Centre Technique de Coopération Agricole et Rurale ACP-UE
Technical Centre for Agricultural and Rural Cooperation ACP-EU
CTA

The role of information for rural development in ACP countries: review and perspectives

Proceedings of an international seminar

Montpellier, France, 12-16 June 1995

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Technical Centre for Agricultural and Rural Cooperation (ACP-EU)

The ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA) was established in 1983 under the Lomé Convention between the African, Caribbean and Pacific (ACP) States and the European Union Member States. CTA's tasks are to develop and provide services that improve access to information for agricultural and rural development, and to strengthen the capacity of ACP countries to produce, acquire, exchange and utilise information in these areas. CTA's programmes are organised around three principal themes: strengthening ACP information capabilities, promoting contact and exchange of information among partner organisations and providing information on demand.

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Preface

From 12 to 16 June 1995, the Technical Centre for Agricultural and Rural Cooperation (CTA) organised an international seminar in Montpellier (France) on "The role of information for rural development in ACP countries: review and perspectives".

This international meeting took place a little more than 10 years after the first CTA seminar organised, in Montpellier, on "Scientific and technical information (STI) concerning agricultural and rural development in the ACP countries" (1984).

The "Montpellier 2" seminar had two main objectives:

1. To look ahead to the evolving information needs of ACP countries over the next 10 years, and to necessary changes in the supply of information and in its production and dissemination. This process of reflection drew upon analyses of the major trends in rural development in the years to come, and in information activities in both the North and the South.
2. To put forward strategic options for adapting CTA programmes towards rural information, taking into account the CTA's achievements since the "Montpellier 1" meeting in 1984, the Centre's mandate and the results of the evaluation of information needs of the ACP countries.

The seminar was directed by an international Steering Committee (see Annexe 3) composed of:

- Mr Bernard Bachelier, French Ministry of Higher Education and Research;
- Mrs Margot Bellamy, CAB International;
- Mr Pascal Berqué, GRET;
- Mr Jean-Claude Burguet, CTA;
- Mr Alioune Camara, IDRC;
- Mr Jean-François Giovannetti, CIRAD;
- Mr Michael Hailu, ICRAF;
- Mr Dominique Hounkonnou, CTA;
- Mr Marc Lévy, GRET;
- Mr Thiendou Niang, CTA;
- Mrs Elisabeth Paquot, GRET;
- Mr Ulrich von Poschinger-Camphausen, ATSAF;
- Mr Philippe de la Saussay, French Ministry of Higher Education and Research;
- Mr Milorad Stepjanovitch, ORSTOM;
- Mr Jacques Sultan, FAO.

The seminar was prepared and led by GRET, and the local authorities provided meeting facilities. There were more than 70 ACP and European participants:

- researchers, experts, technicians, extension workers and staff of NGOs and rural associations;
- communication professionals in documentation, journalism, publishing, and new information technologies;
- directors of information policies and programmes for rural development;
- directors of development policies and programmes for information for rural development.

These proceedings comprise two clear sections:

- Part 1 reports on the collective work undertaken at the meeting, as well as the recommendations adopted by participants;
- Part 2 contains the six preparatory studies undertaken to help focus the process of reflection and discussion at the seminar.

PART 1
Proceedings of the seminar

Conclusions and recommendations

1. The challenges and the issues

The ACP States have embarked on a period of rapid change, in which roles and responsibilities are being redistributed. The State is withdrawing from economic activities in favour of the private sector, while its role of providing broad direction, and of being an arbiter, needs strengthening. The process of economic liberalisation has gone hand-in-hand with a movement of democratisation, and a consolidation of civil society. Decision-making powers have been decentralised to local authorities.

The population of ACP countries will double in the next 30 years. During this period, all aspects of transition will have to be dealt with simultaneously:

- technical change, to attain the increases required in productivity in agriculture, and industry;
- economic change, to develop a market economy and private enterprise, and to create employment;
- social change, to reduce poverty and inequality;
- cultural change, to consolidate shared commonalities and to avoid excessive, and potentially divisive, insistence on cultural specificities;
- political change, to complete the democratisation process, and to make development an issue shared by all, with a place for all.

To manage this transition without major social crises, and to improve food security without exhausting natural resources, all the actors involved will need a high degree of adaptability. They will need to understand, anticipate even, fast-moving trends, so as to adopt correct response strategies. In this context of rapid change, information policies and strategies take on added importance. The accessibility, diversity and rapid circulation of information are key elements for enabling all parties to adapt. It is the modes of communication available that will determine the extent to which the processes of dialogue, negotiation and communication, between the different parties involved, can be strengthened.

2. A new role for information and communication in rural development

Ten years ago, the priority was to make available, to ACP countries, appropriate scientific and technical information from sources often located in Europe. The beneficiaries of this information were usually central, or intermediate, players: planners, researchers, trainers, extension workers, and information managers. Since then, there has been a far-reaching evolution in information and communication needs, in the nature of the players, in the role of information professionals, and in information technology.

2.1 It is now better to talk of actors and partners, and no longer of the target groups and beneficiaries of information policies. New information strategies should be based on rapid circulation of information between actors all of whom are both its providers and potential users. People in rural areas are themselves becoming major players in producing and disseminating information, most notably through local associations and professional groups.

2.2 Information strategies should expand to new partners: associations, non-governmental organisations (NGOs), enterprises and local authorities. These strategies should respond to **the new needs of the players, ever more numerous, exact and diverse**. The position of the information intermediary is no longer a unique link in information chain strategies. These now have to include direct links with those involved in rural development, particularly the new economic actors of local associations and enterprises, and the new decision-making centres in local authorities.

2.3 It is time to switch to information for rural development, and away from scientific and technical information, to information that includes the economic, technical, social and cultural aspects of development. Information services and products should serve as both:

- tools for knowledge, circulating learning, know-how, innovations, experiences at local, national, regional and international level;
- tools for decision, assisting the actors in their strategic and operational choices, at all levels, from the field to top decision-makers.

2.4 It is important to broaden the notion of information to that of communication for development. The parties involved need more than information products and services. Elements such as dialogue, debate and working relationships between them play a major role in development. It is important to promote such communication at all levels: local, national and regional.

2.5 A growing and essential role must also be played in communication for development by the media, the private sector, and by associations, at local and national level. Traditional methods of information dissemination, through extension workers and documentation centres, need to be enhanced with other methods. The independent agricultural service sector, as well as associations, will play an increasing role in the production and dissemination of information for development. The media, and the publishing sector, should be involved more in communication and information for development.

2.6 New information technologies, especially those of electronic networks and digital storage and transfer, have greatly increased possibilities for information transfer and communication on both North-South and South-South axes. These modern technologies offer new and multiple perspectives, such as faster, and better focused, access to information, and setting up networks for direct, unmediated communication between various parties. A "technology watch" service will be necessary, in order to track the evolution of these technologies, and to enable ACP countries to draw maximum benefit from them.

2.7 It is essential to decentralise access to information, and to create local information and communication services and products alongside the current trend of decentralisation of responsibilities. Such services should be diversified into such elements as local documentation and information centres, and community-based radio and press.

2.8 There is a need for overall information and communication policies and strategies. These will be most effective at national level, where they should be established as a matter of priority. The existence of national information policies will also serve to clarify the division of the roles and tasks between the private information sector, which needs to grow, and the public sector which should aim to guarantee access for all to quality information.

2.9 Information from European sources can have a significant impact only if it is part of a chain of production and distribution at national and regional level. It can continue to play an important role in the production and dissemination of information useful to rural development in ACP countries. However, the

chain of producers, intermediaries and distributors needs to be strengthened within ACP countries, in the public, private and independent sectors.

3. Research and development: towards new partnerships

There will be significant and rapid changes in the roles and tasks of farmers' associations, extension workers and researchers. As a result, they will need to develop new forms of working together, new partnerships.

3.1 Farmers' associations, and their federations, NGOs, enterprises and local authorities all need "topical information services" on markets, and on economic, technical and legal trends and development. Such services could be modelled upon the programmes of selective dissemination of information developed for researchers, but they should use a broader range of technical options for dissemination.

3.2 Experimental programmes should be established with multidisciplinary teams of researchers and communicators to develop, test and prove decision-making support tools for use by national and local authorities, associations, support organisations and enterprises.

3.3 Training will play an important role in meeting the information needs of the new actors in rural development. It can have the dual objectives of training associations and NGOs in the production of written, visual and sound material, and in searches and best use of available information.

3.4 In order to enhance the accessibility of information, there is a need for **specific work to be undertaken on the use of national languages, and on involvement in literacy programmes**, especially with regard to instructional materials.

3.5 The traditional notion of extension work is making way for the approach of "animation" and advisory services with farmers. This involves a number of different parties: the public sector, the private sector and associations and independent sector bodies. Support to professionals in this field should take into account the diversity of the actors.

3.6 To fully face the challenge of their role as "animator-cum-adviser", the professional worker has significant needs in both training and information. These include understanding the range of technical options, the ability to combine technical, economic and social information; skills in communication and "animation"; and the ability to use, indeed produce, materials for use in village-level discussions and debates.

3.7 The research community will need to deal with three crucial issues:

- **ensuring proper linkages between research bodies at national, regional and international level**, with a combination of task specialisation and permanent flows of information among the centres concerned;
- **close collaboration between researchers, farmers and national bodies in the identification of research topics**, tracking projects, evaluation of results, and even their participation in the implementation of research projects;
- **undertaking genuinely multidisciplinary research,** which brings together technical, economic and social aspects, and draws upon both modern and traditional knowledge.

3.8 There is a need to facilitate information exchange and flow among researchers at national, regional and international level through electronic networks, peer group meetings, and support to national and regional scientific publications in ACP countries.

3.9 It is also necessary to promote contacts and dialogue between researchers, local and national development planners, farmers' associations and the "animator-advisers" of rural development. These can take place in various forms such as meetings, communication networks and exchanges in the public media.

3.10 It is essential for national research centres to have access to regional and international databases and information sources. In this, the availability of modern communication technologies will be very important. Furthermore, it is necessary to establish local and national databases, with the emphasis on local knowledge.

3.11 It is important that researchers are able to disseminate their research findings in simple and accessible forms. There are several ways to encourage this: training in writing, support for establishing specialised press services, and greater use, by research centres, of journalists and publishers for disseminating information about their work for the widest possible public.

4. From information to communication: new professions, new roles

Far-reaching changes are taking place in the information and communication professions. In the last 10 years, the context for these professions has changed: liberalisation and democratisation have led to the creation of many private, local and community newspapers and radio stations. Local associations and NGOs have set up their own documentation centres and information services.

4.1 It is important that professional support activities are available for all those involved, whether they be in the public, private or independent sectors.

4.2 The key issue, for all professionals, is professional enhancement, in order to be more open to their social environment, to rural development questions, and to establishing working relationships with rural development and research services.

4.3 Documentalists face the challenge of becoming "animators" and managers of information. Their priority should no longer be in the collection, storage and processing of information, but in its application, dissemination and communication.

4.4 Documentation centres need to change their relationship with their operational environment. They should communicate directly and regularly with rural development support services, and with information agencies and services. **This means documentation centres becoming more user-oriented and undertaking active promotion of their services.**

4.5 Access to international databases and primary documents remains, of course, essential. **However, information managers will need to create and operate their own databases based on local user needs.** Local databases have a particularly useful role to play in this regard.

4.6 Training is essential, especially in training of the trainers, to enable this process of professional change for information managers. The scope of training programmes should cover needs assessments techniques, communication techniques, establishment and evaluation of specialised services, management and marketing of information, and new information technologies.

4.7 A useful contribution could be made by supporting professional networks between information managers and, in particular, with other information professionals.

4.8 The press, and rural and local radios, can be excellent tools for communication between rural communities, and between them and development and research services. They should be used, in particular, as a means for exchange. Special attention should be paid to community-based media.

4.9 Journalists, whether in the public, private or independent sectors, need to develop their professional skills and to adapt their working relationships with rural development services, the research community and associations. Training, exchange of articles and broadcast materials, and support in documentation can all be effective means of supporting journalists.

4.10 Support to specialised national and regional journals on rural development is essential, as is support to publishers and distributors in ACP countries. This support should include training and professional exchanges, as well as providing specialised information and documentation services. Use should be made of existing professional networks that provide effective channels for such support.

5. Linkage between different levels

At national level

Priority should be given to the elaboration of national information strategies. It is at the national level that information policies can have maximum impact and effectiveness.

5.1 These national strategies should be based upon processes of dialogue and coordination of various local and national activities. In this regard, all parties involved (the State, the civil society and the economic sectors) should actively encourage, and participate in, the elaboration and implementation of national programmes and strategies. It could be useful to establish national coordination committees.

5.2 Special efforts should be made to strengthen national capacities and to develop cooperation between national systems, in particular through technical support, training, resource mobilisation, and programme planning, implementation and evaluation.

At regional level

5.3 At this level, the focus should be on supporting existing organisations. They could assist in the establishment of consultative bodies for promoting cooperation between national actors and systems, and the development of specific skills of different countries. The Committees for Regional Agricultural Information Programmes and Strategies (CRAIPS), established on the initiative of the CTA, provide a good example of the type of flexible regional body that could be promoted.

At international level

• ***Promoting international exchanges***

5.4 The international partners of ACP countries should increase their investments in enabling exchanges between regions (inter-ACP) and on an international level (between ACP states and elsewhere). Special emphasis should be paid to promoting South-South and South-North exchanges.

• ***Monitoring technology***

5.5 In rural development the needs, the products and the technologies for "best practice" will all continue to evolve. It will be important to create, at the international level, mechanisms to monitor, in a permanent way,

the trends in needs and actors, in innovations, and in the evaluation of impact of various initiatives. The results of such analyses should be shared among all actors and partners.

• ***Promoting the role of information, and dialogue between partners***

5.6 In spite of positive changes, too little importance is still attached to the role of information for rural development, when compared with the import of the issues and the needs. It is vitally important to promote, at the international level, the role of information in development processes. To do this, it is essential to have available tools for measuring the effectiveness of communication activities. Such tools, to some extent, still have to be developed, tested and disseminated.

5.7 There is a need to develop light and flexible systems for dialogue between bilateral and multilateral partners in the field of communication for development. They should allow the exchange of information on working practices, impact assessments and successful experiences.

5.8 The scope of information for rural development is expanding. This trend, together with the growing information needs of small enterprises, points towards the need for greater dialogue between such organisations as the CDI and the CTA.

5.9 It is essential, at the international level, to establish greater concertation between bilateral and multilateral development organisations, on the one hand, and ACP countries on the other hand. This will allow the optimal interface between resources available for development cooperation and the needs of ACP countries with regard to information and communication for rural development.

Opening speeches

Jacques Blanc

Chairman, Regional Council of Languedoc-Roussillon

Gentlemen Chairmen, Gentlemen Directors,
Ladies and Gentlemen, Dear Friends:

I am especially happy to welcome you to Languedoc-Roussillon for the international seminar marking the 10th anniversary of the Technical Centre for Agricultural and Rural Cooperation (CTA ACP-EU), an organisation of parity between the European Union and the countries of Africa, the Caribbean and the Pacific.

I am not only happy, but equally proud. Proud to welcome you to the precincts of the Hôtel de Région for this inaugural session, and then, until Friday, in the premises of the Espace République in the heart of the regional capital.

I hope that you will see in this the stamp of a strategy that is affirmed by the Region of Languedoc-Roussillon. It is a strategy to support the regional scientific community, so as to strengthen our research facilities for cooperation with developing countries.

Through our culture, our experience and our economic and geographic situation, we here in Languedoc-Roussillon have a major role to play in the harmonious development of people and of nations.

This objective, which we have incorporated in our regional planning and development programme and which, by agreement between the State and region, aims to reinforce the excellence of the region's research potential at national, European and international level. It should be recalled that this research potential is ranked fifth among the regions of France, with some 9 000 researchers and teaching researchers.

Since 1986 we have developed and implemented a broad project of economic development that draws upon an inexhaustible and high-value source: our potential in grey-matter. Our first major ambition has been to identify the strong points in research activities in our region, in order to focus all our efforts and resources upon them, and thus to avoid the trap of excessive diversification. These strong points are:
- new communication technologies;
- computing, imaging, information technologies and electronic transmission;
- chemistry and materials;
- biology and health;
- agronomy.

I shall not seek to list these centres of excellence by order of importance. Nonetheless, it is clear that agronomy, and biology and health, given the urgency and gravity of development problems in developing countries, are naturally suited to international cooperation. Agronomy provides the best illustration of this, even though it took some time for it to be accorded priority in regional research.

In fact, despite the establishment here of ENSAM a little more than a century ago, then of INRA in 1949, the Mediterranean Agronomy Institute of Montpellier at the beginning of the 1960s, and of CIRAD, ENGREF,

CNEARC and ORSTOM during the 1970s and the 1980s, it is only since the middle of the last decade that Languedoc-Roussillon has been the seat of a patchwork of prestigious institutions (though not federated), and of an agricultural research centre capable of pooling skills in Mediterranean and tropical agronomy.

Here lies one of the essential issues for southern Europe: to play the "Mediterranean card" in agronomy and agro-industry, by developing the great potential of its intellectual power and know-how. Agropolis, which you visit this afternoon, responds precisely to this issue.

Let me confess something here. It is also a question of showing Europe, all of Europe, that the regions of southern Europe can be a useful counterbalance to the tendency of pulling the factors and resources of economic development to the centre and the north of the old continent. This can be done by creating a real pôle* of agronomy, specialised in Mediterranean and tropical research and technologies.

This card is, for the Region of Languedoc-Roussillon, a powerful element in its development strategy.

It is an ambitious goal. It requires working out the priorities for assistance to the development of the sector, and defining ways to increase the economic importance of plant production, not only in Southern Europe, but also on the southern shores of the Mediterranean and in tropical areas.

Today, Agropolis is recognised as a world centre in research and technology transfer in Mediterranean and tropical agronomy. At a time when planetary demographic trends are engendering a constant growth in food needs, this is indeed a significant issue.

The Regional Council has done more than simply define a strategy. It has also made financial commitments, and has done all in its power to gain positive funding decisions from the European Union. Besides being the prime contractor for the construction of Agropolis International and Agropolis Museum, we have participated, through broadly-based partnerships, in many developments: buildings for CIRAD's work on food technology, remote sensing and genetic engineering, support for programmes on seeds, arid zones and fruit research, the international complex for biological control, and the renovation of ENSAM.

Our plan for 1994-98 continues and expands this effort, with an expenditure of more than FF 94 million on Agropolis, with the creation of the Centre for Biology and Population Resource Management, the Institute of Water Sciences, the second phase of the renovation of ENSAM, and with the arrival of new departments of CIRAD.

In the space of 8 years—the past 4 and the 4 next—the Region of Languedoc-Roussillon will have allocated about FF 170 million for capital expenditure in the development programme of Agropolis.

This is an unprecedented financial effort, one which truly reflects the nature of our conviction that research is a factor in development which Languedoc-Roussillon plans to enhance, on condition that there are many opportunities for linkages with training and technology transfer.

Research is also, today, an expression of planetary solidarity. It addresses major challenges and questions that are shaping the future of civilisation, indeed of the species. Whether in health, environment, development, nutrition or spatial planning, research should look beyond the borders of specialisation.

Researchers should pool their skills, first of all, across the frontiers of disciplines, through using inter-disciplinary or multidisciplinary approaches. They should cross political and geographical boundaries, also,

*pôle = a collaborative and multidisciplinary research centre.

and join in a flow of cooperation and exchange so as to increase their own knowledge base, and to help strengthen their contribution in the international arena.

At a time when the international community has become aware of the gravity of global problems and of the need to solve them together, the European Union should play a key role. It is known to all that the solutions to environmental, developmental, health and population questions are a matter for international measures, in which political will and scientific advances cannot be dissociated.

Of this, your seminar is the most eminent demonstration. I am pleased that Languedoc-Roussillon is making its contribution to this great cause.

A P Conesa

Chairman of Agropolis

Mr Chairman of the Region of Languedoc-Roussillon,
Chairman of the Committee of the Regions of the European Union,
Directors, Dear Friends:

I would like first of all to welcome you and to congratulate the organisers, the CTA, for their initiative in this seminar. It is well-known that rural development in the countries of the South, and ACP countries in particular, is a fundamental issue for these areas where most people are engaged in agriculture, which is the basis of the economy. There are many demographic, ecological and socio-economic indicators to explain the difficulties in development, especially in those regions where there is a significant water shortage.

Rural development knows many parameters. It is not enough simply for a technique to work well in the laboratory for it to be adopted by the farmers. The problem of the transfer of innovations is such that it requires an overall approach, taking various constraints into account. In this process, the management of information is a determining factor in rural development. The evolution of communication technologies, if we look beyond the modish elements, is bringing significant change to the tools that we can use to evaluate needs and to define a strategy for the management of information in the future. In Cyberspace, the agora is as big as the world itself, borders are blurring, and anyone can access numerous databases, themselves planetary memories. How, in this Cyberspace, should our methods of communication and management of information evolve?

Agropolis is heavily involved in these issues, through its "agrarian systems" teams in CIRAD, ORSTOM, and INRA; through training to development projects in CNEARC and IAM in particular, and through economic development studies at ENSAM, IAM and the University of Montpellier I. In close cooperation with its member organisations, Agropolis is establishing a multimedia resource centre which is bringing together teams from IAM, CIRAD, ORSTOM, ENSAM, INRA and the University of Montpellier III, as well as the team of specialist journalists from the Syfia-Périscoop agency. We believe that this will lead to new synergies between the different actors in the information system in the area we all work in. As part of the approach, we are setting up an information server to make our federation more visible, with a presentation of the laboratories and the various teams, so as to facilitate access. Another server also deals with Agropolis Museum. This will bring the cultural dimension of rural development more to the fore, as one of the elements of our policy of information for the public at large.

I believe that, following the meeting organised here in Montpellier 10 years ago by the CTA, on scientific and technical information, your seminar now is particularly timely. I wish you every success in your work.

B Bachelier

Representative, French Ministry of Higher Education and Research

Mr Chairman of the Regional Council,
Director of the CTA,
Representative of the Secretary-General of the Committee of ACP Countries,
Chairman of Agropolis,
Chairmen, Directors, Ladies, Gentlemen, Dear Friends:

It is with great pleasure that I address you in this opening session of your deliberations. I do so on behalf of the French Ministers interested in your activities, and in particular the Minister with special responsibility for Cooperation, and the Minister for National Education, Higher Education, Research and Professional Integration and, within this particular Ministry, the Secretary of State for Research.

Let me, for my part, welcome you all to this seminar, and in particular our friends from Africa and our European partners. We are happy to welcome you in France. Please accept my wishes of friendship, care and affection. In addition to these cordial greetings, I wish also to stress that, in the eyes of the French Government, the Montpellier pôle is an open campus, offering possibilities of welcome and exchange for acquiring and spreading knowledge.

We have brought together, here in Montpellier, development research and training teams, in particular those of ORSTOM, CIRAD, CNEARC. We did so in part to increase efficiency but, above all, to allow our foreign partners to easily locate here, together, the skills they may wish to access. It is an ambitious project, long and exacting, and one which is supported as much by local government as by national government. It encompasses the European university pôle, the Agropolis complex, the international agro-ecology campus in Baillarguet, and the agro-sylvo-pastoral project of CIRAD, soon to be opened, upon the establishment of this organisation's forestry and veterinary growth here in Montpellier.

Let me assure those of you who come from Africa, the Pacific, the Caribbean and from Europe, that this place is your place. Use it as your own, come, work here, exchange ideas, take and harvest the information you need. It is information for you, and it is your information. And when you return to your home, we ask that you remind all your colleagues, your teams and your leaders, of the international focus, accessibility and openness of the complex of Montpellier.

France attaches great importance to agricultural research for development, to the advancement of agricultural production, and to the preservation of the productive capacities of natural resources. Research for development is mentioned as one of the priorities in the letter of appointment of the Minister with special responsibility for Cooperation. For her part, the Secretary of State for Research is personally committed to this topic.

Concern for this area is not only a national affair. It is also one of the European Union. For this reason, in the course of the present 6-month period of Union presidency, currently drawing to a close, France included it in

its priorities for action. And the Minister for Research launched an initiative in the field of agricultural research for development.

The initiative made agricultural research for development one of the two priorities for scientific cooperation, in the eyes of France, the other being Mediterranean relations. The aim of the initiative is to bring together the various parties in community, national, multilateral and international agricultural research. It entailed the development of a European strategy that the French Minister for Higher Education and Research presented to the high-level symposium convened by the CGIAR last February in Lucerne. The Council of Ministers decided on 9 June 1995 in principle to create a follow-up mechanism.

The Minister for Cooperation has also included this topic among the important issues in development assistance. At his request, the Directorate-General VIII of the European Commission put forward the major components of an action programme at the last meeting of the Council of Ministers for Development.

All this demonstrates our belief that the future of scientific cooperation must be seen at community level, and that it is by bringing together the capacities of the European Union, for coordination, synergy and coherent cooperation on joint projects, that European organisations will be effective for their partners.

This political framework is based on several firm beliefs, linked to your activities. Allow me, if I may, to recall them briefly:

- Scientific cooperation is primarily at the service of your countries' professionals, whether they be researchers, teachers, engineers, agricultural experts or industrialists. These are the people who, together with the farmers, will find viable solutions for real development. All our own activities in this field must aim to further initiatives by the concerned parties themselves. Thus we must make available a whole range of information, technical, yes, but also economic and cultural, scientific and practical. This information must help them take their own, informed decisions.
- Today, a regional approach is essential for agricultural policy and exchanges. It is not a question here of denying the national level; after all, we all belong, first of all, to a country, a national civil service, a national institution, more than we depend on a regional grouping. However, in Europe, as in Africa or elsewhere, we must always take regional cooperation and complementarities into account when dealing with partnerships, information exchange, investment and policy instruments. We provide support to regional networks and mechanisms, very much alive, created and run in partnership by solid, open national bodies. In the field of research, we support CORAF, ASARECA and SACCAR.
- You will establish networks; they should enable users to exchange information, and discuss and test it. Decisions, after all, become more mature through the exchange of ideas and the comparison of experiences.
- Reflection about rural development should also deal with its integration in the overall society and economy. The future of farmers is linked, on the one hand, to that of natural resources, and, on the other hand, to the evolving mass of consumers, overwhelmingly urban.

From this point of view, you should consider the needs of environmental planners and managers. You should also pay attention to the intermediaries between producers and consumers, and industrialists in particular. There are today, in your countries, a great many entrepreneurs in food processing and agro-industries. It is they who, undoubtedly, with their capacities for initiative, hold the future of African agriculture in their hands.

A seminar such as yours is an exceptional event, since it is an opportunity for reflection, but also because it gives you the possibility, indeed the responsibility, to draw up proposals that engage the future. The first Montpellier seminar put forward the analyses and defined the lines of action that have provided the basis for the CTA's work over the last 10 years. The stakes, then, are yours to play, the more so since the context, the

needs and the technologies have evolved in the last decade. The Ministers of France will take your suggestions seriously. Together with French organisations, they will do their utmost to help in their implementation.

The CTA is a model institution with its status of parity between the ACP countries and the European Union. If it is successful, it can provide the inspiration for initiatives for cooperation between the European Union and its partners.

In this connection, I would like to pay tribute to Mr Assoumou Mba and his team. Mr Assoumou Mba, the departing Director, has been remarkably successful at the head of CTA during two terms of office. Under his authority the CTA has played its intended role: to design strategy, define priorities and action, and to hand over the controls to the parties concerned. It was not easy, and he succeeded. Today, the CTA exists and is respected. I would like to congratulate Mr Assoumou Mba and to assure him of our respect and of the support we shall be pleased to provide in his future activities.

I would like next to tell the new Director, Dr R D Cooke, how pleased we are with his appointment, and to assure him of our support and availability. As a European, he is one of us. We are ready to help him to take up the challenge that faces him.

I would like, finally, to thank the Chairman of the Regional Council and his departments who have made available their superb premises, and who support French institutions and their European partners. We know that we can count upon the Chairman of the Committee of the Regions of Europe, and we thank him.

You have important work ahead, to engage the future. The success of your enterprise depends too on the efficiency of research and training. It can change the destiny of many people in the field. I urge you to include their interests in your deliberations. I declare this seminar open, and I wish you well in your work.

R D Cooke

Director, CTA

Mr Chairman of the Regional Council,
Chairman of Agropolis,
Representatives of the Ministers for Research and Cooperation,
Representative of the Secretary-General of the Committee of ACP countries,
Chairman and members of the Consultative Committee of the CTA,
Honoured Guests, Ladies and Gentlemen:

The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA) is pleased to return to Montpellier for this seminar on the role of information for rural development in ACP countries.

In fact, this beautiful city of Languedoc was host, a little more than 10 years ago, to the very first seminar organised by our Centre on this same topic.

That is why we wish, first of all, to thank the French authorities, both the officials of the Ministries concerned and the regional authorities, for not only allowing the holding of this present meeting but also for all of the facilities with which they have provided us for a successful meeting. In this light, we wish to thank, in particular, the Regional Council which has provided us, very generously, with all the necessary infrastructure for this seminar. This, in our eyes, bears eloquent witness to the interest of the French party.

We would like next to present briefly the CTA, for those who do not yet know it sufficiently.

Created in the framework of the Lomé Convention, which was signed between the member States of the ACP Group (Africa, Caribbean and Pacific) and those of the European Union, the CTA has been based since 1983 in Ede-Wageningen, in The Netherlands. Its mission is to provide ACP countries with better access to information necessary for their agricultural and rural development.

The principal target groups are planners, researchers, extension workers, trainers, and specialists in agricultural information and communication. It is through their role as intermediary that the Centre can reach the farmers and their associations.

The Centre is under the supervision of the Committee of ACP and EU ambassadors accredited to Brussels. It is financed by the European Development Fund. On the technical level, the management of the CTA is assisted by a Consultative Committee of 24 members, composed, on the basis of parity, of experts in agricultural and rural development.

On the basis of its mandate, as defined by the Lomé Convention, the Centre has set two principal objectives which guide its action.

First of all, there is the need to improve the availability and accessibility of information on the methods and means which further agricultural and rural development. There is also a need to further the development of the capacities of the ACP countries themselves in the production, acquisition and exchange of agricultural information.

For these reasons, the Centre has set the following four specific objectives:
- promoting of contacts and the exchange of experiences;
- providing agricultural information on request;
- strengthening agricultural information and documentation services in the ACP countries;
- developing strategies for planning, implementation, monitoring and evaluation of agricultural information services and programmes in the ACP countries.

On the basis of these objectives, of the conclusions of the first seminar in Montpellier, and of the guidance of its supervisory bodies and of its Council, the Centre has developed a series of activities that can be grouped in five broad categories:
1. organisation of seminars and workshops designed as fora for the exchange of information and experiences;
2. carrying out studies on specific priority themes for agricultural and rural development;
3. an important programme of scientific and technical publications, in which the pivotal role is played by the magazine *Spore*, in its English and French versions and *Esporo* in its Portuguese version;
4. a question-and-answer service which makes available specific information, on request;
5. support to information and documentation services in the fields of training in the management of agricultural information, documentary support, and supply of micro-computer equipment.

Finally, through its programme of support to rural radio and the development of other audio-visual means, the CTA contributes to improving the direct circulation of technical information at the level of farmers.

The results of these activities will be presented to you in the course of our deliberations, so as to enlighten our reflections.

We would like to underline, however, that since 1991 the CTA has embarked upon a regional approach for planning and action, which aims at better understanding the needs of its target groups and, consequently, to adapt its programme of activities.

This approach is building its foundations slowly and gradually in order to define a new information strategy based upon the implementation of concerted programmes.

Allow us to recall the objectives of this meeting. First, it is for the CTA, after 10 years of existence, to review its activities, with an eye on the future. This will allow us to pull together suggestions for strategic options which can further the better management of information in ACP countries, alongside the evolving needs and context of the development process. These options should also look at the advances in information and communication technologies. The CTA is currently drawing up a strategic plan for the programme of activities for the next 5 years. The suggestions made at this seminar will form an important part of this process. They will be examined by the CTA in the months to come, in liaison with its Consultative Committee and in the context of internal and external evaluations of the Centre's programmes.

The other objective of the seminar, for all of the actors present here, in the light of current issues in rural development in ACP countries, is to seize the opportunity to identify the lines of a new type of partnership, involving the end-users.

With the very rich and varied expertise that is gathered here in this room, we have no doubt that these objectives can be met, and that the seminar's recommendations will be of great interest, not only to the CTA, but also to all the institutions involved in agricultural and rural development in ACP countries.

For these reasons, I would like to thank you, Ladies and Gentlemen, for having responded to our invitation.

At this stage, I would like to pay tribute to the international Steering Committee for its support to the CTA in the organisation of this seminar, to the Committee for France-CTA Cooperation for its permanent support, as well as to GRET and to CIRAD for their meticulous preparation of this meeting.

We wish the seminar complete success.

Thank you for your attention.

Introductory presentations

The rural development challenges faced by ACP countries

B Dioum
General Coordinator of the Conference of the Ministers of Agriculture of West and Central Africa (CMA/WCA)

You will readily understand, and I hope forgive, why this paper will focus more on African countries than on those of the Caribbean and the Pacific, this focus being the result of greater facility in obtaining data and of greater familiarity with this geographical area. Moreover, we can speak more easily of sub-Saharan Africa for reasons of convenience.

By rural development, we mean activities and living conditions in rural areas as a whole, and more particularly the triple aspects of "agriculture - food - environment".

When we speak of "agricultural activity" in the broadest sense, we refer not only to agricultural activities, but also to pastoral and forestry activities and to development assistance activities, not forgetting the interaction of these with the environment and the conservation of natural resources.

Having made these few observations, we will consider in the following order: the current situation of agriculture in Africa, its constraints and their causes, and the strategies we propose for recovery and growth.

1. The current agriculture and food situation of sub-Saharan Africa

Over the last two decades, sub-Saharan Africa has been badly hit by economic recession and a fall in exchange rates. Long cycles of drought have caused famines in several regions. The level of external debt has grown out of all proportion to export income.

Incomes have fallen, and this has resulted in food insecurity and in greater numbers of poor and undernourished people than at the beginning of the 1980s. The overall proportion of the population of Africa that is undernourished has risen from 35% to 37%, i.e. in real terms from 94 to 175 million inhabitants. It will reach 300 million by the year 2000.

According to the World Bank, real annual per capita income fell by an average of 0.8% between 1990 and 1992. In comparison, the same income rose by 6.1% in Southeast Asia and by 3% in Southern Asia. In 1992, per capita income was US$ 310, or 85 cents per day, thus less than $ 1 per day (the yardstick of real poverty).

The agricultural sector has grown by 1.7% per year, which is lower than the growth rate of the economy as a whole and lower than the demographic growth rate of 3%. Here are a few examples:

- maize outputs are 1.4 tonnes/ha in sub-Saharan Africa against 3.3 tonnes/ha in Asian developing countries;
- cereal production varies from one year to another, but fails to achieve significant and sustainable growth;
- tuber and root crops have shown low increases in output compared with the outputs observed in Asian countries, which have doubled in 30 years. Agricultural research should give priority to adapting results to the African environment;
- the sub-Saharan Africa region is the only region in the world producing less cereal food per head today than in the early 1980s;

- only 92% of required calorie needs were met in 1988/90, and this despite food imports and food aid totalling 18.55 million tonnes in 1992, i.e. twice the quantities of 1980 (8.6 million tonnes). Despite its poor performance compared with demographic growth, agriculture is still the mainstay of the economy of sub-Saharan countries, providing one-fifth of their GNP and employing two-thirds of the labour force;
- the population growth rate rose to 3% between 1980 and 1992 with a high rate of migration towards cities (5% per year). By 2020, more than half the population of Africa will be living in cities. This means that the number of people no longer producing their food directly will rise sharply;
- poverty is still very widespread in sub-Saharan Africa. According to World Bank estimates, 216 million inhabitants (i.e. 48% of the population) were poor in 1990, and this level will be 44.7% by the year 2000.

Among developing countries, the percentage made up by the poor of sub-Saharan Africa will rise from 19% in 1990 to 28% by the year 2000, i.e. 304 million inhabitants.

2. Obstacles in the path of agricultural development

The unfavourable economic and social environment is aggravated by obstacles, among which are, notably:
- difficulties related to promoting improved technologies, even when these are available;
- difficult access to world markets as a result of the lack of competitiveness of African agricultural products. The future of African agriculture will depend on its capacity to find means of increasing productivity, reducing production costs, and improving product quality in order to arrest the overall fall in its market share at local and international level;
- the accelerated increase of world agricultural production compared with demand, protectionism, and the subsidies/compensations of OECD countries (US$ 300 million);
- key causes of agriculture's failure to perform well include the low level of implementation, and the poor transfer of modern technologies;
- the low proportion of irrigated farmland (4-6% of the potential), the low use of fertiliser, of improved crops and of agricultural equipment are all obstacles to intensive farming.

These constraints can be laid at the door of institutional, structural and political factors, notably:
- agricultural research and extension systems that perform poorly;
- inexistent or barely developed social services in rural areas;
- inappropriate sectoral policies with regard to prices, marketing, rural credit, investment and land tenure.

3. Strategies for agricultural recovery and growth in sub-Saharan Africa

Despite these obstacles, African countries have some major assets for recovering agricultural growth:
- an increase in the abundant labour-force already available, which could help to reduce the cost of the main input in this sector, i.e. labour;
- the rapid expansion of demand in regional markets, the proximity to European and American markets;
- the stagnation of, or even the shrinkage in, the impact of the Green Revolution in the competing regions of Asia and Latin America;
- a significant unexploited agricultural potential (water, land);
- unused surface water and hydro-electric capacity;
- considerable reserves of phosphate and nitrate fertilisers.

To build up a strategy for a recovery and sustainable growth, western and central African countries have devised a framework, based on an internal debate, but taking into account certain elements of previous strategies (World Bank, ADB, USAID, French Cooperation, etc.).

Underlying this debate is the theory that adjustment policies are necessary and unavoidable in order to lay firm foundations without which nothing sustainable can be built: i.e. a macro-economic policy based on a balance between commercial interests and those of agricultural industries.

Armed with this theory, and having analysed the constraints, we have identified the following challenges:

- raising agricultural growth from its present 2% level to 4%, and maintaining it at this rate in order to at least overtake population growth of 3%;
- reducing poverty and improving food security by increasing the daily calorific consumption by 20%, raising it from 2 000 to 2 400 calories per day;
- creating jobs in rural areas by at least 2% per year in order to absorb part of the population of 3% and to slow the rural exodus;
- managing natural resources through widespread dissemination of improved and intensive technologies with a view to relieving pressure on basic resources (forests, land, water, etc.).

Thus we have agreed that the main elements of an agricultural strategy should revolve around the following key areas.

3.1 The production and dissemination of improved technologies by refocusing and revitalising research:

- research must cease to be the sole domain of researchers, but should rather take the beneficiaries into account, in order to meet social needs, accurately expressed at grass-roots level and transmitted by "legitimate and reliable channels": namely, the producers themselves or their duly selected representatives;
- more judicious use of the resources of national agricultural research systems (NARS) and the creation of a regional agricultural research network in the context of SPAAR's Framework for Action (FFA);
- national extension services should be restructured and revitalised in order to achieve better collaboration with others involved, notably NGOs, and to extend their activities beyond production, so that they also address aspects related to marketing, distribution, and processing—in a word, how to assist production.

3.2 Improving the competitiveness of exports in order to be more competitive compared with agricultural products from elsewhere, through:

- reducing costs at all stages of production and export, and harmonising intra-regional export regulations;
- a forward-looking approach to changes in international markets, with regard to demand and quality. Research should assist this by monitoring those markets which will influence production objectives more than in the past. African countries will be able, thus, to produce better, negotiate better, and sell better;
- increasing added value to agricultural products and encouraging the private sector to invest in processing and in agriculture support services;
- creating an environment favourable to the emergence of private enterprise.

3.3 Greater integration of internal and regional markets

This involves creating the required institutions and infrastructures in the fields of transport and communications, in order to promote competitive intra-regional trade, and adopting a common legal framework. This policy of cooperation and regional integration should be based upon the "lever" of developing trade in agricultural products. The CMA/WCA illustrates one early example of this process.

3.4 Rehabilitation and conservation of natural resources

Good management of existing resources requires techniques of agricultural production that are compatible with their judicious use. The commitment and the involvement of grass-roots communities in this policy is essential.

3.5 Efficiency of national agricultural research systems with regard to technology and decision analysis
Large-scale investment in human resources in both formal and informal sectors, and the development of master (or strategic) plans for agricultural research, will facilitate the interaction between the research systems and their clients, i.e. farmers and decision-makers.

3.6 Efficient transport and financial markets as a result of:
- creating new efficient institutions and infrastructures necessary for the distribution of inputs, for communication and for improved credit systems;
- suppressing administrative and fiscal hurdles.

3.7 Greater involvement of the private sector in the development process
Encouraging the creation and the growth of strong and democratic professional organisations, capable of replacing the State in some (transferable) roles and giving priority to target groups (women and youth) in rural areas.

3.8 Enabling national agricultural research systems to carry out the research required
This means:
- improving and converting current skills, and making better use of them;
- developing new skills in management and monitoring, policy design and implementation;
- increasing the number of researchers and creating rewarding conditions in order to keep their involvement and to use them more efficiently;
- providing adequate funding and support for exchanges and collaboration with regional and national scientific communities.

3.9 Creating infrastructures, institutions and social services in rural areas
There are numerous needs, notably transport, communication, electricity, marketing facilities, health, education and water supply. For this reason, high priority must be given to public spending in the rural sector.

3.10 Improving the legislative and regulatory framework
This framework is essential in order to redefine and direct public-sector activities in such a way as to facilitate and encourage the efficient involvement of the private sector in agricultural development.

3.11 Creating a monitoring and evaluation system for strategies
This system must make possible good harmonisation of agricultural policies and thus facilitate the regional policy of cooperation and integration.

Such a strategy framework may seem utopian. But what must be borne in mind is the process that led the countries to adopt it.

In the framework of the CMA/WCA, first in that of the Conference of the Ministers of West Africa and then of East Africa, there emerged the vital need to "internalise" the process of strategy elaboration, paying particular attention to beneficiaries' priorities.

Without reinventing the wheel, this involved linking up various elements of strategies dotted here and there using a logical framework:
1. The Lagos Plan of Action.
2. The United Nations Programme of Action for African Economic Recovery and Development.
3. The World Bank development strategies for sub-Saharan Africa.
4. ADB strategies.

5. CIDA policy considerations.
6. The French Ministry of Cooperation's agricultural and rural development policy in sub-Saharan Africa.
7. USAID strategies.

Without its being subject to any constraint whatsoever, the order of priority given to any element in the strategy will be determined by each country in the course of the elaboration of its own national strategy.

4. Conclusions

It seemed to us that Africans—researchers, academics and decision-makers—were right in drawing up an uncompromising diagnosis of their situation.

How could it be otherwise?

Post-independence generations are now at the helm in most states. Relieved of any anti-colonial position and university-trained, their approach to problems is based on the linkage between cause and effect. With experience and the necessary detachment, when considering the development of their continents, they can now be confident of making the correct diagnosis. Making a new start has therefore proved a natural and necessary step.

Faced with the challenges confronting Africa, the alternatives could not be clearer:
- *either:* making Africa an even less than marginalised continent, making it the charity continent, barely capable of receiving the aid intended to salve the consciences of the charitable souls of the North;
- *or:* agreeing to stand and be counted, to struggle to feed the people of Africa by the sweat of their brow and by making best use of the continent's resources.

We have opted for the second alternative, one which demands a new start and a determined political will, in order to provide a firm foundation for a consistent economic policy, favourable to sustained agricultural growth, thanks to clear choices: the emergence of a dynamic private sector and a population policy compatible with the growth objective of 4% per year.

Africans not only can, but must, make these choices in a good understanding with the international community, which must also cooperate as a partner rather than imposing its own views.

These are the challenges underlying this strategic framework.

Thank you.

Information for rural development: review and perspectives of the CTA

D Hounkonnou
Head of the CTA's Operations and Regional Activities Division

The review that I am to undertake today will be fairly easy, because it relates to a past which the CTA has shared with most of the partners here present. Although our Chairman has already done so in our communal name, I welcome once again the presence of Mr Raymond Aubrac, as well as of all who also attended Montpellier 1 back in 1984. I will, moreover, not be speaking in my name alone, but in the name of a whole team, the team that has helped to prepare this meeting.

I will therefore not dwell too long on this past, as you are already familiar with the facts. What I am mostly going to give you is my own perception of this common past. Depending on where we each stand, our interpretations of it may differ, but this is what, for me, makes the work and discussions we will have here interesting.

And so, with regard to our fundamental concern (stressed by Mr Baba Dioum in his introductory address), which is to help to improve the quality of life of the inhabitants of ACP countries, what have we tried to do? What activities have been undertaken on the basis of the broad aims stated in the CTA's constitutive documents, by our consultative committee and our directing organs, and on the basis of the internal debates which have taken place at the Centre?

My paper draws upon two preliminary studies which I invite you to refer to:
- The role of information in rural development issues in ACP countries (see p. 85);
- Summary of the achievements of the CTA since the seminar "Montpellier 1", 1984 (see p. 61).

1. Information for rural development: a challenge in a difficult context

1.1 Information: a vital need for populations bringing in change

Mr Baba Dioum has spoken of the challenges of rural development in ACP countries. I would like to add a few words on political contexts in order to highlight how important the role of information is in a period of change such as that which we are experiencing. Things are on the move politically in Africa; the fight is on for more accountability, more democracy. This leads people to see themselves today as interlocutors in their own right in defining and implementing development policies. More than in the past, they want to look after their affairs themselves and to assume more responsibilities. To do this, they need information. But what kind of information? This is a question which we all too often forget to ask.

To illustrate my point, I would like to tell you a little story. A keen young extension worker returns to his village on the occasion of his well deserved leave. He goes to find his father in his field and chats with him about whether he listens to the advice of the local extension workers. Realising that his father doesn't follow their advice very well, he asks him why not. "Moussa", his father replies, "I'll tell you the difference between you, the extension worker, and me, the peasant farmer. For your work, you, you have a notebook, a pencil, and you also have a rubber; if you make a mistake, you rub it out. Me, my notebook is my field, my pencil is my hoe, but I don't have a rubber, I can't make a mistake. And that's why, for all your advice, I sow several crops in my field. If one of them fails, I can always count on the others."

In this way the peasant farmer succeeds in managing his risk factors and in feeding his family, but the conditions that might encourage him to increase his production do not all exist. In the context of another international meeting, which I had the good fortune to attend, a European expert made the following observation: "There is nothing in your countries to encourage the farmer to produce more, or he would do so. Give him a fair price, build roads, create a climate favourable to him increasing his activity, and he will be the one chasing after the extension worker, or the researcher, to ask them for new crops". In a development context, information is vital, but it is only one component in the system. Moreover, the economic actor must also be involved in defining his needs and take part in producing and in disseminating information.

1.2 So much to do, so little to do it with

If we now turn to the more macro-economic level, I would simply restate the figures given by Mr Baba Dioum: whereas the agricultural sector is of capital importance (80% of the population), it receives (on average) only 8% of the national budget. And even then, nearly three-quarters of these sums relate to the salaries of agricultural state employees... I leave you to imagine what share of the budget allocated to agriculture might be devoted to agricultural information! This helps to give us an idea of the scale of the task before us.

2. The CTA's changing programmes of activity: an adaptation in line with its broadening scope

The Director of the CTA reminded us this morning of the Centre's main aim: to facilitate ACP countries' access to agricultural and rural information. He also spoke of the organisation of the CTA, its manner of operating and the institutional framework in which it works. I will now tell you exactly what our objectives and our main approaches are and what this means in terms of programmes of activity.

2.1 From providing information products and services to helping to strengthen ACP countries' own information capacities

The CTA's objectives are set by the Lomé Convention. In Lomé II and Lomé III the focus was mainly on encouraging access to information. Lomé IV went further in adding to this objective that of strengthening ACP countries' own capacities to produce and disseminate agricultural information.

We can therefore distinguish between two phases in the CTA's definition and implementation of activities.

In the course of the first, from 1984 to 1989, i.e. before Lomé IV, activities were oriented towards the accessibility of information objective. This essentially meant perfecting, promoting and disseminating information products in the light of ACP countries' priorities. In 1988, an evaluation of the CTA's activities concluded that, in this respect, the CTA had fulfilled its mission well.

With Lomé IV, which broadened our scope of activity, we began a second phase, in 1990. In addition to our activities revolving around information products, we gradually turned towards activities aimed at a better appropriation of information by our grass-roots partners.

2.2 Activities tuned to the needs expressed

Basing ourselves on our two main objectives, accessibility of information and strengthening ACP countries' own capacities, we defined specific objectives that our various programmes meet.

Our activities are carried out in partnership with many individuals and institutions. I will not attempt to name them all here, for fear of omitting any.

In order to promote contacts and exchanges and to meet information needs, we have carried out seminar and study-tour programmes, the radio programme, the production and dissemination of publications such as *Spore* and the scientific and technical works that we edit or co-edit. There is also our question-and-answer service, the selected distribution of information to researchers, audio-visual products, etc.

To strengthen ACP countries' information and documentation services and then gradually to move towards a strategy of decentralisation, we have put into place the programme for the distribution of agricultural reference works*, the CD-ROM programme, the programme for the training of documentalists, and the rural radio programme. Through its meetings and training sessions component, the latter responded to the concern to improve the content of broadcasts produced on technical agricultural information.

We did in fact debate what it was right to do with regard to radio for some time. We knew that the major concerns of radio journalists were to have good recording equipment and vehicles for their visits in the field. Unfortunately, these needs are not part of the CTA's mandate, but rather fall to funders. Having carried out surveys in some countries in order to gain a better understanding of needs, we brought together heads of radio stations in order to define and plan the activities to be carried out. We organise retraining workshops so that journalists are better able to find, in their immediate surroundings, the sources they need to improve the content of rural radio broadcasts; we also help them with technical information dossiers on various agricultural subjects, etc.

2.3 Regionalisation, a strategic approach

Allow me to stress the way in which we have elaborated our decentralisation strategy.

We started out from the very simple idea that we could not help to strengthen ACP countries' own capacities without using the ACP countries themselves. This is how our regional approach came into being. Initially, we launched a debate on this issue with national professionals in each ACP region. We then undertook surveys, in the form of national monographs, in which all target groups took part: planners, researchers, extension workers, trainers, information and documentation specialists, government and non-government actors. We asked them how we could make access to information easier for them, what were their specific needs in the light of the development policies they are working on, what products they needed, what resources they had at local and national level, etc. We then discussed the results of these surveys with delegates from all target groups within regional workshops. I would stress that the basic surveys were carried out by experts from each region.

This approach has its limitations, however. Today, our institutions are not yet strong enough to carry out alone the changes required in all cases at regional level. We have to take account of their technical and management limitations, which they themselves acknowledge. These limitations lead them to focus first on what is happening in the countries. The regional level should not be an artificial level inhibiting changes at national and local level. But some things are possible at regional level, and the results are there to prove it. This policy has already begun to bear fruit. Regional programmes have been set up. West Africa is soon to present its own project to the European Union Commission, independently of the CTA. Other regions will follow suit. Let us also note, as a further result, that our own programmes benefit from this new approach, enabling us to suit them better to needs, rather than elaborating them in the light of our idea of what these needs are. This is why the seminar on agricultural awareness-raising, which we ran in 1994 in Cameroon, was based on a survey of central Africa. In addition, this approach gradually creates at national and regional levels a framework for dialogue for the elaboration and/or implementation of agricultural information policies.

* DORA: *Diffusion d'Ouvrages de Référence en Agriculture* in the original French.

2.4 From Montpellier 1 to Montpellier 2: what has been achieved?

The Montpellier 1 delegates had recommended:

- *Analysing, encouraging and organising information demand.* We have attempted to do this notably through studies: studies that have been published and have been used to support seminars and to guide the definition of programmes of activity.
- *Drawing up inventories and directories of supply.* We have published directories of ACP sources and then of European agricultural information sources.
- *Promoting exchanges as well as producing and disseminating suitable information.* Some of the activities already mentioned (seminars, selective dissemination of information, etc.) cover these two last points fairly well.
- *Strengthening national documentation and information services.* This then meant helping documentalists, journalists, researchers and extension workers to strengthen their capacities to disseminate the information they have available to new audiences. Among other activities, several training courses have been run with this aim.
- *Setting up collaborative ventures and promoting STI.* We have done a great deal in this area.

3. New challenges and future activities

Today the disengagement of the State in ACP countries is resulting in demand for information growing and becoming more diverse. It is essential to take care to fully appreciate the nature of this differentiated demand, in order to tune our responses to it.

3.1 Having a global vision of information, then defining and implementing genuine policies and strategies

Ten years ago it was said that information had a vital part to play. Montpellier 1 had already highlighted this. In reality, in the absence of sufficiently clear policies, all that we have tried to do has had only a relatively limited impact.

We come up against a failure to take a global view. We must consider information as having a three-fold function: as a tool for acquiring knowledge, as a tool to aid decision-making and as a process of communication between actors.

Experts in the field tell us that communication fulfils several functions:

- a social function; (this is a lesson I learned at the College for Communicators, and I refer notably to Jacques Sultan's paper at the seminar on audio-visual communication in 1994, in Paris);
- an economic function;
- an institutional and political function, because grass-roots actors henceforth want and are able to take an active part in debates on development.

Here is to be found today, I believe, one of the main challenges: considering and making information recognised as a development factor in its various functions.

Then, and on this basis, policies and strategies of information that genuinely correspond to the challenges facing us must be defined—policies and strategies that are clear and consistent in order to avoid activities being dispersed and resources lost.

3.2 The importance of the local level

It must be stressed that the main challenge is at local level. Our activities should be first and foremost aimed at strengthening this level. Ensuring that there are good links between local, national and regional levels is

vital for making best use of the meagre resources we have available. Next, gradual appropriation by local populations is a major objective that should lead us all, as external agents, to modify our activities. When the populations of ACP countries gradually broaden their responsibilities, and take in hand meeting their own needs, we must know how to stand aside.

3.3 Some future directions

We should go further in setting up systems of exchange between bodies of knowledge. The Yaoundé seminar on agricultural awareness-raising, for example, because it was planned at regional level, brought together not only extension workers but also researchers and trainers, not only scientists or technicians but also peasant farmers and other non-government actors. We must pursue this approach.

We must do this in order to move from STI to information for development. We had already stated this at Montpellier 1, and current developments today suggest that we were right. This should be one of the achievements of Montpellier 2.

Making information available at local level represents another challenge.

Eventually, it is essential to promote an information market in such a way as to stimulate the production and dissemination of a form of information better tuned to demand.

For the CTA, we must in the future aim to adapt our programmes to these new directions, and possible changes in the Centre's functions should be dictated by them. We must promote the international dimension to handle the programmes or activities that are difficult to manage at regional level, but at the same time develop assistance and advisory services working alongside changes at regional, national and local level.

4. Conclusion

In conclusion, I would like to refer to what I call the bogus choice of development policies, that is to say fish or fishing. Is it better to give the people fish, or to teach them how to catch them? I call this a bogus choice because, in reality, as Mr Baba Dioum has said, both are needed, but in doses that take account of the reality of the environment in which one is operating. It is the issue of short-term versus long-term, which is so often referred to.

I raise this question because I would like to speak here of what I call the bogus choice of information policies. Should one supply information products or encourage the development of a communication process? One needs information products, demand is growing. But at the same time there is also a real need for a communication process to occur, a process vital for grass-roots actors, so that they can be genuine interlocutors in all development programmes.

What should the CTA choose? That is a key question to which you will be helping us to reply. How should we be pursuing our information programme whilst decentralising, i.e. whilst enabling gradual appropriation to occur? How can we strengthen our activities aimed at better communication by setting up a genuine partnership?

All that is going on today in the world proves that development should not be solely economic, or solely based on productivity or on the growth of per capita GNP. I would say that, if it were to be measured properly, development should look more like "Gross National Happiness" per inhabitant.

I will close by quoting an extract from the United Nations 1994 report on human development.

"By the middle of the next century, at a time which the children of today will see, the world population could have doubled and world activity quadrupled. Feeding the world adequately from now to then requires tripling

food production, whereas the resources needed for sustainable agriculture are falling. In addition, several nation States are beginning to disintegrate. Although there are many ethnic, religious and political factors at work here, the deep-seated causes of these crises are often the lack of economic and social progress and above all the low participation of individuals in the rare steps forward made. In this context, where success rubs shoulders with poverty, we have to invent a new concept of human security for the decades to come. We have to define a new model of sustainable human development capable of adapting itself to the new boundaries of human security, we have to devise a new framework for co-operation for development, able to unify the human race through a more balanced sharing of world economic prospects and responsibilities."

This is possible only if we help to set up a genuine process of communication so that Moussa, in his village, takes charge himself, and not the village head, of what he can do, so that the village can make its contribution without being dictated to by the capital, and so that our countries, our national professionals, may work at the development of their nation without receiving instructions from funders' experts.

How can this communication process be set up? Therein lies the challenge of Montpellier 2.

Reports of the working groups

Group 1: The expectations of the various audiences

Chair: Mr Raphaël Ndiaye

Secretary: Mrs Margot Bellamy

Members: Mr Korang Amoakoh; Mr Joseph Bakala; Mrs Moshoeshoe Chadzingwa; Mr Ndiogou Fall; Mr Getinet Gebeyehu; Mrs Alda Jorge; Mr Masunu; Mr M'baye; Mr Felix Nadiedjoa; Mr Marcel Nzondo; Mrs Elisabeth Paquot; Mr Djibril Sène; Mr Tunji Titilola

1. Information: its key role in facilitating the various stakeholders' capacities to change

The next 20 years will be marked for ACP countries by the need to succeed in making a transition that began at the end of the 1980s. The main challenge of the coming years will be the capacity of various stakeholders to adapt sufficiently quickly to a context that is undergoing profound change.

Information and communication are one of the essential ways of facilitating this vital change. For this to actually occur, the following steps are required:

- *Accelerating the speed with which information circulates.* Given a situation that demands frequent new economic and technical choices, any information that circulates too slowly quickly becomes obsolete and of little use.
- *Encouraging the various stakeholder groups to obtain direct access to information.* This is a question both of efficiency and of fairness. The limitations of previous systems for disseminating information to intermediary bodies who were themselves supposed to redistribute it, have become apparent. Information must be channelled as far as its end-user.
- *Diversifying the supply of information so that it can meet increasingly precise and varied information needs.* There are a great many stakeholders and their needs differ, and different forms of information must precisely meet this multiple and varied demand. Information that is poorly targeted in its content, in its form, in the ways it is disseminated, is often useless information.
- *Using information as an "observatory"*, enabling signs of change to be picked up, in order to understand the evolving and dynamic situations occurring.
- *Consolidating information production and dissemination industries and networks.* Through information, stakeholders can be put in touch with each other, so that they can share their knowledge, skills, expertise, experiences, opinions, etc.

2. Multiple and varied needs

2.1 Rural producers, small enterprises, professional non-profit associations and local services

National or local NGOs, producers' groups and non-profit associations, small enterprises, and local services play an increasingly important part in development dynamics. Their information needs are all the greater in that they currently have very little information to help them in their decision-making. Their role is to supply as much as to receive information. Information no longer revolves around disseminating a message formulated by "those who know" to "those who do not know".

The supply of information is becoming as multiple and as varied as demand. It comes as much from producers as from decision-makers. This means making information accessible and available to these groups in a suitable form, in order to broaden the range of possible technical and economic choices open to them and to help them to make fully informed choices.

This implies designing different information products (tools to aid selection rather than popularising one single technique), using very varied forms of assistance, strengthening dissemination and distribution networks, and notably decentralised systems for access to information.

As far as the information content is concerned, meeting these various needs involves:
- placing greater emphasis on economic information and, in particular, information on markets;
- combining technical and economic information. These groups need operational information to help them to innovate. The economic, social and geographical conditions that make a technical innovation viable are as important as technically mastering new ways of doing things.

2.2 Political leaders

For "less State", also read "better State". Political leaders should reinforce the State's role as an arbiter, and put forward clear rules for negotiation between stakeholders in order to shape and define suitable long- and medium-term strategies. They should launch a genuine democratisation of development, make their options known, understand the changes occurring and reinforce their capacities to react quickly to economic, social and technical changes.

For them to be able to do this, decision-makers need information suited to their new role. This for them means all of the following:
- better understanding the changes and dynamics occurring, in order to be able to match assistance measures to them;
- having information designed as decision-making aids in the light of their various strategic options;
- having information about the future in order to be able to anticipate changes.

2.3 Researchers

The role of researchers in ACP countries is undergoing a profound change. They need to strengthen:
- their capacity to identify research subject areas in close collaboration with producers and national leaders in order to provide an effective response to the expectations and requirements of the latter;
- their capacity to report and disseminate the results of their research to the stakeholders involved (decision-makers or those actively involved);
- their capacity to undertake genuine multi-disciplinary research combining technical, economic and social issues, and to ensure better links between modern and local, traditional skills and knowledge;
- their capacity to find the best way of linking national, regional and international research.

2.4 Extension, and development workers

The term "extension" is no longer very appropriate, and needs, at least, redefinition. Today, it is preferable, perhaps, to speak of development workers and of giving advice to rural producers. Extension work is no longer the monopoly of the public sector. The private sector and the non-profit sector are starting to partially take over these roles. This trend will develop, and information programmes should take into account these public, private or non-profit stakeholders as a whole and, in particular, NGOs.

The role of extension work is undergoing a profound change. From being a "conveyor belt", transmitting a pre-defined technical message, the extension worker is becoming an adviser, a "field facilitator" and an active

participant in many processes. He needs to master all the issues, technical, economic and social, in order to provide the producer with genuine advice. He has to master a range of techniques in order to suggest a genuine choice to the producer. He must also be capable of playing his part in running and in assisting the collective organisation of the rural world.

3. New jobs, new roles for information professionals

3.1 National, private-sector and local non-profit association professionals have a vital role to play

The role of information professionals is being modified by the expectations that the various audiences have of information. They must be capable of identifying information sources and of processing and formatting information in the light of a real understanding of the expectations and interests of the various types of audience. African documentalists, journalists, editors and broadcasters have a vital part to play in this respect.

The private and non-profit sector will undoubtedly take up a growing place in this sector, as witnessed, for example, by the increasing number of independent media in ACP countries.

3.2 Similar challenges all round

All of these information professionals are facing similar challenges:

- Breaking out of their relative isolation; knowing where to look for information, defining users' needs and suggesting suitable products to them. Documentalists, for example, must now become information manipulators and managers; documentation centres should become "multi-service" and "multi-product" information centres.
- Improving the economic viability of the services and products on offer. This is particularly true for broadcasters, editors, and the media who all need to develop their market.
- Making access to information more democratic by decentralising broadcasting networks as well as where information is produced: local documentation centres, rural radio stations, etc.
- Better integrated information production and dissemination into the daily and professional activities of the audiences involved: information services (documentation, selling books) could also be coupled with advisory services for producers.
- Developing closer working relationships between various information professionals (documentalists, journalists, editors, distributors, etc.).

4. Some possible courses of action

Every group of stakeholders has information that could be better used and has specific information needs.

As has already been pointed out, the main challenges in information involve linking up these various groups. Nevertheless, for presentation purposes, we have set out our recommendations according to the needs of the various types of stakeholder.

4.1 Development agents

4.1.1 Rural development workers and advisers (extension workers, NGOs and heads of non-profit producers' associations, small enterprise support services)

It is recommended that:

- A major training effort should be launched in order to enable them to match up to their new roles. Various forms of training are required in the following areas:
  - identifying the problem;
  - providing advice;

  - mastering the techniques;
  - running village meetings;
  - assisting local participatory development.
- Background and resource documents should be produced for NGOs, local support and advisory structures, small enterprises, and co-workers of non-profit groups. They could include:
  - legal and institutional information;
  - economic and management information;
  - technical information;
  - information presenting lessons learned from innovative experiments;
  - information on techniques and methods for running activities;
  - information on funding sources.
- Assistance should be provided in setting up and operating "up-to-date information services" that are customised to the needs of the client. A parallel can be drawn with SDI programmes aimed at researchers. The principle is the same, but the information aids used should take different forms: radio broadcasts, press articles, and bulletins.

4.1.2 Local services

It is recommended that:

- The possibility of creating decision-making tools for the heads of local services should be assessed. Experimental information products of this kind could be designed and tested. These tools should combine geographic, legal, economic and technical information.
- Assistance should be provided for the publication of books and documents assisting municipal and territorial management.
- Assistance should be provided for the publication of works providing an overview of different local geographic areas of ACP countries (with a multidisciplinary approach).
- Help should be given to collecting the data available on each area at local level (studies, projects, research works).

4.1.3 Political and administrative leaders

It is recommended that:

- Help should be given to defining policies and national systems for communication and information policies that facilitate networking between various stakeholders and information flows.
- Training should be provided for Ministry press attachés to help them to disseminate clearer information on official measures, to maintain relations with the media based on respect for their independence, and to launch, through the media, genuine debates with civil society on development approaches.
- Articles or documents summarising future probable changes in ACP countries should be published and disseminated.
- Targeted and concise information on the dynamics of change in rural development at local, regional and national levels should be disseminated.

4.1.4 Researchers

It is recommended that:

- Exchanges and circulation of information between researchers and national, regional and international centres should be facilitated; modern communication networks, particularly, should be accessible and usable by all research centres.

- Training courses and visits between researchers from national, regional and international centres should be facilitated.
- Help should be provided to set up communication mechanisms enabling joint definition of research subjects:
  - between researchers and political leaders;
  - between researchers, farming associations and extension workers.
- The setting up of contractual relationships on research subjects between researchers, political leaders and producers' groups should be encouraged.
- The publication and distribution of the results of scientific research by supporting national or regional scientific journals should be encouraged, preferably giving priority to multidisciplinary undertakings and subjects linked to local skills and products.
- Help should be provided to set up local and national databanks on research being carried out.
- Researchers should be helped to enter into working relationships with private publishers, journalists, extension workers and NGOs, so that the latter can distribute, in a simple and accessible form, the research results.

4.2 Information professionals

It is recommended that:

- Emphasis should be placed on the training of these professionals, by integrating training into support and advisory mechanisms, with emphasis on the training of trainers.
- Regular meetings should be organised between different information professionals in order to facilitate closer collaboration between documentalists, editors, journalists and broadcasters and to improve the overall organisation of the profession.
- Europe/ACP exchange and partnership networks between peer groups of professionals should be encouraged.
- The possibilities of strengthening economic viability of information activities, services and products should be studied, and experimental activities in this regard initiated.
- Systems should be set up to analyse the changes in jobs and to identify innovations in the way jobs are done; to disseminate these data and analyses to professionals in ACP countries.
- Collaborative ventures between funders and aid agencies that seek to assist media development, editors and information centres should be strengthened, in order for action to be better coordinated.

4.2.1 Documentalists

It is recommended that:

- Help should be provided to set up and develop local information and documentation centres: equipment, supplies, training of professionals, making information available.
- Experimental activities should be introduced to help to set up information bureaux and services for producers on a local scale.
- Documentalists should be helped to diversify their access to information: identifying local sources of information, exchange networks between local centres and between these and national and international centres.
- Professionals should be trained, again with emphasis on the training of trainers, in the dynamic management and dissemination of information, in optimising links with suppliers and consumers of information, producing targeted information products and services.
- Within information centres, new user services and products should be developed: information fact-sheets, selling books and documents, question-and-answer services, and training and advice on information management for other organisations.

- Innovations introduced in information products and services should be identified and a list of these innovations published.
- Assistance should be provided, in collaboration with the IAALD, to national and regional associations of documentation and information professionals.
- A study should be carried out on the impact of documentation centres on their various audiences. This study should suggest new types of products and services that documentation centres can produce. It should also suggest methods and tools for follow-up and evaluation of needs and user-satisfaction levels. Documentation centres could use these in order to regularly adapt their activities to demand.

4.2.2 Editors, distributors and bookshops

It is recommended that:

- Local publication capacities should be strengthened, particularly through:
  - professional training and courses;
  - co-publishing by European and ACP publishers;
  - commissioning publications.
- Access by national editors to investment credits set up for small enterprises should be facilitated.
- States should be helped to respect the international Florence agreements on removing taxes from books and paper.
- Training should be provided for bookshops and distributors to help them to improve their sales of development publications.
- Experimental initiatives should be launched to encourage distribution networks to spread: increasing points of sale of books, magazines and newspapers.
- Precise guidelines should be drawn up, common to funders and aid agencies, on the target audiences of programmes of book donations and free distribution of publications (with special reference to documentation centres).
- A study should be carried out on:
  - possibilities for assisting the development of small enterprises (commercial or non-profit) in the sectors of distribution and publishing;
  - the relevant collective services to be considered (services for computer-aided formatting, purchasing paper, etc.) in order to improve the economic operation of the industry.

4.2.3 Journalists

It is recommended that:

- Journalists' training programmes should be developed to help them to deal with rural development issues. Priority should be on the media located in rural areas, particularly radio stations.
- Access to specialised information by these journalists should be facilitated (subscriptions, targeted and regular information services).
- Help should be given to developing professional networks of exchange and information between journalists, in particular in the form of exchanges of articles and broadcasts.
- The capacities of national press agencies to disseminate a suitable form of information on development should be strengthened (training, assistance in defining suitable products and services).
- Information and training guides for journalists should be published in order to help them to collect, handle and disseminate information on development.
- A study should be carried out on the possibilities for strengthening local media and on the conditions of their economic viability.

Group 2: Can we talk of information without talking about communication?

Chair: Mr Cheickna Diarra

Secretary: Mr Jacques Sultan

Members: Mr Viwalé Adigo; Mr Maurice Albarka; Mr Pascal Berqué; Mrs Geneviève Leprince; Mr F Maes; Mrs Joy Mukayange; Mr Samba Ousmane Touré; Mr Michael Pickstock; Mr Ulrich von Poshinger; Mr Edward Spiff; Mr Arnaud de la Tour; Mr Anthony Youdeowei

1. Introduction

There emerged a general group consensus that, in the context of rural development in ACP countries, there is no such thing as information without communication.

Information relates to products, communication to interactive processes. Information is of only limited value if it is not communicated. Communication includes all of the methods and mechanisms enabling access to information products and their circulation between the various kinds of actors involved in rural development.

Communication processes go beyond the transmission of information products, of skills and of techniques. They form part of an interactive approach enabling a dialogue to start and a debate to be fed, by comparing the experiences of those involved in the challenges of rural development.
Through a process of exchange and of dialogue, the following can occur:

- the various actors can express and compare their points of view;
- the practices of rural world producers can be analysed and their needs identified, notably with regard to inputs of skills and techniques;
- partners can be made more aware of rural development issues and mobilised around them;
- dialogue and seeking to reach a consensus on defining action programmes and being committed to their implementation;
- exchanges of information, skills and techniques among those involved at grass-roots in rural development, and between these and those involved at other levels (extension workers, researchers, planners, decision-makers, partners in development);
- promoting successful initiatives to the extent that they are useful as examples and have a multiplier effect.

The group also stressed the following points:

- Those involved in development are at one and the same time producers and users of information products. Communication means organising exchanges between all of these actors (rural producers, training and supervisory agents, researchers, decision-makers, economic actors, partners, etc.) in order to maximise their impact on rural development processes.
- Literacy is a key factor in enabling better access to information and efficient communication between the various levels of actors by going beyond oral communication and equipping rural producers with knowledge, exchanges and development management tools.
- There are large deposits of research-generated information that are not being tapped. This information must be preserved by equipping ourselves with the means to process, record, disseminate and enrich it. This means both powerful tools for processing, recording and disseminating information and training specialists in these various fields.

- Finally, the group noted the emergence of new actors, notably within civil society and rural organisations, of new needs, related notably to the more democratic exchanges required between partners in development; of new technological tools; and of new, fast-proliferating tools for social communication, which have broken previous monopolies of the State and of geographical boundaries. In this new context, the classic, vertical models of information circulation are now inadequate and should be completely revised. The role of those involved in this information flow (extension workers, researchers, information specialists) should be redefined, as the rural population itself is becoming increasingly involved in the production and dissemination of information for development.

2. Proposed future approaches

In general, the CTA should broaden its scope in order to focus more on communication processes than on information products.

More specifically, over the coming years efforts should be directed towards the following:

2.1 Assisting the definition of national information and communication for development policies and strategies.

2.2 Facilitating access to information and communication between the various development actors at national, regional and local levels.

At regional level:

- by pursuing and reinforcing efforts to pool information by establishing networks and links.

At national and local level:

- by promoting the establishment of a legal environment that is favourable to public, private and non-profit actors creating multimedia tools for a freer, and more diversified, flow of information for development, whilst maintaining overall public service aims in this area;
- by assisting the decentralisation of information structures, whether public, private or non-profit, and the complementarity of communication media with the rural world, notably between rural radio, the written, national-language press and small local media;
- by encouraging the strengthening of existing documentary resource centres at national level, the creation of local level resource centres and networking between these various levels;
- by supporting publishing efforts in the field of information for development, at local and national level, through public and private organs.

2.3 Ensuring information delivery and encouraging communication at local level:

- by producing various kinds of information for development in national languages;
- by supporting initiatives on functional literacy;
- by using traditional and community communication channels and networks;
- by using audio-visual aids;
- by developing mobile units for information, communication and presentation in rural areas.

2.4 Pursuing and increasing training activities for those involved in information and communication for development (rural extension workers and field facilitators, information specialists, researchers, and media presenters):

- by supporting the training of trainers at all levels;
- by assisting existing training institutions, both at national and at regional level, as well as non-profit associations of information professionals;

- by supporting additional training of documentalists in new aspects of their job, notably with regard to information dissemination;
- by taking into account the new training needs resulting from the emergence of numerous private and non-profit organs of communication and information, consisting notably of radio and the press;
- by organising information and training workshops on new information technologies, on how to use these tools in a rural development context, and the strategies required for their optimal use;
- by ensuring that training is followed up through the establishment of a regular information service specialising in major rural development topics, for information intermediaries (journalists, media presenters, field facilitators, extension workers), with users providing the basic input to the service itself.

2.5 Undertaking a general survey of activities serving as examples carried out at local level with regard to information and communication for development and making this information available to all those involved.

2.6 Focusing attention on cost aspects, and on the cost-effectiveness of information and communication for the development market, and on how these costs are shared between existing partners (governments, economic partners, users).

2.7 Finally, the CTA should strengthen its role of intermediary between ACP countries and partners in development, notably at European level, in order to enable the European supply to better match ACP demand with regard to information and communication for development.

Group 3: Linkage between the levels: regional, national and international policies

Chair: Mr Samsundar Parasram

Secretary: Mr Alioune Badara Camara

Members: Mr Richard Bibang; Mrs Monique Bonnichon; Mr Augusto Manuel Correia; Mrs Michelle Jeanguyot; Mrs Janet Kaaya; Mr I Khadar; Mr Marc Lévy; Mr Christopher Lungu; Mrs Shamina Maccum; Mr Nya-Ngatchou; Mr Q Subah; Mr Peter Walton

1. The problems and the context

In what is now called, by common agreement, the Information Society and characterised by massive opportunities for information access, it has to be said that the ACP countries are in a much less favourable position than the countries of the North. Admittedly, this is due to the weakness of their information infrastructure, but also, and predominantly, to the difficulties of users in tracing and accessing the information sources that meet their needs. One cause of this is the varied nature of the information sources, and their being sited in different locations.

This issue of diversity in levels of agricultural information takes on major dimensions when viewed in a regional, national and international context with these prime aspects:

- regionalisation;
- economic liberalisation;
- globalisation and interdependence.

An examination of the different levels of agricultural information, and of the need for linkage between them, serves several purposes:

- effective planning, organisation and management of information systems;
- optimal use of existing resources;
- setting up functional links between different actors, in particular between those based at local level.

2. How the group worked

The working group made use of

a) the preparatory studies undertaken by:

- Marc Lévy: From local to international, via regional and national: the linkages in information policy;
- Antony Youdeowei, Alassane Diallo and Edward Spiff: Synthesis of regional studies of agricultural information needs of African countries;

b) the discussions in plenary session about these studies;

c) information exchanges between members of the group about regional experiences, especially in the countries of the Caribbean and the Pacific, not covered by the studies mentioned.

3. Constraints

The analysis of the situation in ACP countries on agricultural information showed that, with some specific exceptions, certain similarities exist between the constraints on linkages at local, national, regional and international levels. These constraints arise from the following factors:

- the lack of national information policies, leading to a lack of priorities, of coordination and of harmonisation of external contributions;
- the limited effectiveness of information networks at national level owing to poor-level infrastructure, and other problems faced by the national focal points of the networks (low profile, poor institutional siting, insufficient professional skills and operating resources, lack of acceptance/legitimacy);
- distance between the most active information facilities from end-users;
- insufficient integration of communication, information and extension work (through institutional compartmentalisation, and professional attitudes and training);
- poor financial resources for large-scale activities in the production and dissemination of information, a factor that limits the ability of some systems to extend their services to certain local levels; these services do not always match the needs of different groups of users;
- poor, or non-existent, means of communication;
- illiteracy and linguistic barriers.

4. Strategic considerations

The following considerations are based on the lessons learned from previous and present experiences. In our opinion, they comprise the conditions necessary for effective linkage between the different levels.

4.1 General considerations

In view of the major constraints identified, the group feels that attention should be focused on the national level. This is, in fact, the most appropriate level for such basic functions as:

- definition of priorities and developing strategies and programmes;
- analysis of the needs of various groups;
- collection, processing and storage of information;
- design and production of information dissemination tools;
- mobilisation and allocation of resources;

- human resource management;
- evaluation and use of facilities and products.

The **regional level** has an important role in these areas:
- the operational level of regional information systems;
- transfer points for information exchange with international systems;
- support to national structures.

At the **international level**, there are roles to play in regard to the participation of ACP countries in international systems, and in regard to globalisation (North/South and South/South partnerships).

4.2 Specific considerations

There is a need for a genuine political will for support to initiatives for coordination at the national level. The same is true for a genuine involvement of all the parties concerned.

The Coordinating Committee could be hosted by a functional body with adequate infrastructure. It should be established by agreement between all parties concerned in order to avoid any challenge to its legitimacy.

Linkages between levels should be based on functional facilities and resource-sharing. We therefore recommend that these facilities be developed at national and regional levels.

4.2.1 At national level

It is important that any information policy takes into account the actual state of affairs in the agricultural sector, which suggests that all the parties concerned should be involved in the development and implementation of these policies and strategies.

There is an urgent need for coordination between activities at local, national, regional and international levels, to increase efficiency and impact. This role of coordination should be seen as proactive and as a catalyst, and not as one of regulation and supervision.

The tasks of a National Coordinating Committee for Agricultural Information comprise:
- impetus to appropriate policies;
- elaboration and implementation of strategies and programmes;
- harmonisation and coordination of activities;
- linkage at local, national and international levels;
- fund-raising.

It should be composed of representatives from all key sectors, and the Secretariat should be provided by an existing body.

The effectiveness of the national level can be underpinned by a decentralised style of operation, which devolves responsibility to local actors. The traditional top-down patterns of spreading information should be replaced by interactive processes between the parties involved, and by exchanges of knowledge, especially at local level. Use of new information and communication technologies should be encouraged where they form (part of a) response to the needs of various user groups, and with attention to the often high costs of acquisition.

4.2.2 At regional level

At this level, activities should be based upon existing regional organisations, in particular those with significant infrastructure and resources. The roles and responsibilities of parties active at the regional level should be clearly defined, with priority for support to the development of national capacities, and to the establishment of cooperation between national systems.

Tasks of the Regional Committee for evaluation, planning and monitoring:
- it is a consultative body, linked to regional organisations;
- regional coordination;
- support to national systems;
- planning, monitoring and evaluation;
- mobilisation of resources;
- training.

4.2.3 At international level

This level provides great opportunities for North/South and South/South partnerships, especially in the use of the technology possibilities available at international level.

North/ South partnership:
- mobilisation of resources;
- training;
- technical assistance;
- information exchange (North/South, but also South/South);
- resource sharing (human, financial, technical resources; North/South, but also South/South).

Group 4: New information technologies: which needs, which products, which technologies, which professions?

Chair: Mr Paul Osborn

Secretary: Mr Michael Hailu

Members : Mr Ronald Barrow; Mr N Bosso; Mr Kaj Bruhn; Mr Jean-François Giovannetti; Mrs Chantal Guiot; Mr Haggar; Mr Hans van Hartevelt; Mme Rosemay NG Kee Kwong; Mr N'Diaga M'Baye; Mr Omar; Mr A Parou; Mr Philippe de la Saussay; Mr Milorad Stjepanovic; Mr Jan van der Burg.

1. Introduction

1.1 Guiding principles

In view of the highly complex nature of the theme, with many new and emerging elements, it was felt important to anchor the discussions with several "guiding principles". These principles provide some main criteria for defining which new products, new technologies, and new professions should be considered:

Two requirements:
- the imperative need to increase agricultural productivity, whilst protecting the environment, in ACP States;
- the need to increase the competitiveness of rural enterprises.

Three criteria:
- the relevance and potential of new information technology should be apparent;
- the comparative advantage (cost, cooperation, demonstration value) should be apparent;
- there should be a balance between the information technology drive and its applicability in ACP States.

1.2 Process

To initiate and pursue its work, the group employed the following methodology:

- to compile a typology of users;
- to identify information needs;
- to match needs to users;
- to prioritise needs;
- to identify products and technologies which could meet those needs.

1.3 User groups

The following categories of users were established. It was stressed that these are not watertight, nor rigid, given the evolution of such sectors as extension work, changes in rural economy, and the role of the State, and the changes in relationships between them. Further, almost all of these categories were, in different roles, producers of information as well as consumers of information:

- farmers;
- extension workers;
- agro-industrial enterprises;
- researchers and research managers;
- trainers/educators;
- decision-makers (policy level);
- information professionals, including media professionals;
- general public.

The specific needs and products, itemised by categories of users, are shown in Figure 1. What follows here is a synthesis of the needs and products/services.

2. Information needs

In general, there is a need for greater dynamism, and cross-sectoral contact, in the information chain. Because of the growing flows between the different categories of information users and producers, the importance of feedback cannot be stressed enough.

2.1 Decision-support information

Decision-support information is a high priority for virtually all sectors, market information in particular. This comprises up-to-date and comprehensive information about the conditions and costs of production (input prices, labour costs, etc.), and actual and expected market prices.

Farmers and extension workers need access to the experiences of others, in similar situations (known as "indigenous information"), so that their experiences may be adapted or replicated. They also need, as do agro-industrial enterprises, financial information on their actual performance, and the costs of, and access to, credit. With an eye on increased commercial production, there is a need for more accessible information on the legal and regulatory conditions regarding production and export requirements.

At the level of decision-makers, background information on patterns and changes in land tenure is needed from policy formulation, in technology innovation, and in international market developments. The complexity of information for macro-policy work requires the production of 'information syntheses' which summarise the major facts and trends.

2.2 Resource information

Practical, 'how-to' information remains a high priority for farmers, extension workers and agro-industrial enterprises to be able to select and apply the most appropriate technologies and processes.

Information about events, such as fairs, exhibitions, and meetings, is essential for most categories, since they provide an excellent means for updating professional contacts and knowledge. Similarly, research bodies and managers need to have access to information about experts (as do extension workers), other research projects, and funding possibilities. Information professionals need to keep up to date on trends in modern information and communication technology (as do extension workers), and management.

Finally, there is a need to keep the general public in industrialised countries informed about the needs of rural development in ACP countries, and the steps being taken to meet them.

3. Priority products and services

3.1 Information for production

At the level of the farmer and the extension worker, there is a need to strengthen established information products, such as bulletins, leaflets, booklets, audio-visual aids and rural radio. A similar need exists at the level of research and education/training bodies, where greater access to articles, books, primary and secondary information, bibliographies and full-text resources is needed. New information technologies provide possibilities in their production through, for example, electronic translation in co-publishing. Multimedia technologies provide new opportunities, especially for extension workers and researchers, in accessing richer sets of information and in simplifying complex tasks such as diagnostics and interactive learning.

3.2 Professional development

New information and communication technologies can also help to meet the pressing needs of professional development, through services in distance learning and teleconferencing. Greater attention should be paid to skills development for researchers and educators/trainers in project methodology, writing, communication and use of audio-visual and multimedia. Equally, products should be developed to assist policy-makers to enhance their skills in analysis, synthesis and programming.

3.3 Orientation

At the level of the agro-industrial enterprise, there is a place for information in the form of profiles, which describe the production, processing, market potential and requirements of specific commodities. This sector could also benefit from a 'technology watch' service which provides details of trends in technology. The same 'watch' could provide valuable background information on breaking trends, innovations and areas for research and development, at the policy level. This level also needs specific background briefing documents on technologies and general development policies.

3.4 Optimal use of electronic networks

The emerging electronic networks allow new channels for the exchange of primary, secondary, enterprise and professional information, of special value for enterprises, the research community, educators and trainers and policy-makers. It will be essential to ensure access, where possible, to electronic networks. To facilitate this, there is a need for guides about making optimal use of these new possibilities, which take into account—and seek to resolve or mitigate—the difficulties that exist today in their use and access.

3.5 Public information

In order to maintain information and interest of the public in Europe in rural development issues in ACP countries, there is a need for an active use of the media. This should include the use of documentary television films, radio features, regular publications and of the new media on electronic networks, such as the World Wide Web.

3.6 The "new" ACP information professional

In providing and facilitating these products and services, the "new" ACP information professional has a key role to play. Products are required that will enable the professional to enhance her/his knowledge of information technology, electronic networks and resources, and the subject-matter of rural development, as well as her/his skills in management, marketing and communication.

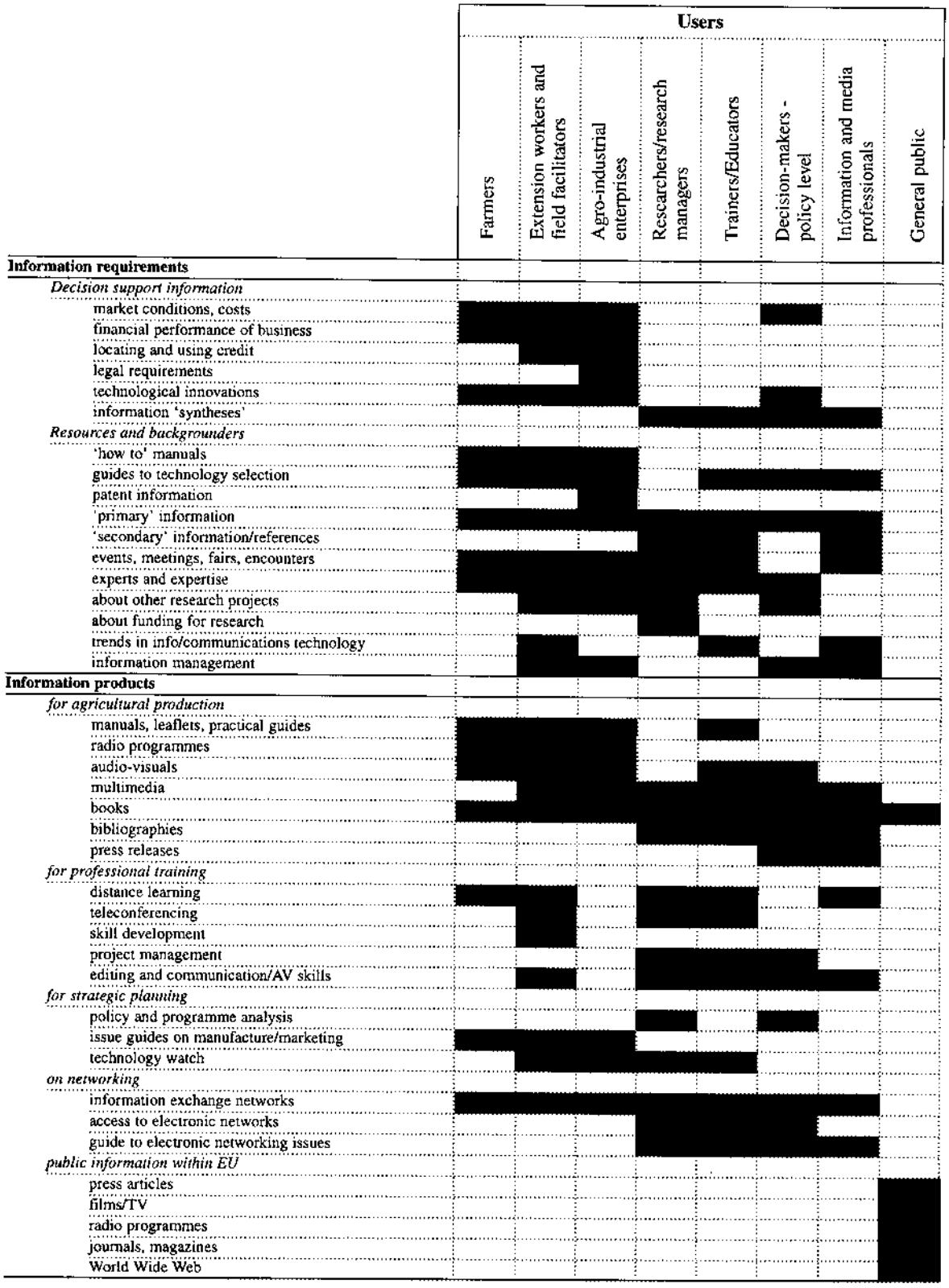

Figure 1. Tabulation by Group 4 of information needs and products by categories of users.

Annexe 1

Programme of the seminar

Monday 12 June

1100
Opening ceremony

1430
Introductory presentations
- What is at stake in the rural development of ACP countries?
  by Mr Baba Dioum, General Coordinator of the Conference of Ministers of Agriculture of West and Central Africa, CMA/WAC
- Information for the rural development of ACP countries: CTA review and prospects
  by Mr Dominique Hounkonnou, Head of Operations and Regional Activities

1630
Tour of Montpellier's international Agropolis Museum

1930
Reception at the invitation of CIRAD

Tuesday 13 June

0900 / 1230
Four analyses presenting the conclusions of the preparatory studies:
- Agricultural information needs of ACP countries
  by Prof. Anthony Youdeowei
- A review of the trends in the supply of information for rural development from Europe to ACP countries
  by Mr Paul Osborn
- How to link up the various levels with regard to information policy?
  by Mr Marc Lévy
- New skills, new technologies, new products
  by Mr Jean-François Giovannetti

1430 / 1800
Work in four groups: new tendencies for the forthcoming 10 years
1. The expectations of the various audiences
2. Can we talk of information without talking of communication?
3. Linkage between the levels: regional, national and international policies
4. Which needs, products, tools, skills ?

Wednesday 14 June

0900 / 1800
Continuation of work in four groups

Thursday 15 June

0900 / 1100
Plenary session

1100 / 1230
Open debate

1500
Tour of CIRAD: exhibition and multimedia session

Friday 16 June

0900 / 1100
Presentation of syntheses of the working groups

1100
Open debate / Close

1300
Lunch and drinks party at the invitation of the CTA

Annexe 2

List of participants

(by alphabetical order of countries)

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Annexe 3

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PART 2
Preparatory studies

Preparatory study 1

Summary of the achievements of the CTA since the seminar "Montpellier 1", 1984

Elisabeth Paquot and
Pascal Berqué (GRET)

Introduction

In December 1984, 1 year after its establishment, the CTA organised a seminar in Montpellier on the theme of "Scientific and Technical Information (STI) concerning Agricultural and Rural Development in the ACP countries". The goal of the seminar was, with experts and practitioners from Europe and ACP countries, to define priority lines of action to facilitate access to information for ACP countries and its circulation within ACP countries.

The recommendations made by the Montpellier 1 seminar provided a basic working approach that was further elaborated by the Consultative Committee of the CTA, in tune with the evolving needs of ACP countries. The overall package of activities undertaken by the CTA in the last 10 years shows how much these recommendations were taken into account. In this way, the CTA has demonstrated its desire to work in partnership, and to involve specialised organisations and users in discussing its programme directions.

This present summary document does not cover the totality of CTA activities in the last 10 years. It simply offers a broad panorama of the main programme lines followed by the Centre, and their evolution, in regard to the recommendations of the Montpellier 1 seminar.

This document is structured as follows:
- first, a brief sketch of the major trends in CTA programmes in the last 10 years;
- secondly, a summary of the major recommendations of the Montpellier 1 seminar;
- thirdly, a presentation of the CTA's principal work programmes;
- a set of annexes, with the text of the Lomé Convention IV that defines the mandate of the CTA; the full recommendations of the Montpellier 1 seminar; and some significant statistics which track the evolution of CTA activities.

1. Ten years' work for information for rural development

1.1 From Lomé II to Lomé IV: from one convention to another

CTA is a joint organisation ACP-EU, created in the Lomé Convention II on 31 October 1979. It established its operations in 1983. The Convention stipulates that "the CTA shall be at the disposal of the ACP States to provide them with better access to information, research, training and innovations in the spheres of agricultural and rural development and extension".

The Lomé Convention IV (15 December 1989: see Annexe 1, p.75) confirms this mandate and adds an additional objective: " to foster the development by ACP States, at national and regional level, of their own capacities for production, purchase and exchange of technical and scientific information on agriculture, rural development and fisheries", and further adds that "the Centre shall be supported by decentralised regional or national information networks. Such networks shall be built up gradually and efficiently as needs are identified".

The two prime objectives define the modus operandi of the CTA. Its activities are clustered around two principal axes:

- facilitating access to information for rural development, for users in ACP countries, and production and circulation of information that is appropriate to their needs;
- strengthening national and regional capacities for the production and dissemination of information for rural development, and to promote the integration of scientific and technical information in rural development strategies in ACP countries.

These two (operational) objectives are, indeed, part of the Centre's history. They correspond to two phases of the Centre's work, whose metamorphosis was the evolution of the Centre's efforts to keep its programmes in tune with, and responsive to, the needs of ACP countries.

1.2 Phase 1: Improve ACP countries' access to information, and its circulation and dissemination

From 1984 to 1989, the CTA sought to facilitate access, for ACP countries, to scientific and technical information, to promote appropriate information products, to disseminate useful information, and to facilitate its use in ACP countries. To do this, the CTA developed the following range of instruments:

Studies and seminars: understanding and exchange

The studies undertaken by CTA made possible a process of analysis of the key questions in rural development, to identify information needs and possible responses. These studies were often the basis for organising regional or international seminars of experts and practitioners from Europe and ACP countries. They provided the opportunity for participants to develop models of cooperation and partnership—in short, to network.

Opening up references and documents: optimising the available

Training courses were held for documentalists to strengthen their skills in collecting, processing and disseminating scientific and technical information. During this first phase, this training was aimed at building up the documentalists' capacities to use national and international information sources. Documentation centres in ACP countries were helped to get access to international databanks, and were provided with equipment in CD-ROM technology, computer systems and reproduction. These centres of documentation, research and development were provided with subscriptions to periodicals, including magazines, scientific journals and bibliographies.

Information on demand

The question-and-answer service of the CTA provides direct, customised access for information requesters. It provides several thousand responses a year, in technical detail or through publications.

Publishing

The journal *Spore* is a channel for fast circulation of information on rural development to English, French and Portuguese audiences, made up of both managers and decision-makers in agricultural development, and of field workers. The CTA also publishes, co-publishes and translates specialised documents, and extension manuals, for free distribution. Equally, publications of other bodies are distributed free of charge.

Decentralisation to better match supply and demand

In 1987, the CTA started a process of decentralisation of part of its work, in order to enhance its responses to users. It set up two regional offices, one in the Pacific, based in IRETA, and one in the Caribbean, based in CARDI, in Trinidad and Tobago. These offices took over part of the work of the question-and-answer service, the dissemination of technical publications, organisation (with CTA) of training courses, distribution of CTA publications, and routing of information and requests to CTA.

1.3 The enabling of ACP countries in information strategies and activities

In 1988, the CTA commissioned a mid-term evaluation of its activities. The conclusion was that the Centre had "succeeded in its mission, way beyond the objectives which had been set". In 1989, the Lomé Convention IV broadened the scope of CTA activities, emphasising three essential tasks:

- strengthen national capacities for the production, processing and dissemination of information;
- assist in the better integration of scientific and technical information in rural development strategies in ACP countries;
- provide support to ACP countries in developing information programmes.

These factors together—the mid-term evaluation, the amendments to the Lomé Convention, and its own review process—lead the CTA to give a new thrust to its work. This does not entail changes to previous programmes, which are directed towards meeting the following six requirements:

- categorise in more detail the requests and needs in information in ACP countries, based on geography and types of users;
- provide information products and services that are appropriate to the specific requirements of users;
- continue with decentralisation, at regional and national level, in order to better integrate scientific and technical information in regional and national development policies;
- strengthen moves towards better communication between the different actors on the information chain: decision-makers, researchers, extension workers, documentalists, journalists, farmers...;
- strengthen and enhance national capacities in the production and dissemination of information;
- help to define, and implement, overall strategies and programmes of information for rural development at national and regional level.

These requirements lead, in turn, to new steps in CTA's work programme.

1.3.1 Existing support activities and documentation services for researchers, documentalists and rural development agents are further enhanced by two new programmes. They aim to provide finely-tuned responses to information needs:

- An SDI service (selected dissemination of information) is provided for researchers, after an analysis of their areas of interest, and the creation of a profile of their needs, which are met through bibliographies and targeted documents. The SDI service, after a pilot period in 1988–90, really 'takes off' in 1991.
- The DORA programme is developed as a programme for the Dissemination of Reference Works on Agriculture. It aims to decentralise access to information, and to provide actual documents to agricultural information services in ACP countries, particularly in rural areas. The services and information centres can specify the documents they wish to receive.
- In 1994, the CTA initiates a pilot project on the use of e-mail (electronic mail) for the benefit of agricultural research centres in eastern Africa. The project aims at enabling direct communication, and information exchange, between these centres and the international research centres, using electronic networks.

1.3.2 Expanded activities for strengthening national capacities in information processing and dissemination:

- Training for documentalists is directed at better management and 'marketing' of information. In addition to using existing sources, it is felt important to anticipate user demands, to design appropriate information products, and to find the best channels for dissemination, instead of holding a stock of information waiting for a customer.
- Training courses for researchers and rural development agents are organised to help them to design and produce information products, and to optimise and circulate their knowledge.

1.3.3 A programme of support to rural radio is started in 1990, following studies undertaken in 1987, and a workshop held in 1989. The goal of the programme is to improve the links between researchers, journalists and villagers, and to provide local farmers with appropriate information. The programme comprises in-service training for journalists, and the provision of sets of written and audio materials.

1.3.4. The Arnhem seminar on technical publishing in Africa is held in 1992 and points to the need for stronger local capacity in publishing and distribution. The seminar held in La Villette (Paris) on audio-visual communication similarly urges the importance of training development workers in leading communication events, in using audio-visual aids.

From 1991, the CTA gives a new thrust to decentralisation:

- A series of studies is undertaken in Africa, by region, to identify exact information needs, and to identify existing information resources.
- Regional committees for evaluation, programming and follow-up in agricultural information (known by the French-language acronym CREPS) are established in three regions: central, eastern and western Africa. In Southern Africa, it is decided that a future CREPS will be based at SACCAR.
- National focal points are identified within African institutions that could help in the circulation of information at national level, and help in certain activities of the CTA, nearer the field.

1.4 Perspectives

As well as continuing its existing activities, the CTA wishes to strengthen its fieldwork and to develop its links with ACP countries, through, for example:

- training for trainers in documentation and rural radio;
- promoting the publication and dissemination of works from ACP countries, by the commercial sector, and by local organisations.

2. The main recommendations of the Montpellier 1 seminar

Ten years ago, the Montpellier 1 seminar focused on three essential issues in scientific and technical information for rural development in ACP countries:

Problem of access to information

Every year, in the world, tens of millions of new scientific and technical documents are produced. Yet ACP countries have very little access to them. The supply of information is expensive, scattered and poorly known.

Unfiltered, unfocused

Existing dissemination is far from 'best practice', with an abundant 'availability' of information being scattered and poorly targeted on the varying, specific needs of different users. In scientific and technical information, quality should outweigh quantity, and yet the present 'supply' responds very patchily to the needs of ACP countries.

Unfinished quality in available information

Of the information that is available, much is in the form of 'raw material'. Unprocessed, it cannot be accessed or used, and its circulation is weak. "To a certain extent, all the work (on information) hitherto had led more to the collection of raw materials, and to the production of some tools, than to the design, promotion and dissemination of genuinely useful information products."

In concluding, the Montpellier 1 seminar urged action on both supply and demand, so that they could meet. On the supply-side, there was a need for better organisation, appropriateness, and real availability. The demand-side, given that it is often diffuse and not properly expressed or recognisable, should be made better known—in this, a more transparent supply-side could act as a stimulus to demand.

The Montpellier 1 seminar split this general line into a number of more precise recommendations, listed in Annexe 2, and summarised below.

2.1 Analyse, stimulate and organise demand

- Develop awareness of scientific and technical information among researchers, students, extension workers, journalists, farmers' associations, and provide training in its use

2.2 Describe the available offer of information

- Produce directories of sources of agricultural information in EU and ACP countries, covering journals on rural development, national sources of know-how, and audio-visuals
- Compile a directory of sources of funds, in EU and ACP countries, for the acquisition of books and journals, and of general benefit to scientific and technical services

2.3 Promote exchanges and cooperation

- Organise technical meetings between experts from ACP and EU, to exchange scientific and technical information
- Create decentralised networks of documentation centres specialising in the needs of extension workers and rural development agents

2.4 Publish and distribute appropriate information

- Publish and translate scientific works and technical manuals

- Promote co-publishing and co-publications, with different language versions, featuring the results of research
- Create scientific and technical journals in ACP countries
- Experiment with, evaluate and develop the use of audio-visuals
- Distribute scientific and technical documents through traditional channels of book distribution, or through creating 'development bookshops'
- Provide information to the press and radio, in simple-to-use formats

2.5 Facilitate access to information

- Make available past and present literature, to countries concerned, in printed or micro-fiche format
- Encourage documentation centres to participate in international documentation and information networks
- Assist documentation centres to access databanks
- Encourage cooperation with the AGREP and CARIS systems
- Cooperate with FAO to encourage the use of multilingual documentary output from AGRIS
- Examine the possibilities of reducing document prices, and dealing with the problems of foreign exchange (such as book tokens)

2.6 Strengthen national and regional development and information services and systems

Documentalists and researchers:

- provide training in use of information sources
- help locate funding and scholarships for training in documentation
- promote the use of micro-fiches
- help develop the capacity of documentation centres to provide a range of services and to reproduce documents
- support documentation centres to develop guides to information sources and research registers
- support documentation centres to develop national bibliographies
- support the publication of research results, and of information on natural resources

Rural development agents:

- support extension services to create linkages between the needs of the end-users, and agricultural, research and development information services
- provide training for rural extension workers in providing information to end-users, and in using information sources

Publishers and broadcasters:

- examine the possibilities of printing documents in ACP countries
- develop a better understanding of traditional information flows and channels, and link them to flows of scientific and technical information

2.7 Create linkages and promote STI into international organisations

- Strengthen collaboration with EU and ACP NGOs
- Projects submitted for funding should contain programmes linked to STI
- Support the fact that the creation and strengthening of STI national structures have to be recognised as specific project aims.

3. Summary of programmes and activities of the CTA

3.1 Analyse, stimulate, and organise demand

Studies have played an important part in the activities of the CTA. They are undertaken in response to a range of requests by ACP countries to enhance their knowledge of specific issues and topics, and thus serve several purposes. They can provide the basis for publications, or serve as background material for seminars or other meetings organised by the CTA. They also allow the CTA to optimise its service to ACP countries, and they usually are the preliminary step towards any project implemented by the CTA. Among examples of this approach are the study that analysed the problems of technical publications in Africa, and the study of the needs of researchers for scientific information, in the development of the selective dissemination of information (SDI) programme.

Sometimes, studies have prepared working documents for seminars and meetings attended by ACP experts, and, at other times, they have been undertaken on specific subjects, such as the 1995 study on the needs of ACP countries in functional literacy.

From 1991 onwards, in the different regions of Africa, the CTA has undertaken an extensive needs analysis in information for rural development. These studies led to regional workshops, and, ultimately, to the establishment of CREPS.

3.2 Know what is available

Considerable work has been undertaken by the CTA in compiling directories and overviews of what information is available, and where. Among the many activities in this area, the following few examples are typical.

The first inventory was in 1984, in the field of bananas and plantain, when a retrospective document search was made on their cultivation, in cooperation with the IRFA. Documents were collected, and a database created. In association with IAALD, the CTA has compiled a directory of agricultural information sources, for ACP countries, in the European Union. It has supported the development of a directory of agricultural research in the English-speaking Caribbean, in association with CARIS and University of the West Indies, in Trinidad and Tobago. It has supported a similar directory of researchers and research projects in West Africa. Finally, it has compiled a directory of CD-ROM sites in, and CD-ROMs available for, ACP countries, in cooperation with UNESCO and the University of Montreal. These directories have been disseminated to documentation centres, agricultural research centres and rural information centres in ACP countries.

3.3 Promoting exchange of experiences, and networks / networking

3.3.1 Seminars

The first seminar was held in 1984, at the headquarters of the CTA in Wageningen, on the topic of vegetable and animal production in ACP countries. This provided the themes for research and programme directions for several years. The CTA organises about seven seminars annually, both thematically and regionally. Attention is paid to ensuring the participation of professionals from the field, and to encouraging a stimulating mix of professional backgrounds: experts and practitioners, decision-makers and field workers. These criteria are always scrupulously applied in the selection of participants. Similar care is taken in the case of thematic seminars, when geographic balance is an essential criterion.

These meetings enable the participants from ACP countries to better acquaint themselves with the services of the CTA, and its ability to mobilise a wealth of scientific and technical information. They also provide an opportunity to the CTA to keep in touch with different professional interests at work in development, in both Europe and ACP countries, to measure needs, and to develop new lines of thought and action, so as to optimise CTA's needs response. The proceedings and summaries of these seminars are systematically published and disseminated.

The themes of seminars are selected on the basis of priority lines of work or of the needs expressed by ACP countries. More often than not, the seminars are organised in cooperation with partner organisations, in both ACP countries and Europe, such as research institutes, consultancy organisations or NGOs specialising in the topics concerned.

There are three broad categories of seminar topics: those around issues of development strategies and policies; on specific aspects of agricultural development; and on information exchange.

Parallel to the seminars that it organises itself, the CTA also provides support to representatives from ACP countries to attend seminars organised by other organisations, through meeting the costs of travel and subsistence. In 1986, 50 experts from ACP countries were able to make use of this facility. In 1995, it will enable about 200 representatives to participate in regional and international conferences and seminars. There are several benefits in this programme, in addition to the professional gain to the participant. It means that CTA can obtain additional, original scientific and technical documentation, which it can use or distribute to the benefit of all ACP States. Furthermore, when necessary, the CTA is able to suggest ways in which the meetings might be able to better address the specific concerns of ACP countries.

3.3.2 Study visits

Since 1991, the CTA has supported study visits for rural development agents, in order to strengthen field contacts. In 1993, two study visits were financed: one to Europe, on agricultural training, and one to Kenya on improvement in coffee cultivation. The theme of the 1994 visit was agroforestry in Burkina Faso.

3.4 Providing information to meet the need

3.4.1 Spore, *the magazine of the CTA*

Spore is one of the great success stories of the CTA. It was launched in 1986, as a quarterly bulletin with 12 pages, and a circulation of 5 000. Now, 8 years later, its English and French editions, with 16 pages, have a combined circulation of 35 000 copies per issue.

The Portuguese version of *Spore*, *Esporo*, was launched in January 1993. Following the footsteps of its elder, it is a quarterly, with 12 pages, and 5 000 copies per issue.

The magazine meets several needs at once. It is a channel for precise technical information for a broad public, as well as in-depth articles. It covers publications, information sources, and training courses in Europe and ACP countries. It is also a channel to describe the work and services of the CTA. Many of the enquiries made to the question-and-answer service of the CTA come from readers of the various editions of *Spore*.

3.4.2 Publishing, co-publishing, and translations

From its inception, the CTA has published and distributed publications to respond to the expressed needs of its target groups. This activity has developed over the years, and has diversified in response to trends observed in the enquiries made to the question-and-answer service, in studies and seminars, and by contacts with new

partners. The catalogue of CTA publications now exceeds 600 titles. In all, the publication activities of CTA are clustered around three axes:

- seminar proceedings;
- co-publications programme;
- translations.

With the exception of the proceedings of the seminars and the results of studies it has financed itself, the CTA gives priority to co-publications and translations. In this area, the CTA has many partners, of which some major ones are: ACCT (Agence de Coopération Culturelle et Technique), Editions Maisonneuve and Larose, CIRAD, ITP, Macmillan, Agromisa, Terre et Vie, and GRET. One notable example of this co-publishing activity is the collection of titles *Le technicien d'agriculture tropicale*, published by the CTA, ACCT and Editions Maisonneuve and Larose. These small-format booklets have been designed as practical manuals, easy for development workers and farmers to consult, in a clear, illustrated style with requisite advice. The Agricultural Academy of France awarded a prize to this collection in 1992. The collection has been published in an English version, *The Tropical Agriculturalist*, a co-publication of Macmillan and the CTA. The collection has now grown, in 1995, to 30 titles, of which the most recent is *Dairying*, and there are forthcoming titles on leather and hides, and oil palms. Also worthy of special mention is the production, over the period 1984-88, of the *Atlas de ressources en pâturages des pays du Sahel*, in collaboration with CIRAD-EMVT.

The CTA also provides support for the publication and dissemination of specialised journals and periodicals. Among these are the fortnightly *Caribbean Farm News*; a quarterly newsletter of trypanosomes and the tsetse fly; *Maize Abstracts*; the newsletter *Regular Information System on Environment and Development* of the European Environment Bureau, and a bibliographic bulletin on bananas and plantain, in association with CIRAD-FLHOR.

Over the years, the interest of the CTA in technical extension publications has grown. This has been in response to trends observed in the enquiries made to the question-and-answer service, which pointed to the need for more practical works in this area. The same approach was signalled by the 1992 seminar in Arnhem on technical publishing in Africa, and in the regional needs assessments studies on information for rural development.

As part of the approach to encourage local initiative in publishing development, the CTA participates in the principal book fairs in Africa: the Zimbabwe International Book Fair, and the International Book and Educational Materials Fair in Dakar (Senegal). These events provide a unique opportunity for encounters with the world of publishing—authors, publishers, booksellers, distributors, and agents—and to identify and follow trends and technical developments in this sector.

In the same framework, the CTA has developed close relationships with three organisations working to promote African publishing: the Bellagio Publishing Network, the African Publishers' Network (APNET) and the African Books Collective.

3.4.3 Production and dissemination of audio-visuals

The Centre has also been involved in supporting the production and dissemination of audio-visuals, albeit in a more limited way than in publishing. One key example of its work on slides, films and video has been the *Encyclopédie illustrée du Sahel*, co-published with the CIEPAC.

The CTA is keen to increase its involvement in this sector. In 1993, in cooperation with GRET, it undertook a study on the use of audio-visuals for scientific and technical information for rural development. This study

was intended to identify the means required to promote the use of certain audio-visual tools in scientific and technical information work, and to make an assessment of the various organisations that produce and disseminate audio-visuals. Following this study, an international seminar was organised at the end of 1994, at the Cité des sciences et de l'Industrie de La Villette in Paris, with the theme: "Audio-Visual Communication in Rural Development Work in ACP Countries : Lessons and Projects". The future direction of the CTA's involvement in this area will have been defined, in part, by this meeting.

3.4.4 Distribution and dissemination of publications

The Centre distributes its own publications, and co-publications, free of charge, in two ways: firstly, on request (in 1993, 37 000 such requests were made), and by selective mailing to the CTA address list (which, in 1993, comprised 13 000 addresses). The total number of publications distributed in 1993 (approximately 50 000) was down slightly on the 1992 level of 60 000 titles. Of this total, 84% went directly to ACP countries, and the remainder went principally to European organisations and individuals involved with agricultural development in ACP countries. In 1993, about 28% of these freely distributed publications went, as a priority, to libraries and documentation centres, to be accessible to a broader public. Others went to organisations of the European Union, for transmission to ACP countries.

3.5 Facilitating access to information

3.5.1 Question-and-answer service (QAS)

This service was created in 1985 and responds to requests for information on agricultural and rural development from individuals and institutions in developing countries. In 1992, the QAS responded to 744 specific enquiries, compared with 100 in 1985.

To provide the most efficient response possible, the QAS makes use of the large international databanks, such as AGRIS, CABI Abstracts, AGRICOLA, BIOSIS and IBISCUS. It also uses specialised services such as BDPA, Agromisa, CAB International, CIDARC, NRI, KIT and ITP to provide publications and primary documents.

Most of the clients of the QAS in 1993 were extension workers, researchers, farmers, students and documentalists. The nature of the enquiries can be taken to be a reflection of the concerns and interests of ACP countries. It thus serves as a source of intelligence for the CTA to understand demand, and to use as an aid in selecting topics for seminars and publications.

The QAS has decentralised part of its work with enquiries from the Caribbean and the Pacific being handled directly by the regional bureaux of scientific and technical information in these regions: CARDI (which handled 3 414 enquiries in 1993) and IRETA.

3.5.2 Access to references, access to databases

The CTA has organised training courses for documentalists in the use of the CARIS system, in order to promote the use of this system and the overall AGRIS system. It has also supported the dissemination of AGRINDEX to documentation centres in ACP countries. Finally, in cooperation with SACCAR and CIRAD, it has produced a bibliography of references of interest to SADEC countries, with nine volumes containing 20 000 references.

3.5.3 Selective dissemination of information (SDI)

The CTA SDI service for agricultural scientific and technical information was launched in 1988, together first with CIRAD and later with CABI, as a pilot project. It now provides customised information to researchers

in 70 ACP countries. In 1991, it was decided to expand the system, and to seek to serve 1 000 researchers in ACP countries. After an initial analysis of their priority information needs, the researchers receive a list of references, that match their subject profile, six times a year. The references are drawn from various databases. Since many agricultural libraries in ACP countries do not have the actual documents or periodicals listed, the SDI service offers to provide copies of actual articles, free of charge.

The SDI service, after a slow start, has become increasingly recognised as a reliable source of information for the research community. User feedback on the value of the service, and future demands, is ensured through regular questionnaires and, where possible, interviews. Coordination with other organisations with similar services is also sought after. In 1995, this service is provided to almost 1 500 researchers.

3.5.4 Disseminating references

The DORA programme (Dissemination of Reference Works on Agriculture) was launched in 1991 by the CTA, in collaboration with BDPA and ITP. It aims to support national and regional information centres whose collections are incomplete and often out of date. Twenty such centres now have access to a fund of ECU 5 000 each for the purchase of essential works on agriculture. Between 1991 and 1993, 71 sites in ACP countries benefited from the DORA service and flexibility. The service provides the users in documentation centres with the publications they order, on topics of agricultural and rural development. The programme's management information system tracks and evaluates the extent to which services meet demand.

In 1994, the CTA implemented a number of recommendations made in an evaluation conducted in 1993, in particular dealing with support to agricultural training schools. As of 1995, the CTA will include one further training school from ACP countries, per region, annually in the list of DORA sites.

3.5.5 The CD-ROM project

Between 1988 and 1992, the CTA provided 35 documentation centres in 32 ACP countries with agricultural databases on CD-ROM, together with the necessary equipment: personal computer, a UPS (uninterruptible power supply), laser printer and a CD-ROM reader. The beneficiary centres are expected to actively disseminate the information, and thus to be in a position to provide such services in their country or in the region. The project is implemented by the KIT, on behalf of the CTA, and runs its training programmes, delivery of new CD-ROMs, and subscriptions. The programme has also continued to distribute the CD-ROMs produced by the CGIAR which feature all the documents, in full text, produced by CGIAR centres in the period 1965 to 1986.

The CTA has been a pioneer in the provision of CD-ROMs to ACP countries. Nowadays, the technology is being included in the programmes of many development agencies. With this in mind, the CTA has sought to create a process of dialogue with these agencies, to build up an overview of CD-ROM sites in ACP countries, and to help define its own specific role. There is a process of rapid change under way with information and communication technologies: CD-ROMs have evolved fast with the emergence of multimedia technology, and new possibilities are appearing, such as the Internet network. The CTA will want to adapt its work in this field in tune with these rapid developments.

3.6 Strengthening national and regional information and documentation services

A major observation of the seminars and studies undertaken by the CTA has been that one of the barriers to effective circulation of information on rural development lies in the problems of establishing dynamic and fruitful communication between researchers, documentalists, journalists, extension workers and farmers.

The CTA has organised numerous training courses to help researchers, documentalists, journalists, and extension workers to develop their capacity to process and disseminate their information to other audiences. Started in 1989, these services took on new life in 1992. No fewer than six workshops were held, with three parts: publication production, scientific editing, and editing and production of extension materials.

The CTA has run these training programmes in close collaboration with several international organisations, in particular PROGEFIA, the General Programme for Agricultural Information and Training.

3.6.1 Researchers: write to be read!

A major problem in the dissemination of the results of agricultural research lies in the relative weakness of publishing activities within national agricultural research systems (NARS). It is to overcome this shortcoming that the CTA has organised workshops for researchers on scientific editing and publishing. In 1991, a workshop was held in Lomé, Togo, and in 1991 in Yamoussoukro, Côte d'Ivoire. The two training courses enabled an exchange of experiences across the language barrier between anglophone and francophone researchers in West Africa. Two shorter courses were also organised in the Caribbean.

In collaboration with the International Institute of Tropical Agriculture (IITA), the CTA has organised two training workshops for the publications directors and information officers of research institutes. The first was held in Ibadan, Nigeria, in 1989; the second, in Cotonou, Benin, in 1991, under the direction of African trainers, with an emphasis on practical experience.

3.6.2 Support to extension workers in locally-appropriate publishing

Publications, to be useful, have to be appropriate to the local context. Workshops have been held, on editing and production of publications, for extension workers, field workers and the staff of agricultural information centres working on publications production. Two such training courses were held in Vanuatu and Fiji in 1992, on improving editing and style techniques, with equal emphasis on design, production processes and adapting publications to target audiences.

3.6.3 Documentalists as managers and distributors of information

Documentalists were the first professional group for which the CTA organised training courses. The programmes started in 1986, when the CTA realised that many of the enquiries it received could be handled by national information and documentation services.

The support provided by the CTA to these national services covered three types of training courses. An initiation course on processing agricultural information was provided to workers without documentary training. Then followed a workshop on management of agricultural information services for librarians and documentalists. Finally, a detailed course on the use of (personal) computers was provided.

The basic course, of 3 weeks, covered the processing of agricultural information in small information centres, and for unqualified assistant librarians. It included the skills of basic indexing and use of information sources. In all, 17 such courses were held at regional level in the Caribbean and Africa.

The second course, on management, dealt with writing of project proposals, fund-raising, management skills, promotion of services, and developing networks with other centres. This course focused heavily on the "marketing" aspects of information services. The computer courses provided basic information technology skills, in growing demand, for documentalists.

Evaluations undertaken by the CTA show that these courses gave rise to improvements in information services. For example, in the follow-up to a workshop organised in Dakar in 1986, and another in Lilongwe, a Ghanaian librarian was moved to launch a newsletter called *The Agricultural Front* for end-users. In Togo,

a documentation and agricultural information centre was established within the Ministry of Rural Development.

In the future, it is the intention of the CTA to allocate part of its resources to training the trainers, especially in the field of library services, in an effort to develop sustainable training services.

3.6.4 Enabling rural radio journalists to be more agricultural

After some preparatory studies in 1987, the CTA held a meeting in 1989 of the directors of rural radio stations and agricultural information services from 18 ACP countries, at CIERRO in Ouagadougou. The recommendations of this seminar form the basis for CTA's programme of support in this area, which has two major axes.

The one axis of the programme is to provide training to radio producers and broadcasters in improving their methods for gathering and using agricultural information in radio programmes aimed at rural audiences. In the period 1990 to 1994, a total of eight regional networks was held, with seven in Africa and one in the Caribbean. They provided quality training opportunities to almost 120 producers and journalists from 53 ACP countries. Each training session was organised in collaboration with a school of journalism, or a media training centre, and either GRET, Media Projects-WREN or CIERRO. These training opportunities enabled the participants to improve their interview techniques and broadcast production.

The second axis lies in compiling and disseminating thematic packages of information aimed at rural and national broadcasts in ACP countries. These packages contain taped materials of interviews with experts and end-users, plus printed scripts and background materials, such as articles and bibliographies. Fifteen such packages have been produced since 1990, and used by more than 50 broadcasting stations in ACP countries. These 'audio packages' are designed to be adapted for local use in radio and extension programmes. The packages are produced in French by Périscoop (France) and in English by WREN (United Kingdom); it is expected to produce packages in Portuguese shortly.

As a complement to these existing services, it is intended to publish (in collaboration with GRET and CIERRO), in the course of 1995, a directory of programme directors, journalists and producers in rural radio stations and agricultural information services in ACP countries.

3.7 Developing national and regional strategies and programmes

There is a need to make more appropriate the information strategies and programmes for rural development in ACP countries. To this end, the CTA has launched an approach, sub-region by sub-region, based on the needs and resources of the countries concerned, to develop and formulate regional policies and programmes.

From 1991 onwards, the CTA has maintained a systematic process of needs assessment in agricultural information in African countries. This process comprises: consultation with experts; regional workshops on information needs; national dialogue meetings; regional training workshops and programmes for regional committees, in evaluation, planning and follow-up of activities in agricultural information (CREPS). Each CREPS comprises four thematic coordinators from different countries of each sub-region (on research, training, extension and documentation), representatives of regional and international organisations, and members of the consultative committee of the CTA from the sub-region. The CREPS of Central, West and East Africa each held their first meeting between 1993 and 1994.

West Africa is the most advanced (sub-)region in this regard. Its CREPS developed a regional information programme that was adopted in July 1994 by the Council of Ministers of Agriculture of the Economic Community of West African States (ECOWAS).

In the Caribbean, and in the Pacific, the activities of the CTA are coordinated by bureaux located in CARDI (Trinidad and Tobago) and IRETA (Western Samoa). The Caribbean bureau, which operates under the responsibility of the CARDI director of programmes and research, is run by the staff of the CARDI information and documentation service. It services 15 ACP countries in the region, of which 12 operate national focal points. The Pacific bureau has been coordinated, since 1993, by the director of IRETA and services eight ACP countries in the region.

The CTA also promotes the assumption of responsibility by national organisations for information programmes. It does this by identifying national focal points that can further the circulation of information and assist in running certain CTA activities, in tune with the needs and resources of each country.

Annexe 1: Article 53 of the Lomé Convention IV

1. The Technical Centre for Agricultural and Rural Cooperation shall be at the disposal of the ACP States to provide them with better access to information, research, training and innovations in the spheres of agricultural and rural development and extension.

In carrying out its work within the framework of its responsibilities it shall operate in close cooperation with the institutions and bodies referred to in this Convention.

2. The tasks of the Centre shall be to:

a) assure, where so requested by the ACP States, the dissemination of scientific and technical information on methods and means of encouraging agricultural production and rural development, and also scientific and technical support for drawing up regional programmes in its own spheres of activity;

b) foster the development by ACP States, at national and regional level, of their own capacities for production, purchase and exchange of technical and scientific information on agriculture, rural development and fisheries;

c) refer ACP States' requests for information to bodies qualified to deal with them, or deal direct with such requests;

d) provide ACP national and regional documentation centres and research institutes with easier access to scientific and technical publications dealing with agricultural and rural development issues and to databanks in the Community and the ACP States;

e) in general help the ACP States to gain easier access to the results of work carried out by the national, regional and international bodies, more especially those qualified in the technical aspects of agricultural and rural development, based in the Community and in the ACP States, and maintain contact with these bodies;

f) foster the exchange of information between those engaged in agricultural and rural development, notably research workers, instructors, technicians and extension workers, on the results of agricultural and rural development operations;

g) sponsor and help organise meetings of specialists, research workers, planners and development personnel so that they may exchange experiences of specific ecological environments;

h) facilitate access by the ACP States' training and extension personnel to the information they need to carry out their tasks and refer requests for specific training to existing qualified bodies;

1) help facilitate the adaptation of available technical and scientific information to the needs of the ACP States' departments responsible for development, extension service, and training including "functional literacy programmes" in rural areas;

j) facilitate the dissemination of technical and scientific information for use in integration strategies of agricultural and rural development, by reference to the priority requirements of development.

3. In the performance of its tasks, the Centre shall pay particular attention to the needs of the least-developed ACP States.

4. To carry out its work, the Centre shall be supported by decentralised regional or national information networks. Such networks shall be built up gradually and efficiently as needs are identified with, as far as possible, the support of the most appropriate organisations and institutions.

Annexe 2: Recommendations of the Montpellier 1 seminar, 17-21 December 1984, on "Scientific and technical information (STI) concerning agricultural and rural development in the ACP countries"

1. Information sources

It is recommended that the CTA should:

1. Compile and distribute a directory of agricultural information sources in the EEC countries relevant to the ACP states to which the latter could refer (an improved version of the questionnaire employed for the preliminary study should be used). In this work CTA should stay in close contact with the competent national services.
2. Strengthen the national documentation and information systems which are a necessary tool for the handling of information for rural development, as well as for cooperation with FAO in this area.
3. Support the national systems of ACP states by helping them develop and update their own directories of information sources and rosters of researchers and experts.
4. Encourage ACP states to participate in existing international agricultural information systems such as AGRIS and CARIS, and to use them more efficiently.
5. Encourage collaboration between AGREP and CARIS for the benefit of ACP states.
6. Encourage and support ACP states to collect all data about national resources and to publish results of agricultural research carried out in their countries.
7. Prepare a directory of periodicals, published in ACP and EEC countries, on subjects related to agriculture in hot climates.
8. Support the ACP states to produce their own national agricultural bibliographies from existing databases.
9. Study means of improving access of ACP states to international databases, provide them with financial support to access these databases, and acquire relevant documents, possibly through intermediaries when no direct access is feasible.
10. Compile a list of agricultural extension periodicals and audio-visual programmes produced in the ACP and EEC countries, for rural end-users in ACP countries.
11. Assist ACP countries in acquiring retrospective and current literature directly related to them, published in EEC countries, either in hard copy or micro-fiche.

The point has been made that a significant part of STI is confidential and not available; it is recommended that CTA, through the Committee of Ambassadors, approach EEC and ACP governments to ensure that the necessary measures be taken to limit such confidentiality to a strict minimum, both for the time period and number of documents classified.

It is also highly desirable that contracts between governments and consultants stipulate that copies of final reports and studies are lodged with the national library and put at the disposal of national documentation and information centres.

2. The scientific and technical community

1. Bearing in mind that the scientific and technical community in ACP countries must have at their disposal the necessary information for their research and development work, the seminar recommends that CTA help strengthen, where necessary, the information structures of member states so that they may:
   - offer different documentation services—bibliographical search, retrospective studies and selective distribution of information,
   - offer reproduction facilities (photocopies, micro-fiches, photos),
   - serve as meeting points for scientists.

2. It is recommended that CTA help ACP countries to acquire teaching materials and to organise orientation and training courses in the uses of scientific and technical information for scientists and students.
3. It is recommended that CTA help ACP countries to provide courses on scholarships for scientists and technicians whom their governments wish to train in the field of documentation.
4. It is recommended that scientific and technical journals be created in ACP countries or supported where they already exist. Such journals, aimed primarily at scientists, engineers and decision-makers, containing scientific articles with multilingual abstracts but also research reports and institutional news, will strengthen the information network within these countries.
5. It is recommended that conferences on specific topics should be organised for the benefit of experts in ACP countries, in order to encourage the exchange of scientific and technical information.

With respect to the necessity to break down linguistic barriers to information sharing:

6. It is recommended that CTA should, in collaboration with other organisations using automatic translation systems, undertake a technical and financial study on the possible use of such systems.
7. It is recommended that CTA should approach FAO and emphasise the importance to ACP and EEC countries of the documentary products available from AGRIS, in different languages relevant to ACP countries, as a result of the AGROVOC multilingual thesaurus.
8. It is recommended that CTA should promote co-publication activities in order to make available documents and research results in several languages.

3. The community of intermediaries and communicators

1. It is recommended that CTA help to establish one or two pilot projects at the national level in ACP countries, with the aim of establishing a decentralised network of documentation centres, specifically related to the needs of extension officers and other rural development officers. This would allow a proper assessment of the value of such centres, their constraints and their cost.
2. In view of the importance of basic reference works and technical manuals, it is recommended that CTA establish a policy for the translation of these materials. This would allow them to be disseminated far beyond their original linguistic zone.
3. Considering that demand for agricultural information must be seen as an unbroken chain stretching from farmers right up to the course of STI, it is recommended that a particular effort be made to develop and improve extension services in order to maintain the link between the needs of users and agricultural information, research and development services.
4. It is recommended that CTA should create or support practical and technical reviews on rural development, written in simple language, containing technical information, news on the rural organisations and their activities, articles and general advice. CTA should supply these reviews with a features service.
5. Directories of national sources of STI and of leading technical or practical know-how should be published and circulated widely on a regional basis within the ACP countries.
6. The distribution of scientific and technical documents concerning rural development should be organised by incorporating them into informal circuits, or by creating "development bookshops" run by a public service or NGOs.
7. The radio and press should be used more fully to promote research work in development and to make STI resources better known, especially the publications mentioned above.
8. It is recommended that CTA use existing networks capable of providing radio and press with easy-to-use information in the field of science and technology.
9. Bearing in mind that information professionals are essential to the valorisation of research results, particular attention should be paid to their training. It is recommended that training workshops should be organised, with the help of CTA, for documentalists in order to enable them to handle properly available appropriate information sources.

10. Training workshops should be organised, with CTA support, for practitioners in extension service and rural training.

    These workshops should allow extension and training workers:

    - to provide practical information directly to farmers, drawing on the experiences of national government services, international organisations and NGOs;
    - to acquaint themselves with available information sources, documentation centres and information services.

11. It is important to introduce other communicators (e.g. journalists and leaders of popular organisations) to the principal scientific and technical issues of the times in their country. CTA should help in the production of material for this purpose.
12. It is important to acquire a better understanding of informal circuits and the ways of relating these to formal STI flows. Research on this aspect should be undertaken by social science experts.
13. Audio-visual means of communication, such as slides, cassettes and posters, should be researched, evaluated and developed. It is recommended that CTA should help ACP countries to establish a directory of available audio-visual aids.

4. Finance

It is recommended that CTA:

1. In cooperation with the ACP countries and the appropriate authorities of the European Community, examine the possibility of creating means of payment for acquisition of publications and documents, without having to spend foreign currencies. These means of payment would be accepted by ACP governments as payment in kind for part of the local costs of missions of EEC member states. Distribution of such payments within each ACP country would be determined by its own government and should be flexible enough to meet the needs of different categories of users.
2. Undertake directly, or indirectly, and update, a survey of financial sources (government, intergovernment or non-government budgets) which can best provide for the acquisition of books, periodicals and STI in EEC and ACP countries.
3. Arrangements could be made to operate such a system either by bilateral agreement or as an overall agreement between the EEC and ACP states.
4. It is noted that, given the experience with the UNESCO coupons (which are available to EEC and ACP countries) such a system would enjoy positive support from European publishers and providers of STI services.
5. Support the use of micro-fiches and related equipment.
6. Together with the countries concerned, study the possibilities of printing scientific and technical journals in the ACP states.
7. Strengthen its collaboration with the Directorate General XIII of the European Commission, concerned with "information and invention markets", which plays an important role in the field of information tools and systems, including questions of multilingualism and STI.
8. Strengthen its collaboration with international and national NGOs in EEC and ACP countries who are active at various levels in the circulation of STI for rural development.
9. It is recommended that:
    - In projects submitted for funding, there should be included a provision for STI and documentation, as a specific budgetary item.
    - Aid for the creation and improvement of national STI structures be recognised as a valid objective for specific projects.

Annexe 3: Data about the CTA's activities

Since starting operation in 1984, the CTA has seen very strong growth in its activities. Its financial resources have increased seven-fold in 9 years, from MECU 1.29 in 1984 to MECU 9.5 in 1993 (see Fig. 1).

Most of these additional resources have been allocated to new activities. Expenditure on projects and programmes grew from MECU 0.325 in 1984 to MECU 5.99 in 1993 (that is to say: from a share of the total budget of 25% to 63%: see Fig. 2).

Expenditure on projects and programmes breaks down into six sectors: studies, support to regional bureaux, seminars, publications, support to documentation centres in ACP countries, and the question-and-answer service (see Fig. 3). The share of the budget used by each sector has stayed relatively stable, despite fluctuations caused by annual shifts. Figure 4 shows the strong growth in allocations to seminars organised by other organisations—a true demonstration of a partnership!—and Figure 5 gives data on seminar participation by ACP nationals.

The CTA is also an important publisher and co-publisher in agricultural and rural development (Fig. 6). This activity breaks down into three components: publication, co-publication and translation. Beyond annual fluctuations, the ongoing thrust of expenditure on co-publications is, again, a true demonstration of a partnership! (Fig. 7).

Since 1986, the CTA has published and distributed *Spore* magazine in English and French editions, and in Portuguese since 1991. The circulation level has grown by a factor of seven since 1986, as shown in Figure 8.

This remarkable rise in circulation of *Spore* bears witness to the dynamism of the Centre and its importance as an 'animator', an intermediary and a disseminator of information for rural development.

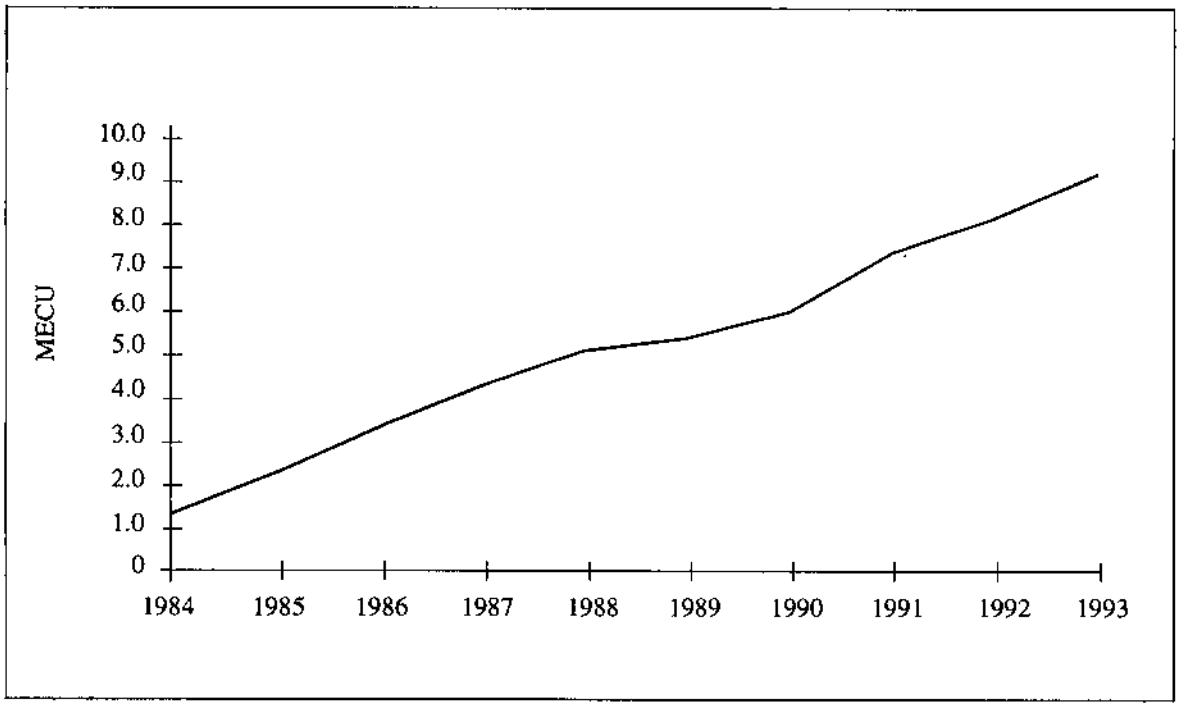

Figure 1. Growth in the CTA's budget from 1984 to 1993.

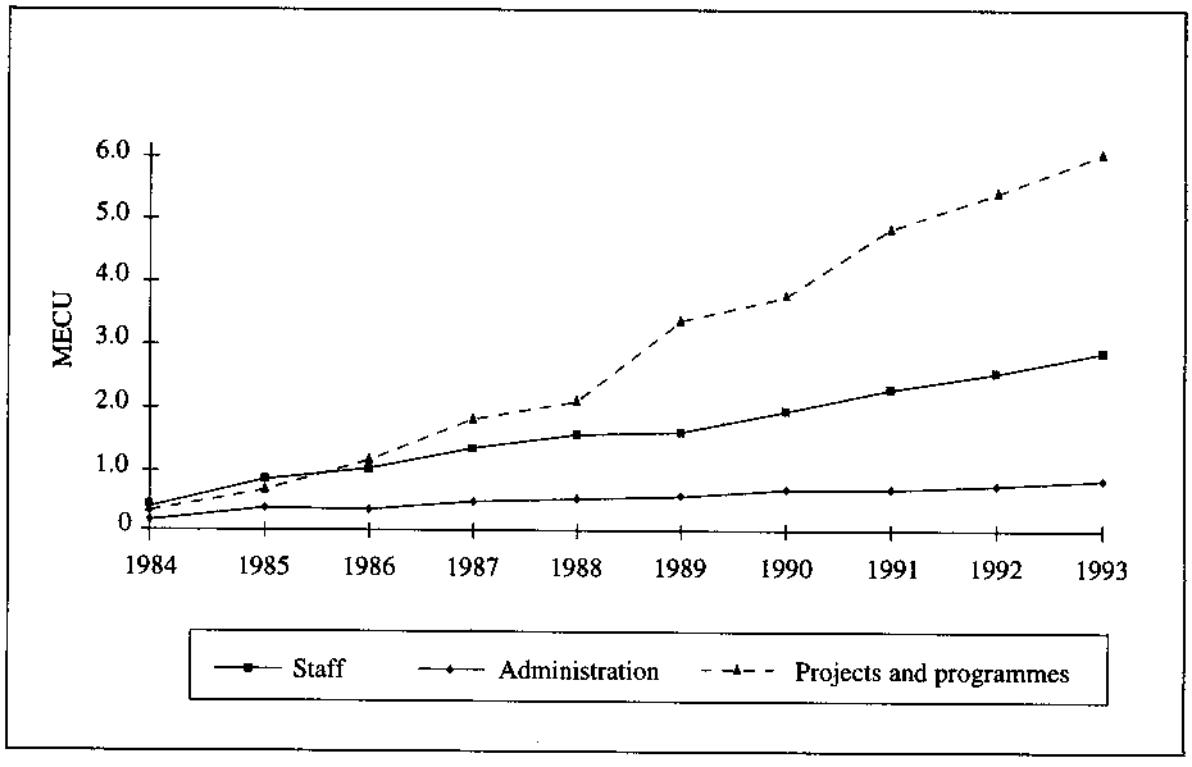

Figure 2. Growth in expenditure by the CTA on staff, administration and projects and programmes (1984-93).

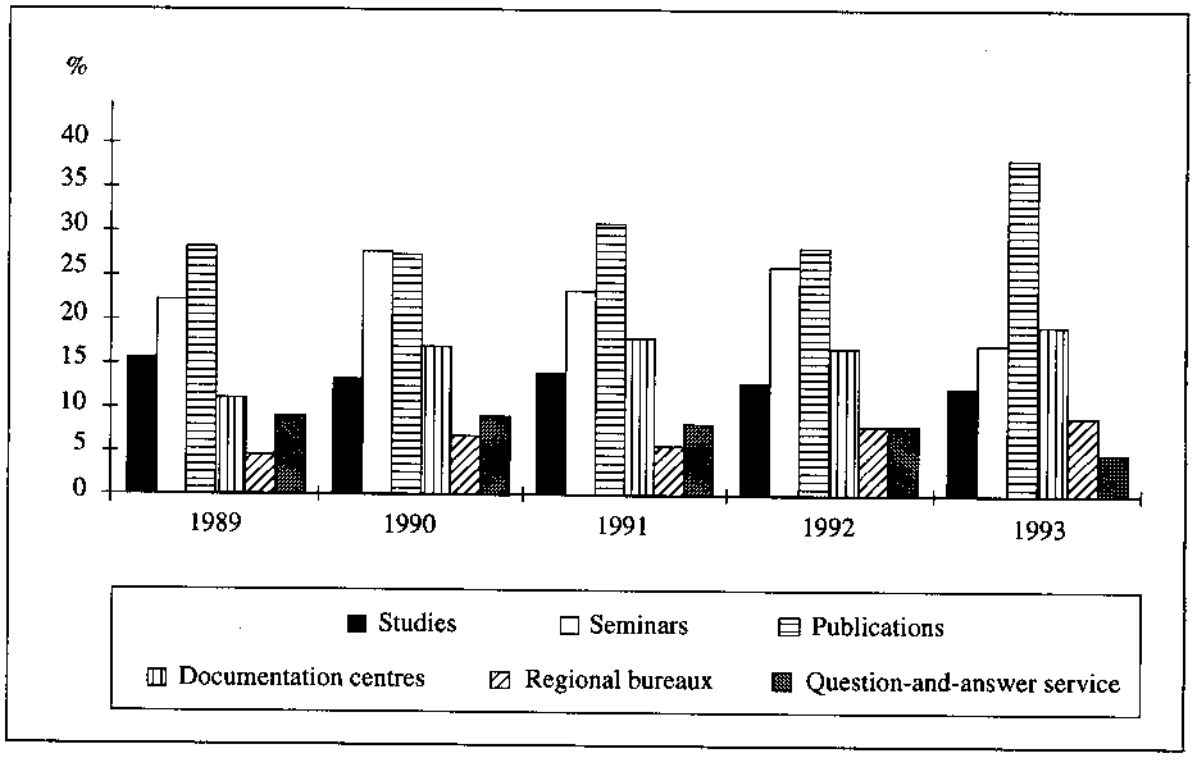

Figure 3. Changes in the CTA's patern of expenditure on projects and programmes (1989-93).

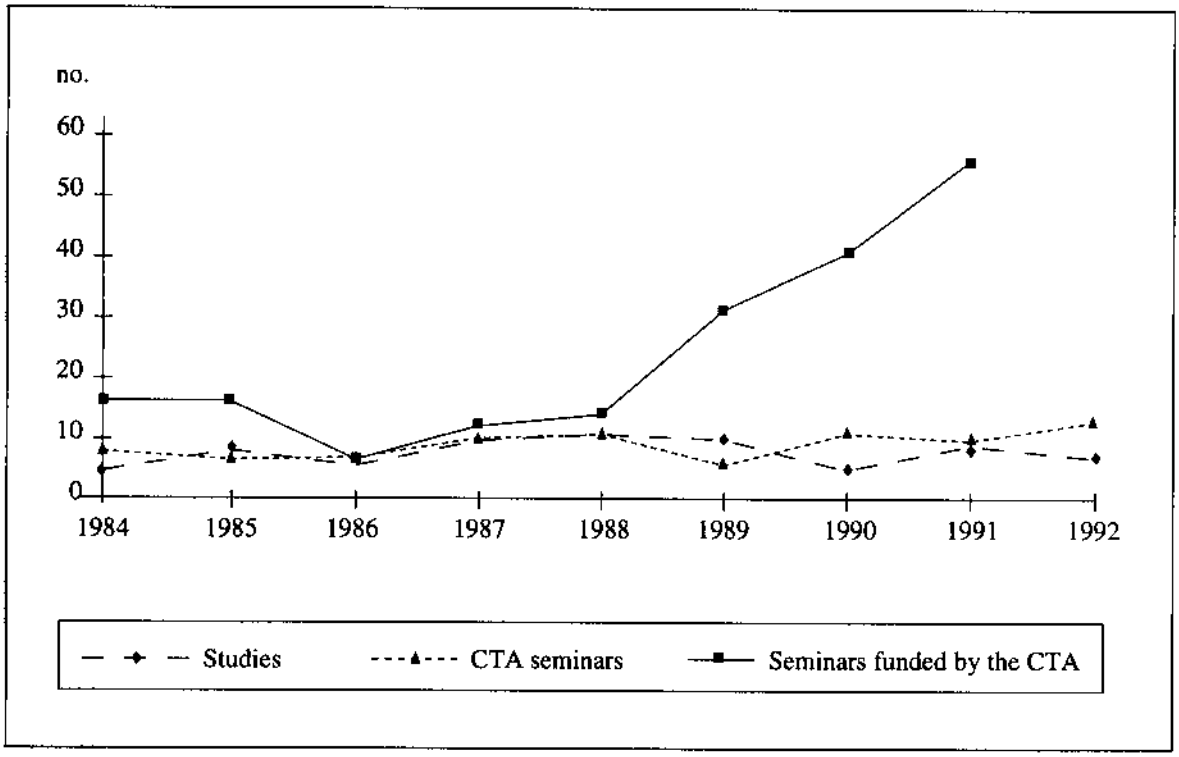

Figure 4. The number of studies and seminars organised or funded by the CTA (1984-92).

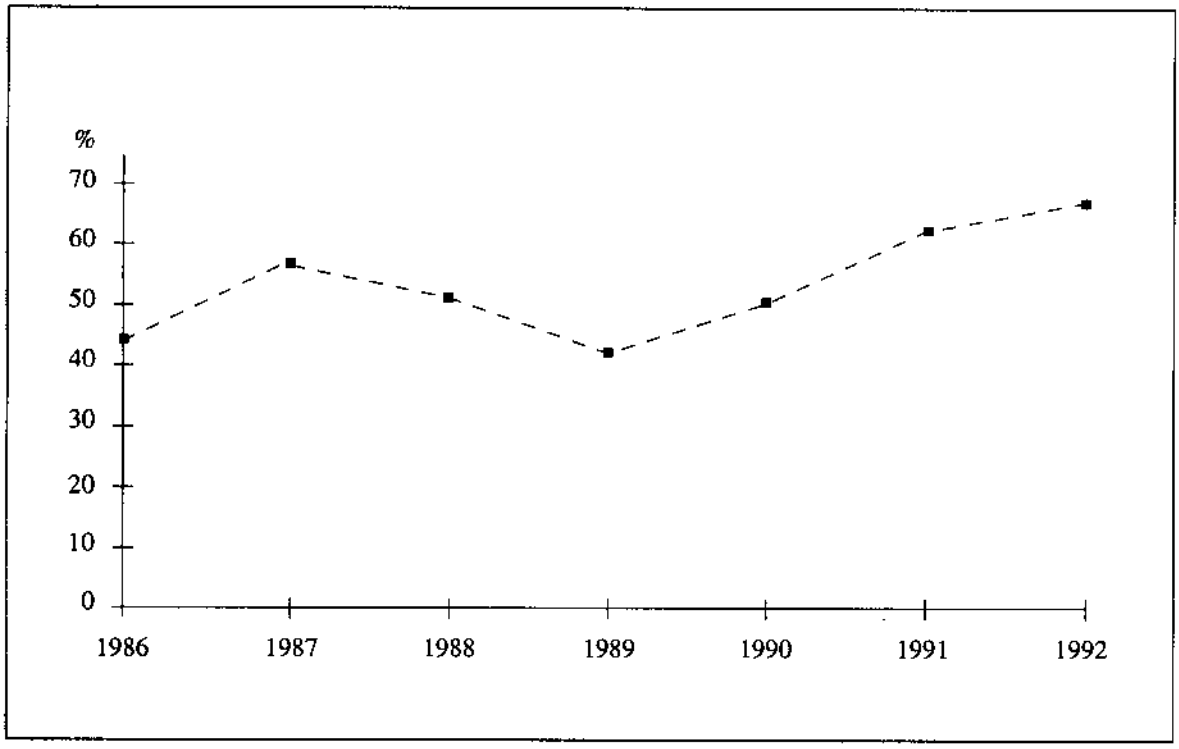

Figure 5. The percentage of ACP national staff participating in CTA seminars (1986-92).

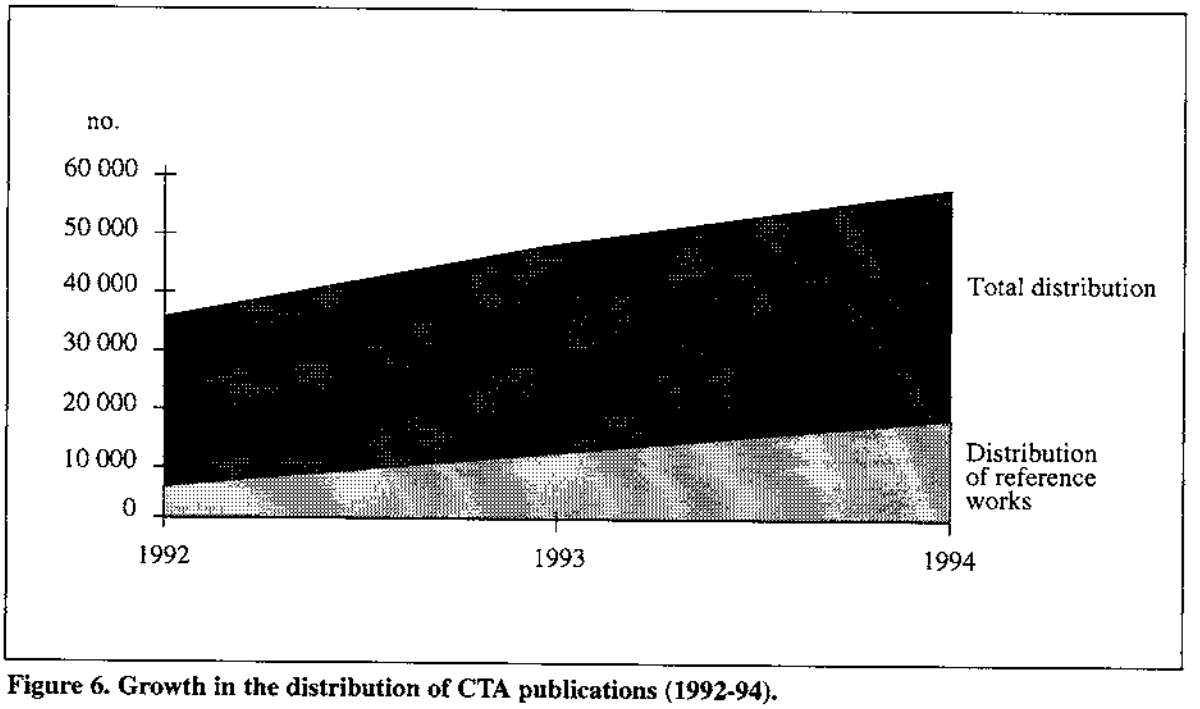

Figure 6. Growth in the distribution of CTA publications (1992-94).

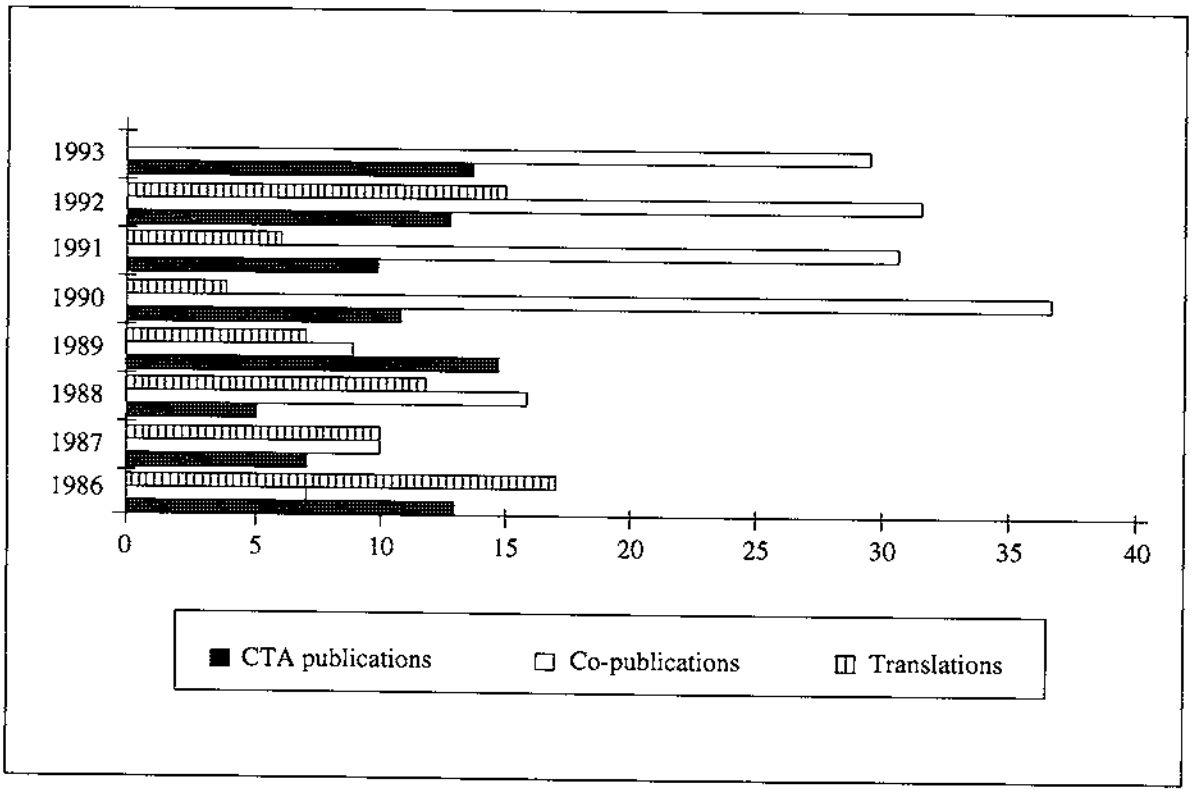

Figure 7. Comparative data on the CTA's publishing activities (in books per year), 1986-93.

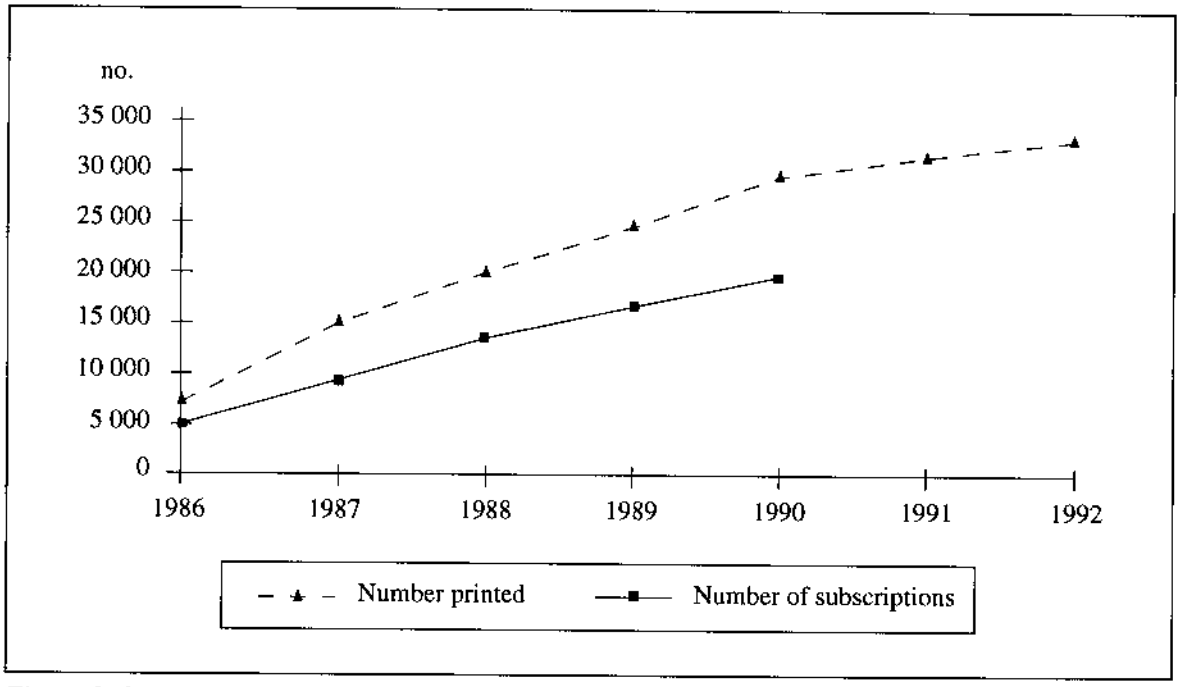

Figure 8. Growth in the distribution of *Spore* (1986-92).

Preparatory study 2

The role of information in rural development issues in ACP countries

Elisabeth Paquot (GRET)

Introduction

There are 650 million people in Africa south of the Sahara. The annual rate of population growth (3.2%) is the highest in the world, and the rate of growth in food production is the lowest (2%). The sum of Africa's national domestic products, US$ 130 billion, is equivalent to that of Belgium. Of the 20 poorest countries in the world, 16 are in Africa. Today, 100 million Africans suffer from undernutrition. By the year 2020, the population of sub-Saharan Africa will have doubled, to above 1 billion inhabitants.

How will ACP countries keep pace with population growth, when their traditional export products are poorly placed on the international scene? How will they sustain increased agricultural output, as they must, without irreparably damaging their capital of natural resources? How will they be able to build up the local markets and economic activities so that adequate income and resources—for all—can flow? How will they be able to stave off serious food deficits and growing misery? What type of development will they be able to pursue, locally, nationally or regionally, when they are irreversibly caught up in a global economy where they carry little weight in the market place?

All the current trends in the evolution of ACP countries are converging on one plain truth: in the next 20 years, these countries will be confronted with major challenges, economically, socially and politically. The whole gamut of transitional steps will have to be managed simultaneously. There will be technical change, to enable the essential growth in productivity in agriculture and small enterprises; economic change, to open up the market economy, and to create income- and resource-generation; social change, to promote equity and reduce poverty; and political change, to complete the democratisation process, and to make development an issue, shared by all, with a place for all.

If there is a broad consensus on the import of the challenges and the issues at stake, there is disagreement about the ways forward, and about how to interpret the writing on the wall. Is it indeed the case that all the alarm bells are ringing, and that there is an absolute imperative for massive new programmes, with new precepts, to avert an impending disaster? Or, on the contrary, have ACP countries already embarked on the path of social, economic, technical and political transition? If the latter is so, then the current difficulties are simply like those of any process of transition, with the added complication of their happening in an unfavourable international climate. How can information be a tool, an asset, to ensure that the transition ends in success?

1. A brief review

1.1 The attempts to orchestrate modernisation

At the time of their independence, new African governments assumed they could take the fast track to development. The chosen option was for accelerated modernisation, whereby Africa would "catch up" the economies of the North.

Clear roles were assigned to various sectors of the economy: cash crops and minerals would generate the foreign exchange required for investment in national development. Priority was given to investment in modernising the government apparatus, creating an industrial sector, and funding basic infrastructure. At the close of the 1970s, the ECA (Economic Commission for Africa) and the OAU (Organisation of African Unity) declared the 1980s as "the decade of industrial development". Public investment in agriculture hovered between a mere 5% and 15%.

In this approach, the State was assigned a central position, with a multiplicity of roles: guide, leader, conductor and lead actor in development. Thus there was an emphasis on planning, and macro-economic instruments such as price control, exchange restrictions and fixed central allocations of funds and foreign exchange to different departments. Among the achievements of this period can be counted: increase in life expectancy, increase in literacy, infrastructure, and the constitution of nation states based on colonial frontiers.

In this model of development, not all countries were equal: those with rich mineral resources, or a strong potential in cash crops, attained high rates of economic growth. For those without, there was economic stagnation.

1.2 The mould breaks

Towards the mid-1970s, the model cracked. The growth rate in the GNP, which had averaged 20% annually in the period 1961-73, tumbled to an annual average of 0.1% between 1973 and 1980, with a dramatic fall at the end of the 1970s.[1] Sizeable loans for continued investment in the public sector were made by a seemingly spendthrift international banking sector, awash with petrodollars. Few loans, however, were actually invested in productive and viable programmes.

In terms of agricultural production and food security, all the danger signs start to flash. There is a decline in per capita food production, and the gap grows between the modern sector, essentially urban, and the traditional, basically rural. Over the period 1980 to 1987, GNP falls by an average of 2.6%. Population growth is double the growth in agricultural output. Food imports climb steadily, reaching an average of 8 million tonnes annually. Note, though, that this economic decline is much more marked in Africa than in the Caribbean and the Pacific.

Yet it is only when food deficits assume dramatic proportions, mainly through drought (in 1985, 22 out of 45 African states received food aid), that these post-colonial models of development are seriously questioned. Herein lies an important lesson about the use (or rather non-use) of information as a tool for forecasting and strategic planning in rural development.

Development efforts widen their focus on increasing agricultural production. In 1985, the ECA and OAU recommend to member states that they allocate 25% of public spending to agriculture. More attention is paid

[1] The Courrier ACP, n° 120, March-April 1990.

to food production, to food security and to combating poverty. There is an increase in NGOs and small-scale field projects, often with a strong social element.

The market prices for many key export commodities from ACP countries collapse, under pressure from increased supply from the South, and a fall in demand in the North. In tropical Asia, increases in productivity have allowed their exporters to seize part of the "traditional" markets of Africa, and, indeed, to export produce to Africa.

With their access to international markets in the North partially disabled, African economies see their own local markets flooded with subsidised farm products from the very same North. A worsening balance of trade is the order of the day, with budgets balanced by increasing debt ratios. There is very little export diversification: primary products still dominate the pattern of exports from sub-Saharan countries, barely falling from 93% in 1970 to 89% in 1990. Over the same period, it fell from 53% to 20% in the case of developing countries in Asia, and from 90% to 68% in Latin America.

1.3 Enter structural adjustment

The practice of increasing debt ratios is brought to a halt by the disruption of the international financial markets. Numerous nation states can no longer balance their budgets nor their international trade. Many cannot even service their debts, and lack foreign exchange for imports. Part of sub-Saharan Africa, and of the Caribbean, enter the brave new world of structural adjustment.

The standard policy prescription aims to reduce debt and to re-establish financial equilibrium. Public bodies are encouraged to reduce expenditure and to encourage private initiative to raise production. Public spending is slashed and liberal economic measures applied. The State withdraws from some agricultural services, and parastatal companies cut back on some activities.

The economic and institutional weakness of the State opens the door to growing demands for democratisation. The State cedes space to the private sector, and, at the same time, political life becomes more democratic. Civil groups, associations of rural producers and NGO support groups multiply in number. There is a process of decentralisation of political power and strengthening of local decision-making bodies. In the Franc zone, in 1994, member states are forced to devalue their currency, in order to boost their export earnings.

Alongside these trends at national level, new schools of thought are emerging in the heart of the international community. One line shows growing emphasis on ecological and environmental concerns, as recorded by the Earth Summit in Rio. Another shows a certain weary scepticism towards the prospects for development in ACP countries.

2. Different interpretations of current trends

There are varied opinions about the reasons for decelerated development in ACP countries since independence. Different institutions, researchers and experts use different analytical frameworks, and hence produce different proposals, policies and programmes.

2.1 Macro-economic indicators point to pessimism

Most experts have a somewhat negative assessment of trends in development in ACP countries over the last 30 years. Their analysis is based upon a set of unfavourable macro-economic indicators, and is reinforced by frequent use of comparisons between the economic successes of tropical Asia, particularly in agriculture and the much weaker performance of the majority of ACP countries. The following scenario has been advanced the most:

Africa, a net exporter of agricultural products in 1960, now imports an average of 8 million tonnes of foodstuffs annually. The vast majority of Asian countries have attained self-sufficiency in agricultural production, and their exports are rising.

And in Asia, the Green Revolution, despite its limitations, took hold through the adoption of new, more intensive, higher-yielding, agricultural technologies. The same process did not catch on in Africa, and yields levelled out. In Africa, only 20% of irrigable land is in fact irrigated; transport costs are double those in Asia; supply lines are inefficient. Since the end of the 1980s, investment has shrunk by 25% in sub-Saharan Africa, whereas it has continued to grow in tropical Asia.

2.2 Some success, some signs of change

The disadvantage of aggregate analysis is that it sometimes hides actual trends, and the differences that exist from case to case. The statistics from FAO presented in Table 1 show the differences in food production among many ACP countries.

Table 1. Variations in growth in per capita food production in ACP countries 1988-93 (source FAO).

<-10 %	-4 to -10 %	-2 to -4 %	-1 to -2 %	0 to -1 %	0 to 1 %	1 to 3 %
Ethiopia	Cape Verde	Angola	Burundi	Burkina Faso	Benin	Nigeria
Liberia	Gambia	Botswana	Comoros	Namibia	Guinea	Uganda
Somalia	Kenya	Cameroon	Ghana	Senegal	Guinea Bissau	Togo
	Lesotho	Congo	Madagascar	Chad	Malawi	Fiji
	Sao Tomé & Principe	Côte d'Ivoire	Mali	Vanuatu	Zaire	Guyana
	Bahamas	Gabon	Mauritius	Papua New Guinea	Zambia	Jamaica
	Haiti	Mauritania	Mozambique	Dominican Republic	Zimbabwe	
		Rwanda	Niger		Belize	
		Sierra Leone	Tonga		Trinidad & Tobago	
		Swaziland	Barbados			
		Central African Republic				
		United Rep. of Tanzania				
		Solomon Islands				
		Western Samoa				

The World Bank, which tends to reach a negative assessment of agricultural development in Africa, is able to point to some successes: private horticulture in Kenya; tree nurseries in Côte d'Ivoire; small enterprises in food trading and processing in Ghana, Nigeria, Tanzania and Uganda; the cotton sector in western Africa; cooperative credit programmes in Rwanda, Burundi, Benin and Togo.

The World Bank has also produced some examples that demonstrate the validity of its prescribed structural adjustment programmes. Since the early 1990s, food production has risen by almost 4% annually in Benin, Botswana, Chad, Comoros, Kenya, Nigeria, Tanzania, Uganda...

2.3 A more positive interpretation

Those who have indulged in a certain degree of "Afro-pessimism" are seriously taken to task by the West African Long-Term Perspectives Study (WALTPS), undertaken by the secretariat of the Club du Sahel and a team of African experts in the Cinergie organisation. The WALTPS study (see box) emphasises the considerable ability to adapt that societies in Africa have shown recently. It presents the current situation as

being a transitional phase of change, in which many signs point towards a difficult future, based nonetheless on a real process of development. Africa, it suggests, is going through a period of profound economic and social change, with many elements of modernity.

Evidence of the dynamism and capacity for change of African societies

The WALTPS study stresses the capacities shown by societies in Africa to absorb strong population growth in recent years, without a major crisis. In western Africa, population has grown from 40 million inhabitants in 1930 to 85 million in 1960 and 215 million today. Imbalances in production between areas and countries have been dealt with, to some extent, through migration, from arid zones to more productive zones, from land-locked to coastal areas, from the countryside to the town.

Under certain favourable conditions (such as reasonable prices, access to trading structures, and to modern techniques), farmers have raised their productivity. When near to urban markets, farmers have changed their economic and technical customs, often on their own initiative, by blending modern with the traditional.

The growth of the urban informal sector demonstrates, for WALTPS, the strong capacity of towns for social inclusion: the sharing of tasks among workers has ensured that everyone gets a minimum of resources, even though it has not improved productivity. The spontaneous growth of this sector has meant that rural-urban migrations could occur without excessive violent outbursts. Within the sector, essentially social in outlook, there is now a new, emerging generation of small entrepreneurs who are blending best practices from the modern industrial sector with the traditional sector.

Finally, the study warns against measuring advances in agricultural production solely in comparison with population growth. It argues for analysing the time frame required for production to adapt to increases in demand. In western Africa, in 1980, this lead time was 5 years. In 1993, it was down to 3 years. WALTPS concludes that West African agriculture, far from being bogged down, is entering a new period of expansion. The most remarkable example is that of Côte d'Ivoire, where agricultural production (in terms of calories produced) can now fully meet national demand, despite the country's population having grown by a factor of 3.5 in the last 30 years.

There is, then, clear evidence of a capacity for change and adaptation, albeit not always in those sectors where it was expected, nor where it was nurtured. It is important, therefore, to create the conditions that will allow the capacity for change to grow in importance and impact.

There are, without doubt, elements of right and wrong in the positions of both the pessimists and the optimists. Taken together, they point to two fundamentally contradictory trends. One is the trend towards worsening deficits and imbalances. The second is the thrust, as yet ill-focused, towards responding to needs and towards adaptation. In the years to come, the major issue could be about how to empower this thrust so forcibly that it can overcome the problem of the deficits.

3. Some lessons to learn

Let us move beyond the varying interpretations of past and present trends in ACP countries, and try to learn some lessons from the last 30 years of their development:

- The inclusion of ACP countries in the international marketplace is past the point of no return. There is no place any more for talk of delinking, of go-it-alone autarchy. The major features of this inclusion are, today, the relative fragility of their position of dependence upon fluctuations in the markets (and upon trends in international aid). The reduction of this dependence has to be one of future strategic priorities. This will require the capacity to anticipate trends and to quickly pursue the correct strategies to respond.
- Models of development that are based too exclusively upon injections of capital and technology do not perform satisfactorily. They are, undeniably, essential components of the development process. It is, however, a complex process, involving economic, technical, social, cultural and political dimensions. Seeking to act solely in one dimension, and not in the others, is fruitless. From this point of view, there is

being between 50 and 60% in 2020. These figures seriously challenge the widely-held notion of Africa being essentially rural in composition.

4.1.2 Beware of the warnings

Forecasts of high population growth are often cause for concern, and serious doubts are sometimes expressed about the ability of ACP countries to guarantee their own food security and to avert famine. Ever since the time of Malthus, there has been a persistent body of opinion claiming that the world will not be able to feed all of its inhabitants. In the 1960s, a future of famine was predicted for Asia—today, most Asian nations have a surplus in food production.

Furthermore, Africa has already faced up to a doubling of its population in the last 30 years, with overall growth from 222 million inhabitants in 1950 to 650 million in 1990.

Population growth may be seen as constraint, but it can also be considered as a factor for development. According to the Danish sociologist Ester Boserup, technical advances in agriculture depend on a certain population density and pressure. Where there is no new land to be won, a dense level of population helps to activate the market, heightens per capita return on investment and stimulates skills exchanges, communication and innovation among farmers. This hypothesis was confirmed in a study of agricultural practices in a heavily populated area in Rwanda.[3]

These remarks on the capacities of various societies to handle significant population increases are not intended to minimise the difficulties that ACP countries will face, but simply to provide a broader context for some opinions that are, perhaps, excessively alarmist.

4.1.3. Accelerate the changes, ahead of population growth

There are real challenges in feeding, housing and teaching a population with such a growth rate; in making optimal use of the skills of each individual, to the benefit of all; in averting famine and poverty.

To feed its entire population, Africa needs to double the growth rate in its agricultural production, from 2 to 4%. In broad terms, there is sufficient land on the continent, although population densities vary greatly, from 5 inhabitants/km^2 in Chad, to 265 inhabitants/km^2 in Rwanda. However, it is also necessary to increase yields and productivity.

Increase the rhythm of adaptation

The problem is not in the future levels of population in ACP countries, but in the speed with which it is growing. Economic and social systems need to adapt considerably faster than they have done hitherto. The International Food Policy Research Institute (IFPRI) has forecast that, if the rate of growth of agricultural production stays stable, the food deficit in sub-Saharan Africa could reach 400 million tonnes by 2025.

In the past, other parts of the world have gone through similar periods of high population growth, marked by the tensions of war and famine. Unlike other regions previously, ACP countries are going through such a period when there are no more (sub-)continents to colonise, and when the world economy has become organised and has a strong influence on their own economies. A period of autarchy, for which the Chinese opted, to build up their economy, prior to opening up to the global market, is not a realistic option for ACP countries. Even less so is a phase of colonialist expansion. There is no alternative for ACP countries to

[3] Von Braun, J. et al. Commercialisation of agriculture under population pressure: effects on production, consumption and nutrition in Rwanda. IFPRI, 1991.

4.2 The challenge and ultimate goal of food security

Food security is an essential issue. Over the last 30 years, ACP countries have been in an increasingly vulnerable position, with cycles of shortages, famine and surpluses, resulting from fluctuations in production. The issue for the next 30 years will be to reverse this trend, and to attain a smooth increase in agricultural production, ahead of rises in demand. This calls for strengthening the capacities of national and regional economies, lessening dependence on external resources, converting needs into purchasing power, as well as mitigating the inevitable fluctuations in production that will result from climate conditions, and interzonal differences in productivity. Food security is indeed a multifaceted problem.

4.2.1 Agricultural production and food needs

There is a tendency for opinions to polarise around the issue of food security. One school of thought, the supply-side, holds that it can be achieved through increased production. The demand-side school argues for improving access to basic foodstuffs for the entire population, in particular for the most disadvantaged groups.

Investment priority, according to the supply-side school, should go to increasing agricultural productivity; the demand-side calls for employment creation and income generation for the poorest of the poor, and programmes for combating malnutrition.

Financial policies have similarly differing targets: one line calls for price maintenance measures, to stimulate production; the other for lowest possible pricing, through food subsidies or low-cost imports.

The approaches towards food security, traditional in outlook, have often been seen as a series of sometimes opposing choices between:

- towns and country, in which the town is often seen as a brake on the development of the country;
- giving priority to rises in productivity, which draws heavily on the potential of the most performing and innovative farmers, or leaning towards a more social model of development, which aims at improving the quality of life for the greatest possible number of people;
- agricultural investment primarily in high-output areas, such as irrigable land and land susceptible to high-yielding crops, or investment in more backward and fragile areas, in order to mitigate food and ecological problems;
- development of export crop capacity, in order to finance imports and investment plans, or the development of food crops to strengthen the local market and guarantee proper income and food security to rural populations.

4.2.2 One possible response: diversify and organise markets

An analysis of current trends, and shifts in policies and farmer practices, shows that these old dichotomies no longer apply and that new approaches are needed. It would be more productive to think in terms of diversification and flexibility; fluid and accessible markets; regionalisation of markets; and strengthening chains of production.

Urban markets: a growth centre for agricultural production

The WALTPS study undertaken by the Club du Sahel points to a new paradigm of urban-rural relationships, different from most current thinking. It shows that linkage with the urban market is a decisive factor in growth in agricultural productivity.

According to the study, farmers throughout most of Africa have shown their ability to respond swiftly and efficiently to urban demand, when it is sufficiently pressing. Urban conglomerations can, once past a certain level, have a positive effect on local food production.

In this, there are three tools which governments could choose to use:

- legislation, to order the relations between different actors, such as laws on property, and land ownership in particular;
- controls on prices and currency exchange, in order to bring more certainty to (export) earnings and thus help farmers to invest, whilst stimulating productivity in export production;
- investment in infrastructure and basic services, in order to optimise the development of local markets, and their links with national and regional markets.

Farmers: adaptation and diversification

The issues of increased agricultural production and growth in income for both rural and urban populations are closely linked. Rural families, for example, rarely opt to specialise heavily. In the recent economic crisis, they tended to respond by diversifying their activities and setting up small service and trade enterprises, and through temporary migration. It should be noted that, over the whole of sub-Saharan Africa, 25 to 30% of the income of rural families comes from non-agricultural sources. It is not always appropriate, therefore, to make a distinction between income in rural and urban situations. Labour migration between town and country provides for regular transfer of savings and resources from urban centres to rural centres.

Furthermore, the distinction between economic activity and social activity is not an issue for most ordinary people. They may decide to invest their savings in social activities, while at the same time being involved in group borrowing for productive investment. There are, clearly, differences between the perceptions of many ordinary people and development experts. There are differences, too, between the ways in which farmers have adapted to changing situations, and the changes that have been expected by experts and political bodies. These differences are often a source of profound confusion and incomprehension.

There are several ways to resume dialogue and communication between the different actors, and to bring them nearer the same wavelength:

- *Change the nature of the relationship between experts and farmers, and help the latter to develop their own strategies. This could be done by providing them with more advice and information on how to change their own situation, as well as new knowledge and perspectives.*
- *Better knowledge and understanding of the ways that different actors make strategic considerations and their decision-making criteria. This could lead to policies being changed to be based on the real needs of the actors.*
- *Strengthen access to information (on prices, techniques, new ideas, experiences gained elsewhere) through more decentralised policies of information management and sharing.*
- *Initiate genuine debates, at local and national level, about development options, so that farmers can make their opinions heard, and have a better understanding of the full range of issues involved in development.*

4.2.3 Linkage is essential between local, national and regional markets

The different member states and regions of the ACP have a very wide and varied range of assets at their disposal with which to ensure food security. Just as the various countries should play upon the diversity of product lines, so they should also adopt a diversified set of strategies that are based on geographical zones and that play upon the complementarities between the countries.

Development policies, by areas

Only certain areas come into play in strategies to intensify and open up access to national and international markets. This is the case with areas with easy access to urban markets, or where there are favourable natural

The forecasts and estimates of fluctuation in the international markets should be included in rural development strategies by ACP countries. The question is how to get the best out of the agreements of the Uruguay Round, which will cause higher prices for agricultural produce from the North. The economies (of ACP countries) need to start developing their response to the ongoing effects of the agreements on the world markets.

4.2.5 Information, a factor for better food security

Forewarned is forearmed, also in issues of food security, where the tasks of anticipating and forecasting can be means to warn and manage. FAO has developed an early-warning system that makes it possible to monitor harvest prospects, forecast possible shortages, and plan for possible sales from zones of surplus to zones of shortages. The system's information is shared with governments. However, the information does not go any further, whilst it would be very valuable for farmers, traders and even consumers. Nonetheless, it should not be too difficult, nor costly, for such information to be disseminated through radio and the press. Equally, it should be possible to set up local networks, to stimulate information exchange.

Prices are a determining influence in food security. They shape the decisions of the producers, they tip the balance in consumer choice, they define trader behaviour, and they affect earnings on the international markets. One valuable aid to trade development, and decision-making in the economy, would be to make information on prices of basic foodstuffs widely available, to the public at large, through such media as radio and the press.

On a more general level, given the importance in food security of the ability of farmers to respond to changes in demand, then more information on production, on markets, on leading products, on demand and on possible shifts in demand, could be a powerful way to help farmers respond even more rapidly.

Food security also relies on growth in family incomes, and in liquid demand, and thus on the creation of new businesses for food processing and providing agricultural services. These enterprises will have considerable needs for technical, financial and management information, and for ideas for new products and services.

4.3 Natural resource management

Environmental aspects are now part and parcel of every development project, every evaluation study and every set of policy guidelines. This reflects a genuine concern for real situations such as growing desertification, shrinkage of forest areas, and falls in timber resources.

What will be the state of the environment of ACP countries, already in a state of degradation, in the year 2020, if they have to double food production by that time? What, furthermore, will be the state of allied problems such as water resource management and various pollution scenarios?

A new speech has replaced the old cataclysmic line of inevitable famine. Also rich in doom, the speech is about an impending ecological collapse. Classical Malthusian thinking has been superseded by a sort of ecological Malthusian school.

4.3.1 Two opposite forces

Again, there is a wide range of environmental situations, and problems linked to pressure on land resources, between countries and regions. Currently, colonisation of new lands, desertification, salination and sterilisation of thousands of hectares, and the ongoing nibbling away at the rain forest by land clearance, all march on. Varying from case to case, these scenarios are caused by migration from arid to humid zones, by timber production, or by mismanagement of surface water.

4.3.3 An important task for research and information

With environment being a new topic of interest, there are many needs in information and research. Governments lack specific informational tools to track changes in environmental situations, to identify problems, to gain an overview of their potential and to intervene in a timely fashion. One need is for 'observatories' on natural resource management, another is for simulation tools for environment impact assessment. Similarly, there is a need for more dissemination of information about the effectiveness of different environmental measures.

The majority of governments have now developed national environment plans with priorities, in which natural-resource management is increasingly decentralised to a local level. For this, two essential components are tools for monitoring local situations, and dissemination of information about viable and environmentally benign methods and techniques for agricultural production.

Farmers have specific information needs, in order to better understand global trends and the varying elements that are at play in the environmental balance. They also need information about the 'sustainable techniques' mentioned above—techniques which protect natural resources whilst allowing the imperatives of production to be met.

4.4 The imperative of increased agricultural production

Agricultural production will grow, depending on the situation, as a result of increased areas of cultivation, or increases in productivity, or a combination of the two. Whatever the actual size of arable land available (a subject on which the opinions of the experts vary sharply), it is indisputable that there must be technical change in agricultural methods. The question is, of course, how to achieve this. What have been the blocking factors that have hitherto hindered the adoption of new methods? What are the key strategies that will facilitate this change?

4.4.1 Technical progress in unexpected places

More frequently than not, experts emphasise that African farmers have not adopted technical change in any significant way. On a broad scale, large-scale irrigation projects have not met their goals. The World Bank has analysed a number of its own projects for heightening agricultural output in a highly critical fashion. It appears that only some export-oriented lines of production, such as cotton, have undergone a process of technical modernisation. This litany of failure is blamed by some on poor extension systems, by others on the resistance of the African farmer to technical progress... Nonetheless, it cannot be taken for granted that there has been no technical progress simply because of the failure of a large number of explicit modernisation projects or the low take-up of research output by farmers.

The statistics would seem to suggest the opposite. The average growth-rate of agricultural production in sub-Saharan Africa is estimated at 2%, while the growth in land in cultivation has grown annually by 0.7%. The difference between the two figures can be explained only through a rise in productivity. Yet there has been a low rate of adoption of new techniques originating in the scientific community. It has to be concluded that the increases in yield have been achieved through a less tangible trend of 'spontaneous' improvement in traditional techniques. This trend is confirmed, in fact, by a number of studies on local production systems.

The long-held notion of a stand-off between the modern, cash-crop sector with high technical advances, and the traditional food production sector, with its focus on self-sufficiency and low technical inputs, no longer fits current realities. The development of cash crops (which is not necessarily synonymous with intensive

level, and combines research into large-scale economic factors with the different choices available to farmers, depending on their area.

> *A major problem to be resolved by the research community is that of returning the results of research to the field, and of proper communication with farmers in the field. It is paradoxical that research results are often circulated through scientific communications and reference works within the research community, but they are rarely disseminated among and discussed with those who could best profit from them. There is a strong need to develop mechanisms and information services to address this issue.*

4.4.4 A Doubly-Green Revolution

The Consultative Group on International Agricultural Research (CGIAR) has drawn up proposals for a new approach for the years to come, in order to make research more efficient in development, and to enable African agriculture to increase its productivity. The so-called Doubly-Green Revolution has three goals: to guarantee food security, to create income and employment and to ensure balanced environmental management.

This new revolution is intended to repeat the successes of the first Green Revolution in Asia, whilst developing new crop varieties and techniques that are benign to, and protect, environmental balances and that ensure sustainable natural resource management.

The Doubly-Green Revolution will correct the inadequacies of the first Green Revolution:

- Special emphasis will be laid on areas with severe resource constraints (the first Green Revolution was focused on irrigable land and barely considered other areas, with a resulting widening of the social and economic differences within the rural world).
- The nexus of the first Green Revolution was to propose a technical package to farmers. The second will pay more attention to reducing social inequalities. Its goal is a more equitable development.
- The selection of research topics in the second Green Revolution will be defined by the needs of farmers and the hopes of the national political body in rural development.
- Research work will be multidisciplinary involving, for example, agronomists and macro-economists. This should encourage broader and more useful results for users of the results. For farmers and industrialists, there will be practical techniques for production and processing: decision-support tools for directors of agricultural and environmental policies. Results from the fields of social sciences and action-research techniques will be used.
- Special attention will be paid to advances in biology and plant genetics, since resulting changes in plants can simplify the work of the farmer through changing the cultivation period, or through resistance to damage to fruits during handling. The development of varieties resistant to certain diseases and pests could reduce the use of pesticides and other expensive, and toxic, products. The major concern for the farmer would then be the availability of seeds, and their cost.
- Agricultural and environmental research are closely linked when dealing with the limits to production that are faced by farmers. It will be necessary to work with farmers to understand the dynamics of 'agro-ecosystems' and to devise more 'sustainable' production methods and techniques.

4.4.5 Better links between national, regional and international research

The high level of investment required in research means that not all governments, and in particular those of the smaller States, can bear the cost of a large research apparatus covering all topics. To overcome this, regional and international collaboration is essential, based on subject specialisation, geographic area of interest, and whether the research is applied or basic.

Training, communication and information: three inseparables

The extension-development worker has a central role to play as an intermediary between the rural world, researchers, project directors, and national agriculture services. Effective communication is required between these actors, in order to strengthen extension work, and to exchange opinions. Such communication can be organised in a structured way, such as the World Bank has sought to achieve through creating national joint bodies of research, extension and farmers' groupings. It can also operate in the form of networks, with communication nodes between the various actors—as the CTA has opted to do.

There is a need for extension work to develop a more local focus, grounded in the local situation. This can be achieved, in part, by establishing local advisory and service centres for farmers, which bring together different disciplines. Such centres could also operate modest information centres, including sales of information, for farmers.

Until now, extension work has been rooted in the 'development sector' and has had only few weak links with the 'world of the media', with the exception of some rural radio broadcasts. Whilst field demonstrations and discussion groups remain essential components of extension work, more use should be made of certain media, such as rural radio and the press, to circulate information more widely among farmers, and to build up communication between the rural world and the totality of professional services that are available for development.

Radio programmes of this type could serve more as a space for debate, exchange of experience, and information, than as a didactic tool for information delivery.

Extension work has also been based, until now, on the distribution of a technical package of information. However, in analysing how farmers actually adopt and adapt technical innovation, we have seen that this approach is not the most appropriate. It is necessary to work much more within the framework of the farmer's actual situation. It is thus more pertinent to provide a range of information on technical options, with descriptions of which conditions are most suitable, from which the farmer can draw.

The process of technical innovation and adaptation would be greatly enhanced by having such information in varied and properly distributed forms. In this regard, it would be useful to publish small leaflets, booklets and overviews, which could include both technical options arising from the work of the research community as well as information about innovations created by farmers themselves.

5. New relations between the State and civil society

A key to progress in the rural development process is the existence of flexible relations between the State and civil society. Recent policies for rural development have assumed a speedy and substantial withdrawal of the State from many sectors of activity.

The pendulum of opinion, in some cases, has now swung far over to the concept of 'all private sector', having once been at the extreme of 'all public sector'. There is a need to clarify the respective roles of each, and to establish an effective framework for transition.

The economic and technical transition to be managed by ACP countries depends on solid national institutions, and on a steady hand of State on the steering wheel. The State should strengthen its role as an arbiter, by drawing clear guidelines for different actors to regulate their affairs; it also needs to elaborate strategies for the medium and the long term. In many countries, the State is, at present, disorganised and impoverished, and

At the same time, the leadership of local organisations will have important information needs: awareness of, and tracking, local trends and events; legal information; technical options; and techniques and methods for managing communal services.

Different scenarios for the future

The three future scenarios, drawn from the WALTPS study and presented in the accompanying boxes, are caricatures of three distinct strategic priorities: access to international markets; restructuring governments, accompanied by strong and effective national policies; and creating regional markets, accompanied by decentralised models of development.

History, it must be said, is made by mere mortals, and not by the painters of scenarios. In reality, it will be governments and economic actors who will create original scenarios which will, to be sure, combine such aspects as strengthened exports, organised national markets, new policies at national level, decentralisation and regionalisation.

These three scenarios serve to demonstrate that, depending on which priorities are chosen, trends will be different.

The 'Extrovert' Scenario, with implied implosion

In this scenario, investment, both national and foreign, is focused on the resumption of cash-crop exports and exploitation of new mineral products. Productivity can be increased dramatically, through applying the results of the work of the international research community. Import and export flows are optimised through very liberal economic and monetary policies. The State has largely withdrawn from the economic stage. Taxes are low, so as to enhance the competitiveness of export products. With limited resources, the major role of the State is to regulate trade balances, through, for example, devaluation, to promote exports. Public investment is focused on highly-productive sectors. Applied research and extension work is partially privatised, whilst the private sector draws up and implements information policies. They concentrate on providing information about the prices and the requirements of the international market, and for sharing the results of the work of the international research community.

What would be the result of such a scenario?

A number of large towns and cities would develop around import-export activities, as would several areas of high-yield agriculture. The rest of society would delink from the global market, turn in on itself in impoverished autarchy, to be bailed out by foreign aid. The modern sector would organise itself around the delivery chain of a few 'leading-edge' agricultural and mineral products. It would delink from the urban informal sector and from the agricultural subsistence sector. In this scenario, there would indeed be economic growth, but at the cost of major social crises.

The 'Competent State' Scenario, with a stronger national private sector

This scenario assumes that the State would again play a leading role in development, albeit with a change in the rules. Instead of the previous model, there would be a new division of labour between the public and private sectors, the former as the guide, the latter the actor. The competent State will establish and manage the framework for development, according to the rules of the marketplace and international competition. A principal source of finance for its policies will be high fiscal levies, through direct taxation. Part of international aid will be allocated to the training of 'managers' for the economy.

The legal economic and institutional framework created by the State will facilitate private enterprise, in both agricultural and industrial sectors. The State will manipulate variable economic and monetary instruments (such as currency, taxes and price controls) in order to stimulate national production, without restricting imports.

The State plays a dual role of enhancing the integration of the economy into the global marketplace, and of developing the national market. Considerable attention will be paid to national research centres, with emphasis on technical-economic research. The prime role assigned to the research centres will be to identify and assist those sectors with comparative advantages, in agriculture and medium-scale industry.

National information policies will be defined by the State, after proper consultation with partners in the private and civil sectors. These policies will be based on national development priorities, with a coherent set of products, services and programmes. Most of these will be provided by the private sector. Communication will be encouraged, at

national level, among national research centres, extension work agencies, NGOs and the media. Despite a heavy concentration on national factors, this is not an autarchic scenario. There is a strong emphasis on commercial ties, and information and knowledge networking, with partners abroad. These exchanges will be partly bilateral, partly multilateral. Information flows and exchange between ACP countries will remain at a low level.

What emerges from this 'Competent State' scenario? The competitive sectors survive, and thrive even, at national and international level. Less viable sectors will collapse, crumble and fade away. Problems of inequality and societal tension, at a national level, will be mitigated partially by some basic social provisions and investment.

This scenario, essentially 'liberal-nationalist' in type, will lead to different styles of development, from country to country. Those countries with strong and competitive agricultural sectors, or a trade-friendly location, will flourish. Those that are too small to develop a national market as a motor for development, or have not been blessed by geography, will flounder, unable to compete. Tensions will rise between countries, fed by migratory pressures, and by illicit trade stripping national attempts at price and market control of any effectiveness.

The 'Regional and Local' Scenario

This is the most modest, and the most ambitious, scenario. Modest because it is based on giving support to local production, and on encouraging small enterprises in agricultural and industrial sectors. Ambitious because it assumes that several States will be able to jointly regulate regional markets.

In this scenario, priority is given to consolidating the position of local markets around urban centres (*pôles*)—large, medium-sized and small towns. Linkages are encouraged between town and country.

Local development, grounded in local realities, is the focus of this scenario, and it assumes a strong degree of decentralisation. Its hypothesis is a model of development based upon the capacities of small farmers for organisation and production, upon a gradual modernisation of part of family-based agriculture, upon a process of professionalisation and upon small enterprise development.

Gradually, in this scenario, some parts of the informal sector adopt strategies of increased productivity and product specialisation, and make the step from the survival economy to the market economy. A similar change takes place at the level of the food crop production, where some farmers leave subsistence farming and develop a trading position.

There is a considerable amount of technical change, mainly through the increased use of low-cost, labour-intensive small-scale technologies. Where conditions of production, and the market, permit, a more capitalist sector emerges, with strong division of work, and heavy dependence on technology. Export products grow in importance, as the growth of the local and national markets provides more protection against the fluctuation of the international markets.

This model of development is largely based upon demand and local, internal markets. There is relatively little State intervention, which is concentrated on creating a favourable environment for the development of markets (infrastructure, legislation and flow of information), and on helping farmers to organise. The role of the State is more to support the strategies of the latter, and arbitrate in the case of conflict, rather than to influence their economic decisions. Most decisions about infrastructural development and investment options (such as in various infrastructures, or social services) are largely devolved to decentralised levels.

Parallel to these developments at the local level, several large regional markets establish themselves, partly through the protection of import restrictions. In these regional 'spaces', it is the States themselves which adopt common rules and practices on the free movement of people, labour and goods. The States promote regional trade and increased productivity, and develop common instruments for partial import restriction to the benefit of local production.

The accent in this scenario is on the development of productive capacity and markets within Africa, with some degree of protection from the vagaries of the international markets. It is the major urban centres and (*megapôles*) that assume the responsibility for much of the required large-scale investment in, for example, research and higher education. Policies regarding information and extension work are based on the dual thrust of 'think regional, act local', with information flows improved within local markets, and greater trade exchange between countries. Linking local markets to the regional economy is the priority for national investment in transport and communications. As far as research is concerned, priority is given to region-specific, multidisciplinary programmes, monitoring and forecasting changes in markets and production at local, national and regional levels. Finally, more attention is paid to the enhancement of local products, and small-scale industrial technology.

What emerges from this 'Regional and Local' scenario?

It has the advantage of reducing the risk of major social schisms and breakdowns. However, in the medium-term, the rate of increase in agricultural production is lower than in the other two scenarios (because of the dissemination of simple technologies, rather than of sophisticated packages of technical options). In the long term, the emergence of substantial regional markets does provide a guarantee for continued and solid growth.

6. What policies and strategies for information?

Information is as much about the process of communication between actors, as the design and dissemination of information products or the implementation of information services.

Three principal functions of information for development can be defined:
- as a knowledge tool: circulation of knowledge, innovation and experience;
- as a tool to assist decision-making: facilitating strategic choices by actors;
- as a communication process: creating links between different actors (virtually if not physically).

6.1 A general definition of the role of information in development

Ten years ago, the Montpellier 1 seminar underlined the crucial role of information in development. While there was a tendency to regard information as the domain of specialists, it is now beginning to be recognised as one of the keys to development.

All the scenarios envisaged for the future of Africa stress the key role of information and training in the circulation of ideas, knowledge, experience... Some place greater emphasis on the circulation of technical and scientific knowledge, which is indispensable for the necessary improvement of African agricultural productivity. Others emphasise economic information centred on the evolution of markets, giving producers as well as planners a 'control panel' to guide their decisions. Still others stress the importance of legal information for the clarification of the, still unclear, rules of the game between actors, and between the private and public sectors in particular. And, finally, some emphasise cultural information that enhances local knowledge and culture, and can thus assure the links between traditional and modern knowledge.

Whatever the priorities, the importance of information is always there. ACP countries have various human resources at their disposal that are both dynamic and increasing rapidly. How can this human capital become a source of wealth, innovation and creativity? How can the circulation of knowledge, communication between actors, and democratic debate on the big development issues, be assured without an information policy?

This ambitious view of information is beginning to gain acceptance in developing countries and in international development circles. However, there are few signs of any real movement towards a more global and strategic approach to information. Putting information on a par with capital, land and work as a factor for development remains a priority. It would be good if information were given a pre-eminent role, not only as a tool for the dissemination of knowledge, but also as a means for creating links and fostering communication between development actors.

6.2 Defining policies and strategies for information

No-one can now afford the luxury of making uncoordinated interventions. The challenges presented by the future rural development of ACP countries, and the high stakes involved, do not allow it. It is possible to be either optimistic or pessimistic about the ability of ACP countries to achieve the necessary rapid technical, economic and social change. Either way, with the more important development strategies, the situation does not allow wastage or uncoordinated investment in development.

As with development issues, one of the priorities is the definition of clear guidelines for information activities. The term 'information policy' can be ambiguous. Rather than aiming for centralised planning of information activities, it means a rigorous definition of the key objectives at various levels, the specification of the role of different actors (not only information professionals), and the creation of flexible mechanisms for communication and collaboration between them.

The information policies are designed for rural development and all its various actors, from decision-makers to farmers. This essential objective should not be forgotten, even if the circulation of information between information professionals is also vital. The communication links between these actors, and access to useful information, need to be prioritised from the start. The flow of information from Europe to ACP countries plays an important role in making this information accessible. But this flow is not enough to satisfy the information needs of ACP countries. There is an urgent need to build the potential for the production and circulation of technical, social and economic information at a national level.

Just as countries need to develop their national markets to meet the challenges to come, without losing their access to international markets, so ACP countries need to develop and consolidate their internal information channels at a local, regional and national level. As with markets, the crucial factors are the adaptability of the information channel and the growth in the number of transactions.

6.3 Creating connections and facilitating the circulation of information

One of the successes of the information programmes undertaken in the last 10 years is the establishment of a vertical connection between North and South and a broad dissemination of information between various professional sectors. This has had an important effect in improving the professional skills of, for example, researchers, documentalists, and agricultural engineers. Exchanges of information, practice and experience, have been implemented in ACP countries (through, for example, documentalists' networks). This movement of information has an important role to play and should be pursued. But one of the essential questions to be resolved remains that which concerns the relation and links between actors with different functions: such as peasants - extension workers - research, and media sector - development sector.

This undoubtedly implies a change in the current professional practice of information specialists (such as documentalists, journalists). It is not a question of inventing new professions, but instilling a different attitude to ways of working while giving priority to the circulation of information, and helping information professionals to place themselves more in the role of mediators between actors.

Economists point out that an increase in productivity is linked to the connections between producers and consumer markets (transport, roads, trading networks), and the density of these markets. The dynamism in the circulation of information also depends on the connections that are established between different actors in the information chain.

The principal characteristic of the profession of information worker (such as journalists, documentalists, publishers and distributors) is to act as mediator, as an interface between the supply and demand of information. This suggests that these professions should focus more on research into ways of improving the circulation of information, than on the storage and processing of information.

Information professionals do not have a monopoly on the dissemination of information. Putting information at the disposal of users and encouraging its circulation is also about increasing the number of places where information is distributed and disseminated, and encouraging direct access by consumers to information sources.

6.4 From scientific and technical information to information for rural development

Over the last few years many technical and scientific information activities have been driven by an emphasis on the consolidation of the supply of information, and its availability to ACP actors. The content of the information has been focused on scientific and technical issues.

This orientation was entirely coherent, given the development strategies adopted at the time: encouraging agricultural growth through the adoption of new production techniques. These information strategies have allowed the creation of invaluable basic technical systems of reference, on a number of sectoral themes, which have helped improve and make more professional the practice of development engineers and technicians.

This scientific and technical information continues to act as a strong basis for information needs and information policies, particularly when seen from the perspective of the CGIAR strategy of a Doubly-Green Revolution, which implies the adoption of a new generation of innovations by farmers. Information policies must take account of the evolution under way in ACP countries: the redefinition of the roles of the public and private sectors, the creation of national and local producer markets and networks, the recognition of local products, and the need to respond more quickly to changes in the international market. The function and role expected of information is being enlarged at the same time as its orientation is being changed: in order to emphasise the notion of actors, it is undoubtedly necessary to abandon the notion of beneficiaries, and to conceive of more global, economic, social, technical, and legal information allowing actors to direct their decisions.

It would be better if information services and products replaced the supply of 'turnkey information packages', so that producers as well as decision-makers would have a wider range of choices and could better control them: for example, an item of technical information should detail the requirements for usage and profitability, the various technical options, the location of resource centres and suppliers of equipment. Information on prices and changes in production and the market are crucially important in the context of economic liberalisation and the greater responsibility given to producers.

Information policies for rural development need to be open, diverse and precise. The subject matter is very wide, and the needs are well-defined. This implies the adoption of very flexible information policies adapted to the requirements and strategies of the actors, but at the same time very well focused when it comes to the specific methodology and presentation: national and local politicians, local producers and small entrepreneurs need information to be presented in a directly usable form. The rapid circulation of information required for actors to be able to adapt their strategies quickly, is equally important, particularly with information of an economic nature.

6.5 Information available at the local level

While the creation of channels for the production and dissemination of information at a national level is a priority, the need for access to information and the horizontal circulation of information at the local level is equally important.

An information policy that favours rural development must serve all actors whose activities have an impact on rural development, from decision-makers to producers. The most difficult question is how to get to the producers. For substantive reasons (such as language), it has been difficult to conceive of information products and services that can reach the producer directly. So the most commonly adopted strategy has called for intermediaries (such as technicians, radio journalists) to use information themselves, and to circulate it. This has certainly been the most rational strategy.

It would be advisable to add to this strategy more local means for the circulation of information (local radio and newspapers, for example) to allow the creation of exchange and communication dynamics around small urban centres.

In the context of a more flexible type of development, the producer is not expected to wait for advice or information from outside (via extension or the media), but to have a more active and dynamic approach to

researching information. At the same time the research should not seem like a marathon exercise... There would be reason, perhaps, to link information dissemination activities, advice and services to the producers, or indeed to create information resource centres that provide written, audio, and visual products.

The idea that producers have a low level of education and that they cannot use written information is finally being questioned. There are almost no associations of smallholder farmers that are not led by leaders who have studied and who are quite able to read and use documents. The extension worker is thus no longer the only channel for the transmission of written information.

6.6 Creating an information market

Studies of information needs have all found a large demand for information that has not been satisfied. There are many reasons for this: an inadequate supply of information, difficulty in accessing the available supply of information (due to lack of dissemination/distribution networks or lack of knowledge of the existing networks), and prices that are too high... How can the production and dissemination of appropriate information that better satisfies demand be encouraged? Making a comparison with agricultural production again, how can a potential demand be transformed into a market that stimulates supply?

There is surely progress to be made in this area through a better definition of the relation between the State, the private sector and the community organisation sector. The privatisation of various communications activities gives a guarantee of pluralism that is vital for a democratic debate on the options for development, and for a broadening of the technical and economic choices on offer. At the same time it ensures the vigorous commercialisation/dissemination of information. Helping to create information markets in accordance with the rules of economic interest and competition could be (like the intensification of agriculture) a powerful motor for the sector in which profitable communication enterprises would develop (already, some periodicals have been born out of the liberalisation of the press in Africa).

Nowadays everybody recognises the distorting effects of donation programmes operated in certain projects. The same can be said for communication products. A book that has been given does not have the same value as a book that has been bought. At the same time, it is clear that some information services belong in the public sector, either because they have no chance of being profitable, or because otherwise the poorest would be denied access to information if the only dictum was that of the viable market place. Whole rafts of specialised information for a narrow audience would be excluded.

The inadequate correspondence between the information products that are available and the needs of the users is commonly regretted The advantage of the market is that it allows a simple direction of supply (either the products sell or they don't). It is also a powerful incentive for the suppliers to provide appropriate content (in subject, and form) and appropriate promotion and dissemination.

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Preparatory study 3

Synthesis of regional studies of agricultural information needs of African countries

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1. Introduction

This synthesis study was commissioned by the CTA and GRET to prepare a working document for the international review seminar 'Montpellier 2'. The authors were requested to study the data in the African regional studies (see section 8 below) and to focus attention on the major areas of agricultural information needs identified, as well as on innovative proposals that can be implemented in the medium term for the benefit of ACP countries. Though reference has been made to the results of studies done in western, eastern, and southern Africa, South Africa has not been covered since studies have not been carried out there. However, with the admission of South Africa into SADC, new possibilities in resource sharing are open for the country to contribute to and benefit from an integrated continental agricultural information system. Furthermore, this report does not include the North African countries of Algeria, Egypt, Libya, Morocco and Tunisia.

This study presents an overview of the regional economies and comments on the agriculture of the region, with a note on the role of information in agricultural development. It therefore serves as background to the need for strengthening agricultural information in the continent and the role of the CTA in promoting programmes in agricultural information.

The overview is followed by summaries on the constraints to agricultural information delivery identified in all countries in sub-Saharan Africa. The major agricultural information needs are listed together with the recommendations emanating from various regional workshops.

Comments are made on the commonalities of the agricultural information needs in the different African countries, and recommendations are given for action to be taken on a continental basis to strengthen agricultural information services in sub-Saharan Africa in the short term.

2. Background

2.1 Overview of agriculture in Africa

Agriculture is the major activity of the rural population of African countries whose development efforts are often directed at improving the well-being and livelihood of rural peoples (see Table 1). Progress in the development of most African countries is characteristically hampered by a variety of factors. These include high human populations compounded by high rates of population growth, lack of sufficient amounts of investment capital, huge external debt, low and declining agricultural production and, in many instances, unstable and unviable industrial sectors, as well as difficulties with structural adjustment programmes imposed by the World Bank and the International Monetary Fund. Furthermore, certain African regions are seriously plagued by recurring droughts, migratory pests, unending civil unrests and huge refugee problems, all of which hinder progress in agricultural development. Consequently, there are drastic reductions in access to basic food items and to essential services, high inflation rates, and increasing difficulties in maintaining a normal state of life. Governments of African countries have therefore embarked on the improvement of agricultural production through programmes focused on strengthening agricultural research and extension services and developing rural infrastructures. These developments are expected to increase food and agricultural production and rural employment, and improve the well-being of rural farm families.

Table 1. Data on demographic, agricultural and basic socio-economic indicators of sub-Saharan African countries.

	Western Africa					
Country	**Population (millions) 1993**	**Population growth 1992-2000**	**Agriculture population (millions) 1993**	**GDP growth (%) 1992-93**	**Agricult. GDP (%)**	**Adult literacy (%)**
Benin	5.075	2.8	2.974	2.4	37	23
Burkina Faso	9.788	3.0	8 187	3.9	44	18
Cape Verde	0.395	2.5	0.163	3.0		
Côte d'Ivoire	13.397	3.5	7.074	0.0	37	54
Gambia	0.932	2.8	0.745	-0.4		27
Ghana	16.446	3.0	7.947	3.4	49	60
Guinea	6.306	2.8	4.635		33	24
Guinea-Bissau	1.028	2.0	0.797	3.6	44	36
Liberia	2.845	3.4	1.948			39
Mali	10.137	3.2	8.025	2.9	42	32
Mauritania	2.206	2.8	1 .394	1.9	29	34
Niger	8.529	3.3	7.326	-0.7	37	28
Nigeria	119.328	2.8	76.048	2.3	37	51
Senegal	7.948	2.6	6.183	3.0	19	38
Sierra Leone	4.494	2.6	2.696	1 .3	38	21
Togo	3.885	3.1	2.660	1.4	36	43

Country	Population (millions) 1993	Population growth 1992-2000	Agriculture population (millions) 1993	GDP growth (%) 1992-93	Agricult. GDP (%)	Adult literacy (%)
Central Africa						
Burundi	5.995	2.7	5.436	4.0	54	50
Cameroon	12.547	3.0	7.333	1.0	25	54
Central African Republic	3.258	2.5	1.937	1.1	40	38
Chad	6.010	2.6	4.295	5.3	45	30
Congo	2.441	3.2	1.428	2.4	10	57
Equatorial Guinea	0.379	0.199			40	50
Gabon	1.279	2.9	0.832	0.5	5	61
Rwanda	7.789	2.1	7.067	1.4	41	50
Sao Tomé & Principe	0.127		0.078	-3.0		67
Zaire	41.166		26.385	- 1.8	31	72
Eastern Africa						
Comores	0.607	3.7	0.199	-1.3	42	48
Djibouti	0.481	3.0	0.365			14
Ethiopia	54.628	2.6	39.819	1.2	48	50
Kenya	26.090	3.5	19.737	4.0	27	69
Madagascar	13.259	2.8	9.950	1.1	33	80
Mauritius	1.109	1.0	0.236	6.2	11	83
Seychelles	0.073	0.5	0.056	3.2	4.8	88
Somalia	9.517	2.9	6.559	2.4	65	24
Sudan	27.407	2.7	15.523	-4.3	35	27
Tanzania	28.783	3.0	22.337	3.1	61	84
Uganda	19.246	3.0	15.218	2.5	57	48
Southern Africa						
Angola	10.276	3.5	2.687			42
Botswana	1.352	2.8	0.822	10.1	5	74
Lesotho	1.882	2.3	1 .453	5.4	101	78
Malawi	10.694	2.5	7.721	2.9	28	45
Mozambique	15.322	2.6	12.363	1.1	64	23
Namibia	1.584	2.6	0.519	1.0	12	40
Swaziland	0.814	2.7	0.519	1.6		71
Zambia	8.885	2.8	6.005	0.8	16	63
Zimbabwe	10.898	2.1	7.268	2.8	22	67

Source: World Development Report 1994 published by the World Bank and FAO.

2.2 The role of information in agricultural development

Although it is widely recognised that information plays an important role in agricultural and rural development, this sector has not received sufficient attention and has therefore failed to play its central role in national agricultural development efforts. Successful agricultural development requires a well-organised and functional integrated information system supported by efficient regional collaboration programmes.

For this reason, the Lomé Convention, especially Lomé IV, placed considerable emphasis on promoting agricultural information in ACP countries through the development of national capacities for the acquisition, production, processing and efficient dissemination of information for agricultural and rural development.

2.3 The role of the CTA in promoting agricultural information

In response to these issues, the CTA commissioned a series of regional studies on the status of agricultural information in Africa and identified the critical areas of needs for improvement. The studies attempted to evaluate the local resources available and national capabilities to acquire, produce, process and disseminate agricultural information.

Regional workshops were then organised in order to deliberate on the country reports and to identify mechanisms for regional cooperation to strengthen agricultural information activities throughout Africa. At these workshops, regional coordinating committees were formed for evaluating, planning and monitoring (CREPS) the recommendations from the regional workshops. In collaboration with the CTA, these CREPS committees have initiated activities to critically review the workshop recommendations and formulate specific projects and action plans to strengthen agricultural information in the different African regions.

In March 1995 the CREPS committee in West Africa, in collaboration with the CTA and ECOWAS, successfully completed the preparation of a project document on an integrated information system for agricultural development in West Africa, for submission to donors.

CREPS committees in other regions of Africa are in the process of formulating similar project documents.

3. Agricultural information needs of western Africa

3.1 Current situation

Western Africa comprises the 16 independent countries of Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo. Three of these countries, Burkina Faso, Mali and Niger, are land-locked, 12 have Atlantic coastlines, while Cape Verde is an archipelago of 10 islands in the Atlantic Ocean. Population figures and densities vary widely. Two countries, Cape Verde and Gambia have fewer than 1 million inhabitants. Burkina Faso, Côte d'Ivoire, Guinea, Guinea Bissau, and Senegal have between 5 and 10 million people, while Ghana has slightly over 16 million and Nigeria has 119 million people.

In 1975 the 16 countries established the Economic Community of West African States (ECOWAS) in order to enhance the region's economic performance through mutual cooperation. ECOWAS aims primarily to promote cooperation and development in all sectors of the economy.

Common characteristics of the economies of western African countries are low per capita incomes, high population growth rates, rural poverty and low standards of living. Other common features include open economies in which foreign trade accounts for about one-quarter of national GDP, and heavy dependence on one or a few export commodities. This last factor makes them particularly vulnerable to the vagaries of world commodity prices, coupled with stagnant or declining quantities of export.

A common line of response to the economic situation by all countries of western Africa has been external borrowing. Thus, since the early 1980s, the World Bank and the International Monetary Fund have assisted western African countries with structural adjustment programmes. Today all the 16 states spend most of their export revenues mainly in debt-servicing payment amounting to billions of dollars, with arrears of payment for many of them.

Mining is a major sector of the economy of western Africa: petroleum in Nigeria, Benin and Côte d'Ivoire; iron ore in Liberia, Mauritania, Nigeria and Sierra Leone; diamonds in Sierra Leone and Guinea; bauxite (aluminium) in Ghana, Guinea and Sierra Leone; phosphate rock in Senegal and Togo; tin in Niger and Nigeria; uranium in Niger and liquefied natural gas (LNG) in Nigeria. The other sub-sectors that contribute to GDP are manufacturing, construction, transport, finance, insurance and tourism.

All the 16 countries of western Africa are predominantly agricultural. Cocoa, coffee, rubber, groundnut, meat and fish are exported. Arable farming, animal husbandry, forestry and fisheries constitute the major economic activities of the active population of western Africa. However, agriculture is widely practised at the subsistence level.

An important activity of decision-makers in the different sub-regional organisations in western Africa has been the definition of an agricultural development policy and strategy. Among the major efforts to boost agricultural production in the sub-region are the increased use of inputs (fertiliser, pesticides), high-yielding varieties (resistant to pests, diseases and drought), mechanised farming and irrigation. Other measures include reforms of agrarian land tenure systems such as farm settlement projects, state-financed large-scale schemes, agricultural cooperatives, state farms, river basin development projects and agricultural credit guarantee schemes. In spite of the progress in agricultural development, the demand for food in the ECOWAS countries has not yet been satisfied, and the shortfall is being met through imports, especially of rice and wheat flour. In addition, some of the countries in the Sahelian zone receive emergency food aid in the worst years of drought and desertification.

One of the most serious constraints to agricultural development in western Africa is the limited access to agricultural information. This affects all target sectors of research, extension and training. There is thus the need to establish sustainable information systems and incorporate them into development strategies.

A wealth of research results exists in the national agricultural research systems. However, with the worsening economic environment, leading to poor information and documentation services, the conservation, maintenance and dissemination of these research results is hampered. Accordingly, the results are not fully available to the end-users, especially the farmers.

The situation is even more critical because the vast majority of agricultural producers may not be able to read and write, and operate at the subsistence level. For this reason diverse extension methods are used in various countries involving audio-visuals, and national languages. However, experience in the field has shown that accessibility to, and the processing and dissemination of, agricultural information are a priority for technological transfer and the acquisition of new skills in agriculture.

There are many agricultural training institutions in the sub-region. Lack of information on these institutions has led students and training officials to patronise foreign institutions in Northern countries, resulting in a drain on the region's meagre financial resources and duplication of efforts. Besides, education abroad does not take into account the local realities of the student. Furthermore, the science curricula of educational institutions of the region rarely include the imperatives of communications, with the result that researchers have difficulty in disseminating their results to colleagues and to producers. It is therefore necessary to provide researchers/scientists with the opportunity to acquire skills in communication techniques so that they can participate actively in the collection, processing and dissemination of agricultural information in ECOWAS member states.

3.2 Constraints

Constraints to effective management and dissemination of agricultural information in ECOWAS countries were identified during the regional study of the status of agricultural information in the sub-region. These constraints include:

- Isolation of agricultural researchers due to lack of support to attend scientific meetings, study tours and technical visits to more advanced agricultural research centres.
- Lack of adequate modern equipment and facilities for rapid processing and dissemination of agricultural information.
- Poorly equipped library and documentation centres in many agricultural institutions.
- Lack of adequate budgetary allocations for library acquisitions and for sustained subscriptions to key agricultural journals.
- Absence of functional regional agricultural networks that promote and encourage exchange of information, experiences and expertise.
- Inadequately trained library and documentation staff in the national programmes.
- Agricultural rural radio and television programmes are poorly developed in many ECOWAS countries. Where they have been established, agricultural extension workers do not use the services efficiently for disseminating agricultural information at the grass-roots level.
- Expertise in sustainable publication and management of agricultural journals is seriously lacking in ECOWAS countries.
- Difficulties in the free flow of agricultural information primarily due to the language barrier between anglophone and francophone scientists of western Africa.
- Weaknesses in the operation of agricultural extension systems due to insufficient support from national governments. These weaknesses constrain free flow of agricultural information to the grass-roots level.

3.3 Needs

Based on these constraints, the needs of agricultural information may be satisfactorily addressed by the implementation of the following project activities proposed for the western African sub-region:

- Training of researchers in agricultural communication.
- Strengthening agricultural extension systems.
- Production and exchange of agricultural radio and television programmes.
- The establishment of an integrated agricultural information system in western Africa.
- Regional programme to foster functional literacy.
- Publication of a West African agricultural science journal.

3.4 Recommendations

The following recommendations emerged from the regional workshop after a thorough review of the regional study and extensive deliberation by the participants.

3.4.1 Agricultural research

- In order to strengthen the capacity of agricultural research scientists in western Africa to acquire and disseminate agricultural information, regular contacts with other scientists should be facilitated through support for attendance at regional and international conferences and workshops.
- Regular briefings and workshops should be organised for policy- and decision-makers to promote the flow of information on agricultural research activities.

- Positive steps should be taken by agricultural researchers to obtain relevant information on national agricultural policies and priorities, as well as the needs of the end-users of their research.
- Agricultural research scientists need regular training in the use of library and documentation services, especially in the use of such new techniques as computers and CD-ROM for the processing of information.
- Policy-makers, research managers and agricultural research scientists should develop competence in the official languages of ECOWAS, especially in French and English.
- To facilitate the dissemination of agricultural information, group training courses in scientific writing and editing should be organised for agricultural researchers. The current initiatives by the CTA, WARDA, SAFGRAD, INSAH, AASE and ARESAF in these activities should be strengthened and expanded.
- Agricultural scientists should be trained to strengthen their capacity to communicate their research to extension services and to farmers.
- To encourage agricultural researchers to publish their research results, a regional agricultural science journal should be established.
- Alternatively, existing journals should be identified and supported in order to sustain their regular publication.

3.4.2 Agricultural extension and training

- Existing rural radio and television facilities should be strengthened through support for acquisition of equipment, maintenance of facilities, and exchange of agricultural programmes. Support should also be provided for the purchase of audio-visual presentation and development equipment, documentation and print materials.
- Support should be provided for the establishment of more rural radio and television stations for more effective dissemination of agricultural information at grass-roots level. Assistance should be given for the strengthening of rural radio and television programmes for wider coverage and dissemination of agricultural information.
- Mechanisms for promoting regional cooperation in the activities of rural radio and television centres should be established through networks.
- Regular training of extension workers in new agricultural extension techniques would increase the efficiency of agricultural extension agents.
- Study tours on specific themes should be organised regularly in order to obtain feedback and knowledge at grass-roots level.
- Agricultural librarians, documentalists, communicators and science editors should be trained through a variety of arrangements such as in group training courses, personalised attachments to well-equipped documentation centres and formal training in institutions offering information science in western Africa. Such institutions should be supported to enable them to cope with additional training responsibilities.
- Existing national departments of functional literacy should be strengthened through regular efforts involving UNESCO. Special attention should be focused on farmer associations and women's groups.
- Training of agricultural trainers should be encouraged and existing initiatives in training of agricultural trainers' programmes should be supported.

3.4.3 Information and documentation

- Assistance should be provided for functional documentation centres in the sub-region to acquire modern information equipment.
- Library and documentation centres in the national programmes should be supported to enable them to acquire basic equipment such as micro-computers, photocopiers, duplicating machines to make them functional and improve documentation services to researchers, as well as link up with more advanced centres.

- The CTA's DORA book donation programmes should be expanded to include many more ECOWAS countries.
- The training of scientists and staff in the publications units of national programmes in publications procedures and management should be organised on a regular basis.
- Micro-computers and software packages for desk-top publishing should be provided to publications units of national programmes in order to improve publications capabilities. Staff within these units should receive adequate training in the proper use of modern desk-top publishing equipment.
- Priority should be given to compatibility of working tools used by agricultural documentation units in order to promote networking activities.

3.4.4 Fostering functional literacy

Strengthening functional literacy programmes will enhance access to agricultural information at grass-roots level. A feasibility study is recommended to produce an inventory of national experiences, mechanisms for sharing experiences and strengthening regional cooperation.

3.4.5 Coordinating mechanisms

A regional evaluation, planning and monitoring committee (CREPS/western Africa) is established to monitor the implementation of the recommendations of the regional workshops. CREPS will also act as an advisory body to ECOWAS in coordinating the implementation of projects in the integrated information programme for agricultural development in western Africa.

4. Agricultural information needs of central Africa

4.1 Current situation

The countries of central Africa are Burundi, Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Rwanda, Sao Tomé and Principe, and Zaire with a total population of 81 million people. Rural population represents more than 75% of total population. Central Africa covers a geographical area of 5 million km^2.

All the countries are members of CEEAC (Communauté économique des Etats de l'Afrique Centrale/ Economic Community of Central African States).

The economies of these countries, with the exception of Congo, Gabon, and Zaire, are highly dependent (at least 40% of GDP) on agriculture. Agriculture is dominated by smallholder farmers accounting for more than 80% of total agricultural production.

Cassava, banana, plantain, sweet potato and maize represent about 86% of total agricultural production, with cassava alone accounting for 56%. Animal husbandry, fisheries and aquaculture have also been developed to substantially contribute to the increase of food availability.

In order to reach food self-sufficiency, the majority of central African countries have given high priority to agriculture in their development efforts. In spite of the importance given to agriculture in the various development strategies, agricultural productivity has always been low, although there is potential for a threefold increase in agricultural production without increasing cultivated land.

One main reason for this low productivity is related to inadequate agricultural information dissemination. It is therefore assumed that one of the priority actions to be developed in order to increase agricultural production is to define a strategy that will lead to good dissemination of technological packages and innovations to

rural areas. This will be achieved only if scientific and technical information dissemination activities are strengthened and consolidated at the level of institutions involved in agricultural development, i.e. extension services, rural radio programmes, research institutes, training institutions, and information and documentation centres.

Agricultural research, extension and training in the region are mainly carried out by national ministries of agriculture, rural development, and scientific research with some contribution by universities.

Agricultural research institutions are doing research on 12 priority research areas that have been identified as follows:

- maize;
- groundnut, cassava, milk cows and meat;
- beans, sweet potato, coffee, small ruminants, banana, plantain;
- rice, soybeans, soil fertility, Irish potato;
- sorghum-millet, cotton, cocoa, farming systems, agroforestry and animal health.

As far as publications are concerned, institutions are not able to finance the production and distribution of their publications and, as a result, almost all high-level scientific periodicals have ceased. Staff in charge of publications units do not have adequate training in scientific editing.

Rural radio programmes have achieved relatively satisfactory results, but they are constrained by various problems related to lack of equipment and qualified human resources.

There is a tendency to standardise extension approaches at the national level.

Almost all countries have established a national agricultural documentation network around a documentation centre. These networks were established with external funding and are at different levels of development. Their first objective is the constitution of a national agricultural database. Some of these networks have access to international databases.

It is estimated that approximately 50% of documentation centres are equipped with micro-computers.

4.2 Constraints

From the detailed analysis of data collected and visits undertaken in the countries, agricultural information is characterised by the following facts and constraints:

- Library collections are outdated and built mainly from gifts. They are seldom used.
- There is a tendency towards establishing databases on national agricultural literature, but this is unfortunately constrained by difficulties encountered in document collections.
- There is lack of trained staff in agricultural information management.
- Low or inadequate dissemination of documentary products due mainly to lack of financial resources to purchase, operate and maintain appropriate equipment.
- Low or inadequate access to international databases and limited exchange of information within the sub-region.
- Very limited publication of research activities at the regional level.
- There exist concern and willingness as well as concrete efforts to disseminate scientific and technical information to the rural areas. But this is constrained by lack of equipment and language barriers.

4.3 Needs

- Training in agricultural information and documentation management, and computer application, scientific writing and editing.
- Question-and-answer literature service.

- Equipment: computers, CD-ROM drives, photocopiers, micro-fiche/micro-film readers/printers.
- Library materials: books and periodicals, document collection.
- Access to international databases.

4.4 Recommendations

In order to boost the development of agricultural information, the following recommendations have been formulated for agricultural documentation centres, agricultural research institutions, extension services, training institutions, and publications.

4.4.1 Agricultural information and documentation

Training:

- detailed evaluation of the training needs in agricultural information;
- long-term degree-related training in sub-regional and international training institutions, such as STI in Zaire, and University of Brazzaville in Congo;
- setting-up of a commission in charge of the study of the conditions for the establishment of degree-related training;
- short-term training with the assistance of national and regional institutions on the following themes:
  - management of agricultural information services;
  - micro-computers for the management of agricultural information;
  - scientific editing; agricultural communications techniques;
  - information processing;
  - regional information exchange workshop on agricultural documentation networks in Africa.

Dissemination of publications:

- use of the "Books-Journals" column of *Spore* to disseminate publications of the sub-region;
- development of documentary production facilities;
- equipment and maintenance;
- encouragement of the setting-up of national networks that will promote sharing of equipment, resources and expertise;
- encouragement of the acquisition of equipment at the national level to avoid maintenance problems.

Documentation centres:

- focus of the CTA's support towards the most operational structures for the choice of national focal points;
- reduce postal rates in order to stimulate dissemination of STI in the sub-region;
- associate more closely sub-regional organisations to information-documentation action programmes;
- study the possibility of strengthening the library material supply programme;
- study the possibility of supporting documentation centres of ministries (mainly of agriculture) in their efforts to collect documents for the establishment of national agricultural databases, and to assist each country to establish a systematic document collection system that will be facilitated by the adoption of a registration of copyright regulation.

4.4.2 Agricultural research

- Inventory and publication of directories of current research programmes carried out in the region; identification of priority research programmes.
- Organisation of regular thematic or programmatic meetings and information exchanges for researchers in the sub-region; regular publication of research results; training of researchers in scientific writing; feasibility study for the creation of a regional agricultural science journal.

4.4.3 Agricultural training

- Inventory of agricultural training institutions of the sub-region.
- Establishment of and/or support for the libraries and documentation centres of training institutions.
- Assistance to training institutions for access to agricultural documentation and information and appropriate training materials and tools.
- Assistance to local institutions in the development of specific publication and editorial policies.

4.4.4 Agricultural extension

- Organisation of a workshop for heads of agricultural extension services of central Africa.
- Exchange of experience and information in the area of agricultural extension in central Africa, organisation of study tours, and establishment of an association of agricultural extension experts.
- Production of technical leaflets and strip cartoons for central Africa, and creation of a related common database.
- Identification and selection of competencies in agricultural extension in central Africa through the elaboration of a directory of agricultural extension specialists.
- Improvement of the dissemination of agricultural information and documentation at the level of agricultural extension agents.

4.4.5 Rural radio

- Facilitating access to scientific information sources for rural radio journalists.
- Promoting exchange of rural radio programmes between the various services of central Africa.
- Reproduction of themes developed in one country and their retransmission in the other countries using wide-diffusion media.
- Compilation of a file on producers of rural radio broadcasts.
- Assistance to acquire equipment and organise training programmes in communications.

4.4.6 Coordinating mechanisms

A regional evaluation, planning and monitoring committee (CREPS/central Africa) is established to monitor the implementation of the recommendations of the regional workshops. CREPS will also act as an advisory body to CEEAC in the area of agricultural information. CREPS and CEEAC will coordinate the implementation of projects in the integrated information programme for agricultural development in central Africa.

5. Agricultural information needs of eastern Africa

5.1 Current situation

The countries of eastern Africa are Comores, Djibouti, Ethiopia, Kenya, Madagascar, Mauritius, Seychelles, Somalia, Sudan, Tanzania and Uganda with a total population of 181 million people.

Adult literacy ranges from 48% in Ethiopia to 88% in the Seychelles, except in Djibouti, Somalia and Sudan, where it is 14%, 24%, and 21% respectively.

Most of these countries are among the poorest in the world. Except for Seychelles, which depends on tourism, and Mauritius which is industrialising rapidly, their economies are highly dependent (at least 35%) on agriculture. Agricultural products include coffee, tea, sugar, and cotton, but these, too, have suffered from low productivity and low prices in export markets.

Most of these countries are experiencing a high population growth rate which, in many cases, exceeds growth in GDP. They are also facing high levels of external debt and the negative effects of the structural adjustment programmes.

Growth in agricultural production has not kept pace with population growth, and severe food deficits have become endemic in many countries, making it necessary to use the available foreign exchange to import basic food items.

However, the national governments have now accepted the critical role of agriculture in national development. They are reviewing their agricultural policies in the light of persistent food shortages to increase agricultural production through removal of price controls on farm products, strengthening of extension services and reorganisation and rehabilitation of agricultural research to be more in line with national priorities.

In the processes of policy review and research planning, deficiencies in national agricultural information systems have come sharply into focus. There is also an obvious gap between known agricultural technologies and their utilisation by farmers.

Improvements in agricultural information systems are therefore expected to play a crucial role in turning around the poor socio-economic status prevalent in the region. A major issue, especially for the small countries that cannot afford to establish large research infrastructures, will be access to information on technologies developed elsewhere which, through inexpensive adaptation, could be used to improve agricultural productivity. Also crucial is the development of the fisheries sector, especially for the Indian Ocean islands whose agriculture will always be constrained by land shortages.

Except for the Comores, most of the countries have developed research infrastructures comprising networks of laboratories and research centres. Emphasis is on breeding, agronomy and crop protection programmes. Maintenance of soil productivity, animal health and forestry research, especially agroforestry, are increasing in importance. Fisheries research is only just being started.

Research centres are often isolated from one another by long distances and poor communications, resulting in very limited sharing of scientific information resources. Shortage of qualified staff is also a major problem in the region. Except for Sudan, most of the scientists in national programmes do not have post-graduate qualifications. However, with some countries having embarked on ambitious training programmes for scientists and technicians, there are good prospects for improvements in the level of qualification and experience of national researchers.

Agricultural extension is provided mainly by national Ministries of Agriculture except in Djibouti, where there is no specialised extension service. Extension services are generalised in nature. However, some countries have specialised extension services for major industrial crops such as coffee and tea in Kenya, and sugar in Mauritius, originally targeted to large-scale producers and later extended to smallholder farmers.

Creation of effective linkages between research and extension is a high priority in the region. A start has been made with establishing farming systems research and increased emphasis on on-farm research.

In each of the countries there are agricultural training institutions ranging from universities (21 colleges and faculties), 20 institutions offering diplomas, and a variety of specialised courses organised on an ad-hoc basis by various donors and international institutions in the region.

5.2 Constraints

The major constraints to information dissemination in eastern Africa are:

- lack of national agricultural information policies and strategies;
- poor access to scientific literature due mainly to shortage of funds;

- lack of and inability to retain trained staff;
- poor information management facilities;
- poor communication facilities;
- lack of coordination between institutions resulting in inadequate use of existing facilities.

5.3 Needs

Researchers, policy-makers and all others concerned with identifying research needs in the context of food security require an adequate information infrastructure to enable them to carry out their functions efficiently and cost-effectively.

5.3.1 Needs in human resource development

- Research and development staff need exposure to current information on technological advances.
- Incentives to improve career structure and opportunities.
- The implementation of national agricultural policies.
- To enhance technology transfer.

5.3.2 Needs of library and documentation services

- Sharing of existing resources in the region.
- Enhancing the status of library and information centres and the professional careers for staff.
- Improving access to information for researchers and extension workers.

5.3.3 Needs in information management and technology

- To capture all agricultural research information, including the "grey" literature.
- To minimise incompatibility of database structures.
- To make effective use of scarce resources in the region.
- To develop the human resources in information management and computer maintenance.

5.3.4 Needs in the publications area

- Assistance to researchers to publish their research findings in international primary journals.
- Improvement of the quality of manuscripts of African researchers.
- Incentives for researchers to publish.
- Ensuring wider readership of regional research publications.
- Facilitating the dissemination of information to target users.

5.3.5 Needs in extension

- Facilitate the "bottom-up" approach in research formulation, by involving farmers in the research planning process.
- Improve farmers' access to information.
- Enhance the capacity of the extension services to reach farmers.

5.4 Recommendations

In order to help resolve the information problems of the sub-region, the main recommendations made are as follows.

1.Designation of an agricultural information focal point at the national level.

2. Establishment of regional cooperation through two sub-regional focal points: one based in Mauritius for the Indian Ocean, and one in Ethiopia for the mainland countries of the region.
3. Establishment of a regional Steering Committee comprising the national and sub-regional focal points, the CTA, and other donors to the programme.

Information programmes are proposed in the following areas:
- human resource development;
- library and documentation services;
- information management and technology;
- publications;
- extension;
- coordinating mechanisms.

These proposed programmes will strengthen the mechanisms for information dissemination and international linkages through the regional agencies such as ASARECA and the IOC working through focal points. In this way, the region will benefit from the transfer of appropriate information from other regions of the world, and opportunities for African researchers to present their work to a wider international audience will be increased.

5.4.1 Human resource development programme
- Training in information management.
- Development of human resources in national information focal points.
- Strengthening of the institutional capacity of regional institutions to conduct training.
- Production of course materials.
- Regional and sub-regional cooperation for training of extension workers.
- Training in rewriting of scientific reports for extension use.
- International placement programmes (i.e. for study tours, visits, exchanges and training programmes).
- Organisation of human resources required for information networks.

5.4.2 Library and documentation services programme
- Training in information processing and dissemination.
- Compilation of Union Lists of Serials at national and regional levels.
- Establishment of a Literature Service for eastern African countries.
- Compilation of an inventory of resources for agricultural information in the region (local/regional agricultural journals, and publishing/distribution houses, materials, etc.).
- Indexing of agricultural information in newspapers.

5.4.3 Information management and technology programme
- Collection and organisation of research information including "grey" literature and downloading from international databases.
- Acquisition and maintenance of infrastructure (especially capital equipment).
- Training in database creation and information processing.
- Provision of e-mail connections.
- Production of bilingual (English/French) CD-ROM databases.

5.4.4 Publications programme
- To disseminate research information through media other than scientific journals.
- To support existing scientific journals in the region to make them sustainable.

- To provide training in scientific editing, scientific writing and desk-top publishing, including the production of annual reports and other publications.
- Training in the production of agricultural extension materials.
- Facilities for translation of appropriate documents into English and French.
- To consider the possibilities of electronic publishing in the region.

5.4.5 Extension programme

- Provision of radio and audio-visual equipment for disseminating agricultural information.
- Training in information repackaging and in communication skills of research and extension officers.
- Refining extension methodologies that are more appropriate to the region.
- Inventory of indigenous agricultural knowledge base.
- Accessibility of technology (information/input) at grass-roots level.

5.4.6 Coordinating mechanisms

A Committee for Regional Agricultural Information Programmes and Strategies (CRAIPS) comprising thematic coordinators from eastern African countries and representatives of regional and international organisations involved in agricultural development and information in eastern Africa (e.g. ASARECA, IGADD, CTA, IOC, SPAAR, IDRC, CGIAR, CABI) is established to assist in priority setting, design and implementation of regional agricultural information activities in eastern Africa.

6. Agricultural information needs of southern Africa

6.1 Current situation

The member states of southern Africa are Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe with a total population of 56 million people. Together with South Africa and Tanzania, these countries are members of the regional grouping called the Southern African Development Community (SADC). With a combined population of 115 million, SADC is a very important regional grouping in Africa contributing significantly to its productive activity. The region is wealthy in natural resources, abundant agricultural land and fertile soils. The climate is generally favourable for agricultural production. Mineral resources include gold, manganese, platinum, diamond, oil, copper, nickel, cobalt, ferro-chrome, iron, asbestos, coal, chromate, zinc, tin, lead and uranium.

Although some countries of southern Africa recorded positive growth, over the past 20 years the economies of most of the rest performed rather poorly. Consequently, the countries experienced increased poverty and a significant reduction in the living standards of the majority of the people, a deterioration in the provision of social services, and environmental degradation such as deforestation and soil erosion. Economic growth is constrained by environmental and human-created problems such as drought, civil wars, refugee problems, and hostile external environment.

To reverse the economic decline, most of the countries embarked on political and economic reforms. The structural adjustment programmes, though crucial, seem to have adversely affected the most vulnerable groups, namely the poor, women and children.

However, agriculture remains a major economic activity of southern African countries, most of them depending heavily on this sector. But agriculture does not fully provide the food needs of the region, which experiences frequent shortages of cereals. To meet shortfalls in domestic food production, large amounts of foods are imported with foreign exchange, thus disrupting support for other essential sectors of the economies.

Agricultural research and extension work in the region is carried out principally by national ministries of agriculture, with some contribution to research by universities. Some research on certain export commodities (tobacco, cotton and tea) is undertaken by private-sector institutions. Extension structure is usually from national levels to the district level with the subject-matter specialists working with field staff who are directly in contact with farming communities. Agricultural training is at three levels: certificate, diploma and degree offered in colleges and universities.

One of the most serious constraints to agricultural development in this region is the limited access to agricultural information. The establishment and operation of sustainable information systems and their incorporation into development strategies are strong determinants for the success of the agricultural development aspirations of the governments of these African countries.

6.2 Constraints

The constraints identified for effective information delivery are four-fold.

1. Absence or weaknesses of agricultural policies and strategies of some member countries.

Well-formulated national policies and strategies for agricultural information will facilitate effective decision-making to ensure the provision of adequate resources for information management and for library and documentation staff.

2. Lack of trained staff and basic equipment in libraries and documentation centres.

Lack of well-equipped libraries or documentation centres constrain agricultural researchers. In many cases, library staff are not adequately trained and are therefore unable to provide high levels of information services to researchers. Furthermore, the heads of national libraries and documentation centres are unable to influence policies or to ensure equitable budgetary provision for the library. Consequently, deficiencies, or even lack of an information service and tailor-made information products to suit the needs of the agricultural research and development community, become evident.

3. Low levels of collaboration between agricultural institutes within each country and in the region.

The establishment of efficiently functioning information networks depends on strong collaborative arrangements. Few countries in the region have functional information networks or focal points to disseminate information nationally and to promote regional linkages.

4. Irregular publication and high mortality of national and regional scientific journals.

There are difficulties in maintaining regular publications of agricultural and rural development journals. Existing journals have huge backlogs of papers awaiting publication. These problems emanate from very poor funding of journals and inadequate technical knowledge of editorial staff in publications management.

6.3 Needs

On the basis of the major constraints identified, four main areas of need were considered, as follows:

- Information generation, collection, storage, retrieval and dissemination.
- Human resources development (education and training, career development).
- Institution building (standards, physical structures, budgetary provisions, linkages between institutions).
- Development of appropriate strategies to sensitise all those interested in agriculture to share and utilise information.

6.4 Recommendations

Major recommendations from the regional overview of the information needs of these southern African countries are as follows:

6.4.1 Agricultural information policy

Countries should initiate the formulation and implementation of agricultural information policies, defining training requirements and career structure for library staff as well as funding of agricultural libraries. The initiative for the development of this policy should be taken by the Ministry of Agriculture, or other ministries responsible for agricultural development.

6.4.2 Training

The Department of Library and Information Studies at the University of Botswana can offer high-quality training in information science. Postgraduate training for library and documentation staff should be established. Additionally, in-service short courses should be conducted to ensure that skills of staff involved in libraries and in other communications disciplines are continuously upgraded in the following areas:

- Marketing and management of agricultural information and information services.
- Techniques of literature searching.
- CDS/ISIS and other database management software.
- Desk-top publishing.
- Public relations.
- Communications techniques and procedures.
- Management and marketing of e-mail services.
- Scientific editing and publishing.
- Scientific writing.
- Enhanced computer skills, including anti-virus strategies.

6.4.3 Equipment

Major agricultural libraries should budget for basic equipment such as photocopiers, computers, CD-ROM readers, audio-visual equipment and teaching aids. Donor assistance should be sought to provide these items of equipment.

6.4.4 Resources

Up-to-date relevant scientific literature should be made available to researchers, trainers and extension staff. Libraries should have a budget for books, journals and relevant CD-ROM databases to meet this need. Full use should be made of existing services such as the CTA's SDI and question-and-answer services and the SDI services of ICRISAT, ILRI, CIMMYT and ICRAF. Access to donor assistance, such as the DORA project or the SACCAR/CTA CD-ROM project, may be necessary to supplement the existing budget.

6.4.5 National databases

Countries should endeavour to capture their national agricultural literature in databases; including, where possible, records of indigenous knowledge and practices. These databases form the foundation of a strong regional information system. It is suggested that SACCAR and CTA should provide assistance to develop these databases.

6.4.6 Networking

Resource sharing at national level in journal acquisition, the creation of a union list of serials and participation in AGRIS/CARIS is highly valuable. In this regard, the funding of national networking is needed, and the role of SACCAR/SAAINET and the CTA is crucial. Networks should be encouraged at national level to include forestry, fisheries and environmental information centres, as well as agriculture, to rationalise resource sharing. Therefore National Focal Points with strong links with SACCAR/SAAINET are essential.

It is proposed that SAAINET be the network where a focal point in each country serves as a link to national users, to SACCAR and to other countries in southern Africa for the transfer and dissemination of information.

6.4.7 E-mail

In order to enhance the dissemination of agricultural information, agricultural institutions, including national libraries, should be linked by e-mail with available regional and international linkages. Existing e-mail systems in national, regional and international institutions should be studied in order to explore the feasibility of linking national agricultural libraries and documentation centres in a cost-effective manner.

6.4.8 Extension communications

Radio and broadcasting programmes for the dissemination of agricultural information should be strengthened, through training in provision of technical information packages on selected topics, and organisation of regional workshops for programme producers and journalists, focusing on their research gathering and STI.

6.4.9 Publications

Research scientists need journals that are published regularly for effective publication of their research results. National and regional journals are facing many problems of sustained publication. The *Zimbabwe Journal of Agricultural Research* should be supported in order to enable it to remain the designated SACCAR Journal. The SACCAR *Newsletter* and *Spore* (CTA) and other relevant newsletters serve a useful function and should be made available to as wide an audience as possible.

6.4.10 South Africa

With the admission of South Africa into SADC, new possibilities in resource sharing are now open in the region. South Africa has a great deal to learn from SADC in working with smallholder agriculture, and other countries can benefit from contributing to, and accessing, the South African information systems.

7. Highlights of information needs and recommendations

7.1 Introduction

Agriculture is important in the economies of African countries. It has been variously described as "the main stay", "the most important industry", or "the backbone" of the economy, contributing significantly to the GDP and export earnings, and employing the vast majority of the working populations. Yet many of the countries of Africa are not self-sufficient in basic food items and they therefore often resort to food aid or importation, with grave economic repercussions. There appears to be the political will to improve agricultural production, as most of the governments have now recognised the critical role of agriculture in national development, and the vital role played by information in the agricultural development process. However, there are many constraints, which are remarkably similar, militating against Africa's agricultural

development, the most important being access to agricultural information. This lack of access cuts across all areas of agricultural development, namely agricultural research, training, agricultural extension and documentation.

7.2 Commonality in information needs

In this section we comment on the major agricultural information needs identified by all countries in the region, and recommend carefully selected short-term actions which could be implemented to fortify agricultural information programmes in the region.

Irrespective of the specific agricultural sector, the major needs common to sub-Saharan African countries are the following:

- Financial resources to facilitate effective collection and dissemination of information in the field, procure and reproduce documents.
- Equipment and resources for storing and processing information. These include computer equipment, software, means of communication, and document reproduction facilities.
- Strengthening of agricultural extension systems to provide the dissemination of information.
- Human resource development to enhance staff capacities for collecting data (field surveys), processing (management of documentation units, statistical analyses, automated management of agricultural information, remote sensing), dissemination (publishing, scientific editing, marketing, etc.) of information.
- Establishment of linkages and a functional coordinating mechanism to promote and facilitate sharing of resources, facilities and experiences throughout Africa. Linkages with the rest of the world are also vital.

7.3 Recommendations for continental action

7.3.1 Coordinating CREPS activities

Comment

All regions have identified their agricultural information needs based on country studies followed by regional syntheses and regional workshops. Various workshops have set up implementation agencies made up of representative experts in the various themes, together with representatives of regional or international institutes operating in the region. These CREPS committees have translated the recommendations of the regional workshops into implementable components that could solve some of the problems identified or satisfy the perceived needs. Some of these recommended actions are remarkably similar for the various regions, and an African perspective will produce better results and is therefore desirable.

Recommendations

1. The actions of the various CREPS should be harmonised, through continental meetings of representatives of regional CREPS.

2. National Coordinating Committees should be established for agricultural information to coordinate activities in agricultural information issues at national level. These Committees will establish effective linkages with the regional CREPS.

3. Project documents being prepared for the various regions should be speeded up in order to facilitate coordination of implementation of the various aspects at continental level.

7.3.2 Training of researchers in communication

Comment

The results of extensive agricultural research that have already been undertaken in Africa have yet to make a significant impact on agricultural and rural development in Africa. This is because few of these findings reach the people who can apply the knowledge to development. One important reason for this is that those who generate technology fail to effectively communicate their findings to others. In many cases, there is a lack of institutional mechanism for technology diffusion to end-users, such as farmers, who need to utilise new knowledge and skills to substantially increase their production. It has been observed that scientists are unable to effectively communicate their research results because, during their own training, skills acquisition in communication was not a major component in the university curricula in agriculture. Many scientists thus graduate without adequate exposure to the basic principles of scientific communication. Furthermore, local avenues to publish their results are lacking.

The country studies and the regional workshops for all regions of Africa identified the need for the training of researchers to enable them to effectively communicate their research findings not only to their colleagues but also to the general community. Priority areas for emphasis in training activities were identified in scientific writing and editing, information processing and dissemination, information packaging and desk-top publishing techniques.

Training needs have also been identified for other categories of persons who interact with or influence agricultural research; these are policy-makers, decision-makers and research managers.

Some centres in Africa already have vast experience in organising training programmes in scientific communication and agricultural information management. For example, in western Africa WARDA, IITA, SAFGRAD and ICRAF are the leaders in this field. The East African School of Librarianship at Makerere University of Uganda, the Agricultural Information Centre in Kenya, as well as the Universities of Madagascar and Mauritius have been mentioned for eastern Africa. In southern Africa the University of Botswana has capabilities for training in information science at the Department of Library and Information Studies.

In collaboration with the CTA, the international agricultural research centres WARDA, ICRAF and IITA, and the regional associations AASE and ARESAF have initiated training programmes in scientific communication for agricultural research scientists.

Recommendation

4. The initiative of IARCs and regional associations, in collaboration with the CTA, should be supported through the establishment of a continental coordinated training programme in scientific communication. The Inter-Center Training Program (ICTP) initiative of IARCs could serve as a useful vehicle to implement this recommendation.

7.3.3 Rural radio and television

Comment

In the area of agricultural extension, all regions have agreed on the need to use radio and television more effectively to disseminate information and thus provide an essential link between sources of technological information and farmers. Not all countries in Africa have developed rural radio; those who have not, regularly use either the national broadcasting stations or/and local stations. Large segments of the farming population listen to the radio, thus radio programmes in local languages can have a positive impact in transmitting information to all grades of farmers. In many countries farmers actually participate in these programmes, with positive impact on the farming population.

The experiences of all countries can be pooled and redistributed to improve local situations. The Union of National Radio and Television Broadcasting of Africa (URTNA), to which most African countries belong, is committed to the development of all aspects of broadcasting (radio and television). With the involvement of URTNA, priority can be given to networking using existing structures to promote:

- agricultural information assembly, development, exchange, and dissemination;
- training; and
- translation and exchange of programmes in agricultural and rural development.

Recommendation

5. National rural radio and television facilities should be supported and efforts made to collect and generate local agricultural radio and television programmes. URTNA, which is a continental organisation, should be used for promoting exchange of agricultural radio and television programmes.

7.3.4 Library and documentation centres

Comment

Information is a vital ingredient for agricultural and rural development and researchers need information on work done by others on the same or similar subject, on the state of the art and ongoing activities. Extensionists need to be aware of new technologies being generated and the condition of the farming population to which effective assistance could be rendered. Educators need a large amount of information on a variety of subjects to be able to impart knowledge to students. It is therefore critically important that information is readily accessible to all users.

However, the following constraints in library and documentation services cut across all the regions of Africa:

- lack of equipment for information management;
- sustainability of acquisitions;
- training of staff for information management;
- access to international databases;
- networking and effective exchange of expertise, facilities and resources.

Many libraries and documentation centres throughout Africa do not possess basic equipment for managing agricultural information and thus cannot render efficient service. Modern electronic equipment for processing agricultural information is now generally available for more rapid and efficient management of information. The acquisition of such modern equipment as micro-computers, CD-ROM drives, photocopiers and line printers would enhance the efficiency of services rendered by documentation centres. E-mail is an important, efficient and fast means of communication in the modern world. It is thus necessary to link major regional centres through e-mail with access to the Internet.

Acute shortage of books and other acquisitions is common all over the continent. Journals subscriptions cannot be maintained by most centres because of the shortage of foreign currency. This poses serious problems for agricultural researchers who are therefore unable to keep abreast of advances in their areas of research.

Trained librarians, documentalists and support staff are in short supply all over the continent. It is therefore difficult to maintain viable and efficient library and documentation services for researchers.

Many libraries and documentation centres in Africa do not have access to international databases, and this severely restricts the assistance that they can render to researchers.

The need for networking—to be able to make information readily available to users—has been stressed. In southern Africa, for example, SAAINET was established under the auspices of SACCAR with the main objective of establishing an agricultural information network that promotes information sharing, exchange and dissemination, to effectively meet most of the agricultural information needs of the SADC region. Similar

arrangements do not exist in other regions. In western Africa, for example, apart from international or regional research institutions, access to international databases is not possible from national programme centres. The same appears to apply in eastern Africa. It is therefore necessary to share experiences in this important area to be able to establish integrated agricultural information systems for the continent.

Recommendations

6. A pilot programme should be established for supporting selected libraries and documentation centres as regional centres for information science and agricultural information delivery services. Support would include supply of equipment, book and journal acquisitions and facilities for access to international agricultural databases.

7. Electronic e-mail communication facilities should be established in national libraries and documentation centres with facilities for regional and international linkages.

8. Regional training programmes should be organised for the training of library staff in modern information management. Regional institutions should be identified to host these training programmes.

9. Regional information networks should be established and supported in order to promote exchange of experiences, sharing of facilities and resources. SAAINET in southern Africa should be developed into the main regional information network for southern Africa.

10. National support for agricultural information centres should be encouraged by sensitisation of policy-makers in government through regional and continental workshops on the role of information in agricultural development. Through such sensitisation efforts, national governments would be encouraged to give greater priority, and provide increased resource allocation, to information services.

11. Existing regional training programmes in scientific communication for agricultural researchers should be encouraged and fully supported. Institutions already involved in these training activities should be encouraged to institutionalise and develop them as continental activities.

12. Mechanisms for accessing information on a regional and/or continental basis should be established to be able to retrieve publications such as theses.

7.3.5 Agricultural extension service

Comment

Extension forms an indispensable link between agricultural research and its end-users. It is therefore important that this activity be accorded the greatest priority in all agricultural programmes. One way of making this happen is to be able to explore the strengths and weaknesses of the various systems practised on the continent and incorporate success factors discovered elsewhere into existing systems. To be able to do this, there must be an organised provision for the orderly exchange of experience throughout the continent. This would naturally lead to a cross-fertilisation of ideas among the practitioners and lead to improvement of agricultural extension in the entire continent.

The other area that will make for improvement is the extension-research liaison. This is important for many reasons, and on it depends the adoption of research results by farmers. The communication-of-innovation model previously portrayed the farmer as a passive recipient. The research scientist was assumed to have all the wisdom, which he passed down to the innovators who might be early adopters, late adopters, or—by laggards—non-adopters. But there is now a growing realisation that the farmer must not be regarded as a mere recipient of technology but must be actively involved in a two-way communication process—not a one-way extension process. Farmers already have superior knowledge of the circumstances in their fields, their practical everyday problems and how to solve them. The extension services will thus look at their problems

in conjunction with the researcher and come up with a workable solution. By this two-way approach, sustainable development can be guaranteed.

Another area is the development of training materials for extension agents. Those agents who are not able to acquire the confidence of the farmer are more likely to fail in delivering extension messages than those in whom the farmers have confidence. Confidence building can come from many quarters, but the possession of appropriate extension training materials is of primary importance.

Recommendation

13. It is therefore recommended that a continental approach to agricultural extension be developed through the exchange of visits and experiences, as this would strengthen extension through a cross-fertilisation of ideas.

7.3.6 Functional literacy

Comment

Agricultural training, as presently undertaken, has a number of weaknesses. First, the weakness in not being able to efficiently link research, extension and the farmers appears to be because of the absence of well-trained primary workers. Secondly, functional literacy programmes, which are mechanisms of strengthening agricultural communication at grass-roots levels, are severely lacking in many parts of Africa. Targeting functional literacy programmes to farmers' groups, particularly women, could facilitate the flow of agricultural information and lead to greater agricultural productivity.

Recommendation

14. It is therefore recommended that an inventory of functional literacy programmes operating in Africa be undertaken to enable regions to share experiences.

7.3.7 Regional agricultural science journal

Comment

All the regional reports stressed the need for a sustainable regional agricultural science journal to enhance communication. To be successful in establishing and sustaining a regional journal, a number of factors have to be taken into consideration:

- training of editors;
- training in publication management;
- improving journal distribution.

Recommendation

15. The issue of regional agricultural science journals on a sustainable basis should be examined in the context of the CTA's initiative on communication of agricultural research results in ACP countries.

8. List of regional studies

8.1 Western Africa

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Burkina Faso. CTA, ECOWAS. 75 p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Gambie. CTA, ECOWAS. 57 p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Guinée-Bissau. CTA, ECOWAS. 57 p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Niger. CTA, ECOWAS. Various p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Cap-Vert. CTA, ECOWAS. Various p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Sénégal. CTA, ECOWAS. 106 p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Mali. CTA, ECOWAS. 108 p.

Bâ, Oumar and Samba Aw. 1992. Etude des besoins en information agricole en Afrique de l'Ouest: Mauritanie. CTA, ECOWAS. 58 p.

Bâ, Oumar, George O. Ibekwe, Alassane Diallo, with the assistance of Anthony Youdeowei. 1993 Regional summary: a study of the agricultural information needs in West Africa. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. ix, 68 p.

CTA, ECOWAS. 1993. CTA/ECOWAS Regional Workshop on Agricultural Information Needs of West African Countries, Banjul, The Gambia, 11-15 May 1993: final report. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. iii, 80 p.

CTA, ECOWAS. 1994. Meeting of the Regional Committee on Evaluation, Programming and Monitoring of Agricultural Information Activities in West Africa (CREPS), Abidjan, Côte d'Ivoire, 7-8 April 1994: final report. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. ii, 40 p.

CTA, ECOWAS. 1993. Minutes of the Meeting of the Ad Hoc Committee of the CTA/ECOWAS Regional Workshop on Agricultural Information Needs in West Africa, Banjul, The Gambia, 17 May 1993. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. iii, 6 p.

Diallo, Alassane and Benoît N'Dri Brou. Etudes. 1992. Etude des besoins en information agricole dans les pays de l'Afrique de l'Ouest: Côte d'Ivoire. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. 120 p.

Diallo, Alassane and Benoît N'Dri Brou. Etudes. 1992. Etude des besoins en information agricole dans les pays de l'Afrique de l'Ouest: Guinée. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. 50 p.

Spiff, E.D. and George Ibekwe. 1992. Study of agricultural information needs in West African countries: Ghana. CTA. 61 p.

Spiff, E.D. and George Ibekwe. 1992. Study of agricultural information needs in West African countries: Liberia. CTA. 21 p.

Spiff, E.D. and George Ibekwe. 1992. Study of agricultural information needs in West African countries: Nigeria. CTA. 105 p.

Spiff, E.D. and George Ibekwe. 1992. Study of agricultural information needs in West African countries: Sierra Leone. CTA. 54 p.

Youdeowei, A. and Alassane Diallo. Etudes. 1992. Etude des besoins en information agricole dans les pays de l'Afrique de l'Ouest: Bénin. CTA, ECOWAS, WARDA, Bouaké, Côte d'Ivoire. Various p.

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Preparatory study 4

A review of the trends in the supply of information for rural development from Europe to ACP countries

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Introduction*

The essential actors in the EU-ACP information chain—and their services and products—have remained largely the same types of institutions as 10 years, indeed 20 years, ago.

The changes that have taken place within these institutions and their products and services for ACP countries have been marked by a strong trend of professionalisation. This is characterised by greater emphasis on the quality of information, and on adapting the information more to the needs and demands of users in the ACP countries. At the same time, the evolution in technology, especially in the electronic media, information technology and telecommunications, has allowed faster movement of data. There has been a process of diversification in the information products: whilst the written word is still dominant, there is growing interest in radio and audio-visual media.

The marketplace has arrived. This has led to greater efforts towards achieving some degree of financial viability in the production and dissemination of information in both the North and the South, although the basic tenets of grant aid and donations are still in place.

It is noteworthy that, with notable exceptions, language remains a significant feature in the typology of the actors. Across the scale of institutions and programmes, there are sometimes separate entities of francophone, anglophone, and, less evidently, lusophone (and other) 'worlds'. Between them, co-existence outweighs dialogue.

Alongside these approaches is the emergence of a practice of partnership between institutions in Europe and the ACP countries, aiming at strengthening the capacities of the ACP actors with regard to their own supply of information.

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*A note on methodology: The study was conducted by a survey of institutions, through telephone and personal conversations, followed up, where appropriate, by a questionnaire. Information about the survey and the questionnaire was carried on various bulletin boards and conferences on electronic communications hosts. In addition, a literature survey was conducted on trends in information supply in general, and between countries of the European Union, and ACP countries. The assistance provided by the documentation and enquiry staff of CTA, and members of the Steering Committee, in identifying key institutions and literature, is gratefully acknowledged.

1. The institutions

1.1 Research and educational institutions

1.1.1 Research institutions

Research institutions, and their associated services of information, publishing and communication, comprise a major component in the information store in Europe that is available to African, Caribbean and Pacific countries.

There are, at present, it is estimated, more than 600 such institutions in the 15 member states of the European Union. A leading overview of these institutions is given in the excellent reference work *Agricultural Information Resource Centres: A World Directory 1990* compiled by IAALD, the (then) International Association of Agricultural Librarians and Documentalists. The directory, a co-publication with the CTA, featured 3 971 institutions in the world, virtually all of them being private or public research institutes. Of these, approximately one-fifth were located in the United States of America (678), one-fifth in the (then) Union of Soviet Socialist Republics (720) and one-seventh (530) in the 15 countries which now comprise the European Union. A new IAALD Directory is due for publication in mid-1995.

By no means all of them, however, have institutional relationships in, or provide information to, partners and clients in ACP countries. Thus, for historical, geopolitical reasons there is a much more established orientation towards ACP countries in the agricultural research community, for example, in the United Kingdom, or France, than in Finland. In the former, there is a (relatively) thriving and mutually-renewing professional research community. In the latter, the actual visible volume of work on tropical agriculture is incidental.

1.1.2 Working in networks

One key characteristic of the research community working for and on ACP countries is its relatively homogeneous set of working practices. They tend to apply similar behaviour in information management and searching. Equally, they tend to have the same drive to disseminate findings, through various media of publications. The patterns of access to, and use of, new information technologies such as computer-mediated communication and video-conferencing, show great, but fast-shrinking, inequalities between countries and regions.

The research institutions tend to establish, and maintain, their norms and procedures for networking and strengthening themselves. Thus there are national, international and thematic professional associations and networks, between individuals and institutions, of which IAALD is perhaps the most renowned. Such linkages mean that innovations, information and intelligence (in the sense of essential data, not cerebral power) circulate with comparative ease among the community. This form of organisation facilitates partnership and exchanges between researchers in the North and the South.

This form of networking, however, also carries a risk of exclusion: a good proportion of its professional benefits are generated within the community, and mitigate the need to cooperate with other sectors. This does not favour the evolution of a more outward-looking community with links to other bodies, such as development agencies, whether public or private.

1.1.3 Educational institutions

The education and training institutions, which are usually host to the research institutions, have a dual role, in terms of information supply to ACP countries. First, the substantive information and skills that are developed

during any course are of obvious value. Secondly, and of longer-term value, is the introduction to, and contact with, European sources of information that can be made by the course participant. According to the Commission of the European Union, there are more than 260 advanced courses on agricultural and related topics for graduates and professionals from ACP countries, held regularly in the countries of the Union.

1.2 The NGO institutional sector

In the last decade, the non-governmental sector in Europe, and the African, Caribbean and Pacific countries has grown strongly, and encompasses a wide range of organisations.

There are several thousand such organisations within the European Union, and, in terms of the volume of resource flows (including information), this sector has attained a high profile and a high position in the ranks of EU support to ACP and other countries. The total value of aid disbursed, for example, through the Oxfam International consortium exceeds MECU 200 annually, more than the official aid budgets of some EU states. There are more than 1 000 NGOs from countries of the European Union accredited to cooperate with the official institutions of the Union.

All of these organisations maintain some form of information activity and flows from their "home" base to their countries of partnerships. In fact, very few NGOs focus solely on information activities for the ACP countries. In most cases, their information work has grown alongside their work on development projects and programmes.

The extreme diversity of the non-governmental sector means that there is less professional peer discipline than there is in, for example, the research institution community and the commercial publishing community. There are, of course, many excellent examples of NGO activities that have improved the strength and quality of the information chain. Nonetheless, best practice is far from guaranteed in establishing and sustaining institutional relationships between European NGOs and partners in ACP countries.

1.3 The commercial sector

1.3.1 Publishers

The commercial publishing sector in Europe has had a niche that is an important vector of information for rural development in the ACP countries. The increasing interaction between this niche and other sectors, together with the growing emergence of African publisher networks, is one of the most significant developments in the last decade. Research institutions and NGOs have turned to the commercial publishing sector, or its methods, for a mechanism that will ensure quality, performance and viability. When partnerships have been created between publishers and outside organisations, there is usually a financial aspect whereby the external organisation covers the costs of the publisher, by bulk purchase, sponsorship, loans or direct grants.

1.3.2 Trade information bodies

The trade information bodies are usually joint-venture organisations between public and private sectors in various member states of the European Union. They provide information to producers and producers' service organisations in ACP countries, to promote trade between EU and ACP countries, in the form of market studies, product requirements and standards, shipping and packaging information, and trade and financial information on, for example, duties.

1.4 Funding agencies and channels

A continuing trend in the information chain between EU and ACP countries is the broadening of links between funding agencies and other institutions. Alongside the traditional funding agency, both public and private, at national and international levels, is the growing phenomenon of the intermediary funder. The latter acts as a two-way conduit between the original source of funds and the beneficiary. This position makes possible more substantive exchanges between the funder and the funded. It has encouraged greater emphasis on the evaluation of the need for, and impact of, funds for information projects and programmes.

There is also increasing dialogue and partnership among funding agencies and intermediaries. This trend has, in part, emerged from the imperative of more efficient use of restricted funds, although it has been driven undoubtedly by the overriding desire to be ever more responsive to the growing needs of the information chain.

2. Products and services

There are several forms to the information products and services that are made available by institutions in the European Union. They range from individual, customised advice, through publishing in various media, to long-term institutional cooperation.

2.1 Information centres

Information centres and libraries occupy a pivotal role in the collection, management and dissemination of information. In research institutions there is a very broad range of such centres, in scope and scale. The NGO sector is more homogeneous in this regard: according to a survey undertaken in 1993 by the GATE programme of GTZ (Germany), among more than 100 databases and information services on agriculture, a typical collection is between 6 000 and 10 000 titles, with the overwhelming portion being classified as "applied" rather than "scientific". A notable share of the collections surveyed, between 20 and 80%, was defined as "grey literature".

2.1.1 The transition from passive library to outreach

Many information centres have been forced to face the issue of the sustainability of their service, in terms of income, and not only incoming documents. Thus, the library at GRET (France) has for some time operated on a restricted basis, and the library at TOOL (Netherlands) was largely closed and absorbed by the Royal Tropical Institute early in 1995.

Some have sought to develop viable services, moving from classical documentary products to more assertive products such as SDI. The transition from librarian to the "new information professional", however, was rarely easy, and sometimes impossible.

2.1.2 Networks, partnerships and decentralisation

Most of these information centres have been involved in the development of partner centres in ACP countries. These partnerships involved the development of common systems for information management, shared training, and, latterly, attempts to transfer question-and-answer services.

The case of SATIS, an information system on appropriate technology, provides a useful case example. At one stage, its original product, the SATIS classification, had more than 780 registered users, most of them in European and ACP countries, and more than 1 400 identified unregistered users. Such a tool, together with

common formats and bibliographic records, enables the optimum tracing and exchange of information, and provides a basis for institutional partnership. Thus with bilateral agreements between GATE (Germany) and GRATIS (Ghana), ATOL (Belgium) and ITARA (Rwanda) and PFAT (Finland) and CAMERTEC (Tanzania), a web of document networking could be spun. The hub of the SATIS network, initially located in The Netherlands, was established 3 years ago in Senegal, operating autonomously under the aegis of the NGO ENDA.

2.2 Customised advice

2.2.1 Question-and-answer services

Traditionally, the packages used for information transfer have been technical advice through individual consultation either on-site, or through correspondence. Looking at the traditions that have developed in information flows in the last few decades, it is worth pointing out that one of the pioneers of question-and-answer services was the Dutch group Agromisa, which started in the early 1930s at the Agricultural University of Wageningen and is today one of the collaborating partners of the CTA.

The CTA itself operates an active question-and-answer service, in which it involves most of the services in Europe. It points to a level of approximately 1 000 substantive enquiries annually, of which about half are referred to contracted collaborating partners. In addition, the CTA handles around 30 000 requests for its publications annually, shipping more than 53 000 volumes in 1994.

There are now several dozen services in countries of the European Union which can be categorised as "question-and-answer" services. This is in addition to the external work of individual researchers in Europe who operate virtual question-and-answer services on a personal basis with colleagues in ACP countries.

In the USA, the enquiry service of VITA (Volunteers in Technical Assistance), set up in the 1960s, handles more than 40 000 enquiries, with heavy demand from African, Caribbean and Pacific countries.

2.2.2 Many services, out of one movement

Many of these services grew out of the appropriate technology movement during the 1970s and early 1980s. The Intermediate Technology Development Group (ITDG) in Rugby (UK) was an early pioneer. Among other leading examples are the now-defunct AT Gruppe (in Salzburg, Austria); AT Sweden (in Lund); GRTA (Cesena, Italy); PFAT (Helsinki, Finland); COTA (Brussels) and ATOL (Leuven, Belgium); GRET (Paris, France); and SKAT (St Gallen, Switzerland).

They handle, together, many thousands of information requests annually. TOOL reports that it handles a consistent volume of about 400 questions-and-answers each year, whereas ITDG's Technical Enquiry Unit points to a linear growth from 600 requests in 1988 to 1 500 in 1994.

Also significant is the role played by the research institutions, often through their information centres, in question-and-answer services, both as operators and as advisers. Some consultancies, such as the BPDA in France, have also developed similar services.

2.2.3 More professional services

Some question-and-answer services have ceased operation, unable to justify the high levels of time and finance spent. Among those which have continued, there is a clear trend of adapting the services to better respond to the needs and the realities of the user.

A significant trend in many of the question-and-answer services has been the replacement of personalised individual advice in the traditional form of a letter by customised packages of information + documents. This

practice, it is claimed, answers many of the more general or often-posed requests, and allows the service to concentrate its limited resources on personal research and advice when it is most required.

The GATE-FAD, the German Appropriate Technology Exchange's question-and-answer service, is an example of service that started on an independent basis. It was absorbed by the GTZ in the late 1970s, and now simply acts as a clearing-house for questions reaching GTZ.

An evergreen question-and-answer service is the TOOL Foundation in the Netherlands, which, by mid-1995, will have completed a 20-year cycle and will revert to its original role. Having been born out of a consortium of groups of volunteer researchers, it formalised into a question-and-answer service, gradually creating and spinning off programmes in publishing, international networks, field projects, development education, technology transfer and, latterly, electronic networking. Having divested (privatised) all these products, the new TOOL Information Services was launched in April 1995, with a stronger emphasis on understanding the needs expressed in the field, and on providing a viable service.

2.2.4 Towards strength through networking

The quality of this customised advice work has, it is reported by several services, been greatly helped by continuing and growing cooperation between the services. There are, for example, regular exchanges and meetings between CIRAD, ILEIA, GATE, TOOL, SKAT, ATOL, and IT-TEU. These encounters, plus parallel networking in such fora as the EULEISA (European Union for Low-Energy Input and Sustainable Agriculture), help to ensure an awareness of "who, what, where", an occasional dialogue on methodologies, and joint ventures. Thus, TOOL is currently compiling an electronic directory of question-and-answer services, which it plans to publish in mid-1995. This form of interagency networking also leads to thematic partnerships, of which FOODNET is an example: it bundles the expertise of ATOL, GATE, GRET, ITDG and SKAT in their technical enquiry work in food-processing technologies.

2.2.5 Shifts in demand

In all, more than half the enquiries reaching the general question-and-answer services are of direct relevance to agriculture. (This analysis obviously does not apply to services dedicated solely to agriculture, such as the work undertaken by CABI, CIRAD and ILEIA.) In the general services, they are across a wide range of topics ranging from education through management, energy, water supply, industry, building materials, to health. The standard services, typified by IT-TEU and TOOL, report that about 10% of all information requests are in the field of agriculture, but they add that crop and food processing account for an average of 25% of requests.

Topics such as renewable energy applications for production, use of agricultural waste, and water management, are growing in importance, as is interest in environmentally benign methods of production, such as integrated pest management.

Contextual themes—dealing with processes—are given increasing attention, in issues such as rural economics, rural credit, micro-enterprise development, marketing, and organisation and management of agricultural groups and cooperatives.

Demand, and supply, remains constantly high for information on resources: training courses, scholarships, bibliographies are all heavily requested for the institutional partners in the ACP countries.

2.2.6 Reaching out, touching whom?

While increasing attention is paid to guaranteeing the quality of the information provided, there is less evidence of the question-and-answer services monitoring the appropriateness of the request to agricultural and rural development.

This support from funding agencies can take several forms, varying from support in the production process, to being a publisher, or a co-publisher.

2.3.3 Poor distribution

The viability of publishing for rural development in ACP countries is hindered by a range of problems in distribution and sales. There has been a variety of responses from publishers in Europe to these difficulties:

- Some organisations, such as SKAT and ATOL, have cut back or ceased publishing and distribution.
- Others have sought to professionalise, by organising themselves more commercially, and by specialising. TOOL, for example, has suspended publishing, and focuses heavily on a large-scale book order service. Another example of viable sales operations is the African Books Collective, which distributes African publications in Europe and beyond.
- Some efforts have been made to develop alternatives to the existing distribution networks in Africa, by setting up private, commercial sales networks. GRET, and the Bayard Presse, have each attempted to set up small, local businesses for book distribution, financed from sales.

Several studies, notably those undertaken by the CTA on the distribution of technical publications in Africa, have stressed that the question of price is a critical obstacle to effective distribution. Many approaches have been made to stimulate purchases, such as book token programmes operating through, for example, SATIS and the funding agencies such as Spain's Manos Unidas, Netherlands' HIVOS (via TOOL) and Oxfam UK (via IT Publications), as well as the well-established UNESCO Coupon programme.

Book donation, book development, North, South: which is the fairest of them all?

Some programmes have been established, by funding agencies and by NGOs, for book donations, in order to improve access to books, for the end-user in the ACP countries. It must be noted that these programmes sometimes run counter to those aiming to strengthen publishing and distribution activities in both the North and the South. The lack of linkage between the parallel networks of free and commercial publications causes at best confusion, at worst unequal competition.

This apparent contradiction is compounded by conflicts between the interests of Southern and Northern publishers. The latter, which are prime recipients of funder support, have several advantages over their Southern counterparts, such as better equipment and broader professional experience. In these circumstances, African publishers are often unable to compete. There is a growing body of opinion that the emergence of a set of viable publishing activities within Africa, including in the field of agricultural and rural development, is an essential component of the structures required for optimal information transfer from the European Union to ACP countries.

Signs of change

On the European stage, several changes are taking place in publishing support programmes, as was amply demonstrated by the seminar on the promotion of technical publishing in Africa, organised by the CTA in Arnhem in November 1992:

- There is a clear need to properly define the recipients of book donation programmes, and to draw up a code of conduct for free distribution.
- More emphasis should be placed on distribution and investment in developing the market.
- There is also a clear need to strengthen the publishing skills and infrastructure of African publishers.

There are two developments that underline these trends.

- First, there is a growing discussion about mobilising investment and working capital for African publishers, within the Bellagio Publishing Network. This group comprises some of the agencies that seek to promote,

In most of the interviews and literature study conducted for this part of the review, the first piece of information that is imparted is about the volume of work that is represented by a question-and-answer service. One area of work that thus deserves more attention is a proactive analysis of the developmental impact of the question-and-answer services, including the issue of whether the users of the services are important actors in development. The source of requests for question-and-answer services is often a Northern audience. In the case of the Natural Resources Institute (UK), for example, a major group of users of the library and information service is composed of NRI staff on the 60 projects in the South with which NRI works.

The attention paid to evaluation, however, suggests that there have been great improvements in this field of information transfer in the last decade. A study conducted for the International Labour Office in 1987, on the establishment of the ILO Information Service on Technological Alternatives for Development, concluded that six out of every seven information transactions in technical enquiry services were references from one service to another, and had no contact with the intended "target user" of the services. Since that study, the information flow has undoubtedly been streamlined.

2.3 Publications

The last decade has seen a growing use of publications as a means for increasing the volume and availability of information from institutions in the European Union.

2.3.1 Multiple offerings

As well as the traditional role of the research institutions in publishing and disseminating their findings, there has been an increase in the amount of publishing work by other development organisations. Developments in information technology, particularly in desk-top publishing, have made it possible for organisations of virtually any size in Europe to produce small-run publications. These new technologies have led, sometimes, to a profusion of publications, some of questionable quality. Hundreds, possibly thousands, of development organisations, in particular the more individualistic NGOs, have small collections of scarcely used manuals and evaluations on practical topics such as rabbit raising, poultry, small irrigation dams, food processing, food storage, animal husbandry, and cultivation of medicinal plants.

The total volume of technical publications that are sold by institutions in the European Union for use in agricultural and rural development in ACP countries exceeds 4 000 titles. There are also about 500 regular journals and periodicals, ranging from specialist academic journals, in printed and electronic form, to small-scale newsletters. These works are largely in French and English: there are significantly fewer on offer for partners in Portuguese-speaking ACP countries. Since the early 1990s, the erosion and absence of purchasing power on the part of producers, professionals and institutions engaged in agricultural and rural development in ACP countries, coupled with stringent economic conditions in the European Union, has meant that the surge of publishing that was evident in the mid-1980s is over.

2.3.2 Support publishing programmes

Some programmes make funding available for publications activities for ACP countries. These encompass two categories of funders: namely the original, direct aid disbursement agency such as a national government agency, e.g. SIDA (Sweden), MCD (France) or independent organisations, e.g. Oxfam (UK), Croce Via (Italy), HelliNas (Greece), and intermediate organisations that disburse funds received from other agencies, e.g. BookAid International (UK), and the CTA itself, which uses finance originating from EDF. Thus the CTA has been able to establish a number of mechanisms for, for example, co-publishing, and bulk purchases. The GTZ, ILO, ACCT and the French Ministry for Cooperation have also developed similar programmes to support specialised publications.

This support from funding agencies can take several forms, varying from support in the production process, to being a publisher, or a co-publisher.

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The viability of publishing for rural development in ACP countries is hindered by a range of problems in distribution and sales. There has been a variety of responses from publishers in Europe to these difficulties:

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Several studies, notably those undertaken by the CTA on the distribution of technical publications in Africa, have stressed that the question of price is a critical obstacle to effective distribution. Many approaches have been made to stimulate purchases, such as book token programmes operating through, for example, SATIS and the funding agencies such as Spain's Manos Unidas, Netherlands' HIVOS (via TOOL) and Oxfam UK (via IT Publications), as well as the well-established UNESCO Coupon programme.

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This apparent contradiction is compounded by conflicts between the interests of Southern and Northern publishers. The latter, which are prime recipients of funder support, have several advantages over their Southern counterparts, such as better equipment and broader professional experience. In these circumstances, African publishers are often unable to compete. There is a growing body of opinion that the emergence of a set of viable publishing activities within Africa, including in the field of agricultural and rural development, is an essential component of the structures required for optimal information transfer from the European Union to ACP countries.

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- More emphasis should be placed on distribution and investment in developing the market.
- There is also a clear need to strengthen the publishing skills and infrastructure of African publishers.

There are two developments that underline these trends.

- First, there is a growing discussion about mobilising investment and working capital for African publishers, within the Bellagio Publishing Network. This group comprises some of the agencies that seek to promote,

in general, publishing in Africa. The Network serves as a forum for its members to exchange information about their programmes and procedures, and, occasionally to cooperate on specific projects. The discussion on investment has been stimulated by the work of the Dag Hammarskjold Foundation in Sweden in establishing a capital fund for African publishers.

- Another positive development has been the growth in co-publication between European and ACP country institutions. This process, which has been greatly encouraged by the interventions of the CTA, has allowed economies in costs of production and distribution, and enhancements in quality.

Who are the readers, who is reached?

In examining the barriers to a widespread use of publications, as well as the problems of pricing and the absence of working distribution networks, there is the issue of the nature of books themselves.

Significant steps have been taken by all concerned, research institutions, NGOs and publishers, to improve the quality, presentation and validity of information published. However, a gap still remains between the supply of information and the demand of the users, with these elements:

- As is also the case with information centres and question-and-answer services, for some books there seem to be more users from the North than from the South, such as technical staff assigned to projects, expatriate experts and students.
- Few of the publications produced are aimed at field workers and development agents.
- Equally, few publications have been produced for decision-makers, in the form of overviews or policy papers, for use in decision-support systems.
- Little of the information produced in Europe is actually used by the end-user and rural producer, except indirectly in training activities set up within specific official and NGO projects.

It is difficult, in fact, to properly measure the extent to which most books actually meet field needs, and to gauge their real impact on rural development. Most fields projects are, as a matter of course, subject to an impact assessment. This is not the case, it would seem, with publications, for which there are no standard mechanisms of evaluation. Indeed, there are occasions when funding agencies have not fully measured the actual distribution of publications they have supported.

2.4 Resource materials: guides, directories

The wide range of information products and services available from European organisations is as scattered as it is diverse, and hence its entirety is sometimes little known in the South. Consequently, various European organisations have set up services that facilitate access to information and help requests reach the correct source.

Resource materials, such as catalogues, directories and bibliographies have grown in number in recent years. By being efficient in performing the task of locating the desired information, these materials can have a great value-added impact—on condition that resources are available to obtain and use the actual information. National bibliographies, available through the AGRIS network, represent the tip of the iceberg, which includes extensive series of bibliographies and abstracting services from CABI, KIT, NRI, and INRA.

2.5 New information technologies

Increasingly, institutions in the European Union are moving towards electronic publishing, ranging from CD-ROMs to on-line journals on the Internet. Any of the electronic technologies are, in certain circumstances, highly appropriate: the CD-ROMs produced by CABI, CIRAD, and FAO, are excellently implemented examples of information transfer and exchange among a well-defined group of users. The exclusively

electronic journal *Livestock Research for Rural Development*, which is published on diskette and on the Internet, and the information pages of the international network on integrated pest management on the Internet's World Wide Web, provide simpler and user-friendly tools for more powerful manipulation of information than could have been dreamt of at the time of the Montpellier 1 seminar.

For those partners in ACP countries with the facilities, and resources to use them, these models of electronic publishing and dissemination are tremendously empowering tools.

2.5.1 Electronic networks

For years electronic networks have been used by the research community; in African, Caribbean and Pacific countries this has been stimulated by, for example, the RIO project under ORSTOM, UREF (France), NRI (UK) and by the International Foundation for Science of Stockholm. The networks are gradually opening up for public access, partly thanks to a number of NGO-inspired initiatives.

One potentially exemplary application is starting to emerge under the stimulus of the Technical Enquiry Unit of Intermediate Technology. This organisation has an English centre and offices in, among other countries, Zimbabwe, Kenya, Sudan, Sri Lanka, Bangladesh, and Peru. It is also a pragmatic proponent of cooperation between agencies in, for example, question-and-answer services. It has recognised that electronic networking has reached the stage where there can be regular and reliable communication between these offices. It is therefore starting, in mid-1995, on a programme to decentralise its question-and-answer work, by accessing all the expertise throughout its network of offices, and sharing technical enquiries among those most competent to deal with them. It will also examine the modalities of involving other organisations in the process.

It is clear that there remain many barriers to widespread use of these technologies in some African, Caribbean and Pacific countries, and—most importantly—to their use outside those parts of the political and economic capitals with quality telephone connections. At present, it is claimed that only three African countries and a few Pacific states have full access to the global Internet networks. (It is recognised that most Caribbean states have more ease of access.) However, in almost 20 countries in Africa, the technological infrastructures are in place; what is lacking are the financial and policy instruments to allow them to be used. At present, the information available on the electronic networks is, for most, hard to locate, for those with access. According to a wise comment forwarded from the NRI, the Internet is "like a huge library where all the bookshelves and documents have been tipped onto the floor, and all I need is one page".

2.5.2 CD-ROMs

Other electronic media have a role to play: CD-ROMs are the most obvious example, whilst the use of low-volume computer diskettes should not be overlooked for, for example, electronic journals. The economics of these technologies are unrecognisably low compared with when the agricultural information profession embarked on its CD-ROM activities a short decade ago, making them more affordable and reliable, and thus more appropriate. Much investment has been made in CD-ROMs, initially as a way to deliver large volumes of bibliographic references, through such agencies as CABI, FAO, CIRAD, INRA and the Royal Tropical Institute. The medium is becoming more widespread and useful, through initiatives such as the CGIAR full-text CD, the project of Cornell University to publish the world's core agricultural literature on CD, and educational/interactive uses of CIRAD's Cotton and CABI's Crop projects. It may be argued that these investments provide a precedent for similar investments in exploitation of the electronic networks that, one decade from now, should have drastically changed the way much information is shared.

2.6 Institutional partnerships, and capacity building

Alongside programmes for ensuring the flow of specific packages of information have grown programmes that aim at developing the infrastructures, human and logistic, for information transfer, management and on-passing.

A major characteristic of most cooperative ventures is that they are between peer institutions and that they focus on exchanges of information between themselves, and very little on further transfer.

The most solid model of such cooperation is between research institutes, and is usually for a series of schedules of, say, 5 years each, and covered by the protocols and relative stability of academic institutions and official aid programmes.

In this framework can be placed programmes comprising the installation and use of CD-ROM technology, the ubiquitous CDS-ISIS bibliographic computer software, or the process of modemisation, which involves linking institutions through computer networks. These programmes have often made a point of using leading-edge, and thus often prestigious, technologies, sometimes without a full pre-assessment of their distribution. This has fuelled a debate about their appropriateness, which has detracted from the core issues of content and application. More recent evaluations, such as those of the CTA CD-ROM project and UNESCO's study of Third World CD-ROM sites, have underlined that, with judicious selection, these programmes can greatly increase the esteem of participating institutions in ACP countries.

Also comparatively stable are the relations between publishing companies in the European Union and ACP countries, such as between various university presses, although the ebb and flow of commercial interests ensures a lively relation between partners. Further, there are working relations between companies that belong to the same publishing conglomerate.

A more troubled picture emerges when one looks at the partnerships that are sought after by other suppliers of information, in the NGO sectors in particular. Most of the "heavy-weight" NGOs have attempted to develop partnerships in ACP countries, in publishing, documentation services and networks. However, few have developed any degree of permanence: notable exceptions are relations between Italian and Austrian NGOs with partners in the Sahel, and between the Belgian ATOL and groups in Rwanda and Zaire. One, more successful, approach has been adopted by ITDG (and CODE Canada), whereby national counterparts are established, and are allowed or enabled to develop an autonomous status.

2.6.1 Partners or competitors?

The efforts made by European organisations in capacity building in institutions in ACP countries can, in fact, be undertaken in harmony with their own work in the North. In some cases, however, there can be conflicts (in according priorities in allocation of resources, for example) or the work in the South can appear more effective.

The case of the Belgian NGO Collectif pour les technologies appropriées (COTA) is exemplary. Their information centre houses in excess of 8 000 relevant documents, and receives maybe a dozen visitors each week, whilst their Cameroonian partner organisation, with 200 documents, has 50 visitors. The question-and-answer service provides a very modest way for partners in ACP countries to consult the Brussels centre, albeit at a much slower, and more cumbersome, pace than a direct visit would allow. Their aim is, therefore, to establish a well-endowed information centre in the South. In Portugal, a similar dilemma is being experienced by the CIDAC (Centro de Informacao e Documentacao Amilcar Cabral), which is examining the future of maintaining a documentation centre in Lisbon. It calculates that it is an expensive proposition to maintain a service that rarely serves those it seeks to support—partners from certain ACP countries—and that it might

be a more effective use of limited funds to invest them directly in field projects. The same arguments could apply to cases of the transfer—or not—of production of journals or books.

2.6.2 No commonalties, no partnerships

Whilst it is recognised that these trends towards partnerships are indeed effective in capacity building, there are nonetheless some negative aspects. European organisations, in the quest for optimal performance, tend to seek institutional partners and run the risk of creating 'islands of privilege'. The relations are sometimes stronger on a North-South basis, at the expense of South-South or national partnerships. A national research institution, in a partnership with a European research body, will tend to link up more quickly with the international scientific community than with national development organisations.

Similarly, it cannot be taken for granted that, working within a North-South partnership, information products or books from a Northern partner will be better suited to the needs of the user. Sometimes decentralisation simply decentralises a problem, rather than provides the solution. The physical transfer of a documentation centre, from Europe to, for example, the capital of an ACP country, is likely to include the transfer of its information behaviour and performance, by giving de facto priority to researchers, to printed works, and a classical approach to communication. This does not help, automatically, the rural producers.

2.7 Radio

The aural medium of radio, as with cassette, is among the most powerful for reaching rural audiences. Yet, in comparison with written materials, it is relatively underused as an information vector by European organisations.

Broadly speaking, European support to radio is three-fold: to the establishment and operation of rural radio stations; to human resource development (journalists, producers, presenters, and technicians); and in provision of "canned" programmes and programme segments and background materials.

2.7.1 Support to running rural radios

Until the early 1990s, support to public radio, and rural radio in particular, was the virtually exclusive domain of the larger international organisations, and bilateral aid agencies, acting in response to requests from national and regional bodies to set up, or modernise, national stations. More recently, the end of monopoly broadcasting has encouraged financial injections in local stations by several independent organisations, NGOs, religious agencies and private enterprises from Europe.

Since 1988, ACCT (Agence de coopération culturelle et technique), has been involved in the development of rural radio, through setting up four local stations in each of the partner countries (Benin, Burkina Faso, Central African Republic, Congo, Mali, Côte d'Ivoire, and Guinea).

The major component in such bilateral cooperation has been the provision of broadcasting equipment. Aid from Germany has been the strongest in this area, as it has been in human resource development, and has been channelled through GTZ, Deutsche Welle and private foundations (Friedrich Ebert Stiftung, and Friedrich Naumann Stiftung). The latter provided long-term financial and material support to rural radio in Congo from 1978. When it was terminated in 1987, there was a rapid decline in programming; there was a similar trend in Burkina Faso when German aid was halted in 1985.

French official aid, in collaboration with FAO, went to starting rural radio in Burundi, Mauritania and Chad, but this direct support has stopped. Swiss Development Cooperation was for a while a strong investor in rural radio in Guinea.

2.7.2 Human resource development and capacity building

Training is often the major thrust of support to human resource development from European organisations, as witnessed by the case of CIERRO (Centre interafricain d'études en radio rurale de Ouagadougou). Created in 1978, CIERRO is a permanent centre of URTNA, the Union des radiodiffusions et télévisions nationales d'Afrique. It provides training to about 20 producers and journalists from francophone Africa annually, often with support from, for example, ACCT, CILSS, CTA, FAO, UNICEF, Swiss Development Cooperation, CIDA, GTZ and GRET. In 1995, Deutsche Welle transferred to CIERRO its training programmes for African rural radio journalists, hitherto held in Germany.

The CTA has developed a programme of rural radio support based on the recommendations of a workshop held in Ouagadougou, in 1989, with directors of rural radio and agricultural information services in ACP countries, who emphasised training needs. Since then, the CTA has run eight regional workshops in Africa and the Caribbean for journalists and producers.

The media and communication department of the Friedrich Ebert Stiftung (FES) has supported 20 projects in developing countries, cooperating in Africa with URTNA for training and programme exchange. In Mozambique, ongoing training support for journalists and technicians has led Radio Mozambique to add a special focus on rural development. In Zimbabwe, FES has worked with the Zimbabwe Broadcasting Corporation (ZBC) since 1987 in its Radio 4 educational station, with development a strong content for rural listeners.

In the Pacific, FES has supported the Broadcasting Training and Development Project (PACBROAD) which provides training for staff from 13 stations in the South Pacific and Papua New Guinea, in centres in Vanuatu, Western Samoa and PNG.

FAO has a long record of support to rural radio, with a number of programmes in ACP countries centred on training, educational tools and information resources. It also uses radio as a key component in its campaigns based on multimedia, of which the best example is the 18-year-old PARC programme (Pan African Rinderpest Campaign).

2.7.3 Providing programme material

Another role played by external agencies in radio is to provide programme material to meet some of the lacunae in the production of complete programmes in certain radio stations in the South. This is done both through providing full programmes, ready for broadcast, or "seg-files" comprising various items that can be integrated into locally produced programmes.

In this context, the CTA has funded the production and dissemination of "rural radio programme packages" for radio stations in ACP countries. Since 1990, 15 packages on various topics have been distributed to more than 50 stations. Containing sound materials and background documents, to be supplemented with local material, the packages are produced by Périscoop (in French), and in English by WREN (World Radio for Environment and Natural Resources); Portuguese-language versions are expected soon.

In a similar vein, the Developing Countries Farm Radio Network (DCFRN) has established a global reputation through its circulation of scripts on rural development topics. Its newsletters in English, French and Spanish are used extensively by more than 1 000 users, many in rural radio, in more than 100 countries. Established in 1979, DCFRN is funded by CIDA and private donations.

International broadcasting companies, such as the BBC, Deutsche Welle, Radio Netherlands International, and Radio France International (RFI), often have special departments working on development, with specially

compiled magazine and feature programmes for use by other stations. RFI, for example, provides services in production, broadcasting and distribution, and training. In 1994, about 180 radio stations in 78 countries used its weekly topical tapes and scripts.

These companies also make use of external partners such as NGOs to assist in compiling such programmes. GRET has been involved in compiling a series of short weekly programmes *Acteurs du développement /témoignage* with RFI, with the collaboration of correspondents in Africa. TOOL in The Netherlands regularly provides material for Radio Netherlands International. In France, Périscoop produced an agricultural magazine for RFI for several years. Among the weekly offerings of the BBC are the 15-minute magazines *Objectif développement* (French service), *Development '95* and *Farming World* (BBC World Service).

2.8 Audio-visual media

The term audio-visual covers a broad terrain, and can extend from a video report on a project, through slide shows, to a series of satellite broadcasts. Within this range, however, there is a rich diversity of budgets, approaches, audiences and instruments.

2.8.1 Television

In ACP countries, television is a little-used medium for information about rural development, and the involvement of European institutions is equally modest. Among the offerings of European programming available in ACP countries, increasingly via satellite, there are few features covering rural development issues. Notable examples include the magazine *Intertropiques,* produced by Périscoop with journalists from national television stations, and broadcast on Canal France International, and Earth Journal and EarthFile on BBC World.

European agencies also support national television stations, through provision of equipment and training. This support usually includes strengthening production facilities and these could, in turn, be used to produce programmes for rural development audiences—although there are few signs that this happens. Some television production companies have developed a specialisation (or a specialised section) for producing programmes targeted at audiences in the South. This is sometimes done through co-productions with national companies and stations in ACP countries. These productions cover rural development projects, and are made available to broadcasters and development institutions in ACP countries and in the North. Thus, the Television Trust for the Environment (TVE) in the UK has built up a wide range of film titles and a catalogue, mainly on environment topics. The European Zebra network maintains a regular newsletter on all films and audio-visuals dealing with development.

2.8.2 Video, slides and film-strips

Video is being used increasingly within rural development activities, although it must be stressed that it is still used primarily as a medium for promoting the achievements of projects and institutions. Many videos seem to be produced with a diffuse audience in mind, from decision-makers to extension workers, which makes their focused use rather difficult. This problem is less evident with slides and film-strips, whose audiences have been better defined, usually extension workers and farmers.

The involvement of European institutions in audio-visual media in ACP countries is two-fold:
- the provision of European-produced materials and training;
- support to audio-visual production in ACP countries, through equipment, local training and co-production.

Examples of European products

FAO has an extensive and valuable catalogue of slides and film-strips. Among the other productions from European sources, two are worthy of note as examples of different approaches:

- There is a set of educational videos and booklets *Discoveries on the Farmers' Track*, produced by the Agricultural University of Wageningen (Netherlands). The 'image file' for extension workers and decision-makers introduces topics around agricultural innovation and extension in Benin through comparisons with the Dutch situation.
- The *Encyclopédie audiovisuelle du Sahel*, produced by the French NGO CIEPAC is a tape-slide presentation, with back-up documents, produced originally as a development education tool for a European audience, and now much in demand among Southern users.

There are three major shortcomings in the patterns of use of European productions:

- significant logistical problems in distribution (cost, lack of appropriate networks);
- insufficient promotion for local use;
- content is often context- and location-specific, and difficult to replicate in a region.

Examples of European support to local production

Among the models of support from European institutions to audio-visual production in ACP countries are the following three examples:

- In Mali, the Centre de Services et de Production Audiovisuelle (CESPA) was set up in 1988 by UNDP and FAO, based on the Peruvian model of CESPAC. It produces audio-visuals for training of small farmers, and assists in their use.
- In Dominica, a sub-regional project of FAO started in 1993 using video for rural development in the eastern Caribbean islands of Antigua, St Kitts, Nevis, Grenada, St Vincent, St Lucia and Dominica. It promotes video training materials in ministries of agriculture, a network of producers and a training resource materials service.
- the Swiss-French NGO GRAD (Groupement européen de réalisations audiovisuelles pour le développement) supports an internal communications programme, using video, for small farmer organisations through its partner Six S-Sahel in Burkina Faso, Senegal, Mali, Togo, Niger, and Gambia.

3. Conclusions

3.1 Information is packaged better, but is it delivered properly?

Much has been achieved in terms of professionalisation of European organisations, of targeting information products, and in increasing the range of technologies available for information flow. However, there still remains much to be achieved in terms of optimising content as well as carrier, and matching supply and demand. The priority, in terms of resources and attention, still seems to be more on the production of information rather than its transfer and distribution.

Significant efforts are still required to redress the balance of investment in production and dissemination, and to build up the distribution networks that, today, are lacking. The fact that many potential users are not being reached means that information from European sources is not being fully used, with some of its value being left to waste. To correct this, increased efforts are required to match supply and demand (through catalogues, support of distribution networks, question-and-answer services), as well as new forms of information transfer.

For example, "information fairs", modelled on commercial fairs, could provide useful fora for real needs and demand to be articulated to producers on a direct, and individual basis. "Mobile one-stop-shops" could be set up using minibuses, based on the well-known bibliobus model, housing sample information. Such services

should be attached to existing centres of information in ACP countries whose impact and outreach could be enhanced by greater mobility and interchange with users.

3.2 Production and the last mile

In telecommunications, there is a concept of "the last mile" which refers to the simple fact that the most shining network in the world has no use at all if it does not cover the final steps to the user. In the information chain, the "last mile problematique" is becoming more and more evident, and pressing.

It is not, clearly, the task of institutions from the European Union to themselves cover the last mile. They are eternally doomed to be, at best, intermediaries, although some have difficulty in accepting this fate. However, they can play a key role in building and strengthening the missing links in the information chain. They can also seek to ensure that their information is clearly destined for transhipment and not for storage, and to adapt their approach so that, even if indirectly, they can have a real, positive impact on the situation of the rural producer.

3.3 The partnerships are strong, the information chain is weak

It is in an effort to better understand the information needs and realities in African, Caribbean and Pacific countries that European institutions have moved towards institutional partnerships. However, these partnerships are difficult to maintain, and since they are usually between peers, they serve to, at best, strengthen just one link in the information chain. The central issue of other, weaker—or non-existent—links in the chain is still overlooked: there are poor links between research centres and development agencies, between the media (press, radio) and information and extension services.

3.4 More tools, less focus?

The last 10 years have seen a diversification in the tools available for information transfer: growing, albeit still limited, use of audio and visual materials, the growth of information technology, multimedia products and services, electronic networks... Paradoxically, this increase of opportunities for communication, heavily technology-driven, has not been matched by proper consideration of pros and cons of each technology and media, and the markets and messages for which each is most appropriate.

This lack of matching between media and message, and the associated adaptation of information, means, ultimately, that information from European institutions is being underutilised, and not achieving its potential level of impact.

3.5 Learn to go to market

An undeniable trend during the last 5 years has been drastic reductions, and reallocations, of the aid budgets on which most information services had become dependent. From Spain to Finland, Greece to Ireland, fewer public funds have been available for research, and for information.

This has prompted the imperative to sell more, when some of the products have been, broadly speaking, unsaleable and when the purchasing power of the market has been eroded. It is an uncomfortable dilemma, but it will be useful if it can lead to re-engineering, perhaps even a re-materialisation, of the information chain, by endowing it with different components and elements. An essential element in such a strategy would be to allow market forces to play a greater role.

Such an approach has important benefits, notably improved targeting of actual (rather than imagined) demand, and the development of viable information activities in the ACP countries. The approach has risks, too:

- There is a genuine problem with the purchasing power of users in the ACP countries, especially local producers and field workers, who cannot pay the real cost price of information. A dogmatic attachment to the goal of financial viability would exclude large parts of the population from access to information services. It becomes necessary, therefore, to invent new mechanisms that allow some degree of price subsidy, whilst steering firmly towards the tenets of sales, rather than donations.
- Some information activities belong in the public domain, as part of general public provisions. Some services, such as public-sector research bodies, and public information centres, require some form of protection or support, in the framework of the information market.

3.6 Define funding priorities

With the likelihood of financial resources becoming scarcer, or more competitively available, for information transfer from the European Union to African, Caribbean and Pacific countries, intense and careful consideration is required of all the issues in defining funding priorities. With this in mind, it is perhaps timely to reiterate the suggestion to elaborate indicators for the developmental impact of information, including an assessment of the relative benefits of the vectors, whether electronic, virtual or real.

The abundance of information available and on offer from European institutions represents a valuable resource for development in the ACP countries. In order to optimise its use, more precise definitions are needed of the priorities for action, the respective roles for all parties concerned, the results that can be expected, as well as ways to measure the impact of information.

Preparatory study 5

New information technologies: which products, which technologies, which professions?

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1. New information technologies: dynamism on the supply-side

In recent months and years, there has been a wave of features about the 'information superhighway'* in the North American, and European, press and broadcast media (see Annexe 1). This 'hype', apparently, simply reflects the media's interest in some monumental manoeuvring around the unprecedented economic and socio-cultural issues that are at stake.

The 'information superhighway' has been presented, in the media, as the means for both setting up businesses in varied multimedia information services, and delivering interactive television to every household. In much of the current media attention, there is a tendency to confuse future possibilities, especially in the audio-visual field, with new, existing products and services that are available today through computer networks such as the Internet. This state of confusion, to the extent that it is not purely academic, is proof that we are witnessing the emergence of a global international industry. The Global Village is unfolding; McLuhan would be a happy person.

The roots of this industry of new information technologies are embedded in three industrial sectors: information technology, telecommunications, and the media themselves, the 'content' producers. The sectors are becoming increasingly entwined: traditionally restricted skills are now highly mobile, and the press, for example, is now realising the value of cross-sector strategic alliances, and the scale of financial issues that they represent.

So much is happening in this area that it merits the adjective 'effervescent'. This paper will therefore look at, on the one hand, the technological utopias held dear in today's modern societies (see reference 2) and, on the other hand, in broad terms, the role-play now showing on the international stage.

First, we look at some basic definitions, to avoid the temptation of saying 'turn off, it's all hype' and to overcome the confusion caused by terms such as 'information superhighway'.

*Translator's note: The author uses the term 'autoroutes de l'information' in the plural. The chosen English equivalent is 'information superhighway'. Other similar terms, often used as synonyms, are: 'information highway', and 'information infrastructure' which are usually used by writers of North American influence, notably the U.S. Vice-President, Al Gore, generally credited with coining the phrases 'national information infrastructure' (also known as NII) and 'global information infrastructure' (GII). Within Europe, and particularly the bodies of the European Union, strong preference is shown for 'the Information Society'. In mid-May 1995, a new, popular term is 'the I-Way'.

EARN/Bitnet are linked to other networks, such as the Internet. A new association was launched recently: TERENA (The European Research and Education Network).

The Fidonet was created in 1984, to offer electronic mail and news services at low cost. It now links more than 20 000 computers, through telephone networks. It aims to minimise costs by using existing networks, and by running on small, sometimes mobile, computers. The syntax for addressing is: zone: network/site, where zone means a continent, network means a city and site the exact site on-line. The transfer of files is not possible on the Fidonet.

This brief overview will be complete, almost, if we mention the networks that link computers using the Unix operating system, through UUCP (Unix to Unix Communications Package). UUCP protocols allow data exchange between Unix-based machines, through modems on phone lines or special connections, with calls being programmed between remote sites. The RIO network (see Annexe 4) is a typical example of a UUCP network, allowing indirect access to the Internet, through UUCP sites that are also linked to the Internet.

Finally, mention should be made of private-sector public networks such ATT Network Note, Calvacom, Compuserve and the awaited Microsoft Network which is linked to Windows 95. Unlike those mentioned in previous paragraphs, these networks are privately-owned, hierarchical, and focused on commercial applications.

1.1.3 Client server architecture, W3 and multimedia

The World Wide Web (W3) is a recent innovation of fundamental importance to multimedia communication. It originates from CERN in Geneva.

W3, as it is widely known, is a world-wide network based on the Internet. Two kinds of computers are linked to it: servers, which distribute the information they hold, and clients, who access the information. This pattern is known as client-server architecture. A software program based on this architecture, known as Mosaic, enables any personal computer (PC), linked to the Internet and with Windows and Winsocks software, to access information on server systems. Mosaic was developed at the National Center for Supercomputing Application (NCSA) in the University of Illinois. Its power is based on hypertext through which documents are linked with each other, allowing the user to move from one to another by simply clicking a word, or an image, with the computer mouse. There is a wide range of information formats available on the W3 network, including still and moving images, sound and text. The range of information is amazingly varied, with simply bits of everything: databases of genomes, cooking recipes, astronomical photos, computer programmes, etc.

1.1.4 Which services?

Not all networks provide the same types of service and uses. This depends on the protocols used by the systems, and the capacity (throughput) of the telecommunications systems used for data transmission. Most elementary services provide a throughput of 9.6 kbps, whilst services providing images require throughputs of 64 kbps or 128 kbps. Some applications are so intensive that they really require a throughput of several megabytes per second.

Electronic mail

E-mail is the best known and most used service of most networks. Users of e-mail—who each have unique addresses in the form of *user@site.domain*—can exchange messages, and forward them to other users, re-send them and file them. E-mail has several advantages in cost, in the fact that exchanges are 'staged' whereby correspondents do not need to be 'on-line' at the same time, ease of reply and filing, and multiple addressing.

File transfer

File transfer on the networks makes use of the File Transfer Protocol (FTP). This allows remote machines to connect with each other, and to show directories of files, and to copy and write them, sometimes over vast distances. The speed of file transfer depends on the throughput capacity of the networks, and the load carried at any time.

Access to remote resources

The Telnet function allows a remote user to connect to a local system and use its information resources as if one is a local user.

Telnet has opened up access for the public to information servers such as Newsgroups or Forums. These services allow a group of people with a common interest in a specific subject to exchange ideas, opinions and information. For the scientific community, these services have opened up a collective space for debates of a highly creative and unaffected nature.

Access to information servers

Moving beyond the Telnet function, there is a number of tools for more interactive access to remote servers, of which Gopher and WAIS are the best known.

- Gopher is a research tool that allows the user to navigate around the Internet, using scrolling menus. The basic principle of navigation is similar to that found on the French videotext system called Minitel, with the advantage of being able to use a computer mouse. Specific functions, such as FTP, are simple for the user to apply.
- WAIS is a tool for documentary research, using the principle of structured text. Search results allow the user to access information in any geographical location, in a simple fashion.

Multimedia resources

The multimedia resources on the W3 networks are a mixture of text, sound, and still and moving images. They can be accessed using the Mosaic program mentioned above, or by any other program using client-server architecture, such as Netscape (which has the advantage of gradual image build-up on-screen) and True Speech Player, for work stations with a sound card. W3 services include all functions for reading Newsgroups, FTP, Gopher and WAIS.

As stated above, not all networks can offer all services. Table 1 shows the possibilities.

Table 1. Services available on major networks.

	E-mail	FTP	Telnet	Gopher	WAIS	W3
Internet	+	+	+	+	+	+
EARN/Binet	+	+	+			
Fidonet	+	+				
UUCP	+					

Source: INRIA.

1.1.5 Optical memory storage

The processing of information, whether text, image or sound, in a digital form has led to massive increases in the capacity of the networks to process and transfer data. It has also increased the possibilities of storing data

on portable media. Two methods of storage have been blended with two types of media. First, magnetic media, using analogous signals, and, more recently, optical media, storing digitised data, using laser beams.

There has been a spectacular development in storage capacities, thanks to digital optical disks. Without getting into technical details about their nature, and their future, suffice it to note that there are two broad groups of these disks: the compact disk CD-ROM and the digital optical disk (DOD).

The latter, in two formats of 3.5-inch and 5.25-inch diameter, are basically mass storage media. The former, CD-ROMs, tend to be used for professional publishing purposes or public entertainment and games, usually on an interactive CD known as CD-I. (See the glossary in Annex 5 for full details.)

The evolution of these media is closely allied to technical advances in two other areas: laser technology, and recording tools (7). Here, great progress is being made in the precision of read-write disk 'players' and in the storage capacities of CDs.

By way of illustration, the HDCD (high density compact disk) came onto the market in 1994 with vastly expanded storage. Whereas the 'traditional' CD-ROM can store 550 megabytes (equivalent to 270 000 pages of typed text), an HDCD can store 3.7 gigabytes (3700 megabytes) today—with the prospect of even greater capacity in the near future (8).

Whilst these trends continue, it is important to note the incredible speed with which the CD-ROM has invaded the publishing world (9). The 13th edition of the annual CD-ROM Directory, published by TFPL Publishing (London, UK), has no fewer than 1 200 (printed) pages, and lists more than 9 500 CD-ROM titles.

The number of CD-ROM titles grows annually by about 50%, and the range of products for professional and educational applications grows unabated. It would seem that the early obstacles to market penetration by the CD-ROM—few and expensive readers, high prices of CD-ROMs themselves, limited distribution channels—have been well and truly removed.

1.2 The advantages of new technologies, objectively seen

Every society, every era, brings technical advances. These advances are unwittingly called novelties, and are painted as the bearers of inevitable and unprecedented changes in the social, cultural and economic landscape.

Ultimately, society has rarely adopted the technical advances as predicted; this is especially so in the case of communication. In his history of communication, Patrice Flichy (4) brilliantly captures society's adoption of radio and telephone and its predicted use for live broadcasts of the opera! It is important, therefore, to indicate realistically just what can be expected of new technologies today.

1.2.1 Multimedia

The term 'multimedia' is, as stated above, ambiguous (10). Through digital technology, multimedia is the integration of text, sound and images on one medium for storage or transfer. As such, multimedia communication is not new; just consider the schoolmaster and the blackboard... What is new is the possibility to store information, and hence to file and disseminate it on demand, in real time, on the networks, regardless of geographical location.

In this scenario, the two major thrusts of technology in compact disks and computer networks really come to the fore.

- The CD-ROM, thanks to its great capacity, is an exceptional medium for the storage and delivery of multimedia applications. These have special relevance to publishing activities. Catalogues of CD-ROM show a large proportion of titles of guides, directories, encyclopedias, dictionaries and manuals. These types

Behind all the references to the (undeniably important) Internet, it must be stated that there is much diversity among the networks, and we have mentioned only some. Nonetheless, where today the multitude is part complementary, part competitor, tomorrow they will be integrated (15).

That digital technology has been widely applied in popular television is witnessed by the saying that "it's not far from Hollywood to Silicon Valley" (16) and the fashionable term "Siliwood".

One vision that is clear is that tomorrow's user, using a 'tablet' with a flat screen, will have easy access to everyday information (television à la carte, news), to functional services (teleshopping, on-line banking) and educational uses (virtual libraries and museums, messaging).

The Internet and W3 are, in fact, in the education and research sector, the foreshadow of the network of networks that will become the 'information superhighway'.

There will, of course, be some parts of the 'information superhighway' where popular demand will pay its way, such as in teleshopping and television à la carte. Other parts will be virtually free, as in the case of cultural services—a vision of convergence in which the roles of the different actors need to be understood.

1.3 The actors and roles

The major contributions of the new technologies discussed above are in being multimedia and interactive. The roles of the actors involved in relation to these two points are described below, essentially by analysing the North American and European situations.

1.3.1 The roles

Today, the operational scene is fairly well established (17):

- The telecommunications operators control the telephone network, for both voice and data transmission (Minitel in Europe, and personal computers linked by modem). They provide the backbone for the large electronic networks.
- The cable operators control the delivery of television services, and the TV black-box or decoder/set-up box which is used to decode signals from satellite or cable.

These two types of operators are now attempting to break into each other's markets, through the medium of the terminal: the computer screen, or the television. Thus we see cable operators aiming to introduce video services for display on the computer screen, and the telecommunications operators providing video services to television viewers.

Software and equipment suppliers are also heavily involved. For industry, the interactive multimedia market is a fabulous market to tap: it is estimated that in 1998, in the United States, almost 14 million households will have multimedia personal computers. The electronics market for decoders is similarly slated for expansion.

Many manufacturers are preparing for the future by being involved in joint pilot projects in the USA, such as Orlando with Time Warner, ATT and Silicon Graphics, Omaha-Nebraska with Zenith and IBM, etc.

Attention should also be paid to the role of the software companies, with Microsoft in the dominant position.

As far as the suppliers of content are concerned, there is great variety in the type of organisations involved, their status and their products. The simplest way to categorise them is in terms of their market segments: entertainment, functional and educational.

In the field of entertainment, the big film and television producers, primarily in Hollywood, are the best placed, with many of them seeking monopoly control of their catalogue. Some enter into big mergers with

3. Cross-Cultural Education and Training
4. Electronic Libraries
5. Electronic Museums and Galleries
6. Environment and Natural Resources Management
7. Global Emergency Management
8. Global Healthcare Applications
9. Government Online
10. Global Marketplace for Small- and Medium-sized Enterprises
11. Maritime Information Systems.

1.3.3 National level: the French case

Whilst the basic framework has been set by the most-industrialised powers acting in concert, the concept of the information society still has to be fed and nurtured by national policies. In February 1994, therefore, the government of France asked Gérard Thery to produce a set of policy recommendations on how France should approach the 'information superhighway' issue. The resulting "Thery report" has four essential components:

- digital technology allows every household with a telephone to interactively access sound and images;
- the élan of the 'information superhighway' will determine the future course of European telecommunications;
- Europe must avoid being plundered by a USA that dominates the physical networks, their content and technical developments;
- Europe must ensure the presence of rich cultural diversity on the networks.

Against this background, the Thery report proposed the laying of a national network of fibre optic cables, and a national policy to ensure content and service platforms. Up to the present, action has been taken only on the latter point, through a call for proposals on infrastructure and services in 1994.

1.3.4 Whither the Internet?

The Internet is a precursor for the 'information superhighway', at least in the realms of education and research. As such, its evolution can provide some pointers towards future trends:

- For the first time since the creation of the Internet, the domain *.com,* which signifies that the operating system is commercial, will soon outnumber all other domains. There are clear shifts in the very ethos of the network, which will, one day, be too important to be left to researchers and academics. The withdrawal of the National Science Foundation from funding the Internet will lead, inevitably, to operating difficulties and a new way of sharing costs among users.
- Also for the first time, the number of new server sites outside the USA is outnumbering new sites within the USA. There is pressure to change the environment of the network: its once obvious monolingualism will be challenged by users communicating in other languages.

This holds, for example, for the francophone researchers and teachers who are linked on the Refer network operated by AUPELF-UREF. The restriction of using only non-accented characters on the Internet is no longer acceptable. Some companies in Quebec are working on protocols that will allow the passage of different languages untarnished. One such is Alis Technologie with its Worldnet programme, which is developing the specifications of the MIME standard.

There is also a growing problem of data security. Of course, messages can get lost or wrongly delivered, but it is clearly unwise to give a credit card number or circulate confidential information.

There are several encryption programmes available on the Internet. The best known is PGP ("pretty good privacy"), and is the butt of much angst from a concerned U.S. administration. It will be recalled that, under French law, permission is required to encrypt data for private purposes, and that e-mail has no legal status. The degree to which encryption is permitted is regulated by article 28 of the French statute on telecommunications, dated 29 December 1990.

Under a decree of 28 December 1992, the administrative procedures for use of encryption technology are defined. They range from a simple statement of intent to a request for permission from the office of the Prime Minister, whose considerable power is supported by advice from the central service for the security of information systems, known as the SCSSI.

Finally, there is a radical requestioning of the ethics that were established at the start of the network regarding payment for services. Some large database vendors, such as Questel, Dialog, Compuserve, and Prodigy, will soon operate on the Internet. This has caused tumult among the producers of large international databases.

Given the wealth of information within the Internet, the network is going to have to open up to the economy of the marketplace. Further, it is clear that its future will depend on its ability to organise and professionalise its information in order to live on, or alongside, the 'information superhighway'.

2. Technological thrusts, and social musts: can the paths cross for ACP users?

On the one hand, there is the unrelenting march of technology and, on the other, the equally unremitting social needs of ACP countries. The essential question is: where can they meet?

With very few exceptions, all of the actors on the stage of new information technologies—the producers, publishers, cable operators, media megagiants—belong to the world of the developed countries. The United States of America has been a key proponent, and through the proposal for the Global Information Infrastructure, it has established a political framework and a set of economic objectives for the 'information superhighway'.

Section 1 of this paper has dealt with some of the overall issues, by describing the central facets of interactive multimedia on both network and optical media, and the issues that are at stake between the different drivers and carriers of the phenomenon.

This section focuses attention in two ways, through a geographical lens—the ACP countries—and, through a sectoral, or thematic lens—agriculture. The existing availability of information in the media of new information technology is examined, and the role that ACP countries can play in the new information society is assessed.

2.1 Currently available on new media

In November 1993 the CTA and ZADI took the welcome initiative to organise a symposium on New Information Technologies in Agriculture. This meeting, held in Bonn, studied four types of emerging products:

- new language tools for building, and searching documentary databases (22 to 27);
- factual databases, especially on genetic resources (28 to 33);
- multimedia information products (34 to 36);
- electronic networks (37 to 39).

Of all the papers cited here, only those dealing with multimedia information products and electronic networks have actually emerged solely from new information technologies.

Paradoxically, the large-scale producers of bibliographic databases did not make any presentations along the lines of the impact and comparative advantages that the new media have had on the dissemination of their products.

An assessment follows of the information products that have been disseminated on optical media, and of what is available on the networks.

2.1.1 Agricultural information on CD-ROM

All the large-scale producers of agricultural databases now disseminate their products on CD-ROM, as well as on paper and on on-line host systems. Just as the on-line products were initially seen as a competitor for the printed product, so are the CD-ROMs now seen as a competitor for on-line products. However, it is perfectly well accepted that the three media are complementary. Some information products are available only on CD-ROM: such is the case with the Sésame francophone document database (40), which brings together the scientific output of 30 higher-education and research institutes in the fields of agronomy and veterinary sciences in the North and South.

The use of documentary databases on CD-ROM results from the wish of the information producers to diversify their dissemination media. CD-ROM can have a special interest in the case of the ACP countries, some of which have serious problems with telecommunications infrastructure. This has long been recognised by the CTA, which, for several years, has supported a programme of distributed databases on CD-ROM in ACP countries. The CD-ROM programme (41) provided the recipients with a reader, a set of CD-ROMs, and on-site training in their use.

The information producers have exploited the considerable storage capacity of the CD-ROM in two ways. First, they have produced datasets covering a large number of years, thereby giving the user virtually exhaustive compilations of data. The products of CABI illustrate this well: the *Treecd* provides references and abstracts published in *Forestry Abstracts* from the first volume, published in 1939, to the most recent editions. *Vetcd* and *Beastcd*, dealing with veterinary issues and animal husbandry, have similar coverage, but date only from 1973, when the corresponding databases went on-line.

Secondly, the abundant capacity has been used to develop a range of full-text products. The most successful of these has been the CGIAR CD-ROM project, which incorporated full-text editions of the publications of the different international agricultural research centres (42).

Also worthy of mention in the line of full-text products is the project of the Mann Library of the University of Cornell in the USA. This aims at building up a core body of agricultural literature in eight specialised areas: agricultural economy and sociology; agricultural engineering; fundamental plant science; applied plant science; animal science; applied entomology; forestry; and soil science.

The texts for this project will be chosen according to so-called bibliometric criteria and will include "grey" literature, especially that of interest to developing countries (46). The project started in 1991; until now, 8 400 volumes and 563 journals have been identified (47).

It is the multimedia products that, undeniably, make the best use of the optical media, by providing images. Special value is added when images are used to assist in the use of interactive programmes of diagnosis.

The image has a special, and irreplaceable, power in, for example, both plant and animal pathology, through illustrating lesions, or a pathogen itself. One example of this application is the 'Bouto' CD-ROM produced by

Table 2. (continued).

0.03	0.02	313629	61	l cl Chile
0.01	0.00	42873	25	l co Colombia
0.03	0.03	502527	57	l cr Costa Rica
0.00	0.00	5910	1	l cz Czech Republic
0.66	0.81	13554365	1298	l de Germany
0.04	0.07	1132258	73	l dk Denmark
0.12	0.40	6808797	232	l es Spain
0.15	0.24	3957607	296	l fi Finland
16.24	20.38	342860738	31867	l fr France
0.00	0.00	17022	8	l gr Greece
0.01	0.01	94106	13	l hu Hungary
0.01	0.00	23072	12	l ie Ireland
0.02	0.01	222342	37	l is Iceland
0.23	0.54	9144546	445	l it Italy
0.26	0.65	10910113	517	l jp Japan
0.01	0.02	262706	29	l lu Luxembourg
0.07	0.11	1918969	131	l mx Mexico
0.46	0.42	7080790	894	l nl Netherlands
0.09	0.14	2273876	181	l no Norway
0.01	0.00	63927	19	l nz New Zealand (Aotearoa)
0.04	0.02	342166	70	l pl Poland
0.06	0.07	1202581	120	l pt Portugal
0.29	0.32	5460405	565	l se Sweden
0.02	0.00	63655	30	l sg Singapore
0.00	0.00	20139	8	l sk Slovak Republic
0.00	0.00	48834	7	l su USSR (former)
0.00	0.00	11597	2	l th Thailand
0.00	0.00	8471	3	l tr Turkey
0.00	0.00	36853	4	l tw Taiwan
0.96	1.17	19715616	1887	l uk United Kingdom
0.00	0.00	57478	9	l us United States
0.01	0.00	81088	12	l za South Africa
0.92	0.88	14787379	1796	l com US Commercial
1.22	1.31	21977693	2393	l edu US Educational
0.25	0.43	7219444	481	l gov US Government

Table 2. (continued).

0.01	0.00	50962	15	I int International
0.03	0.01	208106	51	I mil US Military
0.37	0.49	8217917	730	I net Network
0.20	0.18	2977568	402	I org Non-Profit Organization
0.02	0.02	353649	45	I arpa Old style Arpanet
62.06	54.65	919435154	121760	I cirad.fr
12.46	14.03	236115361	24442	I unresolved

A more detailed analysis of which specific documents were consulted has shown that the demonstration version of the CD-ROM *Coton DOC* was used by clients outside France 1 020 times in 5 months. It has not been possible to measure the overall impact of these connections. In terms of coverage, however, it is roughly the same as mailing a brochure, although we should point out that the version on the Web server is interactive, whereas a brochure is not.

2.2 The South as a research client

The task of referencing the scientific output of the countries of the South depends on the output of the scientists themselves, and that depends on the number of researchers in the agricultural sector, and their productivity.

The most telling quantitative evaluation of the scientific potential of the countries of the South has been undertaken by ISNAR. Its studies show that, between 1961 and 1981, the relative share of developed-country researchers grew from 24 to 45 % of all researchers, although the funds allocated did not grow proportionately. This situation led to a reduction of resources available for each researcher, especially in sub-Saharan Africa.

At the same time, the task of referencing the publications written by the researchers, which normally falls to national professional librarians, itself suffered seriously from a crisis in the profession, in part due to its status (or rather, the lack of it) and partly due to insufficient resources.

The resulting trend is shown in the sample given in Table 3 of a number of ACP countries, picked at random, which shows a systematic shrinkage in the number of documentary units produced about, or in, a country in the South (source : Jean-Marie Lebechec, question-and-answer service, CIRAD, from an on-line search of the Dialog host using "one search" and "remove duplicates").

Table 3. Number of references, by selected Southern country, by year.

	Kenya	Zimbabwe	Senegal	Mali	Jamaica	Chad	Fiji
1989	754	327	389	240	92	58	29
1990	698	441	325	187	96	56	18
1991	723	388	285	203	103	57	7
1992	670	364	260	322	77	47	13
1993	637	344	242	134	94	40	5
1994	373	192	112	89	35	13	0

2.3 The South as a research server

The low levels of recognition for scientific works from the South, and in the ACP countries in particular, is well-known. This is not a new phenomenon, since it was this factor that led to the mobilising of FAO to create the AGRIS system, as long ago as 1975. In the last 20 years, a collection of more than 2 million references has been built up in AGRIS. The 66 ACP countries account for 2.5% of the total (source: Jean-Marie Lebechec and Alain Glarmet, question-and-answer service, CIRAD). In May 1995 there were 47 522 references on the ACP countries. At the same time, there were more than double that number (106 783) in the records of CABI. The countries featured in this analysis are shown in Table 4.

Table 4. Analysis in 1995 of ACP scientific documents: the countries included in database searches.

Africa, Southern	Africa, Western	Africa, Central	Africa, Eastern
Angola	Benin	Burundi	Comoros
Botswana	Burkina Faso	Cameroon	Djibouti
Lesotho	Cape Verde	Central African Republic	Ethiopia
Malawi	Côte d'Ivoire	Chad	Kenya
Mozambique	Gambia	Congo	Madagascar
Swaziland	Ghana	Equatorial Guinea	Mauritius
Zambia	Guinea	Gabon	Seychelles
Zimbabwe	Guinea-Bissau	Rwanda	Somalia
	Liberia	Sao Tomé & Principe	Sudan
	Mali	Zaire	Tanzania
	Mauritania		Uganda
	Niger		
	Nigeria		
	Senegal		
	Sierra Leone		
	Togo		

Caribbean	Pacific
Antigua and Barbuda	Fiji
Bahamas	Kiribati
Barbados	Papua New Guinea
Belize	Salomon
Dominica	Tonga
Grenada	Tuvalu
Guyana	Vanuatu
Jamaica	Western Samoa
St Christopher and Nevis	
Trinidad and Tobago	
St Lucia	
St Vincent and Grenadines	
Surinam	

Whatever the objective criteria may be for an acceptable level of references, it has to be recognised that this total is low.

It also has to be recognised that, in the last 20 years, there has been very little change in the data-processing chain (style of cataloguing, data entry, etc.), and that the designation of national structures was often determined by political, rather than operational, factors. Above all, the impression often existed in the South that input to the international database bore no relation to their everyday documentation needs, whilst the actual structures were themselves, essentially, destitute. None of this could help the international visibility of a country's scientific output, nor any efforts to capitalise on information about the country, which would have been a direct factor for development. The whole situation calls into question the very model of cooperative ventures in documentary databases that are supposed to represent a collective, international documentary memory. Indeed, it can be argued that a rigid notion of scientific and technological information lies behind this type of system, where encyclopedic reference systems are based on shared responsibility, and goodwill, and where each partner's input is not negotiated and contractually stipulated.

There is a growing consensus among authors working in scientific output about the concept of 'network', a notion with many resemblances to the old idea of the "invisible college" of scientists. Michel Callon, former director of the Centre for the Sociology of Innovation at the Ecole des Mines in Paris, is a fervent proponent of the model of cooperative networks that produce innovation (50).

The concept of innovation is particularly appropriate, we feel, to social demands in ACP countries. It relates not to a scientific, academic output, but to one that can help to deliver development.

It is clear, then, that increases in scientific output of research communities in the South will largely depend on the ability to build, sustain and renew networks of cooperation.

In this context, linkages between research institutions in the North and South would appear to be a political priority. This could be achieved through the development of electronic networks in the South, with the whole range of associated services: messaging and e-mail between researchers, forums and newsgroups, areas of discussion and exchange, multimedia stocks of information, and extensive catalogues. In this regard, the pioneering role of networks such as Fidonet and Refer deserve mention.

The Refer network, started by AUPELF-UREF in June 1994, aims at setting up a francophone Internet, with those countries in the South sharing a common use of the French language. The electronic linking of universities and research centres is also under way in the sites of Syfed in 14 countries: Burkina Faso, Canada (Quebec), Côte d'Ivoire, Egypt, France, Gabon, Lebanon, Madagascar, Mauritania, Mauritius, Morocco, Roumania, Senegal, and Vietnam.

These Syfed centres are not libraries, but resource centres equipped with Unix computer equipment, and the capacity for database searching and Internet connectivity. In the countries concerned, the Syfed centres have electronic links to higher education and research institutions in order to link them to the national centre, and, through that, to international networks.

This model of linkage between scientific research and education establishments is particularly original, and removes the sense of isolation from the networks.

2.4 The challenge for the research community

By means of a tentative conclusion, the following trends can provide a back-cloth for the developments described above, which present a challenge for the agricultural research community.

In a recent strategy study, the Consultative Group on International Agricultural Research (CGIAR), stimulated by the need to overcome a difficult period, attempted to define the challenges that will be faced by developing countries in 2025, and to propose future directions for international agricultural research.

In a very similar vein, the International Food Policy Research Institute (IFPRI), in its document *2020: Vision for Food, Agriculture and the Environment* (53) has sought to encourage the creation of a consensus on these major issues.

In both studies, there is a predominant sense of urgency: in 2025, the world's population will be 8.5 billion inhabitants, of which 7 billion will be in developing countries. The imperative of producing more, much more, food, and preserving the environment, is growing in scale. Africa, and Asia—already the stage for a first Green Revolution—will have to meet their growing food requirements.

A Doubly-Green Revolution is needed, indeed, blending increased production with ecological viability in a finite space. This notion of space is contained in the concept of 'ecoregions', which the CGIAR defines as the "establishment of partnerships, in a given space, for research on the technical and human dimensions of the problems associated with sustainable growth in agricultural production".

The challenge to national systems for agricultural research has never been greater, especially in terms of a very special capacity for innovation. The new wave of information technologies can play an important role. This requires them to be seen, mainly through electronic networks and services, as a real tool to break the isolation of the research community in the South. The revolution of the information society, to assume the rhetoric of the hour, is inevitable, given the economic issues that are at stake. It is a revolution, above all, that has to be dedicated to meeting the challenges of tomorrow, in a world where, today, 700 million people suffer from hunger.

3. The role of professionals

3.1 Introduction

Everyone in the information business is rapidly becoming part of a 'global' system, and none of the players (authors, primary publishers, database producers, end-users, information intermediaries, document suppliers) can any longer operate in isolation. The rapid advances in computing and telecommunications are forcing all parties in the information chain to consider what role they may be playing in 10 years' time, or even sooner. The 'virtual library' or 'library without walls' will become the norm, at least in developed countries, and this trend will have far-reaching effects on how people gain access to information, and the media through which it is supplied. The conventional boundaries between information providers and users, between publishers and authors, are being broken down. The most significant change is that the end-user of information can get access to and select from a wide range of sources, in a variety of media, without necessarily referring to any intermediary, a change that has profound implications for the information profession (54).

Some key elements of the changes under way have been discussed in earlier sections of this paper: remote access, via a computer on every user's desk, through networks, to the world literature, published and unpublished. The sources accessed may range from subject-specific bulletin boards on the Internet, to CD-ROMs and on-line databases, to full text of articles available from consortia of primary publishers. The critical feature of all of these examples is that neither the end-user nor his or her institution needs any longer to have a conventional library.

The question we have to examine here is whether the information intermediary, too, becomes surplus to requirements ('disintermediarization'), or whether there is a new role, or set of roles, to which the information professional can aspire, and for which he/she should be preparing, through dialogue with users, sensitisation of decision-makers to changing needs, training, and generally taking a new approach.

3.2 Information professionals in ACP countries

We need especially to consider how different or similar are the circumstances facing such intermediaries in ACP countries, and whether the wider political, economic and social climate in which they operate, and the state of evolution of their information systems and the rate of access to new information technology, are likely in the next decade to bring about the same profound changes in their professional lives as are already facing their colleagues in the developed world.

3.3 Political, economic and social change

We have noted elsewhere that the major concerns of the governments of most ACP countries are economic and social welfare and political stability, translated into policies for structural adjustment, food security, population control, health care, export growth, regional cooperation—often accompanied by a trend towards more open government and democratisation. But at the same time, war, genocide and famine are ever-present realities in some parts of the ACP, especially in sub-Saharan Africa.

3.4 The information environment

Just as concern for the environment and generation of workable environmental policies cannot properly be dealt with without there being a sound political, economic and social base, so development of national information policies and systems often has to wait for other priorities to be dealt with before becoming a national or regional goal. However, the signs are that ACP countries are rapidly becoming aware of their need for an information policy, as has just been promulgated in Uganda, for example, and of the opportunities for information access and distribution offered by the new information technology, as indicated by the rapid development of national communications policies to allow access to international networks, and the development of wide and local-area networks. The circumstances obviously vary between countries; the needs and priorities may be very different for small island states such as those in the Pacific and Caribbean from those of large countries in sub-Saharan Africa.

In many ACP countries low priority has been accorded in the past to information in national and sectoral policies (such as in agriculture, for example). We have already discussed how this seems to be changing, as information is increasingly recognized as being a vital resource in the development process. However, it also brings with it new problems relating to choices of technology and communication methods, access to and capture of essential information, international, regional, national and indigenous, and meeting the needs of different client groups.

3.5 The challenge of evolution

The greatest challenge facing information professionals in ACP countries in dealing with these trends is not extinction, as may be the case for some of their colleagues in the developed world, but evolution. They have a crucial role to play in planning, implementation and sustainability of the chosen systems. The changing attitude to information is an opportunity for greater influence, and status, for the information professionals, if they already possess, or can acquire, the necessary vision, skills and adaptability.

In a recent article in the *FID News Bulletin*, Augustes Musana (55) describes this process of adaptation facing the information professional in the 'New Africa', against the background of dramatic economic, social and political change. He takes a broad view of the knowledge base required and of the skills needed to manage the information system of the future. He defines information professionals as 'navigators of knowledge' and discusses the systems, services and training needed to support change.

As in the past, the critical elements are knowing who the clients are, identifying their needs, identifying sources and the means by which to acquire them, and training in an appropriate blend of skills to encompass these elements in a sustainable and cost-effective way.

3.5.1 The clients

'Customers' for information in the wider economic, social and political context will range from the politician/decision-maker, through managers, researchers, extension personnel, down to the farmer or other rural entrepreneur. Agriculture may be the main source of gross domestic product, and the main earner of foreign exchange in some countries, but in others the main economic activity may now be tourism (as in the Caribbean), small manufacturing industries (as in Mauritius), or mining (as in Namibia and Botswana). As the lines between urban and rural, and between agriculture and non-agriculture, become more blurred, and as these are set in their wider economic and social context (food security, employment, health), and linked with environmental issues, the range of clients becomes much wider than traditionally defined, and the services they require more varied.

Another point to consider is that, as clients become more aware of new technology and its potential, their expectations of what the information service/professional can deliver will rise. The value that they place on information determines its status and the level of resources allocated to information provision.

3.5.2 The needs of clients

The range of needs of the client base to be served by the new information professionals is as varied as their backgrounds. The illiterate or newly-literate farmer will continue to need information distilled and repackaged from research via extension. The decision-maker will continue to demand digested information, presented and analysed in a succinct way. The commercial flower grower will want to know about markets in Europe, and the tourist board will want to know about visitor impact, environmental problems, marketing ecotourism, and avoiding conflict with other users of natural resources.

Many of these users will be too busy, or unaware, to be concerned about the source of the information, so long as it is delivered in the right format, on time, and the information is useful. The information professional has to be concerned with both sources and media of dissemination to do an effective job.

3.5.3 The sources

The traditional approach to information collection and dissemination (library collections, current awareness, catalogues, photocopying, microfilm) is rapidly becoming, if it is not already, inappropriate for many developing-country situations. However, they may be a long way from the 'virtual library', and still need to ensure that certain core sources and resources are in place. First and foremost, maximum use must be made of national resources, in the form of archives, indigenous knowledge and the like. The role of the information professional here is to ensure that such material is stored in the most effective way, and to make people aware of its existence.

Another major decision, especially where collections are out-of-date or incomplete, is how far to try and fill the gaps, and how much to go for accessing information from outside sources via new technology. The information professional needs to have the courage to advocate change, and be fully conversant with all the options.

3.5.4 The media

Almost all new technology is within the reach of ACP countries, to a greater degree in some than in others. However, the choice of media should be needs- rather than technology-driven. There are too many instances, for example, of installation of computers and CD-ROMs without adequate planning, infrastructure and training. And setting up of networks may depend on the state of the telecommunications system, decisions

about which may require a strong political will and major investment beyond the power of the information professional. In many instances, there is a dilemma between tradition and technology, both among information professionals, and in the wider community.

And, of course, the choice of media depends ultimately on the resources and skills available to use and sustain them, the ability of the information professionals and the needs of the end-users. Not many countries have the opportunity to design and implement an information system to suit all needs; often certain sectors get ahead of the rest, thanks to investment as part of a programme or project for that sector. This makes it even more difficult to develop an integrated national system, using compatible technology.

It also makes it even more imperative that the information professional has the skills and status to enable him/her to take a major role in planning and decision-making. Our final task is to identify what needs to change or be put in place to enable this to happen.

3.6 Professional development

Lack of status is identified by many information professionals as a major constraint to their being able to perform effectively, and influence decision-making. The efforts of recent years, especially by such institutions as the CTA and ISNAR, to bring together the planners/decision-makers, research managers and information professionals to discuss information needs, at least for the agricultural research sector, should by now be bearing fruit. A very encouraging development is the recent decision in Uganda to give information the same status as major sectors of research within the National Agricultural Research Organisation (NARO), and to recruit a professional at Director level to manage this activity.

Even if this level of commitment is not possible in all situations, it is imperative that information does have equal status with research disciplines when it comes to funding and resource allocation, and that information professionals are involved in planning and decision-making.

This begs the question of what kind of professionals will be needed in future, and what package of skills will best fit them for their evolving role. First and foremost, and certainly at higher levels, he/she needs to be a manager, rather than a technical expert, so as to be able fully to take part in the decision-making process and to implement a workable and flexible information system. The ability to understand and plan what is needed, to demand and get the resources to put the plan into practice, and to build an effective team combining a range of skills, is more important than the manager himself/herself acquiring specialist skills.

The training facilities in ACP countries need to get geared up for this new breed of information professional; management training will be at least as important as finding out how to use and transfer new technology. And the information unit may have both a wider subject remit and a greater range of responsibilities than in the past.

One can imagine the information professional and his/her team providing a 'one-stop shop' for a variety of end-users: the range of services could encompass everything from answering simple enquiries, to compiling national and regional databases, accessing international sources, providing original documents, searching databases, providing digests of information, acting as a national or regional node for information networks, and getting involved in publishing.

The advent of new technology should thus be regarded as a challenge rather than a threat; the ideal information system of the future will harness the technology to provide the services its users demand, rather than letting the technology dictate what the services should be. The next decade will bring all these new tools within the reach of all ACP countries; the challenge is to harness and use them imaginatively and flexibly, with the ability to adapt to changes in needs and circumstances.

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Annexe 1: Internet in the press

A comparative study (by Jean-Marie Lebechec, question-and-answer service, CIRAD) on the number of articles about the Internet 'information superhighway' published by selected daily newspapers (*USA Today, Washington Post, The Times, Le Monde*) between 1 April 1994 and 1 April 1995, yielded the following data:

Daily newspaper	Total articles	References on Internet
USA Today	36 756	660
Washington Post	57 024	988
The Times/ Sunday Times	87 567	603
Le Monde	47 757	445

Annexe 2: Milestones in the Internet's history

1969 - The U.S. Secretary for Defense decides to build Arpanet (Advanced Research Projects Agency Network), a computer network capable of surviving a nuclear war.

1972 - Arpanet links about 40 military and university computer systems.

1982 - Access to Arpanet is made free, for machines under the Unix operating system.

1983 - The U.S. National Science Foundation (NSF) of the United States funds the network linkage of 60 American and three European universities.

1984 - The Internet now links more than 1 000 computers.

1985 - NSFnet, integrated in the Internet, starts operation amid great interest. Transmission speed has risen from the 1972 level of 9.6 kbps to 2 Mbps.

1986 - The Internet is linked to public data transmission lines.

1987 - The second stage of NSFnet now links 100 000 computers, 3 400 research centres, and has a throughput of 45 Mbps.

1989 - EUnet (Europe) and Aussienet (Australia) join NSFnet. Private businesses start to connect to the Internet, but are not allowed onto NSFnet.

1992 - World Wide Web is developed at CERN in Geneva, as a simple way to organise information and navigate on the Internet. More than 1 million computers are now connected.

1993 - The White House demands that CIA should maintain access to the entire network. The throughput rate reaches 622 Mbps.

1994 - First video images are carried on the Internet. NSF announces withdrawal of funding.

Source : *Courrier International*, n° 205, 6-12 October 1994.

Annexe 3: Internet service providers in France

There are *several* Internet providers for the Internet. Users should compare the services offered, in relation to intended use of the network. (The providers listed are given in the alphabetical order of the company name. The data are for illustrative purposes only, and were compiled in May 1995.)

Calvacom

Internet service provider, also for individuals.
Calvacom
STI - CalvaCom
8-10, rue Nieuport
78140 Vélizy
Tel.: + 33 (1) 34 63 19 19 – Fax: + 33 (1) 34 63 19 48
info@calvacom.fr
Full details available on their World Wide Web server.

CIC (Cellule information et coordination)

Address and fax (not listed).
Tel.: 16-1 44 27 73 35
rensvp@urec.fr
Full details available on their World Wide Web server.

If you are part of the **CNRS** (National Council for Scientific Research), you can also contact
UREC (Network divison of CNRS):
4, place Jussieu. Tour 55-65, 1er étage
75252 Paris Cedex 05
Tel.: + 33 (1) 44 27 42 60 – Fax: + 33 (1) 44 27 42 61
assist@urec.fr

If you are part of a university, see the **Comité réseaux des universités** (Universities' Network Committee) which runs a **Gopher** server and tests materials:
CRU, campus de Beaulieu
35042 Rennes Cedex
Tel. : + 33 99 84 71 50 – Fax: + 33 99 84 71 11
cru@univ-rennes1.fr

EUnet

EUnet provides IP connectivity to many national Internet service providers, such as EUnet-France (FNET), in France. You should not need to contact them directly, but full details are available on their World Wide Web server.

FDN

The FDN company provides Internet access for individuals. It is operational, but there is no published material available. Full details available on their World Wide Web server.

FNET

The FNET company provides various access services (in May 1995 apparently in the process of being replaced by EUnet).
Association FNET
52, avenue de la Grande Armée
75017 Paris
Tel.: + 33 (1) 53 81 60 99 – Fax: + 33 (1) 45 74 52 79

contact@fnet.fr
Publishes a regular newsletter. Full details available on their World Wide Web server, and FTP server.

FranceNet

This provides public-access services.
FranceNet
49, rue du Faubourg Poissonnière
75009 Paris
Minitel: 3615 FranceNet
Tel.: 36 70 75 24 (audiotel) – Fax: + 33 (1) 47 83 92 17
info@francenet.fr
Full details available on their World Wide Web server.

France-Télécom et Transpac

France-Télécom runs the GIP Network. Renater provides commercial access for all, under the name of RAIN (réseau d'accès à l'Internet) which is marketed by Transpac (but does not require X-25 access). Throughput is 19.2 kbps. Full details may be available on their World Wide Web server.
Transpac
Tour Montparnasse
33, avenue du Maine, B13
75755 Paris Cedex 15
Tel.: + 33 (1) 45 38 88 88 – Fax: + 33 (1) 45 38 71 47
No e-mail address. For **RAIN** contact:
Gilles Antoine at
Tel.: + 33 (1) 45 38 88 67 – Fax: + 33 (1) 45 38 88 50
gilles.antoine@transpac.atlas.fr.

Internet Way

Provides commercial access to the Internet.
Internet-Way
204, boulevard Bineau
92200 Neuilly-sur-Seine
Tel.: + 33 (1) 41 43 21 10
info@iway.fr
Full details available on their World Wide Web server.

Oleane

Oleane is a private company (member of PIPEX) and an Internet service provider that mainly serves the business community. It has partners that provide access for individuals.
Oleane
35, boulevard de la Libération
94300 Vincennes
Tel.: + 33 (1) 43 28 32 32 – Fax: + 33 (1) 43 28 46 21
info@oleane.net
Full details available on their World Wide Web server.

Renater

This is the IP network run by France-Télécom for research purposes.
GIP-Renater
4, place Jussieu, bâtiment A, 7e étage
75252 Paris Cedex 05
Tel.: + 33 (1) 44 27 26 12 – Fax : + 33 (1) 44 27 26 13
renater-sphinx@urec.fr

SCT

Internet service provider through World-Net.
SCT
20, avenue Daguerre
77500 Chelles
Tel.: + 33 (1) 60 20 85 14 – Fax: + 33 (1) 64 21 65 35
info@world-net.sct.fr

Annexe 4: Some networks in Africa

EARN

This network covers two countries in Africa: Tunisia and Egypt. Tunisia has an EARN hub, based at IRSIT (Institut régional des sciences informatiques et des télécommunications) : TNEARN.

This is linked to the Tunisian X-25 network. A TCP/IP network is taking shape (Rsinet), and this technology could replace EARN in Tunisia. In Egypt, the network of universities and research centres (EUN, Egyptian University Network) is linked around three EARN hubs: EGFRCUVX, linked to the international network through a special line (9.6 kbps) from Cairo to Montpellier and the gateway to EGAUCACS and EGIDSCVM.

Three other countries in Africa have no EARN links, but are nonetheless members of the EARN association: Algeria, Morocco and Cameroon.

RIO

This network, developed by ORSTOM, has a particularly strong presence in Africa. It links 12 African countries through UUCP technology, with the central hub in Montpellier, that is on the Internet. It is essentially a messaging network, with capacity for file transfer.

Fidonet

The heaviest users of Fidonet are Kenya, Ethiopia, Ghana, and Guinea-Bissau. Several networks make use of Fidonet : Ghastinet in Ghana has interconnectivity to the Internet, Healthnet focuses on health, Ngonet is a network of NGOs linked to the Internet, Padisnet is a Fidonet network especially strong in Ethiopia. An important role has been played by GreenNet, an NGO member of APC (Association for Progressive Communication) which has promoted Fidonet growth in English-speaking countries in Africa, by providing a GreenNet gateway to the Internet in London.

CGNET

This is the private messaging network of the CGIAR (Consultative Group on International Agricultural Research) linking agricultural research centres in about 40 countries. It runs a mail gateway to the Internet. There are CGNET users in 15 African countries including Benin, Burkina Faso, Cameroon, Egypt, Ethiopia, Kenya, Mali, Nigeria, Senegal, Tunis, Uganda and Zimbabwe.

Source: *La lettre des médias*, n° 5, August 1994.

Annexe 5: Glossary

analogue

The use of continuously changing quantities to represent numbers.

ASCII

American standard code for interchange information. A table of computer codes which represent alpha-numeric characters, allowing the composition of a text.

baud

Comes from the French inventor Baudot. A unit to measure transmission time between computers. One baud is 1 bit per second (1bps).

bit

The smallest possible piece of data, with the value of 1 or 0.

Browser

Software allowing the user to browse (leaf) through one or more information sources—an activity referred to as navigation.

byte

A digital set of data composed of 8 bits.

CD

compact disk, invented by Philips. The compact optical disk, of which the sound CD is the most popular, can store any type of digital data (sound, video, text). One CD can store about 550 Mb.

CD-A

compact disk: audio, the laser-read disk which has all but replaced vinyl records.

CD-I

compact disk: interactive, also invented by Philips. The CD-I is a sort of micro-computer, without the key-board, with a set of commands similar to a television that allow the CD-I to be read and used, with software for entertainment or cultural applications.

CD-PHOTO

compact disk: photo, invented by Philips and Kodak. This laser disk can be used by individuals to store photos on a CD.

CD-ROM

compact disk: read-only memory, invented by Philips. All CDs are related to the CD-ROM.

CD-ROM XA

compact disk: read-only memory extended architecture, another CD-ROM from Philips. CD-I and the Commodore CD-TV are CD-ROM XA. Its speciality is in being able to combine and synchronise image and sound.

CD-V

compact disk: video, CD with a film. CD-V will replace video cassettes because the data do not deteriorate over time, and the CD-V is difficult to copy.

CD-WORM

compact disk write once read many, a CD-ROM that can be written on once, without having recourse to an expensive recording process. This system is useful for small production runs of CDs, or for testing a product before mass production.

compression

Process of reducing the volume of a data file, to save space on a computer or disk. It uses mathematical algorithm. One page of A4 with 200 dots per inch takes up 3 991 668 bits, or 500 kb. The latest Group 4 compression technique of the CCITT can compress by a factor of 15 to 20. For colour, a compression norm is JPEG, and MPEG is for video.

digital

Using numbers to represent quantities or symbols. An electronic digital signal consists of discrete, countable pulses of fixed size.

digitiser

Also known as "scanner". Has various resolutions. Scanners store, in data form, pictures from paper, blueprints, microfilm, slides.

EFM

electronic file management: the paperless office where design, despatch, receipt and filing functions within a business can be done on computer.

e-mail

International messaging on electronic networks. E-mail is, in fact, a huge network of computers all over the world.

FTP

file transfer protocol.

Gopher

A research protocol based on scrollable menus.

HTML

hypertext mark-up language, through which hypertext links are made.

HTML+

The latest version of HTML.

hypertext

The linking of a string of characters or term to other strings or term(s) in the same or other documents, on the same or remote media.

HTTP

hypertext transmission protocol: specific language on the World Wide Web, allowing communication between clients and servers.

interactive

Each event when the user of a computer program can intervene in its operation and change its operation.

ISDN

integrated services digital network.

ISO

International Standard Organisation: the international body for approving and monitoring norms proposed by, for example, manufacturers.

JPEG

joint photographic expert group: norm for image compression.

LAN

local area network, enabling communication between workstations and with a central server (Ethernet, Novell, Token-ring ...).

laser

light amplification by stimulated emission of radiation. The laser beam allows the concentrated reading and writing of binary information stored in, for example, an optical disk.

messaging

(Transfer of) sets of data through telematic terminals, such as the French videotext Minitel or personal computers.

MIME

multipurpose Internet mail exchange. An emerging standard for coding characters on the Internet.

Mosaic

Research software, using hypertext, for use on the World Wide Web.

MPEG

motion picture expert group: norm for compression of video-digitised data.

multimedia

The digital integration of text, sound and image in a single application.

network

Computers connected with each other, and able to exchange data.

Numeris

Official name of ISDN, run by France Télécom as a high-speed transmission network. Approves compression on Group 4, for data transmission for images, sound, etc. Throughput is 64 kbps on one or more channels.

videodisk

Storage media for b/w or colour video. Can store 54 000 stills or 36 minutes of moving images. Can be recorded upon, and used for high definition. Uses analogue signals, not digital. Sometimes used by photo libraries for training. Is being replaced by digital optical disks.

WAIS

wide-area information service. An interactive system on the Internet for searching through structured text.

WORLD WIDE WEB

A world-wide computer network which, with its client-server architecture, can provide access to multimedia documents.

Preparatory study 6

From local to international, via regional and national: the linkages in information policy

Marc Lévy (GRET)

Introduction

Any sensible person seeking information recognises the common-sense value of using several sources. In practice, when one cannot make a request to them all, it is sometimes hard to choose between the local library, the regional network and the CTA's documentation.

A decision-maker, in setting up or enhancing an information system, has a difficult task in combining the various levels. Should scarce resources be allocated primarily to purchases of documentation, in order to be fully self-reliant locally? Or, on the contrary, should priority go to paying for connecting to global networks, in order to have access to all the references in the world?

Everyone working with information today is, at some stage, faced with the loaded question of linkages. This paper contributes to the discussion on linkages, and, in so doing, will strive to stay pragmatic and to focus on the case of the CTA. I do not pretend, however, to be able to address practical issues; that is not the task I have set myself. But the paper should, nonetheless, propose a way of identifying problems and seeking solutions that is practical and that leads to decisions to improve, in the near future, the information available to all those in ACP countries who, quite rightly, wish to access it.

1. The context

1.1 Regionalisation in cooperation

In the fourth Convention for cooperation between the European Union and ACP countries, which was signed in Lomé on 15 December 1989, for a period of 10 years, Title XII refers to regional cooperation.

"In order to promote and strengthen the ACP States' collective capabilities, the Community shall provide effective aid enabling them to strengthen regional economic co-operation and consolidate co-operation of a functional type or on specific themes"[article 156].

Within the framework of regional cooperation, particular attention is paid to:
"promotion of scientific and technical co-operation among the ACP States, including support for intra-ACP technical assistance programmes" [article 158].

The scope of regional cooperation includes, in particular:
"education and training, research, science and technology, informatics, management, information and communication, the establishment and strengthening of training and research institutions and technical bodies responsible for technology exchanges and co-operation among universities" [article 159].

With regard to working procedures, specific roles are defined:
"Regional organisations duly mandated by the ACP States concerned must play an important part in the design and implementation of regional programmes" [article 161].
"Regional co-operation bodies may present requests for the financing of one or more specific regional co-operation schemes on behalf, and with the explicit agreement, of those of their members that are ACP States" [article 164].

This new strategy was strengthened by a resolution between the ACP countries and the European Union that was adopted unanimously by the Joint ACP-EU Assembly on 16 February 1994 in Strasbourg (France). The resolution:
"requests the Union to increase the resources of the European Development Fund, in order to intensify regional co-operation and, in this respect, invites the Union and the ACP States to underline constantly the regional aspects of development projects, whether they concern structural adjustment, commercial exchanges, industrial co-operation, etc., and to make full use of these aspects."
*"The Assembly invites all relevant bodies, such as the Technical Centre for Agricultural and Rural Co-operation (CTA), to invest more fully in the elaboration of regional programmes."**

The CTA is evolving, clearly, in a general context that is strongly marked by a practical, political will, both at the level of ACP member States and of the European Union, to move towards strengthening regional integration and increased use of the regional level for cooperative activities. This is not a new orientation for the CTA, as is demonstrated by the following extract from the Objectives of the Centre, as expressed in the logical framework:
"to promote the development by ACP States of their own capacities for production, purchase and exchange of scientific and technological information (STI) on agricultural and rural development".

This objective includes several specific goals, such as
"to develop appropriate strategies for planning, implementing, monitoring and evaluating STI programmes and services in ACP States".

*This is a translation of the French text, and not an excerpt from the English language version.

Efforts have been made, in recent years, to translate these strategies, in concrete terms, especially in regional programmes, which are discussed later.

1.2 Liberalisation of the economy

The role of the marketplace as a regulating force in the economy is now widely recognised, as is the failure of economies which were heavily planned and State-controlled. It must be noted that the economy with a role for the marketplace is not at all the same as the economy of the marketplace. It is not our purpose here to defend economic liberalism, but simply to point to a growing liberalisation of exchange.

There is much to say and discuss on this subject. As far as the present subject is concerned, the important point about liberalisation is the resulting re-examination of the role of the State, and the consequent redistribution of functions to and among the variety of actors, operators, players, private bodies, non-statals, and civil society—depending on how one wishes to describe them.

Situations vary from country to country, depending on factors of history and internal dynamics, but all countries are facing pressure, both internal and external, to refocus the role of the State, whether they be members of the ACP countries or of the European Union. The State is under pressure to focus on ensuring the unity, social cohesion, equity, and security of a society enjoying freedom of expression, of gathering, of organising and of exchange.

This trend does not mean a drastic change in which the notion of the "withdrawing State" becomes the notion of "no State". Instead, it offers the perspective of the "best State", in which the development process passes through the State, on a loop from society to State and back to society.

The transition to a situation of the "best State" requires competent social players, able to conduct business in a rational way, and to handle wisely their power relation, both domestic and external. With these conditions, a civil society can emerge, capable of negotiating with the State.

The process of moving from liberalisation of the economy to the "best State" might not, it must be admitted, seem to be the most logical. The emergence of the economy with a role for the marketplace presupposes less political control of the economy. This means, in other words, freeing the economy from the domination of the state and/or rapacious elites. Ideally, this loosening will go hand-in-hand with the approaches of the "best State" and the "more society". Indeed, this combination is seen more and more, both theoretically and practically, as a prerequisite for development.

This new perspective has two implications for the subject at hand:

- First, there are changes in the demand for information. The emerging, ever-stronger, numbers of players on the socio-economic stage (such as peasant associations, traders, trainers, small businesses, consultancy bureaux, technical service teams, etc.) have a high sense of responsibility for their enterprises. They have a different relationship with the State from that of researchers, extension workers or other officers of the State. As such, they represent a growing, and different, type of demand for information.
- Secondly, just as the centralising notions of the State are being challenged, so too will be the ways in which information is organised. The network model will replace the model of the centre, and the new, outreaching information professional will replace the coordinator, and the private body the hands-on State.

Against this background, where the State is reviewing its role and seeking new ways of interacting with society at large, it is right and proper for a "public" body based on parity and cooperation, such as the CTA, to take into account this aspect of the context.

1.3 Globalisation and interdependence

This topic is discussed in full below. But here it is desirable to point out, above all, that there are few places in the world that can genuinely aspire to isolation, given the tremendous increases, in both volume and speed, in the circulation of people, goods, money, and information.

Whilst the idea of the "global village" is far removed from today's "fin-de-siècle" reality, it is worth pointing out that every African village has various connections, some direct, some indirect, with other parts of the world. Some villagers are well apprised of this fact and of how to benefit from it.

The impact of globalisation varies greatly, of course, from Singapore to Ghana, from smallholder farmer to stock-exchange broker, but it is visible virtually everywhere. It is growing, too, swept along by economic and financial policies. The devaluation of the CFA franc led to a comparative price advantage for locally-produced meat on domestic markets in western Africa, compared with frozen meat imported from Latin America. The smallholder farmer in Africa thus became a competitor of the Argentinian producer.

Having made its presence felt in the economic domain, and in media, with world-wide radio and television broadcasting, globalisation is about to impact the field of information. It is not yet quite the case that a researcher in Côte d'Ivoire or Kenya has direct access to documents from Paris or London, or that a librarian in Mauritius picks up the phone to call a colleague in Barbados. In "tomorrow's world" (remembering that tomorrow is here today, for some!), very powerful, sophisticated systems will provide instantaneous multiparty communications, cheaper than today's, between people all over the world. Increasingly, information will be accessed directly from people, as much as from books. As well as making written requests for searches for information from on-line databases, it will be possible to question a world-wide network of people using on-line messages, admittedly in text but in real, conversational language. When one considers the difficulties some people have in getting a book in order to solve a concrete problem, all these innovations in communication, which are linking more and more people, give ground for thought on their potential impact.

As global connectivity grows, so will the position of companies active in the fields of information and communication at the international level. It has to be said that their interests do not always coincide with those of end-users in ACP countries and the European Union. This, too, is an aspect of globalisation today.

In such a discussion of globalisation, there are extreme positions, and between them, along the continuum, there are more reasonable points. At one extreme, there is the position of forward-looking idealism, which promises a smallholder farmer in Burkina Faso the ability to ask a question to a world-wide network of colleagues, to browse in the Library of Congress in the USA, and to identify and receive relevant documents. At the other extreme, there is the position of steadfast refusal to allow open access, in order to protect one's own culture against attack from outside, or for whatever defensive reason. More moderate positions entail accepting the rise of interdependence, and to taking a stance in information systems and policies, in the spatial scale stretching from local to global.

Access to information sources, a perpetual problem, is changing along with the process of globalisation. Already, the distribution of CD-ROMs is adding a dynamic dimension to international information systems by giving end-users direct access to references. Similarly, the innovation of e-mail is taking hold.

These innovations do not solve the bulk of the problem, especially in the case of the most-disadvantaged population groups, in the world and in each national entity. With this in mind, it is important to observe and finely analyse changes in this field as they happen. Indeed, it is essential to follow closely this dimension of the overall context.

1.4 Linkages: two major issues

I have revised the above three facets of the context, after review and comments by various partners. This leads me to deduce two major issues in the question of linkages between local and national. These are examined in detail in sections 2 and 3, with some examples, in order to explain the proposals to which they lead, with regard to directions for the CTA proposed in section 4.

The major issue is at national level

The absence of political will in a country, and the consequent non-allocation of human and financial resources, mean that efforts made at all other levels will flounder. For international development organisations to provide training opportunities for documentalists without, on their return, any guarantee of an operating budget or security of their position, will be in vain. Similarly, at the local level, a village initiative to seek and collect information will be severely restrained if it can find neither linkages nor support.

One cannot consider as successful those centralised national policies that focus on the concerns of the professional documentalist if they have not also met the needs of the end-user in the field. To say that the major issue is at national level is to oversimplify, and should be tempered with the following qualifications. First, national policies should be based on the use of various means of communication that meet the various needs of the people; in other words, policies that bring the national level closer to the local, to the users, in their entirety. Secondly, the role of the State can be talked of in terms of being an animator of activities, rather than centralising them, ensuring overall coherence through dialogue, and by delegating, contractually, operational tasks to non-Statal players.

The second issue is at regional level

The establishment of regional bodies provides a logical step between international and national, and vice versa. The notion is becoming accepted in ACP-EU cooperation, and it features in policy directions and, in part, in current practice. However, it is a topical issue, since work at regional level has not yet taken on its final form—and thus it requires some qualification. It must be stressed that regional bodies should not take over the tasks carried out by national bodies. They should avoid becoming agencies that substitute work at the national level. This requires them to be positively welcomed by nation States, and assigned functions that add value to the tasks performed at national level.

2. The national level: an essential step in information policies

In February 1994 the CTA organised a workshop to discuss the role of networks on agricultural documentation in Africa, at Bujumbura in Burundi. It is interesting to point out that this workshop arose from the recommendations made at the meeting organised in Gabon in 1991 to give new impetus to regional approaches.

The workshop concluded that *"the networks on agricultural documentation in Africa are developing in the context of structural adjustment and of a broad lack of national policies for scientific and technological information. This lacuna, which is compounded by the lack of legal frameworks, forms the handicap on the proper functioning of the networks."*

The absence of strategic planning and of methodology no doubt explains why objectives are not defined on the basis of a needs analysis. This leads to another conclusion, leading on from that above, which has a more operational tenor:

"The end-users rarely know the products and services which are available from the networks, and their needs are rarely measured by the managers of the networks. Furthermore, the distribution of the networks' products is restricted by lack of resources, and, in addition, there is seldom a budget available for the proper production of these products."

Two elements have become so entangled here that it is hard to know which is cause and which is effect. On the one hand, there are the information professionals who have built up their information systems on other logic than that of satisfying the needs of the end-users. On the other hand, there are the decision-makers who have not allocated proper resources to these activities because they have not recognised the practical and priority interest of developing an information policy. Is it, then, the lack of resources that explains the failure of these systems, or the contrary?

A virtually unanimous consensus is emerging on three points:

1. The professionals should focus their activities on circulating information, and should accord less priority (in some cases, exclusivity) to the task of managing the information store.
2. The information systems should prove their effectiveness by responding to the needs of the users.
3. More attention should be paid to local information sources before seeking information from external sources, thus capitalising on the work in this regard over recent years.

If these three conditions could be met, it might be the case that decision-makers would allocate more resources to these activities, because their connection with agricultural development strategies would be more obvious.

If information, a vital factor in development, has become well-implanted in the minds of most, its active application still remains a pressing task.

The experience of AGRIS/CARIS, the two international information systems set up by FAO, is in broad convergence with the opinions expressed above. The fundamental principle of these two systems is clearly stated:
"All co-operation, international or regional, should be based on national structures, and should seek to strengthen them."

Without local capacity, there can be no construction of an international system, neither from the point of view of input of information (since it is the national centres that provide data) nor from the point of view of its use, since it is the same centres that meet information requests.

The **information division of FAO** has developed an integrated concept of its work with international information systems and national documentation centres, based on the following aspects:

- design of tools that will allow the national centre to both make inputs to the international data collection, and build up a local base of information;
- avoidance systems that have non-fundable running costs;
- practice of multilingualism, in order to ease the work of local players;
- consistent allocation of resources to training of local staff, in the country, and carefully chosen beneficiaries, since everything depends on the quality of local staff;
- respect for the democratic processes within a member country for taking decisions;
- adoption of a measured approach, evolutionary as it were, especially with regard to technology;
- replacement of expatriate resident experts by consultants, in order not to circumvent the responsibility of the country;
- seek to develop complementarity of approaches with other funding agencies;
- encourage local purchases of supplies, books, in order to stimulate the local economy.

The efforts of AGRIS over the course of 20 years have certainly led to the establishment of documentation centres where there were none, or where there were almost none. Such an approach, of an international policy that aims at developing activities at the national level, has had positive effects.

The experience of AGRIS allows us to draw several conclusions with which we are better able to analyse issues, and how to deal with them, at national level.

The majority of **national documentation centres** have been established within Ministries of Agriculture, which has obvious advantages for the flow of information. However, the centres have suffered from lack of resources, difficulties faced by staff, and interinstitutional rivalries. In such conditions, the quality of a centre's work depends heavily on the quality of the people involved, and on their commitment. It must be said that the people are sometimes remarkable, and sorely tested.

As a result, in some cases, there is a quantitative weakness in data collected, which, very roughly, is estimated to cover half the available data published. There is also a qualitative weakness, partly because information is not always willingly supplied in all the areas of interest of AGRIS and partly because the documents entered in the database have not been properly approved.

With regard to the use of the system, there are not enough data available to fully assess this. However, there is a general impression that documents are rarely circulated, partly because they do not appear interesting for other countries, and, to a large extent, the documentation centres often do not have the resources to either make or mail photocopies. (Various attempts have been made to set up a system of coupons to 'buy' documents, similar to those operated by UNESCO and the British Library; none—so far—has been successful.) Another aspect is that the cost of on-line access to the international database for a reference search is prohibitive, and the use of the printed reference works is cumbersome. The accent now placed on CD-ROM is changing the nature of this problem in a radical fashion, at least for those with CD-ROM readers: the ability to produce a list of references on-site makes the usefulness of the database more obvious to users, and increases the motivation of the information professionals.

Five practical proposals have been developed to overcome these difficulties:

1. Develop a national documentation network, incorporating sub-centres, and not only one national centre. This implies steps towards cooperation between institutions, and is along the lines of our comment on the need for the State to play the new role of animator. Mozambique, for example, has embarked on this approach, with the establishment of four or five sub-centres.
2. Give high priority to setting up a national database, by organising local documentation that is available locally. This requires a dedicated effort to collect virtually all local publications and to make them accessible.
3. Recognise that effective dissemination is essential for the credibility of an information system. From this point of view, a database such as AGRIS represents a stock of raw material that needs to be captured and reprocessed, before it can become answers to the needs of the end-users. There is much to learn: from downloading on-line, to selecting information, to using a variety of sources, to understanding facets of the globalisation of information services (vis-à-vis, for example, the standard bibliography), and, of course, to understand the needs of the users. At national level, access to primary documents needs to be organised. This places greater demands on scarce resources (despite the support provided by organisations such as the CTA) and points again to the need to mobilise adequate budgets and to convince decision-makers.
4. These steps themselves require setting a web of contractual relation, more rigorous than hitherto, using written agreements, between international organisations and national governments, to stipulate the rights and duties of all parties and to allow for cases of non-compliance.

5. The content of training needs to extend beyond providing "theory + practical" skills into providing, or enhancing, the skills in improvisation and problem-solving that information professionals need in their daily, and often stand-alone, work.

In FAO, as in other institutions, the notion of **Communication for development** has established itself only with some difficulty. First, the idea had to be seen as separate from the communications activities of the institution, which have to communicate about the FAO itself. Secondly, the idea had to be linked with that of the information sector, discussed above, taking into account some complementarity, while emphasising the special role of communication for development. In the new structure developed by the new Director General of FAO, communication for development has been moved from the information division to the new Department for Sustainable Development, where it was warmly welcomed. Having established some of the relatively important institutional issues involved, I shall now consider why the notion of communication for development should be discussed in this section on national issues in information policies.

Communication expands the scope of information. This has been well understood by the CTA, which integrated it in its activities from the outset. The expansion encompasses other forms of exchange and relations between people than consulting a documentation centre (through, for example, the relations between a technician and a smallholder farmer, or between a radio journalist and her listeners). The expansion also covers other media than written media, such as verbal communication, photos, radio, video, television, and theatre. It enriches the role of written communication by comprising the production and use of various tools, suited to different audiences, such as local languages, and by using a wider range of written materials than study reports, scientific summaries and bibliographies, through the press, magazines, broadsheets, leaflets and books. The two worlds of information and communication are very close, and often overlapping.

Nonetheless, there is a special characteristic of communication, although it is not the sole proprietor, and that is the emphasis on exchanges between people, two-way and non-hierarchical.

Communicators have similar preoccupations to documentalists. At the national level, there is a process of debilitation that has brought some services to below survival level: there is demoralisation about the waning of the very idea of public services, replaced by an opaque, chaotic black hole. Communication professionals find themselves faced with the question of how to mitigate the sometimes overpowering weight of international information flows (from the press, radio and television) which threaten the development of a strong national structure, close to the end-user. Without such a structure, the professionals believe, there can be no "communication for development".

Their response to this situation, worthy of consideration at this point, is to propose the development of **national policies for communication**. This has been done in **Mali** and **Guinea-Bissau**, and is expected in **Benin** and the **Central African Republic**. The approach has the following advantages:

- mobilising activities around the theme of communication enables other forms of cooperation to take shape;
- there is a pooling of effort with—and between—funders, which can strengthen cooperation and enhance funding opportunities;
- by placing themselves in a broader context, activities can assume greater coherence and cohesion;
- the active involvement of all concerned enhances the credibility of the policy, especially in the eyes of external partners;
- cohesion and visibility make cooperation with neighbouring countries more likely, and this encourages regional cooperation.

While the exact methodology will vary, module by module, case by case, there are **four key elements** worthy of explanation:

1. The initial phase—of national dialogue—comprises surveys, discussions, meetings, and sectoral studies at all levels, including the "back-of-beyond" space inhabited by the end-user. Sectors to be covered can include radio, press and television, and traditional channels of communication. The phase also deals with the issues of technology choice, legal and organisational decisions, and training requirements.
2. This period of dialogue gives lead to a series of recommendations, a programme and procedures, which serve to elaborate clauses of an official, legally-binding document.
3. The implementation of the policy is put in the hands of a Council for Communication, composed of representatives of all concerned partners, such as ministries, the independent sectors, and the private sector. The Council sets up its own sub-committees and a permanent secretariat.
4. Subsequently, each ministry and government department is requested to draw up sectoral strategies and concrete projects, which are brought together in a funding portfolio for presentation to various funding agencies.

The national policy of Mali has been published, and that of Guinea-Bissau can be expected shortly; these documents are, evidently, worthy of consultation. As stated implicitly in the above methodology (but worth making explicit), the development of such a national communication policy does require a strong degree of political will at the highest echelons of state, and a good degree of open democracy.

These experiences should not be taken as a model, but as a source of reference and perhaps inspiration that can complement the regional approaches launched by the CTA, discussed in section 3. They can also be taken as a reason to consider, over and above the growing cooperation between CTA and FAO on this theme, the possibility of involving more partners, both bilateral and multilateral, in moves to offer ACP countries the possibility to choose to elaborate an official national policy for information and communication.

In some countries, more modest initiatives have been taken to strengthen the national level. The following examples from Mauritius and Côte d'Ivoire serve to demonstrate that such choices are realistic, and under way. Others are expected from **Sierra Leone** and **Chad**.

– In **Mauritius**, the Food and Agriculture Research Council (FARC) has been established in order to coordinate research programmes and to undertake the dissemination of research findings. FARC is a federal-style body, composed of research institutes, and ministry and university bodies. The information system at FARC uses a database of local data, and operates as a network of people, who make explicit their needs, and, when appropriate, their satisfaction. As a national focal point and correspondent of the CTA, FARC enjoys some external support and services. It also provides training, and keeps closely in touch with technology developments, so as to be able to extract maximum use from them. (Information provided by M. Antoine, Executive Director of FARC.)

– **In Côte d'Ivoire**, the director of the central library of the Ministry of Agriculture (which is also the national focal point of AGRIS) runs and coordinates the REDACI agricultural documentation network. This work involves tracking the activities of all agricultural information centres, assisting new centres to join the network, linking partners in research and extension work, disseminating documentary products such as catalogues, bibliographies and special searches, harmonising working practices among network members, and linking with networks abroad, such as the Sahelian Résadoc network. There is great appreciation of the support provided by the CTA to this work. As far as future foci are concerned, prime attention will be paid to strengthening the triangular relation between national bodies, the national focal point and the CTA. An additional concern focuses on defining the role of a national focal point with regard to the regional approach and the introduction of new information technologies. (Information provided by Ms Koné, Director of the central library of the Ministry of Agriculture.)

3. The regional level: unanimity reigns, difficulties remain

3.1 Introduction

Since the late 1980s, the CTA has undertaken a discussion about the process of decentralisation from which came a network of national focal points and regional offices. Two regional offices were swiftly established in the Caribbean and the Pacific where they operate in a style of autonomy, permanence and innovation.

A strategic study, undertaken by the CTA in 1989, confirmed the wisdom of a regional approach, with the following recommendation:
*"The way in which the CTA is organised will aim at better connections between supply and demand. To this end, it is necessary to increase direct contacts between ACP countries, to advance the decentralisation of the organisation, and to cooperate with appropriate international bodies."**

In Africa, the process of regionalisation (among sub-regions) encountered growing difficulties; the CTA decided, early in the 1990s, to increase its involvement in a regional approach to information policies. It did this for four principal reasons:
1. General financial constraints led to a wish for more economies of scale.
2. General recognition that the resources available to the CTA could never meet the needs of all ACP countries, taken individually.
3. Regionalisation had entered the political agenda of the Lomé Convention, as described in section I of this study.
4. Imperative of strengthening African structural capacity to operate information tasks in a self-reliant fashion.

Consequently, the CTA embarked on a process to draw up regional policies and programmes, by sub-region. It re-emphasised that flows go from the regional to the national level, since it is only when ACP countries assume full responsibility that they will need to delegate to no-one, and that a real information and communication policy can make its mark.

The approach adopted by the CTA incorporated the notions of ascension (from bottom to top) and participation, being based on the needs and resources of the countries involved. In the case of western Africa, the regional integrated information programme for agricultural development was conducted in four phases over 2 years, from 1992 to 1994. This included:
- a consultation with players: end-users, information professionals, and network managers;
- a study, in each of the countries involved, on information needs and available resources;
- a regional workshop to transform the findings of the studies into concrete proposals, referred to as a "pre-programme".

At the conclusion of the West Africa regional workshop, a regional committee for the evaluation, programme and follow-up of agricultural information activities was set up. Known as a CREPS, being the acronym of the French-language title for the committee, it comprised four thematic coordinators from different countries of the sub-region (on the basis of research, training, extension work and documentation), and representatives of regional and international bodies, and those members of the CTA Consultative Committee from the (sub-) region. The committee adopted a regional information (pre-) programme which had been approved by the Council of Ministers of Agriculture of the Economic Community of West African States in July 1994. The programme will be presented in the near future, for funding, to the European Commission.

**This is a translation of the French text, and not an excerpt from the English language version.*

Similar approaches were followed in central, southern and eastern Africa.

It is clear that the promotion of these regional strategies bore fruit, from all the efforts of communication, through dialogue, explaining the issues, gradually shaping the proposals, lobbying and mobilising, and resisting tendencies to turn back towards national-level activities. Based on negotiation and on network building rather than centralising power, the programme integrated elements from the "valley", in turn approved at the "mountain top" and then re-adopted in the "valley". As the programme objectives state, with reference to reaching the national level from the regional, it is necessary *"to set up effective mechanisms for information exchange at the local, national and regional level"*.

These exchange mechanisms were set up with concrete instruments for linking the regional and the national:
- each country should establish a network for exchange of experiences, to be coordinated by the national focal point;
- the national focal point should be linked to the regional offices, which will become distribution centres;
- each country should select a centre of excellence in agricultural information, to receive study missions;
- the national focal point should collect and disseminate information materials.

These steps towards linkage between the regional and the national contain elements that reflect actual experiences, such as those of Résadoc, which are analysed below and of AGRIS, described in section 3.3.

3.2 Résadoc: Sahelian scientific and technical information and documentation network

Résadoc was launched in 1979 in the Institut du Sahel, following a recommendation of the CILSS/ICDCS (Comité permanent inter-Etats de lutte contre la sécheresse dans le Sahel: Permanent Interstate Committee for Drought Control in the Sahel). Its objectives are:
- to collect information about development in the Sahel and make it accessible to users in the Sahel through setting up a computerised database;
- to exchange this information with bodies outside the Sahel and facilitate access to external sources;
- to strengthen and enhance the documentary potential of the countries of the Sahel through organising national networks, the fundamental backbone of a regional network. Each national network should comprise several documentation centres and libraries, and be coordinated by a national coordinating centre.

The regional coordinating centre, based at the Institut du Sahel, coordinates the activities of national coordinating centres and all centres participating in the network.

In an article in the July 1994 issue of *IDRC Reports*, a journal of the International Development Research Centre, Alioune Camara stresses the positive effects of Résadoc:
"These actions (in information processing and training) led to the creation, or strengthening, of information handling capabilities in most of the countries. In the current economic context, RESADOC can take pride in having developed Sahelian "awareness" of documentation. (...) There is no doubt that the greater part of the success achieved by RESADOC since its creation lies in the structuring and functioning of the network. (...) One result of this co-operation is the common database, which is one of the richest sources of information on development in the Sahel."

He concedes that *"this bibliographic activity, however useful it may be, still has its limitations. These are, first of all, in terms of logistics: it is difficult to get the documents; the material for using microfilm is inadequate, if it exists at all; telematic links between the centres are poor. There are also technical limitations: the products are often poorly adapted to the various categories of users, and staff are not trained in non-documentary approaches."*

He adds that *"we must admit, however, that these are still precarious, given the lack of clearly understood rules to be observed by the responsible parties—there is no such thing as co-ordination among national participants. Participation in the network still depends largely on the good will of the national correspondents, who are for the most part without any political or even institutional support"*.

In the Résadoc network the lack of financing is often cited as a reason for the lack of action by one network or another. However, it is often suggested that the principal cause lies in the centralised nature of the network. At the outset, a regional coordinating team was installed; then attempts were made to set up national networks, out of diverse elements, informally, and often without the required political backing. In the circumstances, it is not surprising that those organisations to whom the role of national coordinating centre was officially ascribed found that they were not always fully accepted by all partners. Furthermore, there were cases in Résadoc where the coordinating roles were ascribed virtually automatically, while the national centres had neither the required skills nor financial resources to perform the roles. Where the only formal framework is provided by the resolutions of regional bodies, whose tasks do not extend to organising national networks, there is not much actual power at the national level, where everything depends on the goodwill of the participants.

The national coordinating centres of Résadoc actually fulfil the role of intermediary, focusing on organising activities that are decided upon and undertaken by the regional coordinating centre. The establishment of the database seemed to go well at the regional level (and thus satisfy the quantitative objectives set for funders) without inducing improvements in the national networks. The latter held this against the regional level, claiming that the bulk of resources had been spent there, to the detriment of investment within each country. National relay points and other local participants seem to be hindered in effectively providing services to the end-users, owing to a lack of decentralisation in all or part of the database and the design of documentary products. One example would be the production of materials that meet properly identified local needs better. There are some who feel that the weakness of the national relay points is due to inadequate decentralisation. This can feed the well-known paradox in which users complain about lack of access to information while the information systems are, taken together, underused.

The critical remarks need to be taken alongside the positive results described above, and as a pointer to the difficult relation between national and regional levels. They should not be neglected, however, because there are similar experiences in the case of FAO, in the two sectors of information and communication.

3.3 The regional dimension in the FAO AGRIS and CARIS systems

In the case of the AGRIS and CARIS systems, some regions (Caribbean, South-East Asia and Latin America) have sought to fulfil an intermediary role between the national and the international level. The result has not been wholly convincing. After several years of operation, when external funding was ended, the activities virtually stopped and ways had to be found to re-animate the national centres so that they could provide a service to the end-users.

It is clear, today, that a regional centre should make use of national-level resources as the basis for cooperation between the two levels. The role of the regional body should not be as a regional coordinator, which is often perceived as a position of authority above the national, but as a *pôle* for exchange. Regional cooperation should not reduce the autonomy of the countries involved by seeking to replace them.

It is important to increase the responsibilities of a national body, because a (federal-style) regional body can function only when there are functioning national bodies. Such a regional body, which emanates from the national bodies and is not a tool for their control, could exercise its functions as follows:

- homogenise working practices, softwares, information instruments;
- develop common tools for information management;
- provide training expertise;
- provide general support and follow-up for centres' operational problems;
- operate an SDI service;
- organise exchanges between countries.

3.4 Communication and regionalisation

I have already underlined the priority given, by the communication division of FAO, to the national level through the development of national policies and sectoral strategies. The regional approach has not been neglected either (in the case of Africa, a sub-regional approach), with a bottom-up process of regionalisation, whereby regional systems were selected by national partners. In this model, the two principal functions ascribed to a regional body are:

- To organise sessions of people from different countries to exchange and enrich each others' experiences—this being sometimes difficult to do at national level. Just as the slogan "the town feeds the country", in this case, the region helps the national level.
- to rationalise use of resources, whether they be financial, development activities, research or tools of communication.

3.5 Experience of the global information and early-warning system on food and agriculture (ARTEMIS)

This system (ARTEMIS) was established in 1975 by FAO as a decision support system, with rapid information delivery on food shortages and the world food situation. It permanently tracks the global situation in food supply and demand, identifies food security danger zones and assesses emergency needs. It has published a series of periodical publications, and is compiling all its data on a computerised database (satellite images, press agency releases, maps, agricultural production statistics, and files). The database is not yet directly accessible to member states; this stage of its development is being actively pursued.

The methods used by ARTEMIS for gathering information are of direct interest to the question of national and regional linkages. National statistics services supply the data, sometimes using national early-warning centres to overcome certain problems of organisation and data reliability. These statistics are complemented with data from harvest evaluation missions and from FAO representatives and particular FAO services (meteorological services, satellite images and pest-tracking services). In the Sahel, there are also two regional bodies: AGRHYMET which pools meteorological data, and DIAPER, which operates a permanent service of data diagnosis. Both draw on the national level, which they support, in order to ensure its autonomy. In the DIAPER programme for the next 5 years, it is expected that the diagnosis services will be taken over at the national level, which will guarantee a more rapid transmission of data. The regional programme will continue to provide support through material, surveys and training.

At present, information flows back in the system through the bulletins published by ARTEMIS. However, the delays in mailing this information are not compatible with the requirements of the early-warning system, where days count, rather than weeks. This is now changing, thanks to the growing use of fax, e-mail and a new database system. The existence of national centres, in any case, helps to ensure the dissemination, and appropriate use, of the data.

Experiences with this system are identical to other points discussed earlier. By giving priority to activity at the national level, there is an effective guarantee of data being available at the international level, and of the data being used, either in full, or in summary form. The regional level is used as a means of strengthening national-level activities, and of performing support tasks, using resources from the international level.

There is a growing acceptance—in thinking, in recommendations and in practice—of this bottom-up model of regionalisation, which avoids centralisation and substitution of national tasks. In conclusion, while the model has not yet been accepted unanimously, it is useful to point to its burgeoning application in different ACP regions and sub-regions in Africa, in both western and southern Africa.

The SAAINET network in Southern Africa (SADC)

The SAAINET (Southern Africa Agricultural Information Network) has been designed for decentralised operation, and to use national focal points designated by the agricultural bodies of each participating country. The major task of the focal points would be to gather information at the national level, to provide services to local end-users and, then, to contribute to regional exchange. The regional body would provide support through training, meetings and exchange visits. In the design of SAAINET, it also facilitates the flow of information through standardisation of procedures and re-processing. The regional body is linked to international networks, and disseminates, within the region, the information it captures at this level. Finally, it seeks to persuade national governments to allocate sufficient resources to national bodies to be able to meet the needs of the end-users.

4. Some directions for the CTA, given new national, regional roles

The scenario is clearly emerging: at the national level, care is taken to stay close to, and be responsive to, all users, and to optimise the working of the national network. At the regional level, the focus is on strengthening national bodies through support, and steering away from their control. In such a scenario, what would be the most appropriate profile for the CTA to adopt, in order to ensure the coherent operation of this new model of linkage between national, regional and international levels?

In answer to that question, it is not my purpose to draw precise new contours for the CTA, but simply to suggest some directions that flow naturally from the notions that have developed on the roles of the national and regional levels in policies for information and communication. In deliberations about future directions upon which it wishes to embark, the CTA will also be following two other axes. At this preparatory stage, these have not yet been brought together. What follows here, therefore, are simply some contributions for proposed directions for the coming years.

Given that regional and national bodies are increasingly taking the responsibility for practical activities, it would be useful for the CTA, as a body for international cooperation, to consider assuming a different role.

The major part of the CTA's operational work—seminars, workshops, training, publications, documentation support—is intended to be decentralised, gradually. Let us assume, therefore, as a hypothesis, that this transfer has been completed, and imagine a third phase in the life of CTA. In the beginning, CTA demonstrated, in practical ways, the importance of information, and improved access for ACP countries to information resources in Europe. Then the CTA helped to strengthen the capacities of ACP countries to produce, obtain and exchange scientific and technical information. What could be the next general objective for the CTA?

In general, it will be a question of Do Less, To Do Better. There will, undoubtedly, be many problems in addressing the issues implicit in new national and regional strategies: being closer and responsive to users,

running national networks, more emphasis on moving, rather than simply managing information, coming to terms with globalisation, bottom-up regionalisation, and avoiding taking over national tasks. To Do Better will be necessary if these strategies are to be implemented.

There are, I suggest, **four directions that will meet the stringent demands of information policy in tomorrow's world**. Those demands require the ability to be close to, and keenly aware of the needs of, end-users, while still being able to exploit the opportunities of international links. In other words, one needs to find the right degree of tension, the correct balance, between the local and the global.

1. Ensure the international dimension of exchange, through enabling the movement of people and information, mainly between ACP regions, between ACP countries, European countries and the European Union, and also with the rest of the world.
2. Provide, on demand, the expertise, advice and technical support required for implementing national and regional strategies. This should be done, not to replace local skills and capacities, but to strengthen them on given points, and to provide the objectivity that can come from an external partner.
3. Sustain a process of strategic thinking, at the meeting point of the abstract and the actual. It is extremely difficult to stay abreast of both daily routine and on-going developments, and to analyse them, and their relations. The processes of sifting and selecting information, understanding and anticipating trends, seeing daily decisions in a broader context, and making the correct strategic choices—these are all tools to be acquired and maintained, if the desired strategies are to work and develop.
4. Take the risk of innovation. It is clear that technology is going to continue to evolve rapidly. This calls for a function of "technology watch" on innovations, their possible applications, their costs, and their uses and limitations. Alongside this, experiments with new technologies should be carried out, in order to allow well-informed decisions on their possible use.

The unique point of the CTA lies in the blend of its subject (information for development) and its nature as a joint (parity) organisation. With the proposed new directions, these remain central. The subject is at the hub of the complex of issues around globalisation, and it is practised in an environment of cooperation between Europe and the ACP countries. These points, together, give the CTA a special ability to demonstrate the mutual benefits of such cooperation, at a time when certain Europeans are showing signs of turning in on themselves.

Appendix*

Acronyms and Abbreviations

AASE	African Association of Science Editors
ACCT	Agence de coopération culturelle et technique/Agency for Cultural and Technical Cooperation
ACP	Africa, Caribbean, Pacific
ADB	African Development Bank
AGREP	Permanent Inventory of European Agricultural Research Projects
AGRIS	Agricultural Information System for the Agricultural Sciences and Technology (FAO)
AGRHYMET	Centre régional de formation et d'application en météorologie et hydrologie opérationelle (Niger)
ARESAF	Association des rédacteurs et éditeurs scientifiques d'Afrique francophone
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ARTEMIS	African Real-Time Environmental Monitoring using Imaging Satellites
ATSAF	Arbeitsgemeinschaft Tropische und Subtropische Agrarforschung e.V.
ATOL	Aangepaste technologie ontwikkelingslanden (Belgium)
AUPELF-UREF	Association des Universités partiellement ou entièrement de langue française/ Université des réseaux d'expression française
BBC	British Broadcasting Corporation
BDPA	Bureau pour le développement de la production agricole (France)
bps	bytes per second
CABI	Centre for Agriculture and Biosciences International
CAMERTEC	Centre for Agricultural Mechanisation and Rural Technology (Tanzania)
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community
CARIS	Current Agricultural Research Information System (FAO)
CD	compact disk (see additional definitions in the Glossary, p.185)
CDI	Centre de développement industriel (ACP-EU)
CDS-ISIS	Computerised Documentation System/Integrated Set of Information Systems
CEEAC	Communauté économique des Etats de l'Afrique centrale
CEMAGREF	Centre national du machinisme agricole, du génie rural, des eaux et des fôrets
CERN	Centre européen de la recherche nucléaire
CGIAR	Consultative Group on International Agricultural Research
CIDA	Canadian International Development Agency
CIDAC	Centro de Informaçao e Documentaçao Amilcar Cabral (Portugal)

* For other terms and acronyms, see the Glossary, pp. 184-187.

CIDARC	Centre d'information et de documentation en agronomie des régions chaudes (France)
CIEPAC	Centre international pour l'éducation permanante et l'aménagement concerté (France)
CIERRO	Centre interafricain d'études en radio rurale de Ouagadougou/Inter-African Centre for Rural Radio Studies in Ouagadougou
CILSS	Comité permanent inter-Etats de lutte contre la sécheresse dans le Sahel (Burkina Faso)
CIMMYT	Centro Internacional de Mejoramiento de Mais y Trigo
CIRAD	Centre de coopération internationale en recherche agronomique pour le développement
CMA/WCA	Conference of Ministers of Agriculture/West and Central Africa
CNEARC	Centre national d'études agronomiques des régions chaudes (France)
CODE	Canadian Organisation for Development through Education
CORAF	Conférence des responsables de la recherche agronomique africains
COTA	Collectif pour les technologies appropriées (Belgium)
CRAIPS	Comittee for Regional Agricultural Information Programmes and Strategies
CRDI	Centre de recherches pour le développement international
CREPS	Comité régional d'évaluation de programmation et de suivi/Regional Committee for Evaluating, Programming and Monitoring Agricultural Information Activities
CTA	Centre technique de coopération agricole et rurale/ Technical Centre for Agricultural and Rural Cooperation
DCFRN	Developing Countries Farm Radio Network
DIAPER	Diagnostic permanent
DOD	digital optical disk
DORA	Diffusion d'ouvrages de référence en agriculture/Dissemination of Reference Works on Agriculture
EARN	European Academic and Research Network
ECA	Economic Commission for Africa (UN)
ECOWAS	Economic Community of West African States
EDF	European Development Fund
e-mail	electronic mail
ENDA	Environment and Development Activities (Senegal)
ENGREF	Ecole nationale du génie rural, des eaux et des forêts (France)
ENSAM	Ecole nationale supérieure d'agronomie de Montpellier (France)
EU	European Union (previously EEC)
EULEISA	European Union for Low-Energy Input and Sustainable Agriculture
FAO	Food and Agriculture Organisation of the United Nations
FARC	Food and Agriculture Council (Mauritius)
FES	Friedrich Ebert Stiftung (Germany)
FFA	Framework for Action (SPAAR)
FRAO	Fondation rurale pour l'Afrique de l'ouest

GATE	German Appropriate Technology Exchange
GDP	gross domestic product
GNP	gross national product
GRATIS	Ghana Regional Appropriate Technology Industrial Service
GRAD	Groupement européen de réalisations audiovisuelles pour le développement (France)
GRET	Groupe de recherche et d'échanges technologiques/ Technological Research and Exchange Group (France)
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (Germany)
HIVOS	Humanistisch Instituut voor Ontwikkelingssamenwerking
IAALD	International Association of Agricultural Information Specialists
IARC	international agricultural research centre
IAM	Institut agronomique méditerranéen (France)
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICTP	Inter-Centre Training Programme
IDRC	International Development Research Centre (Canada)
IGADD	Intergovernmental Authority on Drought and Development
IITA	International Institute of Tropical Agriculture
ILEIA	Information Service for Low-Energy Input Agriculture
ILO	International Labour Office
ILRI	International Livestock Research Institute
INRA	Institut national de la recherche agronomique (France)
INRIA	Institut national de recherches en informatique et en automatique (France)
INSAH	Institut du Sahel
IOC	Indian Ocean Commission
IRETA	Institute for Research, Extension and Training in Agriculture (Western Samoa)
ITDG	Intermediate Technology Development Group (UK)
ITP	Intermediate Technology Publications (UK)
IT-TEU	Intermediate Technology Technical Enquiry Unit (UK)
kb/kbps	kilobyte/kilobyte per second
KIT	Koninklijk Instituut voor de Tropen/Royal Tropical Institute (The Netherlands)
Mb/Mbps	megabyte/megabyte per second
MCD	Ministère de la Coopération et du Développement (France)
NARS	national agricultural research system(s)
NGO	non-governmental organisation
NRI	Natural Resources Institute (UK)

OAU	Organisation for African Unity
OECD	Organisation for Economic Cooperation and Development
ORSTOM	Institut français de recherche scientifique pour le développement en coopération
PC	personal computer
PFAT	People's Fund for Appropriate Technology (Finland)
QAS	question-and-answer service
R&D	research and development
RFI	Radio France International
SAAINET	Southern African Agricultural Information Network
SACCAR	Southern African Centre for Cooperation in Agricultural Research and Training (Botswana)
SADC	Southern African Development Community
SADEC	Service d'appui au développement endogène des communautés (Cameroon)
SAFGRAD	Semi-Arid Food Grain Research and Development
SATIS	Social and Technological Innovation for Sustainable Development (Senegal)
SDI	selective dissemination of information
SIDA	Swedish International Development Authority
SKAT	Swiss Centre for Appropriate Technology and Management
SPAAR	Special Program for African Agricultural Research (USA)
STI	scientific and technical information
TOOL	Technology Transfer for Developing Countries (The Netherlands)
TVE	Television Trust for the Environment (UK)
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UPS	uninterruptible power supply
URTNA	Union des radiodiffusions et télévisions nationales d'Afrique/Union of National Radio and Television Broadcasting of Africa
USAID	United States Agency for International Development
UUCP	Unix to Unix Communications Package
VITA	Volunteers in Technical Assistance (USA)
WALTPS	West African Long-Term Prospectives Study
WARDA	West Africa Rice Development Association
WREN	World Radio for Environment and Natural Resources (UK)
ZADI	Zentralstelle für Agrardokumentation und Information