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The Internet and rural development: opportunities for forestry

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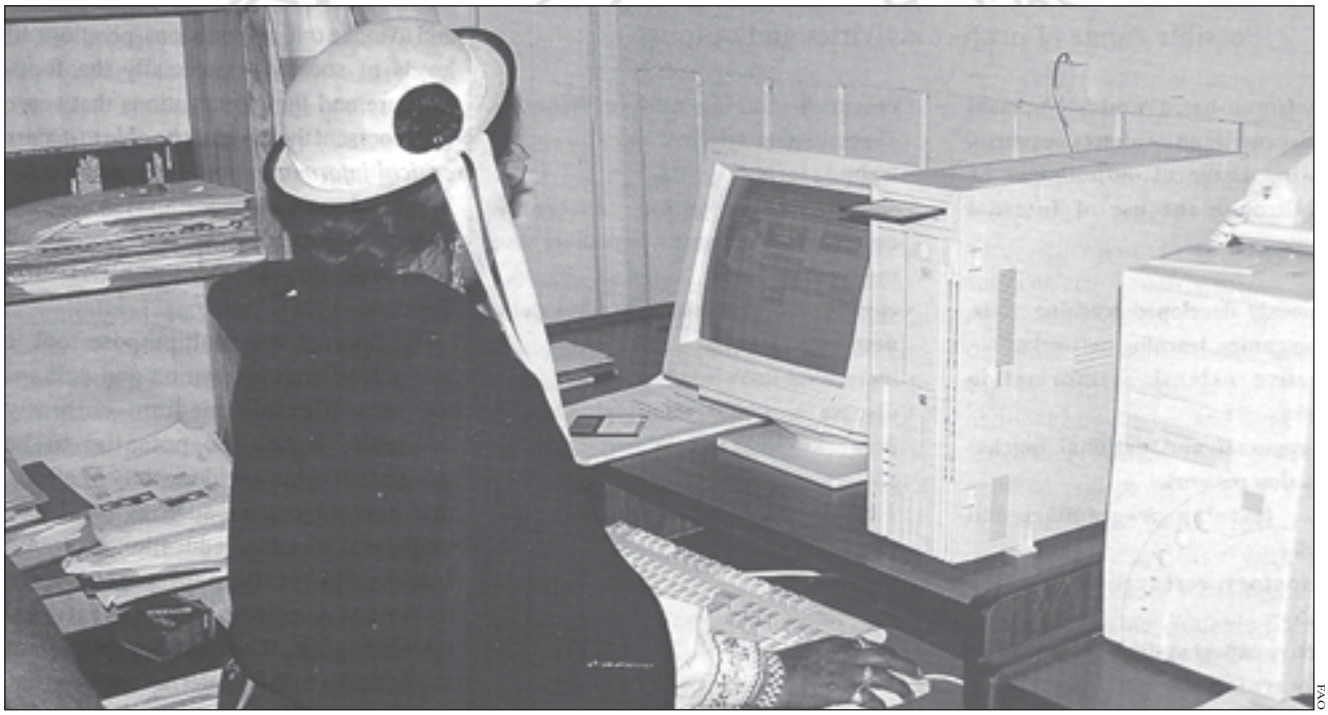

FAO

Rural and indigenous people represent the "last mile of connectivity" in both developing and developed countries

Considering the potential of the Internet with regard to forestry and rural development.

There has been a rapid increase in the use of the Internet in developing countries, although this expansion is still largely an urban phenomenon. Rural communities represent the "last mile of connectivity" in both developing and developed countries with regard to access to Internet services and the telecommunication connections that help transmit those services. People in rural areas are generally unable to take advantage of the services available to their urban peers.

Internet initiatives for rural development need to be approached with a degree of caution. One cannot expect less privileged farmers and food-insecure residents of rural communities to list computers and digital telecommunication services as high-priority items for improving their lives. However, there are various intermediaries that serve these populations

Internet users have grown from an estimated 40 to 100 million users at the time this article was written – a decade ago – to perhaps 700 million today. With the persistence of the digital divide, has the potential foreseen ten years ago been realized?

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Possible range of project activities and outputs

In the case of forest-based rural development activities, depending on local circumstances, the following range of outputs can be achieved through the use of Internet applications:

- **indigenously developed learning tools, learning games, learning networks**
- **interactive extension information networks**
- **local, regional and national market information networks**
- **distance learning programmes and networks**
- **participatory research and action networks**
- **interactive expert systems networks**
- **early warning system information dissemination and data gathering networks**
- **shared curriculum databases and curriculum development networks**
- **research sharing and information dissemination systems**
- **training tools**
- **small and medium enterprise development networks and marketing mechanisms**
- **rural media networks (e.g. rural radio, newsletters)**
- **indigenous knowledge networks**
- **disease and pest monitoring action networks (plant and animal)**

which, together with small and medium enterprises (SMEs) in rural areas, could take advantage of these technologies to improve their work, improve communication capacity, gain efficiencies and reduce telecommunication costs. With SMEs, intermediary organizations such as extension field offices, rural NGOs, health clinics, government satellite offices and church organizations can offer benefits in numerous ways. Strategies for improving access to the Internet and use for rural development will necessarily involve the full participation of intermediary organizations and other rural stakeholders. This article draws attention to the potential of the Internet for rural development initiatives and particularly those related to forestry.

Today we truly live in a global village, but it is a village with privileged "information haves" and many "information have-nots". To face the unprecedented challenges brought on by the changing global economy, dynamic political contexts, environmental degradation and demographic pressures, and to make critical decisions, people at all levels of society – especially the food-insecure and the organizations that serve and represent them – *must be able to access critical information and to communicate.* Improved communication and information access are directly related to social and economic development (Tallero and Gaudette, 1995).

The Internet is a multipurpose tool, a medium of communication and perhaps the most flexible medium currently available. It has the potential to be integrated within a wide variety of efforts that have objectives such as local participation, training, education, research (especially participatory research), technical support and institutional strengthening. Thus, endeavours that might find a role for Internet applications could range from training in forest harvesting to community forestry or the development of criteria and indicators for sustainable forest management.

A DECENTRALIZED "PEOPLE'S NETWORK"

The Internet today is a people's network. Anyone with basic computer equipment and a telephone line can connect to it, communicate through it, host information on it and look through it. Unlike many other media such as television and radio, every user of the medium can be an information producer and knowledge sharer. No one knows for sure how many people are using the Internet today, but estimates range from 40 million to 100 million people.

The Internet is cheap, powerful, decentralized and in the hands of civil society. The Internet has the power to cut across social and geographic distance and help

people find new ways of facilitating the flow of information and knowledge. Within bureaucratic organizations it has a way of levelling hierarchies, facilitating new communication patterns and helping enable activities that might not otherwise occur (Negroponte, 1995).

THE INTERNET IN SUPPORT OF SUSTAINABLE RURAL AND AGRICULTURAL DEVELOPMENT

With regard to Internet use in support of rural and agricultural development, applications fall into five main areas: economic development for agricultural producers, community development, research/education, SME development and media networks. The following sections explore these areas and, where possible, highlight their actual or potential application to forestry.

Applications in planning and market information for agricultural producers

When knowledge is harnessed by strong organizations of small producers, strategic planning can be used to provide members with lower-cost inputs, better storage facilities, improved transportation links and collective negotiations with buyers. The Internet is one tool that can enhance this flow of information. It is an inexpensive way to communicate and access global information. Local Internet services can be easily managed by well-organized local user groups and farmers' organizations. Information and analyses can be tailored to local, regional and national knowledge and communication needs and realities. When combined with national and global market information systems, and with the ability to communicate quickly with potential buyers and brokers, local Internet systems become valuable strategic planning and decision-making tools.

Community information centres and farmers' organizations can also gather information from the Internet and disseminate it via local radio stations, newspapers and other local information-sharing networks and tools. For example, daily market prices and agricultural news can be posted at cooperatives, local stores, transportation hubs, agricultural supply outlets and social gathering points. Simple newsletters can be developed using Internet information and distributed to members of farmers' organizations. When integrated with other media tools, the Internet can be a powerful information resource and research tool.

Community development applications

Internet services are also valuable when placed at the service of rural development-oriented organizations which act as local communication conduits or intermediaries. Along with providing improved market knowledge, they can also:

- develop locally appropriate applications and creative services;
- provide knowledge about successful development strategies;
- enable efficient regional, national and global organizational efforts (the use of the Internet as a global communication and organizing tool in Chiapas, Mexico, is an excellent example of the latter);
- improve access to a huge variety of information, training, research and educational resources (including distance education services) which are typically unavailable in rural and remote areas because of the costs associated with printed materials and books;
- enable rural young people to learn about computers and to have access to the technologies and information available to their urban peers;
- provide access to critical technical information for rural professionals such as physicians, health care workers, technicians and engineers, thereby providing further encouragement for these professionals to continue practising in rural and remote communities;
- be used as marketing tools to promote rural tourism and market the products of small secondary industries and home-based businesses;
- enable local NGOs to gain a global presence and make better contact with potential donors and supporters through the on-line publication of resources and information and through the use of electronic mail; and
- sensitize urban policy-makers to the realities and needs of rural populations.

Research/education applications

Within national, regional and international research communities, increased attention has been directed towards "participatory research" strategies (Chambers and Guijt, 1996; FAO, 1995a and 1995b). These strategies place farmers and rural residents at the centre of the research process and enable them to enrich their knowledge base and share it with one another as well as with field workers, researchers and decision-makers. Internet use among intermediary organizations and leaders involved in participatory research can provide a cost-effective method for documenting and sharing lessons learned and research results.

Internet use also has the potential to strengthen linkages between and among farmers' organizations, extension workers, researchers and policy-makers.

The cost of accessing printed academic materials within developing countries is usually so high that students and faculty members have great difficulty acquiring books and journals. Furthermore, the time required to obtain printed materials from overseas can be long enough to render some information outdated by the time it arrives. Via the Internet, any information published on-line can be accessed almost instantly and at a fraction of the cost of obtaining printed materials. Information on the Internet is easy to access and archival lists of

resources can be easily reviewed and assessed in remote locations.

Electronic distance education services are already in use in North America, Australia and Europe (particularly among people in rural areas), and with the continued growth of Internet access in developing countries there is a very good chance that similar services will develop a significant demand. Distance education (as well as traditional education) partnerships between universities in the North and the South (such as the University of Guelph's partnerships with universities in Cameroon and India to develop distance education extension worker training programmes) have proved to be beneficial to the institutions involved. With the assistance of Internet tools, these partnerships can be further strengthened and Internet learning resources can be cooperatively developed across oceans to be utilized by participants in developing nations. Of course, this process can work in the other direction too, to enable students in the North to learn more about the conditions, challenges, potentials and knowledge development of the South.

Overall, the Internet holds significant potential to enhance learning and research relationships among researchers, academics and students wherever they may be located. The list of potential applications is infinite and thousands of informal linkages of this sort take place every day in Internet discussion groups. Development agencies such as FAO can play a role in helping to formalize and provide credentials and diplomas for people who participate in specific electronic learning initiatives delivered via the Internet.

Small and medium enterprise development

Private sector businesses, large and small, are using the Internet to reach new markets, promote products and services globally and access critical business and financial information.

In many developing countries, the Internet is being used to promote national timber production activities, for example those of the Malaysian Timber Council and the Timber Export Development Board in Ghana.

The tourism sector has been quick to recognize the benefits of the Internet for advertising destinations, tours and holiday services. Of particular interest are the World Wide Web sites for "eco-tourism", game parks and adventure tours in areas of southern Africa where rural tourism is a growing industry. Tourism operators in rural and remote areas have a difficult time marketing their destinations through traditional media owing to production and distribution costs. The Internet now represents a very inexpensive way for them to showcase their sites to the world and interact directly with potential tourists.

News media networks

The news media in developing countries have also been at the forefront of developing Internet applications. For example, in Zambia, both national daily newspapers mirror their daily copy on the World Wide Web (http://www.zamnet.zm), making the local news accessible to expatriate Zambians around the world. E-mail discussion groups provide these expatriates with an opportunity to discuss the daily news with one another and with their Internet-connected peers in Zambia. A discussion group joined by the author generated a minimum of 30 e-mail messages per day! Such e-mail discussion groups for expatriates and nationals exist for virtually every developing country in the world and represent a relatively untapped resource for accessing the views, ideas and creativity of members of civil society with regard to development policy and initiatives.

In addition to the latter news and information applications, organizations such as Inter Press Service (IPS) Third World News Agency (http://www.ips.org) use the Internet to source news stories from local writers in developing countries and share those stories with international wire services such as Associated Press. IPS is also able to provide Internet feeds that enable African news media to have access to African news from around the continent. This is particularly relevant to rural radio stations and other rural newspaper and newsletter producers that would otherwise be unable to obtain the same news from other sources. IPS can also provide an outlet for rural news writers to share their stories regionally, nationally and globally. Similar Internet strategies for rural radio networks, which might also incorporate digital audio transmissions, may well emerge in the near future.

CONCLUSION

> "The information revolution offers Africa a dramatic opportunity to leapfrog into the future, breaking out of decades of stagnation or decline. Africa must seize this opportunity, quickly. If African countries cannot take advantage of the information revolution and surf this great wave of technological change, they may be crushed by it. In that case, they are likely to be even more marginalized and economically stagnant in the future than they are today."
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> **World Bank (1996)**

The Internet is not a panacea for rural development, but it does bring new information resources and can open new communication channels for rural communities. It offers a means for bridging the gaps between development professionals and rural people by initiating interaction and dialogue alliances, interpersonal networks and cross-sectoral links between organizations. It can create mechanisms that enable the bottom-up articulation and sharing of local knowledge. Benefits include increased efficiency in the use of development resources, less duplication of activities, reduced communication costs and global access to information and human resources.

The Internet may help in meeting peoples' information and communication objectives in order to attain their development goals and objectives, but it must be integrated within human contexts and seen as a *communication process tool*, not simply a static "information technology" or unidirectional broadcast medium. Otherwise. Internet tools will be relegated to the junk heaps of inappropriate development technologies or dismissed because of previous failures to make the medium locally relevant and useful. If, for example, the information outputs (in accessible form) derived from highly technical forest resource assessment systems are not made available to the people who live in and around forest areas (in addition to policy-makers at national and international levels), then we are failing to ensure full leverage of the large infrastructural investments involved and assist people in making appropriate decisions based on such valuable information. Of course, the Internet is not the only communications tool that may be used, and radio and television may have equal or even greater potential, at least for the moment. We must avoid contributing to the gap between the information haves (experts, academics, researchers, policy-makers, etc.) and the information have-nots (usually the ultimate beneficiaries of development work) that can emerge when we create Internet applications to serve only privileged researchers and bureaucrats. In particular, we must strive to find ways to bring knowledge producers, such as researchers and policy-makers, closer (in the social as well as the geographical sense) to the other less recognized knowledge producers: the people who are the ultimate beneficiaries of their development programmes.

Early Internet users in developing countries have proved that they can develop excellent local services and locally appropriate knowledge resources. However, without support from development agencies, there is a risk that such efforts will never meet the needs of people in rural communities.

Given FAO's mandate to help improve the lives of rural populations and foster sustainable agricultural development, FAO has an important and historic role to play in insuring that the benefits of Internet and information and communication technologies reach rural and agricultural stakeholders. Several development agencies are currently assisting in the expansion of indigenously managed Internet services in developing countries. FAO pilot projects, linked to indigenous rural and agriculture organizations, can help ensure that rural communities remain part of regional and national Internet initiatives.

Adopting a proactive strategy and acting to bring the Internet to rural and agricultural communities in developing countries will help enable rural people to face the unprecedented challenges brought on by the changing global economy, political changes, environmental degradation and demographic pressures. To deal with these challenges and to make critical decisions people at all levels of society, and especially the food-insecure and the organizations that serve and represent them, must be able to access critical information and communicate. Improved communication and access to information are directly related to social and economic development (Tallero and Gaudette, 1995).

The time to act in support of Internet knowledge and communication systems in developing countries is now. Today we truly live in a global village, but it is a village with privileged "information haves" and many "information have-nots". With the new technologies available to us, we have an opportunity to change this. ◆

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