

Life Long Learning for Farmers (L3Farmers): Open, distance and technology-mediated learning for extension for smallholders

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“The gift of material goods makes people dependent. The gift of knowledge makes them free”.
(E.F. Schumacher)

INTRODUCTION

The following paper summarises the authors’ report to the Commonwealth of Learning (COL) which was based on meetings at the 2nd Pan Commonwealth Forum; a COL-initiated virtual conference (L3Farmers) on open, distance and technology-mediated learning strategies for agricultural extension and possible collaboration between the National Agricultural Research and Extension Systems (NARES), Consultative Group on International Research (CGIAR) and COL which involved over 90 agricultural researchers and developers across the globe; and desk studies. It discusses the transformation of extension for smallholders in low income countries, suggests how open learning and technology can help to achieve this, and outlines a plan of action in accord with COL’s *Three year Plan, 2003-2006* and its aim of ‘addressing the massive need to improve knowledge and skills of small-scale farmers to enable them to participate in the increasingly complex food/market chains, and improve their livelihood’ (www.col.org/programmes/reporting/3year_plan.htm).

THE AGRICULTURAL CRISIS IN LOW INCOME COUNTRIES

Most of the 5 billion people in low income countries depend on the land for their livelihoods. Seventy-five percent of the world's poor live in rural South Asia and Sub-Saharan Africa and half of these live in regions where land is degraded and essential infrastructure lacking.

These smallholders lack access to research, advisory and information services and cannot afford modern technology or improved crop and livestock varieties. They

have to cope with failed land reforms, environmental damage caused by large-scale commercial mono-cropping, drought and desertification, and new pests and diseases encroaching into previously uncultivated areas.

While obesity becomes a problem in the developed world, 730 million people in Sub-Saharan Africa, South Asia and elsewhere receive insufficient calories to sustain an active working life and 340 million lack the calorific intake to avoid stunted growth and serious health risks.

These populations are not only increasing but migrating into the cities, which means fewer people directly engaged in agriculture and an enormous strain on the food production-distribution chain.

Developed nations only offer \$US50-60 billion in aid to these countries and by limiting their access to world markets, unfair marketing structures, protectionism and farm subsidies, they distort the prices of their produce and block many of their agricultural exports – their means of overcoming poverty.

Climatic, environmental, social and economic changes are leading to male labour force migration and farm management falling more into the hands of women. Lacking capital, labour, time and the educational levels of the men, these women are forced to make changes in farming methods that lead to decreased production, less nutritious crops and pauperization (FAO, n/d).

HIV/AIDS is devastating farming communities, particularly in Sub-Saharan Africa. This provides not only a health problem but a food security and economic problem. Food production has dropped by 40% in AIDS-affected farming communities and in the worst-hit African countries, 26% of the agricultural labour force will die off over the next 20 years.

Information and communications technology can deliver information to improve farming practices, market participation and natural resources management. Biotechnology can improve the commercial and traditional crops of the smallholders. Material science can help with soil and water management and reducing environmental degradation. However, smallholder access to these services, which were formerly seen as for the public good, are increasingly affected by the withdrawal of public sector support, growth of privatization, rise of new trade regimes, and limitations such as the imposition of intellectual property rights.

The consequences of these developments are disastrous for national and local economies and international security.

TRANSFORMING EXTENSION

Equitable and universal agricultural extension are essential to improve the lives and livelihoods of hundreds of millions, stem the deterioration in natural resources, help poorer nations stave off bankruptcy, and deal with the exponential growth in world population, rural exodus and changes in food preferences, climate, technology and economics.

Unfortunately, knowledge and information for the rural poor receive low priority and have little impact. Conventional agricultural extension has essentially been concerned with transferring findings from the laboratory or experimental farm to the smallholder. This has largely failed to improve performance and output because of its slow, piecemeal, spasmodic and deficit approach, providers lacking the networks, time, resources and capacity to provide follow-up and smallholders failing to understand or appreciate the relevance of the findings and proposed changes.

Newer approaches such as Farmers First, Farm Field Schools and Farmer Participatory Research avoid treating smallholders as empty vessels to be filled with information from external sources. Farmers First extension workers build local networks of farmers, help them identify their needs, and assist them in developing and applying the new ideas and practices. In Farm Field Schools, extension personnel involve farmers in experiential learning that follows the natural cycle or seasonal process of the topics under review and addresses the 'whys' as well as the 'hows'. In Farmer Participatory Research, researchers and extension workers involve smallholders in the research design, data collection, analysis and decision-making, farmer-based experimentation and dissemination of successful practices. Local radio or email may be used to strengthen communications and local facilitators may be identified and trained within the communities.

These newer approaches suggest need for a total transformation of extension, one in which research and extension are not discrete actions, distinct from the views and interests of the farmers, but an integrated, empirical, social and political development process. They need to involve 'learning by doing' and reconcile local knowledge and indigenous practices with scientifically informed understandings of sustainable production. They need to develop self-help capacities so that when external support is withdrawn, there are still local leaders and facilitators within the communities (FAO, 2003). They also, as call for increased collaboration between public and private research and development agencies, media and information organizations, community groups, NGOs, etc. (Neuchâtel Group, 1999). They also have to acknowledge that smallholding practices are not shaped by farmers alone but by households and communities. So family- and community-based approaches to address crucial gender, generational and social issues. Environmentalist David Suzuki (5) met a Japanese farmer, Kawaguchi, who was advocating radical

agricultural reform and who observed that changing the farming practices of his family and neighbours was not easy; they said: 'We are shy to try something different'. But he then observed: 'We only need about three out of ten people to overcome this inertia. After that, when five out of ten are doing it, the rest will be shy about being left out'.

Extension may also need to take account of traditional calendars and weather forecasting methods, the cultural as well as the culinary attributes of plants and animals, and issues where there is indirect or evasive communication.

Agricultural labourers constitute a major part of the farming sector in South Asia and Sub-Saharan Africa and have an enormous effect on productivity, quality control, post-harvesting management and marketing. So extension also needs to address the needs of this group.

Extension needs to deal with the four reactions of individuals and groups when challenged to change — denial, resistance, exploration and commitment (Scott and Jaffe, 1990). At the *denial* stage, the farmers' orientation is to the traditional values and practices and they may reject any idea of change. They need to be made aware of the need for change and the benefits to be gained. At the *resistance* stage, their overriding concern will be self-protection, so the training must be concerned with empowerment as well as knowledge and skills building. At the *exploration* stage, the farmers need to be helped to experiment and recognize that things do not always work out right. At the *commitment* stage, their orientation needs to be to the future so that they are both capable of change and envisioning further change.

OPEN LEARNING AND INFORMATION AND COMMUNICATIONS TECHNOLOGY

The rise of e-learning and virtual providers and consortia present an exciting new paradigm for extension. However, so far, the rhetoric has been long and the reality short. International and national agencies have begun to distribute material via the Web or CD-ROMs to help NARES build capacity but this work rarely receives high priority and few of the providers have the funds, infrastructure, knowledge or capacity to tackle this task on the scale needed. Most of initiatives have been short-term pilots or donor-supported and many have not been institutionalised or sustainable once funding has ceased. Most have taken the form of information or communication systems rather than open and distance learning systems.

There is enormous need to create an open or virtual learning extension network with a repository of materials and advisory services provided from multiple sources that allow extension workers and smallholders to access information and training on

demand. This is a major long-term task, calling for multiple inputs and major funding. It also needs careful thought to the educational methodologies, content and technology.

EDUCATIONAL METHODOLOGIES

Far more is needed than lecture notes, research findings, PowerPoint presentations or information handouts on the Web. The programmes need to be supportive of both individual and group learning, simple to understand and work through, practically-oriented, and immediately beneficial. They need to help smallholders learn how to learn and how to apply the new learning productively and profitably. They need to build confidence as well as competence, give smallholders a voice in the change process by allowing ideas to be negotiated and experiences to be shared and recognising that farmers pay most heed to those they respect and see as working in the same conditions.

They must be appropriate to the technology, budgets and time available to the providers and users. They need to be faster, cheaper and better than any of the alternatives. And they need to be constantly evaluated.

Programmes are also needed to train the providers, many more of whom are needed to achieve the necessary multiplier effect. The leaders and managers of extension programmes need to be helped to understand the new modes of technology-mediated extension and the extension workers/facilitators need to be trained in the technology, information and knowledge management, community mobilisation and non-formal adult and community learning.

CONTENT

Content needs to be current, authoritative and appropriate to the circumstances, expectations, culture, language, prior learning, literacy and comprehension levels of the smallholders.

Programmes that are only provided in English or use jargon or sophisticated or technical language will mean little to smallholders with limited reading skills, whose languages are other than English, and whose values and knowledge have traditionally been acquired orally or the example of elders. Even extension workers may find difficulty in such learning environments.

Adopting or adapting material is cheaper and quicker than 're-inventing the wheel'. So it is important to determine and evaluate what is already available, a task that will

become easier as more and more providers contribute to the repository of learning materials.

TECHNOLOGY

Technology is not only needed to deliver the training materials but enable participants to access Q&A systems, FAQs and help desks, interact via e-mail and Web conferencing and join in 'learning communities'.

Computers and Internet and satellite technology probably offer the best long-term promise for virtual extension. However, many rural and remote communities still lack the connectivity, electricity, funding and skills to exploit these technologies.

It should never be assumed that the answers inevitably lie in the latest technology. Nor that any particular technology works best in all contexts. It is often better to use a combination of technologies. It is also important to avoid wasting time, money and effort on non-essential technological services.

Print still plays a role in extension. It is compact, well suited to self-paced learning and often the most cost-effective medium. However, it requires literacy in the users and may be difficult to deliver into remote areas.

The value of radio plus 'phone ins' for extension have been demonstrated by Farm Forums in Africa and India. Programmes can be produced collaboratively with extension agencies, use a 'listen-discuss-act' methodology, involve smallholders in identifying issues, collecting data, analysing problems, and finding solutions, and use study groups and printed materials for follow up. The costs need not be excessive. Radio Apac (<http://radioapac.tripod.com/liraext.html>) a Commonwealth of Learning Media Empowerment (COLME) initiative (www.col.org/colme/about%20COLME.htm) broadcasts in northern Uganda from a radio station that fits into a suitcase, hooks up to commercial FM networks and satellite feeds for off-air programming, covers a 50 km radius, runs on a car battery or solar power and costs US\$3,500, a fraction of normal radio broadcasting costs. Similar systems are used in other parts of Africa, Canada, Jamaica, and South America.

Other examples of radio used for extension include: Simli (Friendship) Radio in northern Ghana (www.odi.org.uk/agren/papers/agrenpaper_127.pdf); Arid Lands Information Network-East (ALIN-EA) (www.alin.or.ke/activities/initiative.htm), a network of community development workers and extension staff involved in dryland development which is partnered with the WorldSpace Foundation and uses digital satellite broadcasting technology to reach remote areas; the Kothmale Community

Radio Internet project (www.kothmale.net) in Sri Lanka, which uses community radio as an interface between communities and the Internet; Tamil Nadu Agricultural University (<http://www.tnau.ac.in/aabout.html>) extension programmes using broadcasts, cassettes, print/correspondence and one-day contact programmes; and the Education Development Centre (EDC) Multichannel Learning Centres in Papua New Guinea providing interactive radio instruction that combines broadcasts in pidgin, drama, and audience participation by local clans who then hold meetings on managing and conserving their rainforest under threat from loggers and land developers (<http://main.edc.org/mosaic/Mosaic2/building.asp>).

Audiocassettes are cheap and easy to use. Interaction can be achieved by exchanging tapes, which may be cumbersome but enables the dissemination of localized information in regions where literacy is a issue.

Telephony, especially cellular telephony, has a great potential in extension. SMS and WAP enabled cell phones with cameras can be very effective in sharing ideas and experiences between smallholders and specialists.

Audioconferencing can help communities at different locations build relationships and understanding. Where personal telephones are unavailable, participants will need to attend centres and at set times, which may prove inconvenient. Audioconferencing via the computer/Internet has the added advantages of allowing participants to simultaneously share visuals, access Websites and exchange text messages from any point in the network. This technology may be particularly well suited to smallholders with limited literacy.

Videoconferencing offers visual dimensions. However, the capital and connection costs are high (but reducing with Internet/computer-based systems) and the time and place of the conferences may again be inconvenient.

Video and digital cameras can be invaluable in extension. Digital photographs and video clips can be exchanged on-line or by mail, enabling smallholders and content specialists to identify and resolve problems. COLME uses digital video technology to produce agricultural development and agribusiness programmes for farmers in the Caribbean and Africa. Collaborating with local agencies and working in response to community needs, COLME trains extension officers to shoot and edit videos that they can then use in their fieldwork and/or broadcast nationally. This medium allows for gathering of local content, provides visuals that tend to be of greater value to farmers, and allows the extension workers to serve many communities despite reductions in extension services (ictupdate.cta.int/index.php/article/articleview/242/1/47/).

Internet delivery is fast and, given the right infrastructure, inexpensive. However, connectivity is a problem in the poorer rural and remote regions. Wireless telecommunications may help regions with low teledensity to access multimedia content, large-volume data and global knowledge sources. Where teledensity is low and devices and delivery are high relative to local incomes, the digital divide may also be bridged by using telecentres (multi-purpose community-based ICT centres), cyber-café, points of presence (POPs), and vehicles equipped with peripatetic ICT facilities. The value of this approach is evidenced in such community access systems as Gyandoot (www.gyandoot.net) in Madhya Pradesh that connects rural cybercafés to the Internet; the information kiosk network for disadvantaged communities in rural India established by MANAGE (www.manage.gov.in); the RUNetwork in Jamaica, a project of the Caribbean Agricultural Information Service (CAIS) that extends access to information through 'Information Cafés' equipped with Internet connection, CD-ROM information and printers, scanners, digital cameras and audio recorders to facilitate the collection of local information; and the IDRC/Acacia telecentres in Africa (www.bellanet.org/partners/aisi).

CD-ROMs and DVDs make it easy to store text, audio, graphics and video in documents to support learning and are cheap to mail. However, smallholders must have access to computers and printers, be computer literate and able to afford the print-outs.

In low income countries, mobile computing using sturdy laptops and notebooks offer significant promise. FAO in Thailand is training extension workers in the use of hand-held computers containing a decision support programme for maize farmers. The programme guides them on how much fertilizer to use, the optimum planting dates, and the expected yield. The experience gained from this project will be used to develop similar computerised farm decision support programmes for other crops.

Computer conferencing and email are relatively easy to master, fairly quickly initiated and asynchronous. However, smallholders must be able to access computers/Internet connection and afford the on-line costs.

The Web has a great potential in extension. Distance educators are now experimenting with 'learning objects' - self-contained pieces of Web-based information or instruction in the form of text, images, animations, or movie clips that allow learners to build their own schema for learning and resources to be reusable in various contexts. Examples of Web applications in extension include: Rice Knowledge Bank (<http://www.knowledgebank.irri.org>), World Agroforestry Center (www.worldagroforestrycentre.org), Virtual Academy of the Semi-Arid Tropics (www.vusat.org), COL and FAO-CGIAR Knowledge Finder (<http://colfinder.org/food>), and Access to Global Online Research in Agriculture (AGORA) (www.aginetwork.org/en/)

Providers exploiting a mix of technologies include the Inter-American Institute for Cooperation Caribbean (IICA) Agro-Entrepreneurs Distance Learning Centre (www.agroinfo.org/caribbean/iicacarc/jamaica/adltnew.htm) which offers Internet and CD-ROM agricultural courses in Jamaica, Barbados, Dominica, St. Lucia and Trinidad and Tobago in collaboration with McGill University, University of Nova Scotia, Caribbean Export and The Seven.com, Barbados, and Fintrac Agribusiness Support in Honduras that uses GPS, portable weather stations, digital cameras, laptops, portable printers and cell phones to enable extension officers to immediately access vital agricultural information and make recommendations to farmers on the spot. This approach allows extension workers to spend ninety-five percent of their time in the field rather than the office and has been shown to be effective in providing information and contributing to development along the farm-to-market chain. In the future, all Fintrac laptops will have fully replicated versions of the master database so that field staff do not need to be online, something which is critical when they are based in remote areas with only sporadic Internet access (<http://www.fintrac.com/default.htm>).

ACTIONS NEEDED

There is clearly enormous need for extension for smallholder communities in low income nations. They are starved of research, advisory and information services and face a long-term crisis because of their inability to participate equitably in the marketplace.

Public funding for extension is reducing and NARES cannot initiate reforms fast enough to cope with the rapid advances in technology and science and changes needed for sustainable agricultural development.

The rhetoric about the potential of open learning and technology for extension has only recently been reflected in the reality. International agencies, governments and the private sector need to make greater, longer-term and more systemic investment in this new mode of extension.

Few of the research or extension agencies have the resources or capacity to undertake interventions on the scale needed or know how to plan, cost, design, deliver and evaluate non-formal community-based open learning.

There have been few independent evaluations of the quality and impact of technology-delivered agricultural information or extension services. Most of the services established by research and extension agencies have been top-down, provider-driven information or communications networks rather than open learning

systems offering dialogue and collaborative learning. Some ICT pilot programmes have been successful and replicable but many have not been sustainable or institutionalized. A few high quality sites and programmes have been developed, providing proof of concept, but some of the content and communications are more suited to the needs and understandings of the scientists and technicians than the smallholders.

Agricultural development agencies are establishing their networks and programmes in isolation or through small local partnerships. There is need to build on these initiatives and create a larger coalition, network and knowledge management system to apply open learning systemically to extension.

To achieve the necessary multiplier effect, the initial focus needs to be as much on training and providing resources for the managers and providers/facilitators of extension services as training the smallholders.

The programmes need to be interactive, collaborative and multi-modal/multi-media. They need to build bridges between indigenous culture and knowledge and scientific ways of knowing and doing things and they need to take account of local infrastructure, capacity and culture.

In the light of these findings, it has been recommended that:

1. COL considers these findings, consults with the key stakeholders, undertakes further research and development and applies for additional funding from major donors in order to take the L3Farmers Project forward in 2004-2006.
2. COL commissions four 12-month action research projects from providers with a strong track record in agricultural development who are able and willing to provide match funding (cash or in kind) for these projects:
 - Action Research Project 1. needs to assess the take-up, educational and practical impact and benefits, costs and cost benefits of two or three existing open-distance and technology-mediated applications in agricultural development (this work may be undertaken by one agency or collaboratively by a number of providers).
 - Action Research Project 2. needs to identify or develop a prototype for, a knowledge management system appropriate to the needs of the L3Farmers Project as defined above and field test, evaluate, cost and determine the management, technical and human resource requirements of this system.
 - Action Research Project 3. needs to develop a prototype online toolkit that can be used in conjunction with COL's existing training resources, toolkits and

guides to train extension workers and other local facilitators in face-to-face and open, distance and technology-mediated strategies for extension work.

- Action Research Project 4. needs to customise existing agricultural research findings or training material into a form that would enable farmers to learn online, and evaluate and cost the development and delivery of this material.

These twelve-month programmes need to be under way in 2004 and completed in 2005. Given the short timeline and budget restrictions, they will inevitably be limited in scope. Nevertheless, they will yield invaluable information on the strategic alliances, modus operandi, logistics, costs, human and technical resource capacity, intellectual property and copyright considerations, etc., needed to inform future planning, budgeting and action by the L3Farmers Project.

3. Members of COL's Sub-programme 3.5 on Poverty Reduction, in partnership with partners in the three regions to be served by the L3Farmers Project, should investigate and report on existing and planned for extension training and technology or infrastructure that could be used by the L3Farmers Project.
4. COL should form a formal alliance with CGIAR and other organizations to initiate further research and development and seek additional donor funding for the L3Farmers Project.
5. COL and CGIAR should organize a roundtable at PCF3 in 2004 at which regional representatives with expertise in open learning and technology and agricultural development in low income countries can finalize the plans, guidelines and protocols for the L3Farmers Project.
6. COL and CGIAR should collaborate in developing and evaluating the L3Farmers Project partnerships, learning network and knowledge management system and learning outcomes (2004-2006).

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Appendix II – Requirements and selection criteria for the four L3Farmers Project action research projects

ACTION RESEARCH PROJECT 1

Aim

To assess the take-up, educational and practical impact and benefits, costs and cost benefits of two or three existing ODL/ICT based extension programmes in low income countries.

Timeline

To be under way in 2004 and completed in 2005

Grant

C\$10,000 (in moieties).

Background

The L3Farmers Project is designed to be an *open learning network* for extension for smallholders in low income countries involving NARES, universities, colleges, NGOs, and other public and private organizations interesting in applying ODL and ICT for this purpose in Sub-Saharan Africa, South Asia and Small Island States.

This open learning network will be *technological* (e.g., using the Internet), *organizational* (e.g., linking international, national and local providers), and *social* (e.g., aggregating smallholders in 'community information spaces' – telecentres, POPs, farmers' cooperatives, vehicles equipped with ICT and other public, private or community facilities – that can be facilitated by extension workers and others).

The programmes and services will focus on:

- Active, problem-based and collaborative learning.
- Learning how to learn.
- Motivating, building confidence and competence, and supporting the immediate application of learning in local situations.
- Adaptability to different contexts and cultures.

The learning resources will be:

- Used in group or community settings.
- Far more than face-to-face workshops or handouts converted into electronic documents.
- Appropriate to the culture, language, literacy, comprehension levels, skills, resources, contexts and learning needs of the smallholders.
- Delivered appropriately in terms of tools, processes and learning methodologies.
- Faster, cheaper and better than the alternatives.
- Capable of speeding up change and bringing immediate benefit to the learners.
- Evaluated in these terms.

The project requires extension agencies to be creators, managers and facilitators of networks rather than transferers of technical knowledge. However, few NARES or other agricultural research and development agencies are well versed in developing and delivering programmes and services through ODL and ICT and so professional development for all of these providers will be a key element of this project.

The other key element will be the L3Farmers Project knowledge management system, a network of Web-based portals accessible from anywhere in the network, co-ordinated by COL and CGIAR. This will offer the following items specially developed by L3Farmers Project partners or provided by other agencies linked into the network:

Learning resources and learning objects on topics and in forms appropriate for direct access and use by the smallholders, together with suggested strategies for using these resources.

- Training resources and learning objects that can be used or adapted by local facilitators for extension activities, together with suggested strategies for their use.
- Training resources to help farmer organization leaders hold local meetings and make presentations designed for some form of action by the farming communities.
- Training resources in developing, delivering and evaluating ODL and ICT for content providers and local facilitators.
- Links to other Web-based agricultural development resources that may be of use to extension workers with descriptions of their aims, target audiences, language (level), knowledge/skills pre-requisites, technical requirements, etc. (to avoid copyright problems, these meta-data will not be attached to these resources or the resources stored on the L3Farmers Website).

- Extension workers' and other facilitators' reviews and farmers' testimonials of educational and training resources, articles and other material that has been found to be useful in extension.
- Local insights, experiences and exemplary practices of ODL for extension submitted by field workers.
- A listserv for discussion and planning groups.
- An open area for emailed advice and feedback.
- A members' area for confidential email exchanges.
- FAQs.

This system will be conceived as a virtual trainer for agricultural development. It will be practical and outcomes-oriented. It will be an enabler, not a competitor or duplicator of what other agencies are doing. It will complement, supplement, strengthen and provide wider access for work being undertaken by others. It will be a resource developed in collaboration with the agricultural development community.

No single agency will be required to bear the full cost of providing the resources. The wider the partnership, the wider the range of resources provided through this system. The resources will be digitally stored and available via the Web or CD-Rom by the participating nodes and used or adapted for all forms of learning and interaction between the providers and the farmers (e.g., interactive radio, community meetings and community newspapers). They will include audio and visual as well as text-based material to motivate and circumvent language difficulties. They will be designed to accord with the ISO Code for Language Standards.

The system will be so conceived as to provide cultural and comprehension bridges between the providers and the smallholders and it will encourage and support bottom up and lateral as well as hub-periphery communication. It will be continually evaluated for the quality of its programmes, materials and services, number of hits, user satisfaction levels and impact on work practices.

ACTION RESEARCH PROJECT 1 REQUIREMENTS

Action Research Project 1 is critical to COL and CGIAR's understanding of the strategic alliances, modus operandi, logistics, costs, benefits, human and technical resource requirements, intellectual property and copyright considerations, etc., involved in this work, and the planning, budgeting and future actions needed in regard to the L3Farmers Project knowledge management system. Specifically, the researcher(s) are required to research and report on:

- Two or three current ODL/ICT-based extension programmes in low income countries.

- The needs and contexts these were designed to serve.
- The training/development strategies and technologies adopted and why these were deemed the most appropriate.
- The educational, practical and cost benefits to the farmers and farming communities.
- The strategic, logistical and cost benefits to the organization(s) providing these programmes.
- Evidence of changed or improved practices by the end-users.
- The professional development needs of the researchers and trainers engaged in such development and delivery.
- The human and technical resource requirements and deficiencies.
- The critical factors for successful adoption of such strategies and constraints on their realization.

Who may apply to undertake this work

Any researcher(s) within public, NGO or private organizations, institutions or agencies with appropriate experience and a track record of qualitative and quantitative research. Applications may be made by individuals or inter-organizational consortia or research groups.

How to apply

Applicants should apply to Krishna Alluri, c/o Commonwealth of Learning, 1285 West Broadway, Suite 600, Vancouver, BC V6H 3X8, Canada, Fax: +1 604 775 8210, email: info@col.org, describing the programmes they propose to evaluate, the regions where these are in operation, the instruments and methods they will adopt and their particular qualifications for this work. Any match funding or funding in kind should also be detailed in the applications which will be judged on their merits.

ACTION RESEARCH PROJECT 2

Aim

To identify or develop a prototype for, a knowledge management system appropriate to the needs of the L3Farmers Project as defined below and field test, evaluate, cost and determine the management, technical and human resource requirements of this system.

Timeline

To be under way in 2004 and completed in 2005.

Grant

C\$10,000 (in moieties)

Background

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- Links to other Web-based agricultural development resources that may be of use to extension workers with descriptions of their aims, target audiences, language (level), knowledge/skills pre-requisites, technical requirements, etc. (to avoid copyright problems, these meta-data will not be attached to these resources or the resources stored on the L3Farmers Website).
- Extension workers' and other facilitators' reviews and farmers' testimonials of educational and training resources, articles and other material that has been found to be useful in extension.

- Local insights, experiences and exemplary practices of ODL for extension submitted by field workers.
- A listserv for discussion and planning groups.
- An open area for emailed advice and feedback.
- A members' area for confidential email exchanges.
- FAQs.

This system will be conceived as a virtual trainer for agricultural development. It will be practical and outcomes-oriented. It will be an enabler, not a competitor or duplicator of what other agencies are doing. It will complement, supplement, strengthen and provide wider access for work being undertaken by others. It will be a resource developed in collaboration with the agricultural development community.

No single agency will be required to bear the full cost of providing the resources. The wider the partnership, the wider the range of resources provided through this system. The resources will be digitally stored and available via the Web or CD-Rom by the participating nodes and used or adapted for all forms of learning and interaction between the providers and the farmers (e.g., interactive radio, community meetings and community newspapers). They will include audio and visual as well as text-based material to motivate and circumvent language difficulties. They will be designed to accord with the ISO Code for Language Standards.

The system will be so conceived as to provide cultural and comprehension bridges between the providers and the smallholders and it will encourage and support bottom up and lateral as well as hub-periphery communication. It will be continually evaluated for the quality of its programmes, materials and services, number of hits, user satisfaction levels and impact on work practices.

Action Research Project 2 Requirements

Action Research Project 2 is critical to COL and CGIAR's understanding of the form the L3Farmers Project knowledge management system should take and the time, human and technical resources and international and inter-organizational cooperation required for its realization. Specifically, the researcher/developer(s) are required to provide:

- a) A template and prototype for the L3Farmers Project knowledge management system
- b) The results of field tests of this prototype in appropriate developing country contexts.
- c) Providers' views on the appropriateness and usefulness of such a system.

- d) An assessment of the management, cost, time, human resource and technical requirements of the proposed L3Farmers Project knowledge management system.
- e) An analysis of the critical factors for the successful development of such a system and any constraints on its realization.

Who may apply to undertake this work

Any researcher/developer(s) within public, NGO or private organizations, institutions or agencies with appropriate experience and a track record of developing online ODL resources for use in remote, rural and developing country contexts. Applications may be made by individuals or consortia or research and development groups.

How to apply

Applicants should apply to Krishna Alluri, c/o Commonwealth of Learning, 1285 West Broadway, Suite 600, Vancouver, BC V6H 3X8, Canada, Fax: +1 604 775 8210, email: info@col.org, describing the work they have done in this area, the contexts in which this has been or is being used, the instruments and methods they will use for developing and testing the prototype, and their particular qualifications for this work. Any match funding or funding in kind should also be detailed in the applications which will be judged on their merits.

ACTION RESEARCH PROJECT 3

Aim

To develop a prototype online toolkit that can be used in conjunction with COL's existing ODL training resources, toolkits and guides to train extension workers and other local facilitators in face-to-face and distance learning strategies in extension in low income countries.

Timeline

To be under way in 2004 and completed in 2005.

Grant

C\$10,000 (in moieties)

Background

The L3Farmers Project is designed to be an *open learning network* for extension for smallholders in low income countries involving NARES, universities, colleges, NGOs, and other public and private organizations interesting in applying ODL and ICT for this purpose in Sub-Saharan Africa, South Asia and Small Island States.

This open learning network will be *technological* (e.g., using the Internet), *organizational* (e.g., linking international, national and local providers), and *social* (e.g., aggregating smallholders in 'community information spaces' — telecentres, POPs, farmers' cooperatives, vehicles equipped with ICT and other public, private or community facilities — that can be facilitated by extension workers and others).

The programmes and services will focus on:

- Active, problem-based and collaborative learning.
- Learning how to learn.
- Motivating, building confidence and competence, and supporting the immediate application of learning in local situations.
- Adaptability to different contexts and cultures.

The learning resources will be:

- Used in group or community settings.
- Far more than face-to-face workshops or handouts converted into electronic documents.

- Appropriate to the culture, language, literacy, comprehension levels, skills, resources, contexts and learning needs of the smallholders.
- Delivered appropriately in terms of tools, processes and learning methodologies.
- Faster, cheaper and better than the alternatives.
- Capable of speeding up change and bringing immediate benefit to the learners.
- Evaluated in these terms.

The project requires extension agencies to be creators, managers and facilitators of networks rather than transferers of technical knowledge. However, few NARES or other agricultural research and development agencies are well versed in developing and delivering programmes and services through ODL and ICT and so professional development for all of these providers will be a key element of this project.

The other key element will be the L3Farmers Project knowledge management system, a network of Web-based portals accessible from anywhere in the network, co-ordinated by COL and CGIAR. This will offer the following items specially developed by L3Farmers Project partners or provided by other agencies linked into the network:

- Learning resources and learning objects on topics and in forms appropriate for direct access and use by the smallholders, together with suggested strategies for using these resources.
- Training resources and learning objects that can be used or adapted by local facilitators for extension activities, together with suggested strategies for their use.
- Training resources to help farmer organization leaders hold local meetings and make presentations designed for some form of action by the farming communities.
- Training resources in developing, delivering and evaluating ODL and ICT for content providers and local facilitators.
- Links to other Web-based agricultural development resources that may be of use to extension workers with descriptions of their aims, target audiences, language (level), knowledge/skills pre-requisites, technical requirements, etc. (to avoid copyright problems, these meta-data will not be attached to these resources or the resources stored on the L3Farmers Website).
- Extension workers' and other facilitators' reviews and farmers' testimonials of educational and training resources, articles and other material that has been found to be useful in extension.
- Local insights, experiences and exemplary practices of ODL for extension submitted by field workers.
- A listserv for discussion and planning groups.

- An open area for emailed advice and feedback.
- A members' area for confidential email exchanges.
- FAQs.

This system will be conceived as a virtual trainer for agricultural development. It will be practical and outcomes-oriented. It will be an enabler, not a competitor or duplicator of what other agencies are doing. It will complement, supplement, strengthen and provide wider access for work being undertaken by others. It will be a resource developed in collaboration with the agricultural development community.

No single agency will be required to bear the full cost of providing the resources. The wider the partnership, the wider the range of resources provided through this system. The resources will be digitally stored and available via the Web or CD-Rom by the participating nodes and used or adapted for all forms of learning and interaction between the providers and the farmers (e.g., interactive radio, community meetings and community newspapers). They will include audio and visual as well as text-based material to motivate and circumvent language difficulties. They will be designed to accord with the ISO Code for Language Standards.

The system will be so conceived as to provide cultural and comprehension bridges between the providers and the smallholders and it will encourage and support bottom up and lateral as well as hub-periphery communication. It will be continually evaluated for the quality of its programmes, materials and services, number of hits, user satisfaction levels and impact on work practices.

Action Research Project 3 Requirements

Action Research Project 3 is critical to COL and CGIAR's understanding of the content and methods needed in an online toolkit that can be used in conjunction with COL's existing ODL training resources, toolkits and guides to train extension workers and other local facilitators in face-to-face and distance learning strategies in agricultural development. Specifically, the researcher/developer(s) are required to provide:

- a) A template and prototype for the online toolkit with links to other existing training resources.
- b) A listing and detailing of the topics that need to be covered in this toolkit, including (but not exclusively), independent and guided learning for semi-literate farmers and community groups; cultural factors in training and learning: forming and supporting community and self-help groups in agricultural development; diagnosing smallholders' needs; designing, developing and delivering ODL/ICT training resources for smallholders; selecting and using media; providing remote and disadvantaged farming

communities with access to technology and training in its use; linking learning to working; grassroots change systems and the leadership, management and empowerment needed for change and innovation in developing countries; and evaluating programmes, processes and outcomes.

- c) At least two complete and tested training toolkit packages.
- d) Providers' views on the appropriateness and usefulness of these packages and the overall toolkit approach.
- e) An assessment of the management, costs, time, human resource and technical requirements of the proposed toolkit.
- f) A report on the copyright and intellectual property issues.
- g) An analysis of the critical factors for the successful development of such a toolkit and any constraints on its realization.

Who may apply to undertake this work

Any researcher/developer(s) within public, NGO or private organizations, institutions or agencies with appropriate experience and a track record of developing online training resources in ODL and ICT for facilitators of non-formal, adult and community learning in remote, rural and developing country contexts. Applications may be made by individuals or consortia or research and development groups.

How to apply

Applicants should apply to Krishna Alluri, c/o Commonwealth of Learning, 1285 West Broadway, Suite 600, Vancouver, BC V6H 3X8, Canada, Fax: +1 604 775 8210, email: info@col.org, describing the work they have done in this area, the contexts in which this has been or is being used, the instruments and methods they will use for developing and testing the toolkit, and their particular qualifications for this work. Any match funding or funding in kind should also be detailed in the applications which will be judged on their merits.

ACTION RESEARCH PROJECT 4

Aim

To customize existing agricultural research findings or training material into a form that would enable farmers to learn online, and evaluate and cost the development and delivery of this material.

Timeline

To be under way by in 2004 and completed in 2005.

Grant

C\$10,000 (in moieties)

Background

The L3Farmers Project is designed to be an *open learning network* for extension for smallholders in low income countries involving NARES, universities, colleges, NGOs, and other public and private organizations interesting in applying ODL and ICT for this purpose in Sub-Saharan Africa, South Asia and Small Island States.

This open learning network will be *technological* (e.g., using the Internet), *organizational* (e.g., linking international, national and local providers), and *social* (e.g., aggregating smallholders in 'community information spaces' — telecentres, POPs, farmers' cooperatives, vehicles equipped with ICT and other public, private or community facilities — that can be facilitated by extension workers and others).

The programmes and services will focus on:

- Active, problem-based and collaborative learning.
- Learning how to learn.
- Motivating, building confidence and competence, and supporting the immediate application of learning in local situations.
- Adaptability to different contexts and cultures.

The learning resources will be:

- Used in group or community settings.
- Far more than face-to-face workshops or handouts converted into electronic documents.
- Appropriate to the culture, language, literacy, comprehension levels, skills, resources, contexts and learning needs of the smallholders.

- Delivered appropriately in terms of tools, processes and learning methodologies.
- Faster, cheaper and better than the alternatives.
- Capable of speeding up change and bringing immediate benefit to the learners.
- Evaluated in these terms.

The project requires extension agencies to be creators, managers and facilitators of networks rather than transferers of technical knowledge. However, few NARES or other agricultural research and development agencies are well versed in developing and delivering programmes and services through ODL and ICT and so professional development for all of these providers will be a key element of this project.

The other key element will be the L3Farmers Project knowledge management system, a network of Web-based portals accessible from anywhere in the network, co-ordinated by COL and CGIAR. This will offer the following items specially developed by L3Farmers Project partners or provided by other agencies linked into the network:

- Learning resources and learning objects on topics and in forms appropriate for direct access and use by the smallholders, together with suggested strategies for using these resources.
- Training resources and learning objects that can be used or adapted by local facilitators for extension activities, together with suggested strategies for their use.
- Training resources to help farmer organization leaders hold local meetings and make presentations designed for some form of action by the farming communities.
- Training resources in developing, delivering and evaluating ODL and ICT for content providers and local facilitators.
- Links to other Web-based agricultural development resources that may be of use to extension workers with descriptions of their aims, target audiences, language (level), knowledge/skills pre-requisites, technical requirements, etc. (to avoid copyright problems, these meta-data will not be attached to these resources or the resources stored on the L3Farmers Website).
- Extension workers' and other facilitators' reviews and farmers' testimonials of educational and training resources, articles and other material that has been found to be useful in extension.
- Local insights, experiences and exemplary practices of ODL for extension submitted by field workers.
- A listserv for discussion and planning groups.
- An open area for emailed advice and feedback.
- A members' area for confidential email exchanges.

- FAQs.

This system will be conceived as a virtual trainer for agricultural development. It will be practical and outcomes-oriented. It will be an enabler, not a competitor or duplicator of what other agencies are doing. It will complement, supplement, strengthen and provide wider access for work being undertaken by others. It will be a resource developed in collaboration with the agricultural development community.

No single agency will be required to bear the full cost of providing the resources. The wider the partnership, the wider the range of resources provided through this system. The resources will be digitally stored and available via the Web or CD-Rom by the participating nodes and used or adapted for all forms of learning and interaction between the providers and the farmers (e.g., interactive radio, community meetings and community newspapers). They will include audio and visual as well as text-based material to motivate and circumvent language difficulties. They will be designed to accord with the ISO Code for Language Standards.

The system will be so conceived as to provide cultural and comprehension bridges between the providers and the smallholders and it will encourage and support bottom up and lateral as well as hub-periphery communication. It will be continually evaluated for the quality of its programmes, materials and services, number of hits, user satisfaction levels and impact on work practices.

Action Research Project 4 Requirements

Action Research Project 4 is critical to COL and CGIAR's understanding of the work represented in adapting research findings and face-to-face training material into forms that can be used for ODL/ICT-based training for smallholders in developing countries. Specifically, the researcher/developer(s) are required to provide:

- a) An example of the kind of online resource that could be developed for use by L3Farmers Project within such a budget and timescale and the time, human resource, technical and logistical requirements.
- b) A case study report of the needs diagnosis, resources identification, adoption and adaptation of materials, and instructional design and educational technology processes involved, presented in a form helpful to developers and would-be developers in NARES.
- d) Providers' and users' views on the appropriateness and usefulness of this resource to the farmers and as an awareness/training resource for would-be developers and deliverers of such programmes.
- e) A report on the copyright and intellectual property issues.
- f) An analysis of the critical factors for the successful development of such a resource and any constraints on its realization.

Who may apply to undertake this work

Any researcher/developer(s) within public, NGO or private organizations, institutions or agencies with appropriate experience and a track record of developing online training resources in ODL and ICT for facilitators of non-formal, adult and community learning remote, rural and developing country contexts. Applications may be made by individuals or consortia or research and development groups.

How to apply

Applicants should apply to Krishna Alluri, c/o Commonwealth of Learning, 1285 West Broadway, Suite 600, Vancouver, BC V6H 3X8, Canada, Fax: +1 604 775 8210, email: info@col.org, describing the work they have done in this area, the contexts in which this has been or is being used, the instruments and methods they will use for developing and testing the toolkit, and their particular qualifications for this work. Any match funding or funding in kind should also be detailed in the applications which will be judged on their merits.