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Distance education and distance learning: A framework for the Food and Agriculture Organization of the United Nations

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Executive Summary

What are distance education and distance learning?

The term distance education refers to intentional processes of teaching and learning in which physical space separates instructors and learners. Learners and instructors communicate through various media, and an educational organisation exists to design, facilitate and evaluate the educational process. Distance learning is a broader concept. The term distance learning refers to the use of educational materials or media by learners who are not necessarily linked with an educational organisation or engaged in communication with an instructor. Distance learning can be an outcome of distance education processes, but it can also take place without an active relationship between those doing the learning and an educational agency.

Over the past decade, there has been a resurgence of international interest in distance education and distance learning as potentially useful strategies for addressing human development issues. This resurgence has been rooted in part in the evolution of new information and communications technologies, and in part in the improvement of pedagogical and administrative models for facilitating learning at a distance. While FAO is not an institution of formal education, it is deeply involved with processes of education and learning connected to its mandate. The framework outlined in this executive summary is intended to help FAO, and its stakeholders in Member States, explore how distance education and distance learning strategies could be usefully applied to the challenges of food security and rural development.

What are some basic suggestions for effective distance education and distance learning?

Distance education and distance learning initiatives should:

- be undertaken for the right reasons. They would need to be grounded in the intersection of an organization's strategic objectives and the aspirations of individuals and communities.
- be sensitive to context. They would need to be gender sensitive and adapted to the social and economic circumstances of learners and their environment.
- use existing infrastructure, and have sustainable costs. They would need to use communications media that are available, reliable and affordable to learners.
- engage stakeholders in participatory processes. They would need to involve representative stakeholders in planning, implementation and evaluation processes.
- be based in sound pedagogical and administrative models. They would need to reflect models of best practice developed through past experiences with similar groups of learners.

What is the future for distance education and distance learning at FAO?

The Food and Agriculture Organization will be an effective international catalyst for the learning of a diverse and globally distributed set of individuals, organisations and communities whose capacities and actions influence the achievement of food

security and rural development. In collaboration with a wide range of partners, and in conjunction with other methods of intervention, the Organization will employ innovative and appropriate distance education and learning methods to accomplish its strategic objectives.

How have distance education and distance learning helped FAO reach its target audiences?

There is a great diversity of individuals, organizations and communities of importance to the FAO mandate. The following examples of past and current FAO initiatives in the areas of distance education and distance learning illustrate that such initiatives can be flexibly applied to reach a wide range of target populations.

- With regard to producers, and the rural poor, the Extension, Education and Communication Service (SDRE) has contributed to the development of rural radio as a medium of information exchange and learning in Africa.
- With regard to policy makers, planners and civil servants, the Agricultural Policy Support Service (TCAS) and the Women in Development Service (SDWW) have contributed substantively to the distance education courses of REDCAPA (Network of Institutions Dedicated to Teaching Agricultural and Rural Development Policies for Latin America and the Caribbean).
- With regard to extension workers and local rural leaders, the Fisheries Industries Division (FII) is developing a series of three distance education courses aimed at building local technical knowledge and management skills for sustainable artisanal fisheries.
- With regard to researchers and information management professionals, the WAICENT Outreach Programme (GILF) is launching an Information Management Resource Kit to share tools and methodologies with Member Nations to build their capacity to manage agricultural information.
- With regard to researchers, educators, entrepreneurs and civil servants, the Agro-Industries and Post-Harvest Management Service (AGSI) manages and facilitates the Information Network on Post-harvest Operations.

What are the most promising options available to FAO?

- In a targeted and strategic manner, FAO can employ distance education methods for direct outreach with selected target audiences.
- On a larger scale, FAO can continue to produce and disseminate quality knowledge products to be used as distance learning resources by people around the world.
- To achieve a multiplier effect in its efforts to reach broad target audiences, FAO can work in partnership with other international organizations, and with national or regional institutions of education and learning in developing countries.

Introduction

The mission of the Food and Agriculture Organization of the United Nations (FAO) is to help build a food-secure world for present and future generations. The achievement of this mission depends upon the capacities and actions of a globally distributed set of individuals, organisations and communities. While a range of factors determines such capacities and actions, education and learning are widely recognised as important components of development. Since its inception, FAO has played an important role in producing, managing and disseminating knowledge for processes of education and learning of importance to food security around the world. Table 1 identifies the corporate strategies and objectives to which the FAO has committed over the next fifteen years.

Table 1: FAO corporate strategies and strategic objectives

Corporate Strategies	Strategic Objectives
Contributing to the eradication of food insecurity and rural poverty	<ul style="list-style-type: none"> • Sustainable rural livelihoods and more equitable access to resources • Access of vulnerable and disadvantaged groups to sufficient, safe and nutritionally adequate food • Preparedness for, and effective and sustainable response to, food and agriculture emergencies
Promoting, developing and reinforcing policy and regulatory frameworks for food, agriculture, fisheries and forestry	<ul style="list-style-type: none"> • International instruments concerning food, agriculture, fisheries and forestry, and the production, safe use and fair exchange of agricultural, fishery and forestry goods • National policies, legal instruments and supporting mechanisms that respond to domestic requirements and are consistent with the international policy and regulatory framework
Creating sustainable increases in the supply and availability of food and other products from the crop, livestock, fisheries and forestry sectors	<ul style="list-style-type: none"> • Policy options and institutional measures to improve efficiency and adaptability in production, processing and marketing systems, and meet the changing needs of producers and consumers • Adoption of appropriate technology to sustainably intensify production systems and to ensure sufficient supplies of food and agricultural, fisheries and forestry goods and services
Supporting the conservation, improvement and sustainable use of natural resources for food and agriculture	<ul style="list-style-type: none"> • Integrated management of land, water, fisheries, forest and genetic resources • Conservation, rehabilitation and development of environments at the greatest risk
Improving decision-making through the provision of information and assessments and fostering of knowledge management for food and agriculture	<ul style="list-style-type: none"> • An integrated information resource base, with current, relevant and reliable statistics, information and knowledge made accessible to all FAO clients • Regular assessments, analyses and outlook studies for food and agriculture • A central place for food security on the international agenda

Over the past decade, there has been a resurgence of international interest in distance learning and distance education as potentially useful strategies for addressing human development issues. This resurgence has been rooted in part in the evolution of new information and communications technologies, and in part in the improvement of pedagogical and administrative models for facilitating learning at a distance. In the context of this growing international interest, FAO is exploring how distance education and distance learning could be usefully applied to the achievement of its mission.

This paper introduces the concepts of distance education and distance learning, and reviews the general parameters of past distance education experiences in developing countries. The paper then proposes a set of basic suggestions for effective distance education, and concludes with suggestions regarding the integration of distance education and distance learning strategies into the FAO programme of work. The basic purpose of the paper is to provide stakeholders, both within FAO and in its Member States, with a foundation upon which to develop distance education and distance learning strategies to meet the challenges of food security and rural development.

Distance education and distance learning

In most ways, learning at a distance is similar to learning face-to-face. Therefore, the general concepts of learning and instruction are as important to distance education as they are to other forms of education. A simple and practical definition of learning is the development of new knowledge, skills or attitudes. Instruction can be understood as the intentional facilitation of learning toward identified goals.

The term distance education refers to intentional processes of teaching and learning in which physical space separates instructors and learners. Learners and instructors communicate through various media, and an educational organisation exists to design, facilitate and evaluate the educational process. Distance learning is a broader concept. The term distance learning refers to the use of educational materials or media by learners who are not necessarily linked with an educational organisation or engaged in communication with an instructor. Distance learning can be an outcome of distance education processes, but it can also take place without an active relationship between those doing the learning and an educational agency. Boxes 1 and 2 illustrate the distinction between these two concepts by introducing significant FAO initiatives that fit within each one.

Box 1: FAO and distance education - Collaboration with REDCAPA

REDCAPA is the "Red de Instituciones Vinculadas a la Capacitación en Economía y Políticas Agrícolas en América Latina y el Caribe" (Network of Institutions Dedicated to Teaching Agricultural and Rural Development Policies for Latin America and the Caribbean). REDCAPA was founded in 1993 through the initiative of the FAO Policy Assistance Division in collaboration with organisations from eleven Latin American and Caribbean countries, and financial support from the government of Italy. The REDCAPA network currently involves sixty-six universities and other organisations concerned with teaching agricultural economics and policies and sustainable rural development (www.redcapa.org.br). Most members are from the region, although several European and American universities take part.

REDCAPA's main objectives are to contribute to the improvement of teaching and research in agricultural economics, rural development and the environment, support institution building and improve national and international cooperation among its members. Among the various activities implemented to accomplish these objectives, the network coordinates regular distance education courses on pertinent topics.

In addition to its role in the establishment of REDCAPA, FAO has assisted the network financially, and provided training materials and direct support for a number of distance education courses offered through the network. These courses (and the years in which they have been offered) include:

- Análisis Socio-económico y de Género (2001)
- Políticas y Acciones Públicas de Seguridad Alimentaria (2000)
- Macroeconomía y Políticas Agrícolas (1999)
- Políticas de Seguridad Alimentaria (1999)
- Mercados Agrícolas Internacionales (1998)
- Automatización y Servicios de Información Agrícolas (1997)
- Curso Intensivo de Economía Ecológica (1996)

Information about each of these courses can be found in the REDCAPA website at www.redcapa.org.br/Cursos/cursos.htm. The Women in Development Service (SDWW) was involved in the first course on this list, while the Agricultural Policy Support Service (TCAS) contributed to the two courses offered in 1999.

REDCAPA distance education courses are offered through an Internet-based virtual campus. Courses last between fourteen and sixteen weeks, and while learners can do their work at the location and time most convenient to them during the term, they write an in-person final examination. In addition to accessing course materials through the virtual campus, REDCAPA learners communicate with one another and with their instructors through both public discussion sites, and private messages. Synchronous "chats" are possible, although not required elements of the courses. REDCAPA courses are given for credit at the undergraduate or graduate level, and are taught and tutored by qualified instructors from one or more member institutions.

Box 2: FAO and distance learning - The Information Network on Post-Harvest Operations

The Agro-Industries and Post-Harvest Management Service (AGSI) manages and facilitates the Information Network on Post-harvest Operations (INPhO). In addition to FAO, a number of international organisations, including the German GTZ, support INPhO. INPhO provides three basic services (www.fao.org/inpho):

- information and data bases concerned with a range of post-harvest issues (e.g. storage, transportation, processing, marketing and food safety)
- interactive communications services connecting users with one another and with resource people
- links to other electronic sources of post-harvest information

INPhO's long-term objective is to contribute to food security and rural development by enhancing post-production systems around the world. The more immediate objectives are:

- disseminate selected information in a user-friendly way
- facilitate communication between post-harvest actors
- support decision makers

INPhO's targeted beneficiaries are small farmers, small enterprises and consumers. These beneficiaries are impacted through intermediary target groups including governmental institutions, research centres, universities, schools, non-governmental organisations, extension workers and entrepreneurs.

INPhO was developed in 1997, became operational in 1998, and has grown into an important network for information dissemination and learning. The INPhO website is a busy one, with over 8,000 hits / day (and 800 user sessions per day) recorded in October 2000. In addition to the website, INPhO disseminates CD-Rom versions of its information services (some

8,000 copies have been produced to date). The interactive communications services involve a question and answer service on post-harvest issues, as well as a structure for moderated and non-moderated e-mail conferences.

INP h O provides a functional FAO example of a computer-mediated learning network that combines the interactive potential of the Internet with the multi-media dissemination potential of the Internet and CD-ROM technology. It is not "distance education," since there is no explicit definition of learning goals, nor any commitment on the part of INP h O to interact directly with learners to facilitate or evaluate their progress toward meeting learning goals. It does promote "distance learning" however, since both the information and communication services are designed to enable people at a distance from FAO to access information in order to build their knowledge and skill concerning post-harvest issues. Educational institutions have utilised INP h O as a learning resource.

Two broad conceptualisations of the teaching and learning process guide much distance education practice. First, some practitioners see the effective transfer of information as the key to distance education. These educators have developed techniques for the design and delivery of learning packages, and stress the importance of learner independence in the distance education process. Second, other practitioners see the social construction of knowledge as the key to distance education. These educators have developed techniques for facilitating communication at a distance between learners and instructors, and between learners and other learners. They stress the importance of interaction as the means through which learners can most effectively relate new information to existing patterns of knowledge and experience.

In conventional educational settings, communication between instructors and learners is taken for granted. Given the physical separation of instructors and learners in distance education, communication is mediated by technologies. The basic media currently used in distance education are print, audio and videotapes, radio and television, teleconferencing, computer-based instruction, and computer conferencing. Each medium has distinct strengths and weaknesses in different contexts. The selection of media for a distance education initiative would need to reflect the nature of the instructional objectives and learning activities, the characteristics of the learners and their environment, and the economic and organisational feasibility of different options.

Distance education and the developing countries

The use of distance education strategies in developing countries is by no means novel. A recent overview by Hilary Perraton (2000) organises distance education experiences in developing countries into four categories: non-formal and adult education, primary and secondary schooling, teacher training, and higher education. He provides numerous examples to indicate that countries in Africa, Asia and Latin America have had significant experience with distance education since at least the 1960s. Box 3 introduces four examples of distance education programmes related to agriculture that have reached substantial numbers of learners in developing countries, and have been sustained for at least a decade.

Box 3: Distance education for agriculture and rural development in developing countries

Since the 1960s, "INADES-formation" (Institut Africain pour le développement économique et social) has provided non-formal distance education opportunities to tens of thousands of farmers, extension agents and other agents of rural development in Africa (Dodds, 1999; Perraton, 2000). Courses for farmers include those on agricultural production and animal husbandry, as well as those on basic mathematics, management, marketing, credit and co-operatives. For extension agents and other development workers, additional courses are available on communication, extension methods, management and the rural economy. The delivery strategy for "INADES-formation" courses is a combination of print-based correspondence packages with local study groups and tutorial support.

Since 1973, the G.B. Pant University of Agriculture and Technology has offered a Correspondence Course Programme to farmers and rural youth in Uttar Pradesh, India (M.P. Singh, 1992, 1999). About 500 learners each year select four courses from a list of seventeen options (fourteen concern the cultivation of particular crops, and one each concern dairy production, insecticide use and fertiliser use). The Programme's delivery strategy is print-based correspondence. Each course comprises five or six lessons, written in elementary Hindi. Course scheduling is timed to coincide with the seasonal production of the various crops under study. The University has twenty District Extension Centres which students can contact for personalised guidance and study support. Non-credit certificates are issued to all students passing end of term examinations in each course.

Since 1986, the Women's Secondary Education Programme of Allama Iqbal Open University has been providing rural women in Pakistan with courses to meet secondary school equivalency and to increase income generating opportunities through building practical skills (Batool and Bakker, 1997). The range of practical courses includes Selling of Home Made Products, Garment Making, Poultry Farming, Food and Nutrition, First Aid, Home and Farm Operations, and General Home Economics. The content of all courses has been designed to reflect the priorities, needs, and prior experiences of adult rural women. All courses are delivered through print-based correspondence methods, and learners receive tutorial support through local study centres. As of 1996, the Programme enrolled about 4,000 learners per semester.

Since 1988, Wye College of the University of London has delivered an External Programme that uses distance education to provide learners around the world with opportunities for graduate study in agricultural development (Bryson and Hakimian, 1992, Pearce and Sharrock, 2000). Currently, over 1,000 learners from over 100 countries are enrolled in a range of programmes rooted in agricultural and environmental economics, management and planning. The Programme initially used traditional correspondence methods, and has recently added an Internet-based learning system for delivery of learning materials, tutorial support, assignment submission and feedback, and opportunities for learner-learner interaction.

The fact that distance education is an established form of educational delivery in many developing countries does not mean that distance education is necessarily an effective tool in development efforts. Understanding the past impact and future potential of distance education for challenges related to food security and rural development is not an easy task. A range of general claims has been made about the strengths and limitations of distance education in developing countries, and many of these claims contradict one another. Table 2 indicates that there is no consensus about distance education in developing countries.

Table 2: The case for and against distance education in developing countries

	Proponents claim...	Critics claim...
Can distance education be quality education in developing countries?	<ul style="list-style-type: none"> distance education offers learners greater flexibility with regard to the time, place and pace of learning distance education is less disruptive to work and family obligations conventional education in developing countries is plagued with many problems and cannot fulfil the needs of educational systems 	<ul style="list-style-type: none"> isolation from teachers, libraries and other learners makes distance education inherently difficult distractions of work and family make learning difficult distance education in developing countries is hindered by logistical problems, financial constraints, and human resource gaps
Can distance education improve educational access and equity in developing countries?	<ul style="list-style-type: none"> distance education can reach groups, such as rural learners and women, not adequately served by conventional education the lower costs associated with distance education make possible a wider and more democratic reach for educational systems 	<ul style="list-style-type: none"> distance education favours the same relatively privileged groups as conventional education distance education does not necessarily cost less; when distance education does extend access, it does so by providing education which is poorly resourced and widely regarded as second-rate
What is the role of the North with regard to distance education in developing countries?	<ul style="list-style-type: none"> distance education experiences from the North can provide valuable guidance to developing countries foreign aid is frequently available for distance education projects international organisations and consultants can provide useful advice to distance education projects 	<ul style="list-style-type: none"> distance education is a form of cultural imperialism, since the models of distance education come from the North donors fund pilot projects that often cannot be sustained over the longer-term the use of overseas consultants leads to problems with the language and culture of courses
What is the potential of information and communications technologies?	<ul style="list-style-type: none"> ICTs offer distance education clear advantages with regard to the quality of course material delivery, interaction with learners, and student support telecentres are seen as an appropriate strategy to overcome many barriers to ICT use in distance education 	<ul style="list-style-type: none"> infrastructural, logistical and affordability constraints (including the "digital divide") make ICTs an unrealistic distance education tool for most learners in many developing countries ICTs worsen educational inequities, by passing on more costs to the learners

United Nations organisations have taken on four significant roles with regard to distance learning in developing countries. First, a number of UN agencies have issued policy statements encouraging the use of distance learning for purposes of development. UNESCO (1997) promotes the appropriate global use of distance education at all levels of educational systems. The World Bank (1999) promotes "innovative delivery" as one of its global priorities for the educational sector. WHO (1998) promotes the use of "telematics," including distance health education, in support of its Health-for-All agenda.

Second, UNESCO and the World Bank use Internet sites to disseminate information about distance education to people around the world. UNESCO hosts an "E-Learning portal" (www.unesco.org/education/e_learning/index.html) whose objective is "to increase and facilitate access to education resources in different regions of the world in different languages while stimulating professional cooperation to improve the quality of education and learning." The portal provides links to institutions and associations active in the use of distance education for primary, secondary and higher education, as well as for purposes of lifelong learning. The World Bank's Global Distance EducationNet site focuses on the design and implementation of national, regional or institutional systems of distance education, and is structured into four key topics: teaching and learning, technology, management, and policy and programs (www.globaldistancelearning.com).

Third, several UN agencies deliver global distance learning initiatives. UNICEF facilitates networking and professional development among teachers through "Teachers Talking about Learning" (<http://www.unicef.org/teachers>) and facilitates networking and information sharing among teachers, youth and other interested people through "Voices of Youth" (www.unicef.org/voy). Through the Global Development Learning Network (GDLN), the World Bank provides high-tech infrastructure for distance education in developing countries (www.worldbank.org/distancelearning/gdln/index.htm). Through World Links for Development (www.worldbank.org/worldlinks/english/index.html), the World Bank uses the Internet to link students and teachers from secondary schools in the South with their counterparts in the North.

Fourth, UN agencies have provided financial or technical assistance to a multitude of national and regional distance education projects in developing countries. Often, such projects also involve one or more bilateral assistance agencies. There are also a number of international organisations dedicated to promoting or supporting distance education. Box 4 identifies a number of the main organisations, and provides their URL addresses.

Box 4: International distance education organisations

- International Council for Open and Distance Education (www.icde.org)
- Commonwealth of Learning (www.col.org)
- Consortium international francophone de formation à distance (ciffad.francophonie.org/Nous-offrons/sites.html)
- L'Observatoire des ressources francophones pour la formation à distance (<http://206.167.111.20/orffad/index.html>)
- International Centre for Distance Learning (<http://www-icdl.open.ac.uk>)
- International Extension College (<http://www.iec.ac.uk>)
- Consorcio-red de educación a distancia - The Inter-American Distance Education Consortium (<http://is124.ce.psu.edu/CREAD>)
- African Distance Learning Association (<http://www.physics.ncat.edu/~Emichael/adla>)
- Le Réseau Africain de Formation a Distance (<http://www.lid.jussieu.fr/resafad>)
- Asian Association of Open Universities (<http://www.ouhk.edu.hk/~AAOUNet>)
- Centre for Research in Distance and Adult Learning (<http://www.ouhk.edu.hk/cridal>)

Clearly, there is a significant amount of distance education activity taking place in developing countries. What can we conclude about distance education as a means to promote rural development and food security? With regard its track record, distance education has had both successes and failures in developing countries. The lengthy list of problems and disappointments identified by critics of distance education would lead to a very pessimistic conclusion, except when one recognises that conventional alternatives in developing countries have also very often been unable to provide adequate levels of educational access, equity and quality. With regard to its future potential, distance education seems to be a promising response to certain educational challenges, but it should not be seen as a panacea. Many institutions in developing countries are steadily increasing their capacity to engage in distance education, and appropriate technological innovations are being used in many contexts.

Some suggestions for effective distance education

The appropriateness and effectiveness of distance education depends very much upon why, how, and how well it is designed and delivered. Distance education initiatives should be undertaken for appropriate reasons, and in a manner that is suitable to the stakeholders of the initiative. Organisations undertaking distance education initiatives should have the capacity to do so, and should invest or obtain the necessary resources in order to do it well.

The claims listed in Table 2 are rooted in specific experiences of distance education in contexts pertinent to food security and rural development in developing countries. From these past experiences, it is possible to distil important lessons that have been learned. Paying attention to those lessons is a first step in creating some basic suggestions for an approach to distance education that would enable FAO to act appropriately in this challenging field. This paper proposes five key basic suggestions to guide FAO approaches to distance education.

Distance education for the right reasons

Meacham (1993: 227) suggests that distance education initiatives have been undertaken in developing countries for political or commercial purposes: "Apart from the obvious purpose of teaching more people more effectively, distance education systems have been used to: impress donors, placate ministers, justify consultancies, and even sell technologies." In the context of the contemporary development of new information and communications technologies, there is a danger that distance education initiatives can be driven by the availability of innovative technologies (and the desire to be seen to be using them), rather than by the educational needs of individuals and communities. Fillip (2000: 42) argues:

Starting with the real needs of communities cannot be stressed enough. There is a strong tendency in the donor community to start with the technology rather than with the needs of the community and to ask the wrong questions. The important question is not "Can the Internet be used to provide distance education to communities?" The important question is "What is the most appropriate, cost-effective and sustainable way to address the educational needs of communities?"

For FAO, distance education initiatives would need to be undertaken in support of its strategic objectives. Distance education should be conceptualised by FAO as a means to an end, and not an end in and of itself.

Distance education that is sensitive to context

There is no universally appropriate model for designing and delivering distance education initiatives. The potential target audiences for distance education initiatives in which FAO might become involved is very broad indeed, ranging from agricultural producers and marginalised rural populations, to relatively privileged urban professionals such as policy makers and information managers. It is essential that the form of distance education selected be appropriate to the particular context in which it is being applied. Box 5 provides an example that illustrates the importance of sensitivity to context.

Box 5: Adult basic education at a distance in South Africa

In a study of South Africa, Geidt (1996) identifies very significant practical challenges that mean adult basic education at a distance cannot function on an open university model adopted from the United Kingdom. Communities most in need of adult basic education provision in South Africa tend to have the following characteristics: slow and unreliable postal systems, few and unreliable telephones, lack of access to television, lack of electrification, poor road conditions, few and inadequate libraries, and inadequate school or other public facilities for studying.

In addition to these infrastructural challenges, Geidt (1996: 16-19) identifies several social and economic characteristics of disadvantaged communities in South Africa that make an open university style of distance education unlikely to succeed. First, many people live in crowded housing conditions, and as a result learners do not have easy access to appropriate conditions in which to study. Second, written texts are not commonly used in day-to-day life, and as a result learners are not accustomed to critically interpreting textual messages and constructing written responses. Third, previous school experiences of most learners are of rote learning, and as a result learners must make a difficult transition to become independent and critical learners. Fourth, there is tremendous cultural and linguistic diversity, and as a result many learners may have difficulty with the language and culture of standardised instructional materials.

Geidt (1996: 14-15) concludes that distance education can only be effective when its delivery system and curriculum are appropriately matched to the social and political context of the learners. In the case of adult basic education in South Africa, Geidt (1996: 19-20) suggests that a substantial component of face-to-face support is essential, and identifies several means through which such support could be provided (e.g. community-based tutors, community learning centres, regional study centres).

One model of distance education cannot be appropriate to all potential target groups of interest to FAO. Distance education models and practices should be adapted to the social, cultural, economic and political circumstances of learners and their environment. As with other forms of educational activity, it is important to integrate gender analysis into the planning and implementation of distance education initiatives. For FAO, the need for sensitivity to context means accepting the fact that it will need to use more than one model of distance education (i.e. more than one set of instructional methods, more than one delivery strategy, more than one learner support strategy, etc.). An FAO approach to distance education should be flexible enough to accommodate a wide range of learners and purposes, but directive enough to provide guidance to the preparation of educational initiatives for those different learners and purposes.

Distance education that uses existing infrastructure, and has sustainable costs

One disturbing tendency in the history of distance education in developing countries is the large number of initiatives that demonstrate significant learning outcomes and programmatic success during pilot projects, but are not sustained or replicated on a larger scale after the pilot project is complete and donor funding withdrawn. While the lack of sustainability and scalability may reflect a number of variables, it is frequently related to the use of inappropriate delivery strategies. The failure of many educational television projects in developing countries in the 1970s and 1980s is an example of what Meacham (1993: 227) calls "technological overkill" in distance education. This phenomenon refers to the use of expensive and complex delivery strategies when inexpensive and simple alternatives could be pedagogically effective. Fillip (2000: 25) argues that when it comes to choosing technologies for distance education "...it is essential to take a careful look at the level of infrastructure that the target populations have access to, and the extent to which the same target populations can afford to make use of that infrastructure for educational purposes." When donors have tried to provide a communications infrastructure for distance education programmes, such programmes have very rarely been sustainable. Given challenges with the costs and servicing of equipment, educational projects should use technologies that have already been established through entertainment and commercial sectors. With regard to sustainable technology choices, Dodds' (1972: 46) conclusion from nearly thirty years ago is still pertinent: "The installation of new and glamorous media at great expense may be less effective than the careful integration of existing resources."

The question of technologies and delivery strategy is related to the more general question of the cost-effectiveness of distance education. Distance education is sometimes presented as universally more cost-effective than conventional education. Past experiences in both developed and developing countries indicate that this is not necessarily the case. Distance education has the potential to be, but is not necessarily, more cost-effective than conventional education. There are a range of factors that contribute to very substantial cost differences between different distance education initiatives: numbers of learners enrolled, mixture of communications technologies, media and learning materials, degree of learner support and interaction, salaries and employment conditions of distance education staff, production standards, and institutional working practices and overhead costs. A general conclusion that can be drawn is that distance education tends to be more economically attractive at higher levels of education. This is because the costs of distance education are relatively similar at all levels, whereas the costs per student of conventional education are higher at higher levels.

The FAO should not see distance education as an inexpensive alternative to other forms of educational programming or field interventions. In some cases, distance education may provide a very cost-effective means of reaching target groups of learners, but in other cases conventional, face-to-face contact may be more cost-effective. The assumption that distance education is a low-cost alternative can undermine the quality and impact of distance education programmes by systematically depriving them of necessary resources.

The FAO should not endeavour to establish independent systems of communication for the delivery of distance education initiatives. Rather, in each specific case, delivery strategies for distance education initiatives should be developed according to the communications infrastructure that is currently available, reliable and affordable to the learners who will take part in the initiative. This does not mean that Internet-based delivery strategies must be universally rejected in favour of simpler alternatives such as print and radio. It does mean that the pedagogical strengths of any potential delivery strategy should be carefully assessed according to the practical constraints facing each group of learners. Some FAO target audiences will have ready access to computers and the Internet, while others will not even have electrical power or reliable telephone service. Finally, this does not mean that FAO could not help develop new resources, facilities or innovative approaches for distance learning. It does mean that FAO should make use of appropriate media and technology, and use existing national institutions

Distance education that engages stakeholders

Many of the problems with previous distance education programmes in developing countries related to a lack of participation, on the part of those individuals and communities who were supposedly the beneficiaries, in the design and delivery of the programmes. Guy (1991: 169) argues that an appropriate conception of distance education would require a focus on programs in which participants have control over not only what is taught, but how and where distance education takes place. It is dependent on the participation of people, who through participatory planning and action, develop a deeper understanding of their lives and the structures which surround them in time and space.

The need for participatory and empowering educational practice has been identified by FAO in its work in the fields of agricultural education, extension and communication for development. FAO (1999) has published a guide entitled *Participatory Curriculum Development in Agricultural Education*. The guide (FAO, 1999: 70-73) categorises general groups of stakeholders in curriculum development processes as the "insiders" (leaders with training organisations, teachers, students, producers of educational materials), and the "outsiders" (policy-makers, politicians, educational administrators, educational experts, employers, professional bodies, clients, funders, parents, past students and interest groups). Early in the analysis of a potential educational intervention, it is important to identify the stakeholders, understand those stakeholders' diverse interests, and develop a process through which such stakeholders will be represented in the planning, implementation and evaluation of the intervention. The process of identifying, understanding and involving stakeholders helps to ensure that distance education initiatives are undertaken for the right reasons, are sensitive to the contexts of learners and their environments, and are sustainable.

Distance education based on sound pedagogical and administrative models

FAO can learn from the substantial number and range of distance education experiences accumulated over the past several decades in developing countries. Such lessons can help FAO craft pedagogical and administrative models that avoid replicating some of the fundamental mistakes that have been made in the past. While ideal models and practices have yet to be developed, practitioners and scholars in both North and South have done much to critically examine distance education and make its application more appropriate to diverse circumstances around the world. Over the past decade, the practice of distance education in both developed and developing countries has evolved substantially. The FAO approach to distance education should be aware of the pedagogical innovations of the past decade. A model of best practices is required that provides guidance to the Organization while offering flexibility for implementation with a broad range of learners having diverse characteristics and goals. Box 6 identifies the basic outline of such a model of best practices.

Box 6: Best practices in distance education

Establish a purpose and engage the stakeholders

- the purpose of the distance education initiative is grounded in a significant issue or problem
- stakeholders to the initiative are identified, understood, and effectively represented in processes of analysis, planning, implementation and evaluation
- programmatic objectives are defined, and the place of distance education strategies in the accomplishment of these objectives is identified

Analyse instructional possibilities and define learning objectives

- the characteristics of the target populations of learners are understood, and the main features of their learning environments are known
- the substantive content (subject matter) of the initiative is well-understood, and desired learning outcomes (changes in knowledge, skills and attitudes) are stated
- concrete learning objectives are defined

Identify resource requirements and marketing strategies

- fixed and variable costs are assessed and budgeted
- adequate resources are mobilised to support the initiative
- marketing, recruitment and selection strategies are devised to ensure that an adequate number of appropriate learners take part in the initiative

Design instructional content and process

- a course development team is assembled to ensure adequate expertise in the subject matter, the instructional design

process, and the media of communication to be used

- substantive content is organised into short and focused modules
- the teaching and learning process is designed to involve a range of instructional methods (e.g. presentation, discussion, tutorials, drill and practice, simulations, group problem solving)

Design delivery strategies and materials

- potential delivery strategies are identified (print, audio and videotapes, radio and television, teleconferencing, computer-based instruction and computer conferencing)
- the mix of media for the initiative is determined based upon nature of the learners, learning objectives and instructional methods, in the context of the economic and logistical feasibility of different options
- educational materials and processes should be designed for each delivery strategy

Administer teaching and learning at a distance

- educational materials are produced or purchased, stored and distributed
- systems to enable communication between instructors and learners, and between learners and other learners, are developed and maintained
- instructors are given orientation, training and support in their role as distance educators
- learners are oriented to distance learning, and integrated in student support and record-keeping systems

Facilitate learning

- learners enrol and learning materials are delivered to them
- learners work toward learning objectives through independent study, and through interaction with instructors and other learners

Assess learning

- learner outcomes (satisfaction, learning, behaviour change, impact) are evaluated
- in formally accredited initiatives, learning is assessed through much the same processes as in conventional education (e.g. examinations, essays, projects, evaluations of practical experience, etc.)

Evaluate the initiative

- pre-testing and formative evaluation of educational materials and processes is undertaken regularly
- summative evaluation processes lead to improved planning and implementation activities, and inform the ongoing analysis of the purpose of the initiative itself

Looking toward the future

The Food and Agriculture Organization will be an international catalyst for the learning of a diverse and globally distributed set of individuals, organisations and communities whose capacities and actions influence the achievement of food security and rural development. In collaboration with a wide range of partners, and in conjunction with other methods of intervention, the Organization will employ innovative and appropriate distance learning and distance education methods to accomplish its strategic objectives.

Operational Suggestions

FAO is already involved with conventional education, training and distance learning. Boxes 7 through 9 illustrate existing FAO activities, while boxes 10 through 13 provide four examples of FAO initiatives being developed that have an explicit distance learning focus. At a broader level, the *FAO Medium Term Plan* for the period 2002 - 2007 contains numerous references to activities for which distance learning strategies would be pertinent. Approximately 80 "entities" from the MTP explicitly identify one or more major outputs involving education or training. A nearly equivalent number mention the promotion or facilitation of networks in which participants' learning would be an expected outcome.

Box 7: Education and Food for All - A strategic approach to education for agriculture and rural development

The Education Group of the FAO Extension, Education and Communication Service (SDRE) recognises the integral connections between lack of basic education and food insecurity around the world (Gasperini, 2000). Despite unprecedented global levels of food production in the world today, more than 800 million people do not have access to enough food to meet their basic requirements. Poverty is a major cause of food insecurity and sustainable progress in poverty eradication is critical to improve access to food. More than 1.3 billion people live in poverty and nearly three fourths of them live in rural areas. Despite unprecedented global investment in education and training, about 880 million people in the world remain illiterate. Illiteracy and chronic undernourishment are related, and out of school children are more at risk of being undernourished than those attending school. In 1998, the less developed regions as a whole accounted for 97 per cent of the 113 million children out of school.

The SDRE Education Group has identified three priority areas for systemic action in making progress in the closely related Food for All / Education for All movements:

1. Targeting multiple stakeholders in a systemic approach to education for rural development and food security (in contrast to traditionally exclusive support to vocational and higher education for production agriculture).
2. Contributing to placing education at the core of the global and national agendas for development and food security (including enhancing access to education in rural areas, improving the quality of education, and strengthening institutional capacity for planning and managing education for rural development and food security).
3. Fostering interdisciplinarity and new partnerships (including the facilitation of global, regional and national movements in the domains of Education for All and Food for All).

Within this overall strategy of promoting educational access, equity and quality, the SDRE Education Group sees distance education as a potentially useful tool, among others (Gasperini, 2000). In this regard, the innovative application of distance education methods to primary schooling is a particularly important goal. For example, through its Technical Cooperation Programme, FAO is helping to strengthen nutrition education in primary and secondary schools throughout Chile. In this project, the Internet is being used to distribute curricular innovations and learning resources to teachers and schools, who then apply such innovations and resources in their classrooms.

Box 8: Rural radio in Africa - Distance learning grounded in local participation

Radio has been a key medium of communication for informal distance learning in the areas of agriculture and rural development. Farm radio forums have provided agricultural producers with innovative learning opportunities in countries as diverse as Canada, India and Ghana. "Radiophonic" schools in Latin America have provided children and adults in many countries with access to structured basic education programmes. Radio broadcasts have been used to support primary and secondary school instruction in many developing countries, through providing direct teaching support in areas such as language and mathematics. Issue-specific broadcasting campaigns have used radio to inform rural audiences around the world about topics related to areas such as nutrition, health, and agriculture. Radio broadcasting offers certain obvious advantages for developing countries. The technology for receiving radio broadcasts is relatively simple, affordable and accessible, and the oral nature of communication places no demands on the literacy skills of participants.

Since 1966, FAO has been very active in the development and evolution of rural radio in many African countries. Led by the Extension, Education and Communication Service (SDRE), FAO has developed methodologies and strategies for integrating radio in development processes, supported the creation and management of rural radio stations, and facilitated the training of a wide range of professionals working to apply rural radio to development challenges across Africa. In addition, FAO has sponsored research into rural radio, and provided a forum for reflection and dialogue on the contribution of radio to rural development.

As an integral part of its work in the field of communication for development, SDRE has developed four methodological basic suggestions for rural radio. First, rural radio operations should integrate the efforts of a wide range of stakeholder groups. Second, rural radio programming should be interdisciplinary in nature. Third, rural radio should be interactive, involving local communities and rural people themselves in an ongoing dialogue. Fourth, to ensure the durability of rural radio, appropriate

administrative, legal and institutional frameworks should be developed. Following these methodologies, rural radio can become an important forum both for participatory social dialogue at a local level, and as a means to provide rural people with informal opportunities to learn about issues at a global level.

The most recent innovation being developed with FAO assistance is the integration of rural radio with new information and communications technologies. Internet connectivity in rural Africa is sparse, but there is interesting potential to use rural radio networks as the intermediary between rural communities and ICTs.

On its own, rural radio is not distance education. Radio broadcasts have often been used as components of distance education (and conventional education) courses using print materials or local study groups as the primary delivery strategies. However, rural radio is a powerful medium for learning that is both "at a distance" and very much grounded in the local context and participation of the learners themselves.

Box 9: Information dissemination through the FAO Internet site

Knowledge resources disseminated through various specialised information systems managed by WAICENT (the World Agricultural Information Centre) constitute one means through which FAO is an actor in distance learning processes. A number of thematic information systems are currently functioning online. Five examples are those concerning [Gender and Food Security](#), [Desertification](#), [Sustainable Development](#), [Agricultural Trade](#), and [Biological Diversity](#).

Each thematic website provides substantive information concerning its focus. For example, the Gender and Food Security website contains short articles, written for non-specialists, about the connections between gender and agriculture, environment, forestry, nutrition, fisheries, rural economics, population, and education, extension and communication. In addition to such immediately accessible information, each website contains links to a range of multi-media resources. Such resources include publications (some available online), photographs, videos, maps and statistics. Simply clicking on a related piece of text from the website accesses some of these resources, while others may be located through sub-menus or search functions built into the website.

Each thematic website directs the user to further substantive information through a series of Internet links and directories. Through such links and directories, users can connect to related websites, pertinent organisations, and to electronic and other networks of individuals and organisations active in the thematic area. As a subset of such connections, contact information is provided for the FAO Divisions, Services and staff members working in closely related areas. Each website also provides information about related FAO programmes and projects.

FAO thematic information systems are means for disseminating information and providing users with pathways to additional sources of information. In themselves, they do not constitute distance education, because there is no commitment to working with learners to identify and fulfil particular learning needs. However, such information systems can be very useful resources for distance learning experiences. Independent learners, not engaged with any educational institution, can access the FAO website and fulfil their personal and professional objectives for information access and learning. Conventional and distance educational institutions can use the FAO website as a learning resource for students and teachers. FAO thematic information systems offer a globally distributed learning resource to a range of distance learners.

Box 10: The WAICENT Outreach Programme Resource Kit initiative - Distance learning modules for information management

Through the World Agricultural Information Centre (WAICENT), FAO has generated substantial expertise and credibility related to agricultural information management. For example, FAO has developed a range of useful tools and technologies such as the Key Indicators Mapping System (KIMS). However, there is a pressing need to effectively disseminate such resources so that stakeholders at national, regional and local levels can adapt and integrate them to meet their information management needs and priorities.

WAICENT has launched an Outreach Programme to improve the dissemination of WAICENT's resources, and to enhance capacity for agricultural information management among Member Countries. A major and one-of-a-kind initiative thus far at FAO

is the Outreach Programme's Information Management Resource Kit. The overall objective of the Resource Kit is to share tools and methodologies with Member Nations to build their capacity to manage agricultural information efficiently and effectively using digital information and communication technologies. The following learning modules are currently envisioned:

- The role of information in institutional development
- Management of spatial and statistical data
- Management of documents and images
- Data modelling and decision support
- Community building: electronic networking and communication
- Evaluation of the impact of information

Each module will be developed for delivery at a distance. The main delivery strategy will be computer-assisted instruction through CD-ROM. Some information may also be delivered through either the Internet or print-based materials, and computer conferencing may link learners of each module with one another and with a technical support system. Target learners for the modules will depend to a large extent on the subject matter covered in each module. However, they will vary from information management professionals and policy makers to agricultural research scientists.

The information management Resource Kit initiative will be an example of an FAO distance learning project in non-formal, continuing education. Learners will receive no formal accreditation for completing their modules, and tutorial support from FAO will be minimal. However, FAO will be structuring a process for learners to work through a course of study focused on explicit learning goals.

Box 11: Agricultural Policy Support Service (TCAS)

As part of its overall mandate to promote food security and sustainable agricultural development, FAO provides advice to member countries on food and agriculture policies. The Agricultural Policy Support Service (TCAS) works to assist the building and strengthening of national capabilities for policy formulation. TCAS undertakes this work in three main ways:

- demand-driven and country-specific capacity-building through in-service training and technical assistance activities aimed at government and civil society organisations
- cooperation with national and regional training institutions, and joint organisation of regional and national policy workshops
- development of training materials for TCAS activities as well as for use by other training institutions

The substantive content of TCAS training and technical assistance efforts falls into several categories (for [details](#)):

- macro-economic and sectoral policies for food security
- specific policies for agricultural development
- policies for agricultural trade
- institutions for agricultural and rural development
- promoting sound investment in agriculture

In support of its global training and technical assistance agenda, TCAS has produced a large quantity of training materials (for [details](#)). These materials include training manuals, methodological guidelines, proceedings from workshops, case studies, and textbooks.

Although most of its training activities are conducted in face-to-face settings, TCAS has both past experiences and future intentions to use distance education methods to enhance the outreach of its activities. The Policy Assistance Division was integral in founding the REDCAPA network in Latin America (see Box 1), and the Service has provided content and instructional support for several REDCAPA distance education courses. Over the next five years, TCAS has committed itself to reviewing all of its training materials, and translating selected materials into distance learning modules for Internet-based delivery.

TCAS is currently working with the Universidad Politécnica de Madrid, and Latin American academic, training, and non-governmental institutions on a four-year regional training programme. The substantive focus of the programme is on agricultural and rural development policies. Over twenty distance education courses would be produced through this programme, whose target audiences would include civil servants and NGO staff members involved in agricultural and rural development, and recent university graduates looking to become specialists in the field. Intensive face-to-face training and applied fieldwork would

complement the core distance education courses in the programme.

TCAS has also developed a proposal to offer Internet-based training in the field of multilateral trade negotiations on agriculture. This distance education project would support existing sub-regional workshops, whose goal is to ensure that developing countries are fully informed and able to participate effectively in order to ensure that the international regulatory framework contributes to their agricultural development.

Box 12: Distance Education for Sustainable Artisanal Fisheries

In many countries, artisanal fisheries provide a potentially important and sustainable alternative to industrial fishing operations. However, the potential social and economic advantages of artisanal fisheries are frequently constrained by challenges in the development and management of ports, landing sites and processing facilities, and by the absence of coherent resource management strategies.

In order to support the sustainable development of the artisanal fisheries sector in developing countries, the FAO Fishery Industries Division (FID) is developing a series of distance education courses aimed at building local technical knowledge and management skills. Target learners for the courses will be fisheries officers, leaders of fisheries groups, national technical experts, fisheries extension agents, local government representatives, and others interested in supporting sustainable and profitable artisanal fisheries. Through participating in distance education courses, such learners will become more effective advisers and advocates for artisanal fisheries user groups.

Three courses are currently envisioned, the first two of which are currently being field tested in West Africa:

- Participatory Research and Appraisal (PRA) Port Profiles
- Infrastructure Maintenance and Improvement for Small-Scale Fishing Ports and Landing Sites
- Landing Site Management by User Groups

The main delivery strategy will be print-based correspondence. Some course components may also be delivered through either face-to-face workshops or videotapes. Local tutorial support will be provided, and learners will be encouraged to work in small teams with regular meetings. Each course will be designed to engage learners in collaborative field projects having immediate real-world application to the local challenges facing artisanal fishing communities. For example, the first course will require participants to use participatory methods to describe and analyse a landing site, including its physical characteristics, stakeholders, infrastructure, management systems and key problems and opportunities.

The artisanal fisheries initiative will deliver continuing education at a distance to practising professionals, resource people and leaders. FAO will develop the substantive content of the courses, while a range of national and international partner institutions will provide local administrative, tutorial and co-ordination services. Evaluation and accreditation of learners will require the participation of recognised international training institutions, as well as operational funding at least in part, by international donors.

Box 13: VERCON and FarmNet - Information and communication networks for rural development

Most FAO distance learning initiatives are grounded in FAO's substantive expertise and knowledge in areas related to food security and rural development. However, FAO has also built valuable expertise in the process of managing information and facilitating communication for development. The Communication for Development Group of the Extension, Education and Communication Service, and the WAICENT Outreach Programme have collaborated to develop two initiatives that offer structures and processes to facilitate the exchange of information among learners in developing countries.

VERCON stands for Virtual Extension, Research and Communication Network. The VERCON concept applies the multi-media capabilities of the Internet to facilitate linkages among networks of people working with agricultural research and extension institutions. Technically, the VERCON prototype is a variant of the numerous Internet-based networking, learning and information management platforms available from commercial vendors. Substantively, VERCON is distinctive in its focus on engaging the stakeholders of agricultural research, extension and education systems in a participatory process to develop a technical platform suited to the needs of their network.

A FarmNet is a network of rural people using communication tools and processes to facilitate the generating, gathering and exchanging of knowledge and information among themselves and with the intermediary organisations that work with them.

Operated by farmers and their organisations, a FarmNet links farmers to each other and to the resources and services that they need to improve their livelihoods through agricultural productivity, profitability and food security. Both conventional media and new ICTs are used in FarmNet's key activities: participatory information audits and needs assessments, rural networking, capacity building, and participatory monitoring and evaluation.

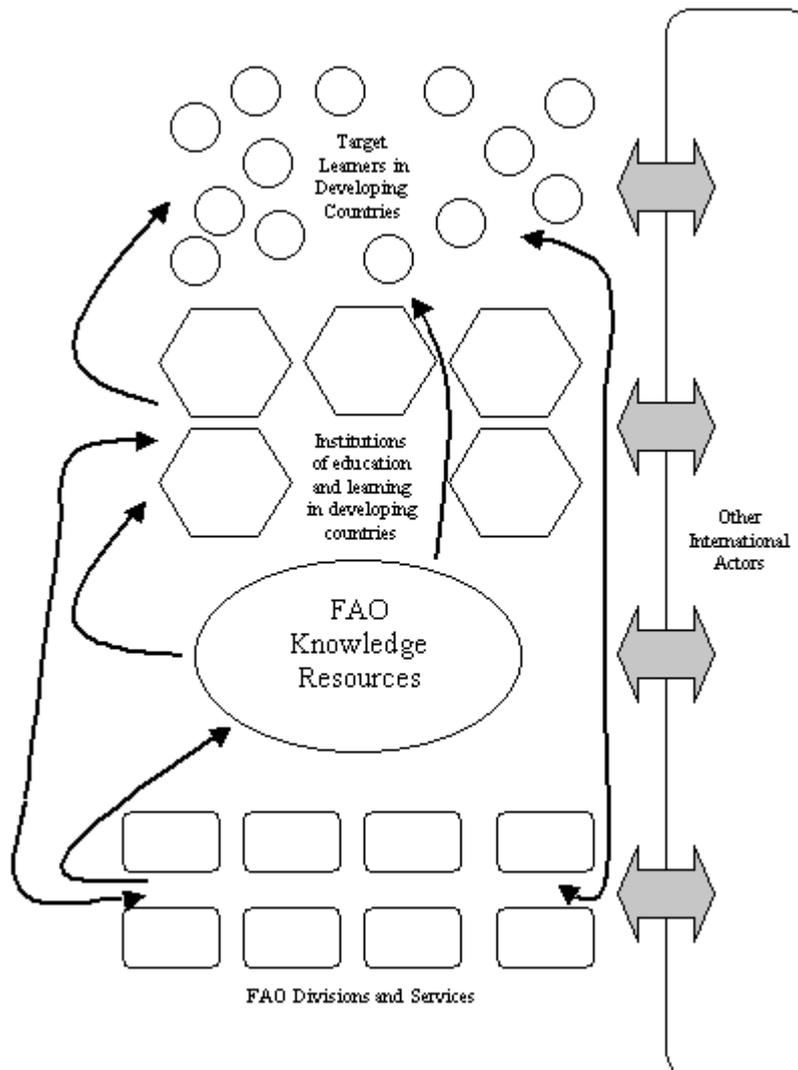
Both VERCON and FarmNet are currently in the pilot-testing phase. VERCON is being piloted in Egypt in order to improve linkages between research and extension in four centres as the basis for creating a national electronic agricultural knowledge and information network. FarmNet is being piloted in Uganda to facilitate the flow of information through the national, district and local levels of the Uganda National Farmers Association.

There are interesting synergies between the VERCON and FarmNet initiatives. Linking a VERCON to a FarmNet could provide farmers with better access to technical expertise, while helping researchers and extension workers understand the local, site specific problems that farmers face and the practices that they apply in their farming systems.

VERCON and FarmNet are not distance education projects, since they do not explicitly define learning goals, nor commit FAO to interact directly with learners to facilitate or evaluate their progress toward meeting learning goals. Both initiatives do, however, create structures in which distance learning is meant to take place, and in which distance education courses could be delivered (if determined to be useful by their users). Their strength is in their capacity to facilitate the exchange of information and views between learners, and therefore to encourage the social construction and evaluation of knowledge.

Given its past involvement and future plans for training, information dissemination and the promotion of learning networks, FAO could enhance its overall effectiveness by more fully integrating a coherent distance education and distance learning strategy into its programme of work. The FAO Distance Learning Logic Map below presents the conceptual foundation for this integration.

FAO Distance Learning Logic Map



The small circles at the top of the logic map represent the diverse and widely scattered target learners of relevance to FAO. Although heterogeneous, such target learners can be grouped into general categories (recognising that within each category, differences of gender, culture and other socio-economic variables may be very important):

- the rural poor, the food insecure, and those who lead / work with them
- producers and those who lead / work with them
- those (besides producers) who work in the agriculture and food industries
- policy makers, planners and civil servants
- researchers, educators and information professionals
- business leaders, investors and donors
- those who lead and administer rural institutions
- those who negotiate and administer international agreements, standards and instruments
- leaders in the international community

The rectangles at the bottom of the logic map represent FAO Divisions and Services. Such Divisions and Services have only a modest capacity to directly reach target learners in developing countries. Distances and costs of such reach are great in comparison to available resources. Target populations are large and diverse, and many such target populations have educational, cultural, linguistic, technology-access and economic profiles that make direct interaction with a United Nations Organization challenging. Although limited, such direct interaction does take place, through such processes as conferences, training events, field projects, missions, correspondence and e-mail conferences.

In addition to direct interaction, the logic map identifies three indirect pathways through which FAO Divisions and Services can have an impact on target learners in developing countries. The second pathway is through the direct access of target learners to knowledge resources produced or gathered by the FAO. As indicated on the logic map, all FAO Divisions and Services

contribute to the accumulation of knowledge resources, in such forms as books, journals, newsletters, Internet-based documents, training manuals, videocassettes and CD-ROMs. Target learners may directly access such knowledge resources. The degree to which such direct access takes place varies, depending on the extent to which the target audiences are aware of the existence of such FAO knowledge resources, and the extent to which those resources are available with suitable content, style, format and language, at a cost that is both affordable and appealing in comparison to alternatives.

The third pathway for FAO Divisions and Services to reach target learners in developing countries is through institutions of education and learning in such countries. A variety of such institutions exist, including those of formal educational systems (e.g. Ministries of Education, schools, technical institutes, universities) and those outside such formal systems whose goals nevertheless include the learning of target populations (e.g. Ministries of Agriculture, non-governmental organisations, extension agencies, public health agencies). FAO Divisions and Services have two basic options for building the capacity of such institutions of education and learning. First, FAO knowledge resources could be accessed by institutions. Second, FAO Divisions and Services could intervene through training, networking or other strategies involving direct interaction with institutions. Through either option, contributing to the capacity of institutions of education and learning in developing countries offers FAO Divisions and Services a potential multiplier effect in their efforts to reach target learners. Although few institutions in developing countries are as large or endowed with resources as is the FAO, the large number and proximity of such institutions to target populations makes them far more likely to be able to interact directly with most target learners.

The fourth pathway for FAO Divisions and Services to reach target learners in developing countries is through collaboration with other international actors. Such actors exist in parallel to each of the levels on the right of the logic map, and the potential for collaboration is large and complex. There are United Nations and other international organisations developing knowledge resources and working with the institutions and target populations of interest to FAO. There are other organisations gathering bodies of knowledge resources pertinent to the challenges of food security and rural development. There are individuals, communities and organisations around the world with direct links to counterparts across developing countries. Other international actors represent a fourth general pathway for FAO Divisions and Services to reach target learners in developing countries. For example, an international non-governmental organisation could access FAO knowledge resources, and use them in its work with communities in developing countries.

Suggestions

The FAO role in education and learning processes was recognised in the (1996) *Rome Declaration on World Food Security*. In the Rome Declaration, leaders of the international community made the following core commitment:

We pledge our political will and our common and national commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015.

The Rome Declaration positioned education and learning as central to the accomplishment of food security around the world:

We recognize the need to adopt policies conducive to investment in human resource development, research and infrastructure for achieving food security.... We acknowledge the fundamental role of farmers, fishers, foresters, indigenous people and their communities, and all other people involved in the food sector, and of their organizations, supported by effective research and extension, in attaining food security. Our sustainable development policies will promote full participation and empowerment of people, especially women, an equitable distribution of income, access to health care and education, and opportunities for youth.

FAO involvement with distance learning strategies could help accomplish its mission through increasing the Organization's impact on the capacities and actions of its target learners. The following suggestions, derived from the process of preparing this paper, are provided in order to enhance this impact.

Basic framework

1. Any distance education or distance learning initiatives undertaken by FAO would need to be firmly grounded in the Organization's strategic objectives.
2. Rather than seek definitive models of distance education and distance learning, FAO should flexibly adapt its models and practices to the characteristics of learners and their environments.
3. FAO should not assume that distance education and distance learning are low-cost activities. Such activities should be undertaken only when they provide cost-effective alternatives to other activities.

4. FAO should deliver its distance education and distance learning initiatives through systems of communication that are available, reliable and affordable to the target learners of such initiatives.
5. FAO should engage a full range of programme stakeholders in the planning, implementation and evaluation of distance education and distance learning initiatives.
6. FAO should recognise and follow best practices in the pedagogy and administration of distance education and distance learning.

Pathways to learners: Direct outreach

7. In the short-term, it would not seem appropriate for FAO to undertake the widespread, direct provision of distance education opportunities to learners in developing countries. Such provision would require substantial human resource development, organisational renewal and capacity building, and investment in order to be done properly. FAO could, however, explore how to become a valuable partner in the distance education offerings of other institutions (see recommendations 13, 14 and 15), and how to make its knowledge resources more accessible for distance learners (see recommendations 9, 10 and 11).
8. FAO could explore and enhance means through which its Divisions and Services can communicate more effectively with target learners. Computer conferencing systems, where target learners have affordable and reliable access to the Internet, provide a potential means for FAO to be directly engaged in distance learning networks.

Pathways to learners: Working through the production of knowledge resources

9. Information systems, such as those currently operated through WAICENT, offer an opportunity for FAO to make available considerable knowledge resources of use to distance learning processes. FAO could continue to build on its expertise in the management of such systems.
10. FAO knowledge resources should be produced with delivery formats and styles that can be accessed and appreciated by institutions of education and learning, and by target learners themselves.
11. Divisions and Services could be encouraged to review their top-quality, recent training and resource materials in order to determine which materials might be best suited for translation into distance learning resources.

Pathways to learners: Working through institutions of education and learning

12. FAO should not consider itself to be a primary builder of distance learning capacity for institutions of education and learning in developing countries. There is little doubt that institutions of education and learning in developing countries could benefit from enhancing their capacity to use distance education and distance learning strategies to reach their target learners. However, FAO involvement with such capacity building should reflect its distinctive mandate with regard to agricultural and rural development. FAO may have some comparative advantage in helping to integrate substantive content of pertinence to food security and rural development into the curricula of institutions of distance education and distance learning. It may also be well placed to help conventional institutions of education for agriculture and rural development network with open universities and schools.
13. FAO could explore how its knowledge resources could be more effectively utilised through open and dual-mode universities and schools in developing countries.

Pathways to learners: Working through other international actors

14. FAO could explore how its knowledge resources could be mobilised through international distance education and distance learning organisations.
15. FAO could explore how its knowledge resources could be mobilised through the distance education and distance learning efforts of other United Nations agencies and non-governmental organisations.

Distance Education Working Group

16. To promote a more efficient use of resources, and to encourage collaboration among its decentralised units involved in distance education, an informal FAO Working Group on distance education could be established. Members of the group could initially be invited from those Divisions and Services with the most significant past experiences in distance learning, and those with the most ambitious plans for future involvement. Terms of reference for the Working Group could be kept informal at first, but its basic reason for being would be to provide a forum for networking, information exchange, and the development of collaborative initiatives in the field of distance learning.
17. The Working Group could consider what organisational changes and investments would be most helpful to the decentralised implementation of distance learning initiatives by FAO Divisions and Services.

Conclusions

This paper has suggested a framework for FAO approaches to distance education and distance learning. It has clarified key concepts, and reviewed the general parameters of distance learning in developing countries. It has proposed five suggestions for effective distance education. Finally, it has presented a logic map that depicts the pathways through which distance education and distance learning could assist the Organisation to reach its target learners, and provided specific suggestions for strengthening these pathways.

Through distance education, distance learning and more conventional strategies, FAO could function as an effective builder of capacity among individuals and institutions whose actions have a global impact on the challenges of food security and rural development.

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