The Green Revolution began in Europe at the end of the 1950s and then spread to India and many other Asian countries at the beginning of the 1970s, improving the world supply of food even though the world population doubled. According to Gordon Conway, Vice Chancellor of the University of Sussex (UK), average yields of cereals more than doubled from 1.1t/ha to about 2.7t/ha and food production increased from 300kg to 360kg per capita. This global picture, while positive overall, nevertheless hides major differences between regions. Many countries, particularly ACP countries, have found themselves unable to take advantage of this process and some have even recorded a decrease in food supply. Furthermore, even in those countries where food production was most progressive, the Green Revolution failed to eliminate malnutrition totally. India, for example, while being largely self-sufficient in cereals and with an annual surplus of 30 million tonnes, nevertheless still has 400 million people living below the poverty line in a state of chronic under-nutrition.

Forecasts to 2020, notably that of IFPRI (International Food Policy Research Institute), suggest an increase in the world population of more than 2 billion individuals, principally in the less favoured countries of Africa and Asia. New concerns are now arising because cereal yields seem to have reached a ceiling in the major producing regions. One reason for yields not increasing as before is the fact that demand from those who can pay has largely been met. Efforts to increase productivity tend to create an excess of supply which is beyond the markets' capacity to absorb. This is very different from saying that the need, or 'social'...
has been soil degradation including waterlogging, salination, lack of organic matter and compaction, all of which are consequences of more intensive cultivation. Another risk to future food supply is associated with the fact that, in the context of climate change, more than 50% of the world food supply depends on the cultivation of three cereals: rice, wheat, and maize. It is the sustainability of this traditional, and often inequitable, model of food production which is now being questioned.

What makes a “green” revolution?

The Green Revolution in Asia has too often been attributed solely to the adoption of high-yielding varieties (HYVs) developed by the International Wheat and Maize Improvement Centre (CIMMYT) and the International Rice Research Institute (IRRI) respectively. In reality it was the result of many complex and interacting technical and economic factors coupled with political determination in countries such as India.

Greater intensity of crop production implies the use of varieties with high yield potential and, therefore, recourse to inputs such as fertilizer, pesticides, water, and mechanization. Water, in particular, must be properly managed because no farmer can afford to purchase inputs that are expensive in relation to his resources when unprofitable agricultural practices are employed at risk. This is why the Green Revolution has, for the most part, been restricted to those regions where water is plentiful and where it can be easily managed to provide irrigation and drainage. A simplified view might be that a “green revolution” can be achieved wherever environmental conditions can be adapted to the needs of the cultivars. In reality, it has to be said that many other conditions are also met.

From the farmers’ point of view, there are two basic factors upon which intensification has been based: (a) the search for economic viability and (b) the reduction in associated risks. The Green Revolution in cotton cultivation has taken place in rainfed savanna where the monetary economy was, at the outset, still weak. This ensured a taboo and therefore a reduction in the scale of price and of political will. Opening the cotton market will find itself free of credit, extension, cotton ginning etc., provided for under publicly funded development schemes. Further, the expertise in biotechnology, which presently is available, for example, is installing a fly screen to protect tomatoes from whitefly, Bemisia tabaci, and the virus TYLCV which it carries. Also, an analysis of how local markets work may improve access to markets in secondary towns and even the capital.

On a larger scale, agricultural research should revise its priorities and broaden its activities to include a greater number of successfully cultivated varieties, High Yielding Varieties (HYVs) that only perform in ideal terms of inputs and more economical to cultivate. In many areas, the environment is not conducive to the “green revolution” as it carries. Also, an analysis of how local markets work may improve access to markets in secondary towns and even the capital.

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Green and white revolutions in Africa

The success of maize in Zimbabwe and cotton in West Africa show that Africa is capable of such “revolutions”. The “white revolution” in cotton cultivation has taken place in rainfed savanna where the monetary economy was, at the outset, still weak. This ensured a taboo on cotton and therefore a reduction in the scale of price and of political will. Opening the cotton market will find itself free of credit, extension, cotton ginning, etc., provided for under publicly funded development schemes. Further, the expertise in biotechnology, which presently is available, for example, is installing a fly screen to protect tomatoes from whitefly, Bemisia tabaci, and the virus TYLCV which it carries. Also, an analysis of how local markets work may improve access to markets in secondary towns and even the capital.

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Immediate needs and techniques for the future

Agricultural scientists are already undertaking work at a local level which is consistent with this type of diversified development. However, it is also necessary to focus on the development of more complete strategies based on the identification of options for the future. Above all, this requires a departure from the traditional way of working with farmers and an improvement in the quality of training and extension work. The present system of training and extension is often based on selecting varieties and developing farming methods which are appropriate to farmers’ needs. A pragmatic approach is emerging. An effective device, which is currently available, for example, is installing a fly screen to protect tomatoes from whitefly, Bemisia tabaci, and the virus TYLCV which it carries. Also, an analysis of how local markets work may improve access to markets in secondary towns and even the capital.

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Further information:
A 2020 vision for food, agriculture and the environment 1396 (IFPRI) 2120 Seventeenth Street NW, Washington, DC 20433-1000, USA

The green revolution reviewed: critique and alternatives by B Giller 1987 203p Allen & Unwin, London, UK

After the green revolution: sustainable agricultural development by S. Corrie C, E. Barbier 1999 205p Earthscan Publications Ltd, London 91 399 JKU
The world market for vegetable oils is one of the most speculative at the present time, reflecting the importance of these protein rich oils not only in human diet, but also as a major ingredient of livestock feed. Globalization has meant that financial markets and the markets for commodities such as vegetable oils are now more closely linked than ever before. The result has been a series of major price fluctuations which are often difficult to predict.

The global picture
Global production of vegetable oils has risen by 30% in the last ten years but is still failing to meet a demand boosted by the increasing number of people living in towns and cities. The major palm oil and soya oil exporting countries, M alyasia and Brazil respectively, are using a larger part of their own production for home consumption, thereby reducing the amount available for export. China, also a major producer, is now using large amounts of vegetable oils in the production of food products and this in turn has an impact on the world market. There has been a series of major price fluctuations which are often difficult to predict.

Africa's share
In the 1960s Africa supplied 65% of global production of palm oil. Nigeria and Zaire were the principal producers. However, the current situation is not favourable for the long term investment that cultivation of this perennial crop requires. Approximately 35,000 ha per year is being cleared for the production of palm oil in the Ivory Coast where the field, held in plantation, which will not reach full production for ten years, is the largest. The domestic oil production of African countries is not able to finance such investment from their own resources. Local commercial banks tend to be wary of lending money on a long term basis to enterprises they judge to be risky. At a time when the State is withdrawing from financial involvement in the agriculture sector and when agricultural credit is hard or impossible to obtain, room for manoeuvre is limited. Robust financial criteria are the cause. The Economist argues that new ways of providing credit are urgently needed if this major constraint is to be eliminated.

Despite the growing need for vegetable oils, Africa is still producing less than 4%. With the exception of Côte d'Ivoire and Cameroon this does not even meet the needs of local consumption. Groundnut oil is the second largest source of vegetable oil on the continent after palm oil. Lagging behind these is rapeseed and sunflower oil which are produced mainly in South Africa, and olive oil which is produced mainly in North Africa. In 1995 the world production of groundnut oil is dominated by China and the United States. Africa retains a relatively high percentage share (on average 30%) despite major annual fluctuations. This is due, in part, to Senegal which continues to export groundnut oil to the Union. Nevertheless, the countries of the Conseil Africain de l'Arachide have lost 20% of their market share. Nevertheless, the countries of the Conseil Africain de l'Arachide have lost 20% of their market share. However, the countries of eastern and central Africa, where plots are small and farming is often subsistence, such as chemical fertilizers and fungicides, are rarely affordable. Consequently, yields are about 50% less in African Africa. In West Africa, potatoes are usually grown on a small scale by rural people who lack the knowledge, skills and equipment necessary for intensive farming (i.e., tubers, not true seed) and with high inputs of labor and time. Where conditions should be ideal, where conditions should be ideal, there is no reason why some of the ACP countries should not develop systems for multiplying and distributing high-yield seed (see box).

Making more of potatoes
A staple crop which can yield four times as many calories per hectare as rice, or five times as many as wheat, is enjoying a consumer success that has encouraged many farmers to increase production. The Irish potato (Solanum tuberosum) is becoming ever more popular and, provided that the quality meets the expected high standards, the commercial rewards of a buoyant market are there for the taking.

Vegetable oils: a slippery slope to success?
The demand for vegetable oils will increase as the world population increases. It is often more profitable to export a processed food product than to grow and process it on a commercial scale. Countries with a large domestic demand for vegetable oils are therefore faced with the problem of meeting a demand boosted by the increasing number of people living in towns and cities. The major palm oil and soya oil exporting countries, Malaysia and Brazil respectively, are using a larger part of their own production for home consumption, thereby reducing the amount available for export. China, also a major producer, is now using large amounts of vegetable oils in the production of food products and this in turn has an impact on the world market. There has been a series of major price fluctuations which are often difficult to predict.

The advertising copywriters were given the opportunity to promote the raw material. They agreed to adopt the slogan that potatoes are packed full of goodness, rich in vitamins and minerals, protein rich and calorie rich, and almost fat-free. Potatoes need not be kept for long and the production in Africa over the past 35 years testifies. According to FAO, growth in potato production in Africa has been consistently higher than population growth. It does not depend on this food crop, many of which have fallen behind, or, at best, kept pace with population growth. It is the urban market which has led the demand because potatoes are convenient being quick to prepare and cook, and are adaptable to many different recipes. They can be grown to be sold fresh or for processing, but to do so requires a network of ACP countries on a small scale more suited to the fresh market.

One reason or another, the process for multiplied seed is currently underway. It is important to get ACP countries to understand the concept of growing potatoes in Africa as a basis for a new national potato programme. The International Potato Center (CIP) is currently working with the national potato programmes in Kenya, Uganda and Ethiopia, to find ways to support farmer-based systems.

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Improving cooking quality of grain legumes

Yams have a high water content and therefore do not keep well with storage. Yams are thought to be the principal crop for the treatment of yams. However, unless the yams can be sufficiently stored, they can have beneficial effects on human health. However, they are often under-utilized as human food, due to undesirable characteristics such as anti-nutritional factors. HTC beans require only twenty more water and fuel. Freshly harvested yams take up to 12 hours to soften due to anti-nutritional factors. HTC beans show up to 75% increase in quality and will increase the yield of products which are prepared in the same way as normal yams. If this product, which is already enjoying considerable success due to its high quality on a larger scale, could make a significant contribution to development in the future, then it is good, at least, to the creation of employment. In addition, as well as greater production of yams, all that has been found is the money to buy equipment that is appropriate to small-scale processing units.

Fishery video

The sustainable management of natural resources is a much debated topic covering many disciplines. The video, Whirlpool of Turtles (The lake is our bank), provides a realistic impression of the management of a heavily fished lake in an African context. The issues raised in the discussion between the various stakeholders of that shoreline and the understanding that the right solutions are possible, and that the dilemma seen in other situations concerning resource management exists. The video was originally produced for a Zambian television station which has screened it several times, but has since been used in various educational and training settings around the world. The video introduces the various roles that can be played in addressing the problem of overfishing and the importance of collaboration between local people and the international community.

R&D to go commercial

After more than a quarter of a century of intense research, the International Centre of Insect Physiology and Ecology (ICPE), has developed a range of research and development (R&D) products for application in agriculture, livestock development and human health. The ICPE has now started to undergo large scale production and marketing, mainly as a business venture within the ambit of an innovative Technopark situated in Nairobi, Kenya.

Well known for its excellence in the field of aero- and terrestrial biological control of pests, the ICPE Techpark is set to be a prime environment for innovation and entrepreneurship. The ICPE Techpark will provide fully equipped, modern and state-of-the-art incubation, research and development facilities for biotechnology and life science companies, and will be an attractive location for an innovative Technopark based in Nairobi, Kenya.

The ICPE Techpark will further enable industrial participants to benefit from interactions with similar high-tech undertakings and will contribute to the development of biotechnology in the region. The park will enable participants to benefit from centralised services that will assist them to compete effectively in niche markets.

Bio-cost predictions for pigeon pea

Pigeon pea is an interesting crop as it can be grown and thrive in many different cropping situations. There are short duration and perennial cultivars. It is intercropped with cotton, with which it has a short activation period, which is highly susceptible to sunlight and management of weeds. Cotton has a short activation period which gives rise to variable success rates. For optimum results the product must be used fresh.

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in collaboration with national programmes and other organizations involved in pigeon pea research and breeding a new CD-ROM: The Root-knot nematode database. This database contains over 450 articles, including 50 scientific articles, book chapters, photographs, drawings, videos, CD-ROM pictures and distribution maps. The Root-knot nematode database contains information for both PC and MAC and is designed to provide help messages available by picking the function key. Users may benefit from the quick access to nematode family, species and helps messages displayed in English, French or Spanish.

There are two CARIS databases and the SIS (SPAR Information System) database on the CD. The first contains all the current CARIS research projects. The second contains an international database with CARIS research projects for the earlier years and the third comprises the agricultural database of research projects.

Useful CD-ROMs

In May 1997 CAB International published a new CD-ROM project entitled Root-knot nematode taxonomic database. This disc brings together data that is otherwise scattered in the published literature and presents it in an accessible and user-friendly form. It will enable researchers around the world to have access to all of the information that is necessary to identify a population, to recognize an undescribed species, and to describe it accurately. The database is essentially a CD-ROM library of the original scientific descriptions. All of the historical papers since the first observations of the genus in 1855 are included. Descriptions in foreign languages have been translated into English and the text of both the original and the translation are on the disc.

Useful publications

The new, extensively revised and updated edition of the world compendium of pests and pesticides, the pesticide manual, has just been published. Since the publication of the previous edition three years ago, 56 active ingredients have been added, bringing the total number of entries to 759. This is in addition to abbreviated entries covering 583 superseded products.

The National Agricultural Digitalization Program (NADP), in cooperation with the American Society of Agronomy, has published the Agronomy journal volumes 23-28 (1931-1936) on CD-ROM. In addition, 6900 page-images are linked to searchable bibliographic records created by NAL’s indexing Branch and downloaded from AGRICOLA.

The ICPE Techpark has been created within the ambit of the National Agricultural Digitalization Program (NADP), on CD-ROM, with support from a European Community Information Retrieval software which is included on the CD-ROM. System requirements include an 80386 or faster computer, 4 MB of RAM, 4 MB of hard disk space, 150 MB of disk, and MS-Windows 3.1, a CD-ROM player with Extension 2.0 or later, and a mouse.

The CAB-DOJ’s cost is US$525.00 each and are available from: American Society of Agronomy, 677 South Sepulveda, Madison, Wisconsin 53711, USA.

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Keeping cabbage caterpillars under control

The green caterpillar of the Large Cabbage Worm Pieris rapae, with its narrow orange or yellow dorsal stripe emerges from the soil five to fourteen days in order to feed on the leaves of many crop species. It then returns under-ground to reappear 15 days later as a white butterfly. An understanding of this life-cycle shows how the crop can be controlled without the use of chemicals.

The first step is to practice crop rotation by alternating carrots or maize, for example, with cabbages. The caterpillars are then starved of their food source. By turning over the soil around the cabbage plants, feeding, forcing and burying is controlled. At the beginning and at the end of the season, the caterpillars are detected and disposed of by burning. If some escape they can be retrieved manually and destroyed. The butterflies can be controlled by using a sticky, yellow trap placed in the middle of the crop. It is also discouraged by cultivating plants that have a strong and, to the butterflies, unpleasant, odour (onion, garlic, sage, mint, cinnamon).

Biotechnology self-study

Biotechnology self-study is a learning package which deals with the basic principles of biotechnology and its applications in agriculture, the food industry and the environment. In addition, it analyses financial, legal, social and ethical aspects related to the use of biotechnology in the above areas. The components of the learning package are text-based material (9 manuals and 5 video tapes), interactive computer-based training modules, and reference material.

Ergot threat to sorghum

Sorghum is an important crop in semi-arid parts of Africa, as well as in Asia and Latin America. It is a particularly useful crop in semi-arid conditions, as it is drought-tolerant than many other grain crops.

However, the ergot and black bread fungus that affect sorghum are similar to those of the Large Cabbage Worm, increasing the hardship of growth and yield.

Award for work on water weed

The spread of water hyacinth (Eichhornia crassipes) has had a devastating effect on many African lakes and waterways, disrupting transport, depriving fish of oxygen and endangering communities. The disease has spread rapidly. In Brazil, in South America an epidemic of the disease covered 60,000 km² in three weeks. The disease has had a devastating effect on water hyacinth and its control.

In recognition of this work, the Food and Agriculture Organization of the United Nations (FAO) has presented its Borela Award to the Association.

Courses and conferences

INTERNATIONAL COURSE ON EXTENSION MANAGEMENT
14 June-25 July 1998
The course programme focuses on functions, role and management of extension in rural development. Major areas of concern are participatory needs assessment methodology, strengthening analytical capacity, adequate information management and sustainable support mechanisms for target populations involved.

INTERNATIONAL COURSE ON FOOD PROCESSING
16 August-21 November 1998
The course programme aims to broaden participants' views on problems of small and medium-scale food processing, to upgrade participants' knowledge concerning the analysis of problems and the selection of appropriate technologies and for the implementation of selected technologies, focusing on quality assurance measures.

Details of the above two courses from: J Hoek, Director, International Agricultural Centre, PO Box 88, 6700 A B Apeldoorn, The Netherlands Fax: +31 (0)12 374 85 52 Email: ac@agri.nl

CROP RESEARCH TECHNIQUES AND MANAGEMENT
August-September 1998
The aim of this course is to provide up-to-date information on the basic principles of experimental design and analysis and on the current experimental approaches in important specialist fields. It is designed for ‘hands-on’ crop scientists involved in the implementation or management of on-farm and on-farm research.

The Training Coordinator: O vanera Development Group, University of East Anglia, Norwich, NR4 7TJ, UK Fax: +44 (0)1603 505262 Email: org@uea.ac.uk

The 9TH AITWON INTERNATIONAL CONFERENCE ON TROPICAL VETERINARY MEDICINE
to be held from 14-18 September 1998 in Harare, Zimbabwe.
Prof. M J Obwolo, Faculty of Veterinary Science, University of Zim-

15TH INTERNATIONAL SYMPOSIUM OF THE ASSOCIATION OF FOOD AND AGRICULTURAL SCIENCES, AFRICA (AFSA)
17-21 FEBRUARY 1999
FOR FARMING SYSTEMS RESEARCH-EXTENSION
October-December 1998
The workshop programme focuses on functions, role and management of extension in rural development. Major areas of concern are participatory needs assessment methodology, strengthening analytical capacity, adequate information management and sustainable support mechanisms for target populations involved.

Please write to the addresses given above, and not to CB, if you are interested in participating in these events.
When I was requested to make an editorial contribution to your publication, I leapt at the chance. I view this as the platform through which our country and the rest of the world could share the exciting times which we are living through around agriculture and rural development. After having tried for almost three and a half years now, the international community might be interested to know about the outcome of our efforts in trying to transform the agricultural sector.

There are initiatives in place designed to address the long-term financial needs of the emerging and small-scale farmers. These, too, were a result of consultation that looked at the small-scale farming sector. The Board, as its name suggested, was mainly a mechanism by which direct state support and involvement in almost all the key aspects of its operation and management. The second way is to establish a politically reliable, small producer-friendly financial institution called the Land and Agricultural Bank.

This coming year the bank is set to launch a number of new products to offer emerging farmers. These will include new savings and development products, as well as a discount bonus and, most importantly, a more flexible criteria in the assessment of loans.

Although we have seen successes in many instances as a direct result of our policy shift, the dry spell that had been forecast to prevail in this area around the provision of agricultural inputs. In the area around the provision of agricultural inputs, the country have already benefited from this pilot scheme. They originated from past policies of the Land and Agricultural Bank administration system. In real terms the so-called departments consisted of a well-developed commercial sector that relied on state subsidies for survival and sustainability. A few departments should bring the population of those farmers left in agricultural production. The second reason given for food insecurity is "inefficient distribution". Mr. Kiriahi, for instance, cites the cases of Uganda and Zimbabwe. He notes that in Uganda farm sizes in areas with good rainfall are so small that it is not profitable to mechanize food production. In Zimbabwe, he observes, most of the fertile soils have belonged to a few individuals. To alleviate these problems he suggests changes that would allow more people to participate in farming activities. Coupled with training and other farming techniques as organic farming, water harvesting and irrigation development, the chances of attaining food security could be increased.

ENVIRONMENTAL CONSERVATION

At work

Bwambale Philip Kiriahi, an extension officer from Uganda wrote to CTA in response to an editorial in a special world food security published in Agriculture & rural development vol. 4 no 2 (CTA copublishes this bi-annually with GTZ and DSE). He offers two main reasons why food security is difficult to achieve. The first reason given is "withdrawal of young people from participating in food production activities". He cites the years spent at school and university and taking up of white collar jobs by graduates, thereby denying agricultural production essential labour, as some of the reasons for the lack of young people participating in food production. The second reason is that if people should get involved in farming curricula with a view to shortening the years spent at school. He further suggests that appropriate incentives should be developed to help increase the quantity of food produced by the decreasing number of people left in agricultural production. The second reason given for food insecurity is "inefficient distribution". Mr. Kiriahi, for instance, cites the cases of Uganda and Zimbabwe. He notes that in Uganda farm sizes in areas with good rainfall are so small that it is not profitable to mechanize food production. In Zimbabwe, he observes, most of the fertile soils have belonged to a few individuals. To alleviate these problems he suggests changes that would allow more people to participate in farming activities. Coupled with training and other farming techniques as organic farming, water harvesting and irrigation development, the chances of attaining food security could be increased.

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ENVIRONMENTAL CONSERVATION

At work

Bwambale Philip Kiriahi, an extension officer from Uganda wrote to CTA in response to an editorial in a special world food security published in Agriculture & rural development vol. 4 no 2 (CTA copublishes this bi-annually with GTZ and DSE). He offers two main reasons why food security is difficult to achieve. The first reason given is "withdrawal of young people from participating in food production activities". He cites the years spent at school and university and taking up of white collar jobs by graduates, thereby denying agricultural production essential labour, as some of the reasons for the lack of young people participating in food production. The second reason is that if people should get involved in farming curricula with a view to shortening the years spent at school. He further suggests that appropriate incentives should be developed to help increase the quantity of food produced by the decreasing number of people left in agricultural production.

The second reason given for food insecurity is "inefficient distribution". Mr. Kiriahi, for instance, cites the cases of Uganda and Zimbabwe. He notes that in Uganda farm sizes in areas with good rainfall are so small that it is not profitable to mechanize food production. In Zimbabwe, he observes, most of the fertile soils have belonged to a few individuals. To alleviate these problems he suggests changes that would allow more people to participate in farming activities. Coupled with training and other farming techniques as organic farming, water harvesting and irrigation development, the chances of attaining food security could be increased.
The contribution of mechanization to sustainable agricultural development

From 24-29 November 1997, CTA organized an international seminar in Ouagadougou, Burkina Faso, on the integration of mechanization in sustainable agricultural development policy in sub-Saharan Africa. The seminar was attended by 60 participants from 19 African countries and several European institutions and followed a study on the effects of mechanization in Africa, which has recently been published by CTA.

Before the official opening by Burkina Faso’s Minister of Agriculture, there was an opportunity for different groups of participants (scientists, extensionists, agricultural equipment manufacturers and suppliers and representatives of farmer associations) to meet for a day and express their own views on what the outcome of the seminar should be. After several presentations, a working group that adopted a synthesis of the outcomes of the seminar was set up to produce a final report. The seminar was a follow-up to a field trip on the regional implementation of agricultural mechanization projects in Burkina Faso, the work of the seminar was

Geographic Information Systems as tools for rural development in sub-Saharan Africa

A CTA/ITC international seminar, 23 - 26 September 1997, Enschede, The Netherlands

Since the early 1990s there has been a remarkable increase in the number of potential Remote Sensing (RS) and Geographical Information Systems (GIS) applications in sub-Saharan Africa, from desertiﬁcation and bushﬁre monitoring to food supply early warning systems and water resource management. However, organizations working at the local level in rural development can be hesitant to use the new tools and often consider RS/GIS to be merely a tool for top-down planning, in which one which is incompatible with the need for participatory forms in rural development. Together with the Netherlands-based ITC and the International Institute for Aerospace Survey and Earth Sciences (IWGS), CTA organized an international seminar on GIS with three objectives:

1. To explore the general potential of GIS as information tools for decision making processes in agricultural and rural development;
2. To identify the information needs of decision makers and to assess the relevance of GIS for rural development;
3. To explore the potential of GIS as a tool for local level development planning.

Participants came from ten sub-Saharan countries and represented the public and the private sectors, such as governmental institutes at national and subnational level, non-governmental organizations and grass-root organizations such as farmers’ associations. During the four days of the meeting GIS potentials were explored, information needs were identiﬁed and the relevance of GIS for local level planning was ascertained. Participants were motivated to share many of their own experiences and a broad range of country experiences emerged. The diﬃcult balance between GIS content, its application and management was evident throughout the seminar.

The seminar succeeded in reafﬁrming the current GIS users that their future contribution to sustainable sub-Saharan agricultural development will be of growing importance. While evaluating the cost - beneﬁt ratio of GIS, the participants stressed the point that not using GIS also has a cost. If decisions are not made based on GIS data, the information needs of various decision makers are not met.

The seminar resulted in a meeting of experts, including representatives of farmer associations, equipment manufacturers and suppliers and NGOS and other organizations being set up in order to help them become more eﬀective economically.

CTA and the International Labour Organization co-organized a workshop in Bamako, Mali, from 3 - 7 November 1997 for 26 representatives of producer and supporting organizations from nine francophone countries in West Africa. This was an opportunity to exchange experiences in marketing agricultural produce and discuss how commercial operations can be improved.

Five themes were addressed by the workshop: the macro-economic environment; the production chain; pricing policy; information; and marketing. Financial, technical and structural success stories and failures were examined in four case studies of producer organizations whose representatives also participated in the workshop. These included small and medium-sized cooperatives operating at local and national level and a multinational exporting organization operating at sub-regional level.

Workshop participants recommended that the structural, technical and ﬁnancial capacity of producer organizations should be strengthened and they underlined the importance of professionalism and transparency. They also highlighted as priorities the need for information to be available and circulated, and for inter-regional exchanges to be encouraged.

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How to obtain CTA publications?
Ephemeral rivers in the tropics

This report on ephemeral rivers is a conclusion of a research project conducted by the Environmental Policy and Society (EPSO), Linköping University, Sweden. The project aimed to link land and water characteristics in dry tropical river basins with appropriate water management approaches.

Various hydrological processes are reviewed and discussed, and some methods to measure water flows are outlined, examples are given of runoff collection techniques and, alternative allocation models and their institutional requirements are discussed. Many examples of water management are provided, both from today’s practices and from past civilizations.

Ephemeral rivers in the tropics: hydrological processes and water resources assessment and management by Tobias Sandström 1997 116pp ISBN 91 7471 987 9 institute of Bore Research, Linköping University, S-581 83 Linköping, SW EDEN

Farmers’ research in practice

In many parts of the world, farmers are seeking ways to improve their farming systems and to adapt their practices to changing agro-ecological and socio-economic conditions. Contributions to this book show how farmers formulate, adapt and adopt new ideas and innovations. They try them out in different settings, compare the results, and make decisions about their potential value for improving the way they farm.

The book examines farmers’ innovation through seventeen wide-ranging case studies from around the world. The first part tries to understand how farmers do research; the second part looks at how technical options are added to farmers’ experiences; the third part deals with ways to improve the experimental design; and the last part shows how to sustain the process. In the concluding chapter, the editors bring together the lessons learnt, and set out the future issues and challenges for governmental and non-governmental organizations involved in agricultural development.


Publishing educational materials in Africa

The economics of publishing educational materials in Africa draws on research data from a wide range of African countries. It examines the vital relationship between educational policy makers and educational publishers. By providing an understanding of the publishing process and the role of the institutions and people within the publishing market, the book helps the authors to improve this relationship to the benefit of all.

The economics of publishing educational materials in African languages is based on research conducted in five countries in Africa. It breaks new ground on an under-researched aspect of educational policy, by providing case-studies that could be replicated elsewhere in Africa. In order to expand provision of publishing education material in local and national languages, funding, as well as close cooperation between the publishing industries and government agencies, will be needed.

Cost effectiveness of publishing educational material in African languages is based on research conducted in five African countries. The book presents an interesting update of current problems and approaches.

Cost effectiveness of publishing educational material in Africa: empirical evidence in local and national languages by John Stewart and Charles Bonongwe 1997 40pp ISBN 1 901830 01 2

Collaboration in international rural development

The theory and practice of rural and international development, particularly in the arena of development collaboration, has changed considerably. Correspondingly, the numbers and diversity of professionals engaged in this field have expanded on a global scale. Against this background, the book provides a wealth of practical information and insights concerning international development. The aim of the book is to enhance and extend the scholarship and experience of various critical and emerging issues. What distinguishes it from other books on the subject is that it combines the authors’ personal observations with the scholarship and experience of others as reflected in the literature.

The book is organized in four parts, following the introduction. The first two chapters focus on the field of international development and identify current issues and concerns. Part 2 deals with strategic and policy alternatives and focuses on the design of programmes and projects. The next part addresses implementation and the practice of a collaboration, while the final chapter offers a challenging but optimistic view of the future of collaboration in international rural development.

Collaboration in international rural development: a practitioner’s handbook by George Axinn and Nancy Axinn 1997 336pp ISBN 0 7619 2920 0

Unless otherwise stated, the books on these two pages are not available from CBA. Readers are advised to write to the publishers for further information.
Natural Resources Group - ODI

The UK-based Overseas Development Institute (ODI) is an independent non-governmental centre for the study of development and humanitarian issues facing developing countries. The institute is engaged in a wide range of policy-based research and dissemination activities. The programme focuses above all on comparative research as its contribution to the international forestry debate. Two networks, the Agricultural Research and Extension Network and the Rural Development Forestry Network are important components of the NRG’s dissemination programme. They aim to increase the information flow between practitioners, researchers and policy makers. The NRG also contributes towards ODI Working Papers and Briefing Papers. Other NRG publications include Forestry Study Guides and an EU Tropical Forestry Sourcebook. The Natural Resource Perspectives Papers and Briefing Papers can be seen on the ODI Website (see below). The individual programmes within the NRG can be contacted by email: Agricultural Institutions and Technology Change: agren@odi.org.uk Forestry: forestry@odi.org.uk Seeds and Biodiversity: seeds@odi.org.uk

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