issues of all sectors of the value chain, building a platform for reducing constraints in regional grain trade
- build cooperation, interaction, partnerships, alliances, networks and market links
- collect market data, generate information exchange and share regional expertise
- promote investment in structured marketing systems, including warehouse receipts and commodity exchanges
- act as main licence and certification authority in structured systems, and provide commercial services as needed
- recognise and support accepted principles of international codes of corporate conduct
- facilitate awareness of new technologies
- represent the regional membership at national, regional and international forums, and lead advocacy and lobbying actions for best interests of council members.

In Malawi, RATES is bringing together all grain industry workers with a view of forming a strong grain industry association with similar objectives to those of the East Africa Grain Council. In addition to promoting formation of the council, RATES is working closely with the East Africa community - Kenya, Uganda and Tanzania (EAC) and COMESA - to produce handbooks on import and export regulation requirements, targeting small- and medium-scale

traders as well as government officials stationed at border posts. For example, a guide for maize traders on regulatory requirements for imports and exports of maize has been printed through the auspices of EAC and the respective revenue authorities of Kenya, Tanzania and Uganda. The publication and distribution has been followed by a training and promotion programme targeting traders' associations and customs officials at the Kenya/Uganda borders, and at the Tanzania/Kenya border points. These regulations are also posted on the RATIN and tradeafrica.biz websites.

We believe a structured trading system will bring benefits such as:

- price information to all participants – accurate, timely, public and readily available
- uniform, regulated, and impartial system – acceptable code of conduct
- market transparency – offers and bids are known by all participants
- reduces seasonal spot market prices volatility – offers opportunity to manage your risks
- increases the regions' money supply – bring liquidity to the grain market.

The above benefits will be realised by farmers, traders, brokers, millers, banks, service providers and food-aid agencies.

In conclusion, the RATES Program's efforts of promoting regional trade integration will lead to food security and economic growth to more than over 374 million people who live within COMESA, by addressing impediments to trade and improving market information flow to traders, farmers and policy-makers.

The Caribbean Agribusiness Marketing Intelligence and Development Network

Ardon Iton (CARDI, Trinidad & Tobago)

The Caribbean Agribusiness Marketing Intelligence and Development (CAMID) network was established under the aegis of the Caribbean Agricultural Research and Development Institute (CARDI) in May 2001. CAMID is a marketing intelligence network that aims to support marketing development in the region. The members of CAMID include national and regional, public- and private-sector agribusiness entities that have a responsibility for the provision of marketing development services to the agribusiness sector in the Caribbean CARICOM countries.

The network is directed by a regional management committee comprising representatives from national and regional, public- and private-sector organisations, while day-to-day management is carried out by the secretariat located at CARDI headquarters in Trinidad and Tobago. CAMID has developed a regional integrated marketing development strategy (RIMS) designed to solve the fundamental problems with respect to increased information flows between sellers and buyers, facilitation of product exchange and reduction of transaction costs.

The RIMS aims to establish systems, mechanisms and arrangements that will allow the integration of major services, including marketing intelligence, trade facilitation, quality assurance and the supporting infrastructure.

Specifically, producers and traders will benefit from the following support services:

- a product supply-and-demand forecast service
- e-commerce trading facility
- agribusiness database
- freight availability database
- export marketing information service
- industry and enterprise development services.

The pack-houses and agro-processors in each country will be the nerve centre of the RIMS. The market intelligence network will assist them to enhance their ability to find markets, co-ordinate production, organise shipping and deliver products to customers' specifications in the domestic, regional and international markets. In addition, these pack-houses/processors could work together in undertaking a joint export-marketing programme.

The forecasting mechanism, the e-commerce facility, the agribusiness database and the transportation database will be accessible through the CAMID website. These and other services will be delivered as follows.

The **product supply forecasting mechanism** will allow for information to be available on the future product supply situation at regional, country, sub-district and individual farmer levels. On a monthly basis, farmers will be required to complete or provide information to CAMID coordinators for the completion of rolling 3-month forecasts of their production, on the condition that they will be assisted in finding markets for their products. Domestic buyers in each CAMID country can access the database and will be able to search for suppliers of a product in a particular area, or in the whole country, who can supply products within a particular period. Buyers who do not have access to a computer will be able to contact central locations by phone for such information. The forecasting software will not allow buyers and sellers to conduct sales transactions via the computer, as this will be available via the e-commerce service.

The CAMID secretariat will also develop a **demand-forecast model** which will utilise historical data and surveys of selected buyers to forecast demand, thus allowing for forecast of both demand and supply.

The **e-commerce trading facility** will allow for communication between buyers and sellers via the computer. Sellers including pack-houses, processors and importers will be able to post onto the site products that they have for sale. Domestic and global buyers, such as wholesalers, hotels, supermarkets, restaurants and exporters, will be able to browse and select products offered by sellers and advertise their requirements online for the attention of sellers.

The **agribusiness database** will allow authorised members, nationally and regionally, to store and retrieve data on a commodity basis with respect to all aspects of agribusiness. Information will be available on a product-specific basis in discrete marketable units. Research undertaken has shown that, to be most effective, the products purchased by public and private sectors should be available as marketable units. They include: industry profiles, market profiles, trade statistics, commodity profiles, production trends, investment profiles, supplier-and-buyer profiles, post-harvest technology packages, production technology packages, processing technology packages, current market prices, price trends, market opportunities, supply forecast, sources of inputs, trade agreements, source of funding, government policies, support agencies, industry news and events, and short-term training.

The service will allow for a database administrator who will manage the database in terms of:

- ensuring the various information products meet requisite standards for publication
- controlling access to the database by national and regional users
- setting prices for information product/package
- authorising other personnel who will be able to place data and information on the database from different locations in order to increase the efficiency and range of information.

Each country or organisation will have the ability to control access to their own database and to market their discrete products as listed above.

The **freight-availability database** will be accessible via the CAMID website. It will allow providers of air, sea and land freight services in the region to post details of their services in terms of up-to-date schedules and rates. The software will allow authorised traders to access the database to find the most appropriate transport solutions.

The **extra-regional joint marketing programme** provides information and a forum that facilitates contact and dialogue between exporters and importers of Caribbean food products, and is aimed primarily at increasing members' competitiveness and market share in extra-regional markets through joint action, as it relates to:

- identification and negotiation for purchasing contracts with buyers
- consolidation of products to satisfy volume requirements of large buyers
- consolidation of financial resources to promote products jointly
- consolidation of procurement efforts to reduce unit costs
- sharing of information to reduce costs
- joint negotiation for freight space and rates
- joint negotiation for development assistance
- stronger lobbying voice with respect to government policy.

In the execution of this programme, CAMID will supply information to the Caribbean Agribusiness Association (CABA) and other exporters.

The **industry and enterprise development service** is a consultancy service aimed at facilitating the development of commodity/industry associations and individual business enterprises through the execution of industry, business and market studies, preparation of industry, business and marketing plans, and the undertaking of product development projects on behalf of individual members, firms and industries. The development of industry associations, which is the main responsibility of CABA, is regarded as a major prerequisite for effective collection of agricultural production data.

The RIMS has been presented to stakeholders at a number of forums at national, regional and international levels, and has won strong support from the regional public and private sector, including:

- CTA, which has been a major source of financial support
- the Ministers of Agriculture of the region [communiqué from the June 2002 meeting of the Alliance for Sustainable Development of Agriculture and the Rural Milieu (the Alliance)]
- Council for Trade and Economic Development (communiqué from its May 2002 meeting)
- CABA
- Marketing boards across the region
- Ministry of Agriculture marketing units from across the region
- IICA (communiqué from the June 2002 meeting of the alliance)
- FAO
- The Committee of Lead Agencies of the RTP.

The CAMID network, through CARDI's marketing development programme, is regarded among major public and private sector stakeholders at the national and regional level as the marketing intelligence system for leading the regional approach to agricultural marketing development in CARICOM.

Challenges

The establishment of the network has experienced initial problems, as with any other entity in a developing country. These problems span the spectrum from institutional identity to technical difficulties. The following are some of the more difficult problems encountered.

- Agreement on institutional arrangements – protracted and sometimes acrimonious discussions as to whether the network's management should be under the direct control of CARDI or whether it should be an autonomous entity. It was finally agreed, following ministerial intervention, that it should be a marketing intelligence system under the management of CARDI.
- Some reservations on the confidentiality of the data supplied to the network. As a result of this, the software was designed so that each country and organisation would have 'password' control over their information.
- Wide variability in type of data collected and the data-collection instrument, particularly with respect to production forecast. Standard data-collection instruments for production forecast and for industry profiles have been designed and generally agreed on by member countries.
- Frequent staff movement in the Ministry of Agriculture. Significant delays have occurred in implementation at the national level, due to the transfer or resignation of persons selected as national co-ordinators.
- Software modifications to meet the required level of flexibility and user-friendliness required.
- Reluctance of the agricultural extension service to undertake the collection of production forecast data. The extension service, in many countries, holds that the collection of marketing information is the responsibility of agricultural marketing agencies, and their function is to provide production-related services. The marketing agencies, however, do not have an adequate number of officers to cover the required number of products and geographical area. The solution lies in the development of industry/commodity associations, improved marketing planning and better communication between buyers and farmers, including increased use of telephones and radio programmes.

Achievements

Notwithstanding the difficulties encountered, significant progress has been made in several areas, as outlined below.

Institutional arrangements

A regional management committee, comprising public- and private-sector stakeholders, has been established, and a draft memorandum of understanding defining how the network will operate has been developed by the CARICOM secretariat. The final draft of the memorandum of understanding is now being circulated to CAMID members and to the permanent secretaries in the Ministry of Agriculture, which will be finalised by the regional management committee and permanent secretaries in mid-December 2005.

The day-to-day management of the network is currently carried out by a team of three part-time persons: a regional co-ordinator, a database administrator and an administrative assistant. National co-ordinators for the network as a whole, as well as for the agribusiness planning database and the product-supply forecast service, have been established in 13 countries.

Information service development

Planning database service

The agribusiness planning database, which was initially developed with funding from CTA, has been redesigned following review and testing of the software by 11 member states. The new database will function as a regional repository and search engine for all types of information relevant to the agribusiness sector in CARICOM. This new design is now in the process of being tested by stakeholders in the region, and is expected to be fully operational by the end of February 2006. The review, testing, redesigns and initial population of the database are being financed by FAO.

Product-supply forecast software

Through partial funding from USAID and a joint venture agreement with a private-sector information technology company, Integrated Trade Solutions in Barbados, the network has developed Internet-based software to support the forecasting of primary produce production. Through funding from FAO, national meetings of public and private agribusiness stakeholders in 13 CARICOM countries have been informed about the rationale, benefits and *modus operandi* of the product-supply forecast software, co-ordinators from 11 countries have been trained in its use, and 10 countries have developed implementation plans. Final arrangements for its implementation at the national and regional level are expected to be arrived at during a meeting of permanent secretaries and heads of the national marketing agencies in mid-December 2005.

Enterprise and industry development (consultancy) service

The staff of the network secretariat have undertaken a number of consultancy projects under the enterprise and industry development component of the RIMS. These include:

- market evaluation and marketing strategy for West Indian cherry-based fruit juices
- market analysis and strategy for cassava products from Montserrat
- study of the beef market in Trinidad and Tobago, and opportunities for the Jamaican beef industry in Trinidad and Tobago

- analysis and strategic plan for the hot pepper industry in the Caribbean
- strategic plan for the establishment of a national export services facility in Trinidad and Tobago
- strategic and development plans for the Caribbean craft industry in Dominica
- agribusiness development plan for the government of Trinidad and Tobago
- market analysis and strategy for the rabbit industry in Trinidad and Tobago
- feasibility of a dried fruit and vegetable industry in Trinidad and Tobago
- co-ordination of analysis and policy framework development for the organic industry in the Caribbean
- business analysis and establishment of marketing information system for Black Bay farmers' association in St Lucia
- marketing development plan for the hot pepper industry in the Caribbean
- agricultural development plan for the Goldsborough and Hillsborough districts in Tobago
- analysis of the opportunities for the essential oils industry in Trinidad and Tobago
- strategic framework for development of the agribusiness sector in OECS.

Joint export marketing programme

The strategic framework for the implementation of this programme has been prepared. The strategy calls for the establishment of Caribbean food-buyers' associations (importers/ethnic shops/restaurants) in major cities in the Caribbean, North America, Europe and Asia, and the establishment of information-sharing agreements with the CAMID network. Through the CARICOM secretariat, CAMID has initiated action with the Caribbean American chamber of commerce in New York and the Southern Diaspora Research and Development Centre (SDRDC). Through this initiative, a draft memorandum of agreement has been prepared between CAMID and the southern caucus of NGOs for sustainable development and its regional centre in North America, Latin America, Africa, Asia and the Caribbean. Under this agreement, the SDRDC, based in New York, will function as CAMID's arm in the north-eastern USA. The agreement also covers a mechanism for sourcing funds for investment, in marketing development projects, as well as in regional agricultural production, food-processing and agro-tourism ventures. Progress towards the establishment of the New York Caribbean Restaurant Association is also being made.

CAMID will partner with CABA, which is expected to take the lead in the joint marketing programme, in the further development of this initiative.

The CAMID secretariat has also partnered with Integrated Trade Solutions in the development of **e-commerce software**, which will be an integral part of the joint marketing programme.

Financing

Since its official launch in May 2001 the network has been able to finance its operation through donor funding, which has amounted to US\$457,000; consultancies, which have generated income of US\$194,000; and in-kind support from CARDI, in the form of office facilities and the financial administration of donor funds.

From very early in CAMID's conceptualisation/development, CTA has been a major contributor. To date, the network has received just over €62,000 from CTA. Donor funding for the network has also been received from FAO, USAID and IICA.

Future strategy

Programme

The new focus of the network will be to become an agribusiness information centre, which will establish and strengthen relationships with public- and private-sector marketing information organisations, regionally and internationally. The main functions of the network will be co-ordination of:

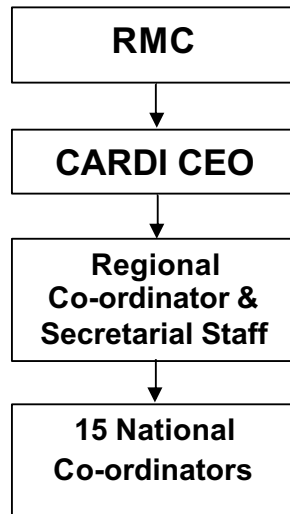
- a market demand and supply forecast service
- the regional agribusiness planning database service
- a regional freight availability database service
- a quality assurance database.

A significant amount of work remains to be done in facilitating the establishment and/or development of producer and buyer organisations, which are prerequisites for efficient and reliable data collection within and outside the region. In this regard, the network will need to work more closely with private sector bodies such as CABA and supermarket, hotel, restaurant, exporters' and agro-processors' associations within and outside the Caribbean. Given that the members of these organisations are the main sources of reliable marketing information, a memorandum of understanding will have to be established with them, particularly as it relates to information sharing and how such information will be used.

Organisational structure

The secretariat will be managed within CARDI via the organisational structure shown in Figure 1.

Figure 1: CARDI organisational structure



The national co-ordinators will ensure the effective functioning of the national components of the network's programmes and provide support to network projects.

Financing and sustainability

It is recognised that the network must be partly self-financing in the longer term, through the sale of services. Over the next 2–3 years, as it builds its capacity to deliver its services, it will require additional development support. In the longer term, the network proposes to finance its operations through the following mechanisms.

- **Government.** In each country, government is expected to assign one full-time staff member, either from the agricultural marketing development agency or from the ministry of agriculture, to function as the national network co-ordinator and assist with the operational costs of running the network.
- **Fees from use of forecasting software.** Buyers including packing houses, processors, exporters, importers, wholesalers and retailers would be required to pay for use of the software and access to the non-proprietary component of the information on the database.
- **Fees from access to the planning database.** Regular users of the database will be required to pay an annual subscription to access all of, or components of, the database. Less regular users will be required to pay for specific information.
- **Fees from use of the freight database.** Users of the database will be required to pay an annual subscription fee.
- **Funding from development agencies.** Development agencies will be asked to provide funding to support the development of the network over the next 3 years, when the network will be developing the quality and scope of its services, and to finance projects that the network will submit from time to time.