



## Summary Report

### Workshop 1

#### Innovative technologies in support of water resource management in the South

*The workshop was led by Pierre Fauré of the association “Mediterranean Exchanges for water, forestry and development” and Billy Troy, Director of the Water Project, FARM Foundation.*

#### *Participants:*

- Hassan Kemmoun of CapRural
- Marcel Kupper of CIRAD
- Three farmers from Morocco
- Chris Sherring, Vice-Chairman of the company WorldWater

#### **Water conservation for all: trials for the approval of drop-by-drop systems in Morocco**

Projection of the film “Water conservation for all”.

In Morocco, water prices continue to rise and irrigation is becoming increasingly expensive, leading to the closure of a number of agricultural operations and the exhaustion of groundwater in a context of persistent water shortages. The installation of drop-by-drop systems prevents any wastage of water, and ensures the regular delivery of water to crops in sufficient quantities. These systems improve yields, obviate the need for the drawing of groundwater and can become cost-effective within three years, particularly with the support of government subsidies. Results have fallen short of expectations: of the 114,000 hectares due to be equipped, only 34,000 have been converted, including 25,000 under the terms of previous national programmes. This outcome is attributable to inadequate levels of subsidy and an excessively complex procedure. To improve the situation, subsidies will be increased and a new project for the equipment of 45,000 hectares has been launched. Drop-by-drop systems have been installed on land which is shared by a number of farms within the same cooperative. Farmers themselves are responsible for the implementation of the system.

#### **Chip cards and solar power: the WorldWater project in the Philippines**

Water pumping technology installed by WorldWater in the Philippines is used by farmers for irrigation. Users of the scheme employ a card system for the acquisition of water, as they would from a distributor. Surveys have shown that, while Philipinos were reluctant to pay for electricity, they were prepared to pay for water. The WorldWater system is aimed at small communities. Chris Sherring has emphasized the importance of community involvement to the effective operation of the system. An engineer is responsible for the management and collection of data recorded in pumps. The WorldWater system involves local banks in the card management process. The community is extensively involved in the supervision of the effective operation of the system. Pumping is more cost-effective, thanks to the use of solar power as an independent power source.

### Workshop 2

#### Space technologies in the service of Southern countries

*The workshop was led by Gérard Begni, specialist in the Environment and Sustainable Development, CNES [French national space agency]*

#### *Participants:*

- Youba Sokona, Executive Secretary of the Sahara and Sahel Observatory

-*Didier Rigal, Director of Sustainable Development, Spot Image*  
-*Olivier S n gas, Unit Manager UNOSAT*

Between 400 and 800 million human beings suffer the effects of desertification and the degradation of soils. In response, projects for the use of satellite data are being developed in Africa.

### **Understanding and monitoring of desertification**

Youba Sokona, Executive Secretary of the Sahara and Sahel Observatory noted that there are two key issues in Africa: water and the degradation of soils. These natural resources are over-exploited, leading to the impoverishment of the population. The poorer the population is, the more these natural resources will constitute their only wealth. The degradation of soils, for example, represents a genuine problem: 7 kilos of fertilizer per hectare are used in sub-Saharan Africa, as against 60 kilos in North Africa, and soils are substantially degraded as a result. In consequence, the area of agricultural land is reduced, leading to the migration of populations. In Africa, ecosystems are very fragile, and a general and technical understanding of their dynamics is required. In sub-Saharan Africa, the monitoring of desertification is particularly key to the decision-making process and the identification of comparative benchmarks. In this context, it is essential that appropriate information systems should be available, such as the drought early warning system developed by the SSO, which associates satellite images with observations in the field and combines climatic, geological and socio-economic data. The latter are particularly useful to the definition of policies to be implemented. An information system is also essential to the evaluation of the impact of policies and development projects upon the condition and degradation of soils.

### **Use of satellites for the reduction of vulnerability to natural risks**

Olivier S n gas, Unit Manager of UNOSAT, observed that this operational programme of the United Nations Organization has been conducted in collaboration with a network of space agencies.

UNOSAT is active in over 70 countries, and conducts high-speed mapping initiatives for the production of maps of natural catastrophes, such as tsunamis, within a few days. This organization is also involved in the installation of Internet connections in the field, given that, as Olivier S n gas has observed, it is the populations who are most affected by natural disasters who have the most restricted access to Internet connections.

In the Matagalpa region of Nicaragua, UNOSAT has developed territorial mapping resources for a risk management system: digital modelling of dynamic factors associated with land use and the river is used for the simulation of floods. At the same time, information and training of the population improves their perception of risks. The population is genuinely involved in the deployment of this risk management system, specifically through the conduct of participatory meetings, and has now adopted a pro-active attitude.

### **Use of satellites for the monitoring of agricultural production**

Didier Rigal, Director of Sustainable Development at Spot Image, described the various factors which affect the security of food supplies in the South: global warming and changes in precipitation are associated with problems of water availability, which has a direct impact upon the physiology of crops and livestock; finally, rising demand for renewable energy may represent an opportunity, but also poses a potential hazard to agriculture.

Two Spot Image projects are aimed at securing global food supplies. The first, FARMSTAR, conducted in collaboration with EADS and ARVALIS, uses satellite data to support crop management; the second, AGRIPAK in Pakistan, supports the national decision-making process: by the stratification of the landscape and through the use of land surface statistics, the government can determine whether it is preferable to import or export cereals.

### **Reactions from the floor**

Further to the interventions of Didier Rigal and Olivier S n gas, the issue was raised of the purpose of new technologies: it was questioned whether these technologies might simply function as external spectators to a problem, with no capacity to resolve the latter.

Olivier S n gas indicated that integration of associated technologies in a participatory process has, for example, raised the awareness of populations to risks, thereby allowing these populations to adopt a preventative attitude. Technologies will respond to requirements which emerge in the field.

## Working session

### How to promote the development of virtual markets in the South

The working session was led by Bernard Bachelier, Director of FARM, Eric Pasquati, research officer at FARM, Alexandra Laurent and Irene Musselli, specialists in primary products at UNCTAD.

#### Participants:

- Patrice Annequin, specialist in marketing and marketing information systems for the International Centre for Soil Fertility and Agricultural Development (IFDC)
- Edgardo Herbosa, director of the company b2bpricenow.com
- Thomas Oberthür, researcher at the International Centre for Tropical Agriculture (CIAT)
- Norbert Niedhauser, information management officer at the CIAT
- Mark Davies, director of Busylab

#### Electronic marketing information systems in the South

Eric Pasquati summarized the basic characteristics of marketing information systems: these provide a facility for the transmission of strategic economic information to small-scale producers in the South. Their purpose is to increase the revenue of these producers by improving the following: their capacity for negotiation, planning and production management, together with the selection of crops in accordance with market trends. These systems must therefore disseminate reliable and relevant information at an appropriate time for decision-making purposes. Information is exchanged on the price of goods, inputs, transport, standards, etc. If a MIS is to be effective, information must be collected on a regular basis, and must be correctly processed, analyzed and circulated. Eric Pasquati demonstrated the diversity of these systems by reference to various examples from different continents.

- Infoshare in the Cameroon was established by UNCTAD. Costs are minimized through partnership with the National Office for Cocoa and Coffee. Infoshare is aimed at coffee and cocoa producers, and uses export income to finance the circulation of information to these producers.
- TradeNet is an Internet site which circulates information on market prices and offers of sale or purchase via mobile phone. Rural relay systems ensure the accessibility of the system, and it is possible to constitute virtual groups for the improvement of commercial relations.
- Echoupal in India transmits information of various markets, including markets for agricultural inputs and meteorological information. This platform operates in partnership with micro insurance institutions to provide services which are essential to agricultural operations, simply and cost-effectively.
- b2bpricenow.com provides an on-line purchasing service, and its partnership with rural banks promotes the "bankarisation" of the poorest farmers.
- The objective of the CinfO system is the establishment of high-quality coffee production operations in Colombia, through the promotion of interaction. The system aims to enhance the added value of products by adapting these products to demand.

The provision of access to information is essential, and involves a number of factors:

- Access must be continuous – it is essential that various partnerships should be organized for this purpose.
- The various requirements of producers must be met by the provision of a variety of information and services.
- Limited infrastructures must be taken into consideration.
- Finally, adaptation to the socio-cultural context will be required.

#### A data base for the most disadvantaged users

Alexandra Laurent, a specialist in primary products at UNCTAD, explained the imbalance in marketing information: some have too much information and others not enough. Information is also partial, comes at a price and is not sufficiently detailed: it is lacking, for example, in historical context or objectivity. Infocomm, operated by UNCTAD, is an international Internet portal, while Infoshare is a local tool in the Cameroon, the object of which is the resolution of these problems. Infoshare is a

shared data base, which is accessible free of charge and is adapted to the needs of producers. Information collected is submitted to this site, and is then analyzed, processed and circulated for the establishment of strategies. Information circulated is both quantitative and qualitative (import/export prices, intermediate costs, trend curves, cultural practices, lists of players, standards, etc.). Cooperation with a public sector entity ensures neutrality, and allows the appropriation of the system by the government. Training is provided in the use and analysis of data. The project is in the pilot phase in the Cameroon, and the National Office for Cocoa and Coffee is the main partner. The strong involvement of ministries and local institutions will be essential to the success of the project. UNCTAD is responsible for the training of users, while the collection, entry and analysis of information are undertaken by the National Office for Cocoa and Coffee.

### **Encouraging regional trade in the South through an Internet site**

Patrice Annequin, a specialist in marketing and marketing information systems, described the use of the TradeNet site for the MISTOWA project. Local markets involve multiple players with limited interconnection, low production volumes and a diverse range of products. There is a lack of transparency, and prices are unstable. In consequence, the conservation of information is difficult. Many MISs have failed through the absence of partnerships, the lack of a sustainable economic model, or because they were aimed at authorities rather than directly at producers. A new approach is therefore required for the delivery of consistent information in real time by mobile phone and Internet, with decentralized peer-to-peer applications. The basis of this approach must be the community, commercial sectors and commercial interest groups. If it is to be sustainable, this system will need to be fee-paying, and must be tailored to the expectations of producers, in terms of information and services delivered. Patrice Annequin stated that the mobile phone represents a revolution for Africa, specifically with regard to the personalization of information. Coverage is also extensive – 60% of Africans have access to a mobile phone. By 2015, this access is expected to increase to 85% of the population. Notwithstanding, mobile phone applications are limited for the present.

TradeNet meets a genuine need, and has been highly successful. In future, this tool will be used for the more effective management of commercial sectors, the tracking of production, the archiving of transactions completed for future analysis and the evaluation of the impact of a MIS of this type, using information which is sadly lacking at present.

### **Working session**

*The object of the discussion was to provide responses to the following questions: “How is the development of virtual markets in the South to be promoted? How are commercial electronic platforms to be designed, deployed and perpetuated?”*

*The subjects of the four points discussed were as follows:*

➤Partnerships

*led by Edgardo Herbosa, director of the company b2bpricenow.com*

➤Adaptation to local conditions

*led by Thomas Oberthür, researcher at the International Centre for Tropical Agriculture (CIAT)*

➤Type of services and information provided

*led by Alexandra Laurent, specialist in primary products at UNCTAD*

➤Accessibility and distribution

*led by Patrice Annequin, specialist in marketing and marketing information systems for the International Centre for Soil Fertility and Agricultural Development (IFDC)*

### **Initial summary of conclusions:**

To conclude the working session, a summary of conclusions was presented by each of the session leaders, who were invited in turn by Eric Pasquati to describe the key themes of the points under discussion. All this information was subsequently organized and collated into a complete summary presentation, delivered at the end of the afternoon by Eric Pasquati, Alexandra Laurant and Irene Musseli.

## **Round table discussion** **Mobile phone and Internet:** **potential applications for developing countries**

*The round table discussion was chaired by Jean-Paul Hébrard, director of TV Agri.*

**Participants:**

- Olivier Longué, director of Action Contre la Faim, Spain
- Edgardo Herbosa, director of the company b2bpricenow.com
- Thomas Oberthür, researcher at the International Centre for Tropical Agriculture (CIAT)
- Norbert Niedhauser, information management officer at the CIAT
- Leon Van Mullekom, director general of BASF Turkey
- Patrice Annequin, specialist in marketing and marketing information systems for the International Centre for Soil Fertility and Agricultural Development (IFDC)

**Appropriation of new technologies in the South**

Olivier Longué explained that Action Contre la Faim (ACF) is a NGO which conducts initiatives in response to emergency situations, but also for the development of the capabilities of developing countries. Today, the provisions of information, and the selection of the optimum channels for its delivery, are essential considerations.

ACF, as a global reference authority for nutrition, requires a diagnostic function which is reliable, rapid and global in scope in order to save the lives of 30 million people throughout the world who are affected by acute malnutrition, and are in danger of dying in consequence. An initial diagnostic process at a very early stage is essential to the identification and control of the causes of hunger, whether these result from poor food supply practices, wars or socio-cultural conflicts. In Lesotho, the ACF has launched a nutritional survey, conventionally conducted in hard copy format, using information and communication technologies, such as the PDA. By this method, the analysis can be completed in 10 days rather than 7 months, as previously, following the rapid centralization of data in the capital, Maseru. The use of PDAs is a time-saving measure, essentially because local personnel can be rapidly trained in their use, thereby allowing the survey to be conducted on an independent and local basis. Geographical coverage is also more extensive, thus improving the representative qualities of the survey. Finally, thanks to the PDA, inquiries are far more closely allied to actual social and cultural conditions, with the more effective consideration of specific local factors and data integration.

**Freedom from banking services through the availability of a virtual market place**

Philippino farmers and fishermen are faced with various problems: knowing what to produce, where to sell it and at what price. They have no access to financial services, and sell their produce by means of unsecured transactions. The b2bpricenow.com site publishes market prices and offers for sale, in order to allow Philippino producers to respond more effectively to market expectations and arrive at an optimum selling price. This site involves both electronic and mobile commerce, conducted via the Internet and mobile phones respectively. Farmers can complete the entire selling process using these resources, and can receive money on their mobile phones, in which case they will be alerted by a SMS message. This money can then be accessed using a credit card which is supplied by the system. Transfers of this type are made possible by the existence of cooperatives who hold accounts at the Land Bank of the Philippines and who receive deposits to their own account before redistributing the money to farmers via the Internet site. The partnership with the Land Bank is particularly strategic, as it not only dispenses with financial services, but also allows easy access to a significant number of farmers and fishermen. Clients who do not hold an account with the Land Bank can still complete settlements via the b2bpricenow.com system, provided that their own bank holds an account at the Land Bank.

**Linking global players in a given sector for the differentiation of production: the CIAT DAPA project**

Thomas Oberthür explained, with reference to a survey, that differentiated products account for a substantial proportion of market value, while representing only a limited volume of goods sold in the bulk distribution sector. There is strong demand for these products and, in consequence, the expansion of their production might usefully be pursued in developing countries. The differentiation of products is associated with their inherent characteristics (quality of raw materials and the transformation process) or with symbolic attributes such as origin, the existence of a direct link between producers and purchasers, quality labels, etc. In order to differentiate products, action may therefore be taken in respect of their inherent characteristics or their symbolic attributes. In the first case, analysis will be required of impacts upon crop management, the environmental characteristics of the plot and, specifically, the transformation process. In the second case, the deployment of

traceability systems will be required, together with the maintenance and highlighting of the specific features of production. Information systems will be essential to these mechanisms. In response to falling prices in Colombia, the CIAT has attempted to promote lucrative and high-quality coffee production in response to the specific expectations of coffee consumers, as a means of generating a sustainable increase in the income of producers. The CIAT has therefore assisted farmers in the introduction of selective harvesting, and in the processing of their coffee for the production of characteristics which are consistent with the tastes of consumers, of which Colombian farmers have no knowledge. At the same time, the CinfO Internet site provides on-line access to the specific characteristics of crops from participating farms in the project to coffee roasters throughout the world, thereby allowing the creation of new outlets. All parties in the chain are connected to the central CinfO system via the Internet, while farmers can access the system in the field by means of a PDA or SMS messaging. The PDA interface has been defined in consultation with producers, who were asked how they envisaged this interface. The project has made farmers aware that their income is more dependent upon quality than quantity.

### **Meeting market requirements through an Internet-based management tool**

In 2005, Turkish vines were affected by disease, and producers were unable to export their grapes on the grounds of a MRL (*Maximum Residue Limit*) in excess of international standards, even though it was proved that exceeding the MRL posed no hazard to persons. Pesticides had been poorly applied by producers, due to a lack of knowledge. In order to rectify this problem, BASF has implemented a system for the use of farmers, which allows the more effective management of crops and crop protection. This system also allows the traceability of grapes, as a means of reassuring consumers. This system has been set up by an independent information services company: it can be accessed via the Internet anywhere in the world, in a number of languages, by all agents in the sector and by consumers. Data may be entered by mobile phone or PDA, directly in the field. Under the terms of this project, BASF also undertakes the training of farmers and works in collaboration with local technical advisers. This system has enjoyed a clear success – in 2007, the income of participants increased by 30 to 50%, with a significant reduction in the quantity of pulverized product.

### **Accessing market information in a rural zone**

In West Africa, intra-regional trade is highly limited, notwithstanding its substantial potential. The MISTOWA project in West Africa is intended to increase this intra-regional trade through the development of marketing information systems (MISs), supported by ICTs, the media and private sector involvement. Communications and publicity concerning MISs, which have traditionally been lacking, will need to be developed. The availability of specialized and dedicated personnel will also be highly beneficial. The MISTOWA project has used the TradeNet platform, and has undertaken a programme for the installation of rural kiosks (agricultural information points), together with the training of staff for these kiosks, who provide a genuine point of contact between farmers and technology. For niche operations, information and communication technologies are particularly essential, in order to allow operators in the sector concerned to manage supply and demand. ASNAAP (*Agribusiness in Sustainable Natural African Plant Products*), a marketing information system for medicinal herbs and spices such as Griffonia and Voacancia in West Africa has been established by this method.

### **Summary of conclusions from the working session:**

*Conclusions for each item were summarized at a plenary session by Eric Pasquati, research officer at FARM, Alexandra Laurent and Irene Musselli, specialists in primary products at UNCTAD.*

#### Partnerships

Discussions focused on the benefits of partnerships, whether private partnerships only, public partnerships or mixed partnerships.

The promotion of an exclusively private sector system will allow the reduction of costs, whilst increasing growth and efficiency. Mixed partnerships combine the benefits of fostering private initiative with the independence and complementary interaction of players in the system. In this case, it is important to select collaborators who will provide the most effective response to requirements.

Public partnerships are very important, as they guarantee the transparency of systems, are adapted to specific local characteristics and can operate on a variety of scales.

Accessibility and distribution

Distribution in the field is limited, and the social penetration of technologies poses a problem. New technologies will need to be associated with conventional technologies and use existing networks for the communication of information and the training of active participants within the community, who will then be able to assume a system liaison function.

Nature of services and information

While price is the primary item of information sought, the notification of intermediate costs is equally important. Information on volumes and quality standards, together with the exchange of agronomic advice, will be equally beneficial. The key factor is the quality and relevance of information, which must be matched with requirements.

The keys to success are responsiveness, onward referral and the training of users: it is essential that small-scale producers should be aware of intermediate costs, if they are to be more competitive.

Adaptation to socio-economic context

Consideration will need to be given to conflicts between increasing revenue and the reduction of poverty: care must be taken to avoid a simple transfer of technologies, with no adaptation to local conditions and requirements. Populations must be able to appropriate the system for the development and reinforcement of local expertise.

Solutions proposed involve evaluation, analysis and adaptation to requirements, using existing resources as a starting point and obviating any unnecessary and full-scale reconstruction. Techniques will need to be developed on a participative basis, encouraging the role of rural organizations.

In conclusion, Irene Musselli emphasized the importance of delivering supporting methodologies for these systems, and for the utilization and appropriation of information supplied. Three factors are essential to the sustainable development of MISs: technologies, the onward referral of information and the development of expertise. Irene Musselli compares these systems to a vehicle *en route*: technological tools are comparable to a car, which will require roadways, staging posts and “fuel” (training) if it is to progress. The human dimension represents a communication channel which should not be ignored. Finally, these technologies should provide a means of social inclusion, and care should be taken to ensure that they do not result in further exclusion.

**Promoting the development of partnerships****Official signature of the protocol for the constitution of the Europe-Africa Institute***Participants:*

- *André Loechel, President of the Fondation des Territoires de Demain*
- *Ibrahim Gueye, representative of the Europe-Africa Institute*
- *Laura Garcia Victoria, President of ARENOTECH, scientific direction of the Fondation des Territoires de Demain*
- *Alain Ponroy, Vice-president of the AINAF (Association of Digital Initiatives for Administrative and Financial Management)*
- *Mr Ndiobo Diene, Technical Adviser to the Minister of Agriculture and Stock-rearing of Senegal*
- *Mrs Dia, representative of the Consul of Senegal*
- *Eric Labonne, President of the AINAF*
- *Mamadou Diop, President of the ISEGI CESMI*
- *The Senegalese Deputy for the Exterior, representing Mr Alelo, President of the association of local elected representatives of Senegal*

The constitution of the Europe-Africa Institute symbolizes a commitment to the development of “digital twinning” operations by the Republic of Senegal and a number of collaborative organizations (Associations of Local Elected Representatives of Senegal, the European Network of Digital Towns, ARENOTECH, ISEG/CESMI and the Association of Digital Initiatives for Administrative and Financial Management). Access to new technologies in Senegal is now essential to the administration of its organizations, the digitization of public records or the constitution of African networks of digital towns for the pooling and coherence of digitized identities.

To conclude the day, a partnership contract was signed by the Territories of Tomorrow association, the Europe-Africa Institute and representatives of the Senegalese government, specifically for the promotion of the digitization of public records in Senegal and the establishment of digital solidarity centers for the dissemination of ICTs in the municipalities and rural communities of Senegal.

