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CYBER EXTENSION

(April 1999 issue)

Extension Digest

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About the issue

Access to information and improved communication is a crucial requirement for sustainable agricultural development. Modern communication technologies when applied to conditions in rural areas can help improve communication, increase participation, disseminate information and share knowledge and skills. It is being said that "Cyber Extension" would be the major form of technology dissemination in the near future.

However it is observed that the rural population still have difficulty in accessing crucial information in order to make timely decisions. It is essential that information availability is demand driven rather than supply driven. The challenge is not only to improve the accessibility of communication technology to the rural population but also to improve its relevance to local development.

Considering the critical need for access to timely information and improved communication, this issue focuses on attempts made in different countries to transfer information to the rural population and success stories of such attempts. Bridging the "last mile" between the haves and have nots will ensure that remote rural communities are better informed.

Bridging the "last mile"

Improved communication and information access is directly related to social and economic development. However it is observed that the rural population still have difficulty in accessing crucial information in forms they can understand in order to make timely decisions. There is a concern that the gap between the information rich and information poor is getting wider.

New information and communication technologies are generating possibilities to solve problems of rural poverty, inequality, and giving an opportunity to bridge the gap between information-rich and information-poor and support sustainable development in rural and agricultural communities. However remote rural communities still lack basic communication infrastructure.

The challenge is not only to improve the accessibility of communication technology to the rural population but also to improve the relevance of information to local development.

Technology in rural communication

A range of communication technologies have been used to meet the information needs of the rural population. These include rural radio, participatory video using a methodology called Rural Audiovisual pedagogy which uses participatory video as a communication tool for mediating between rural peoples needs and possible sources of information and expertise to respond to these needs.

The Internet is emerging as a tool with potential to contribute to rural development. Internet enables rural communities to receive information and assistance from other development organizations; offers opportunities for two-way communication. It can also support bottom-up articulation of development needs and perceptions, and thus help in reducing the isolation of rural communities. It can facilitate dialogue among communities and with government planners, development agencies, researchers, and technical experts; encourage community participation in decision making; and help agricultural researchers, technicians, farmers and others in sharing information.

A survey of Internet use in rural areas was conducted by Dr. Don Richardson and others in 1996. Rural Internet users indicate that the Internet provides them with a very convenient method for quickly accessing a large volume of information without being impeded by geographic barriers. They also report finding information of value from the Internet in the form of new ideas, discussion groups, access to expert advice, continuing education resources, increased global understanding and cultural awareness. Social benefits include new opportunities to overcome geographic isolation, increased social interaction, opportunities to organize and advocate for social change, equalization of urban/rural disparities and new links between urban and rural communities. <http://tdg.uoguelph.ca/www/rural/index.html>

Telecentres

An approach that is being explored for providing rural access to modern information and communication technologies is through "telecentres" or "telecottages". The concept was first implemented in Sweden. Telecentres are centers located in isolated rural communities and have personal computers, printers, a modem, a fax machine, and a consultant. According to the Telecottage Association of UK, there are 120 telecottages in the United Kingdom, 49 in Finland, 40 in Australia, and 23 in Sweden and in Germany, Portugal, Ireland, Denmark, Canada, Norway, and Brazil. Some of their services include telephone and fax facilities, e-mail, Internet and electronic networks, access to databases and libraries. They can also link the Internet to local media such as radio and television and thus make information accessible to a wider audience. Telecentres not only facilitate single-point access to external information services (e.g. government marketing and price information) or to global information through the WWW, but also help in organization of virtual village-to-village meetings and tele-training events thus facilitating local sharing of information.

(Comm for development group, SDRE, FAO Research, Extension and Training Division. at <http://www.fao.org>).

Many efforts are taking place throughout the developing world to give the rural population a sense of connectedness by providing innovative methods to access information and to communicate/facilitate exchange of information among themselves and with other agencies. These are documented in the following pages.

Harnessing IT: Indian Scenario

There are cases of application of information and communication technologies that have made a difference in the delivery of services in rural India. Some of these include the Warana Wired village Project in Maharashtra; Milk collection in dairy co-operatives (National dairy Development Board); Information Villages Project (MS Swaminathan Research Foundation-International Development Research Centre); Information Technology application for Indian Rural Postal System (CMC Limited, Hyderabad); Knowledge Network for grassroots innovations (IIM, Ahmedabad); Application of Satellite Communication for Training Field

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grassroots innovations (IIM, Ahmedabad), Application of Satellite Communication for Training Field Workers and Extension Workers in Rural Areas(ISRO); Computerisation of Mandal Revenue Offices (MROs) and computer aided administration of revenue department in Andhra Pradesh (Government of Andhra Pradesh).

- In the **Warana Wired Village** Project covering 70 villages in Maharashtra the existing cooperative structure has been used with state of the art infrastructure to allow Internet access to existing cooperative societies. The aim is to provide information to villagers by establishing networked booths in the villages.
- The **Information Villages Project** of the MS Swaminathan Research Foundation is aimed at bringing the benefits of modern information and communication technologies to rural families in Pondicherry. A Value Addition Centre which is the hub of the information network has been established in Villianur village and four information shops have been established in different villages.
- **National Dairy Development Board**. IT-based machines are being used at milk collection centres, and in cooperatives to measure butterfat content of milk, test the quality of milk, and promptly make payment to the farmers. It has resulted in the removal of incentives to cut the milk by adding water, reduced time for payments from 10 days to less than five minutes, and instilled confidence in farmers in the cooperative set up. All of these factors have helped the milk market to expand.
- A CMC pilot project has installed a **Computerized Universal Postal System and a Centralised Accounting and Reporting System** in three post offices in Andhra Pradesh. The technology is designed for rural environments. The systems handle multifunctions within a postal office, reduce errors and waiting time, and provide transparent transactions.
- ICT can help empower the knowledge rich but economically poor people. Under the "**Honey-Bee knowledge network** (of the IIM, Ahmedabad) used to augment grassroots inventors and overcome language, literacy and localism a large number of grass root inventions have been identified and documented as short multimedia presentations. Future plans include creating a database of such innovations and making them accessible via a wide area network.
- One way video, two way audio teleconferencing interactive networks have been used for education and training by **Indian Space Research Organisation**. The major application of the network in rural development was for training extension staff from various departments of the state governments. In addition, a large number of women, Panchayati Raj elected officials, primary school teachers, and child development workers spread over large distances have been trained.
- Information and communication technologies are an important part of the **Government of Andhra Pradesh's** efforts to improve the efficiency of its administrative offices. AP is the first state in India to design a **statewide computerization program** that will be used in rural areas, at the mandal-level (the administrative unit above the village-level panchayat). There are 1124 mandals in the state. The first software application, is the issuance of certificates pertaining to land holdings, caste, nativity and income across a common counter, without the current delay of 15 to 20-days.
- **The AP State Wide Area Network (APSWAN)**, aims to link the state government's Secretariat with 23 District Headquarters, serving as the backbone for "multi-services" (voice, video, and data) that would be used for improved co-ordination between state headquarters and district offices in managing various regulatory, developmental, and hazard mitigation programs of the state government. Mandals will be served by this two-way communication, and electronic commerce applications will be developed. The AP Value Added Network Services project hopes to deliver a variety of public services through a large network of information kiosks.
- The **Computer-aided Administration of Registration Department (CARD)**, a project of A.P. aims to introduce a transparent system of property valuation, which is easily accessible to citizens.

Cyber-Extension - A New Era in Agricultural Extension in India

Warna Nagar, a cluster of 70 villages in Maharashtra is a central eye of the "Wired Villages" project. In 1960, a visionary like Tahasaheb Kore propagated the idea of co-operatives in Warna Nagar, as a method of achieving socio-economic development. He showed how this could bring all the farmers together, to share information, increase productivity, and profits. Thus was born the "Warna Nagar Co-Operative Society". The society has a Chairman and a Board of Members and is free from political influence and society members are free to elect the board members. There are about eight sub co-operative bodies, working under this main society viz.; Warna Dairy Development Society, Warna Co-operative Bank, Warna Foods, Warna Womens Co-operative society etc. Sugarcane is major crop of this area and most of the sugar production of the two districts Kolhapur and Sangli is processed at this Society. From each village 200 - 300 farmers are registered as society members.

The "Wired Village" project was initiated by Mr. Vinay Kore, the son of Mr. Tahasaheb Kore and the present Chairman of the Warna Co-operative Society two years ago and actual implementation began in April 1998. The Project has been jointly implemented by GOI through National Informatics Centre (NIC), Government of Maharashtra and Warana Co-operative Society with the share of financial support being in the ratio of 50:40:10. The manpower and maintenance cost is borne by the Warna Co-operative Society itself. The project area is a cluster of 70 villages consisting of 46 villages from Kolhapur and 24 villages from Sangli districts of Maharashtra.

This project has been initiated to serve the information needs on different crop cultivation practices of major crops, sugarcane cultivation practices, pest and disease control, marketing information, dairy and sugarcane processing information etc. to the farmers, right up to their village level.

NIC, Pune was involved in setting-up the hardware and software and NIC, Delhi established connectivity of WAN links such as VSAT and dial-up connections. The software required for the system such as web page designing, database designing and client based applications used by the farmers such as dairy, sugarcane information systems had been developed by the NIC, Pune.

Network Connectivity

Central Hub

The Central Hub, which is the main server station of "Wired Villages" is situated in Tahasaheb Kore Institute of Engineering Technology at Warna Nagar. This is equipped with servers based on Pentium II with 64 MB RAM, 4.1 GB hard disk and 32x CD-ROM drive. The 64 kbps bandwidth VSAT connection has been established as a gateway WAN link to NIC, Pune for connecting into their network and into global network. This enables the main computer center to download information from NIC, Pune or the global network for latest information. The router is used to establish a WAN link to remote computer booths from the main computer centre. Presently the router supports 10 simultaneous connections i.e. 10 users can access information at a time.

Computer Booths

The Computer Booths are serving as information centers for the farmers in their villages. The computer booth is operated by the booth operator and he is the main linkage between the farmers and information gateway center. The information sought relates to crops cultivation practices, land development, pesticides, diseases control details, marketing details, bills payments positions of sugarcane and dairy etc. Currently forty-six computer booths are functioning in Kolhapur and meeting the information needs of the farmers. In remaining 24 villages of Sangli district, computer booths and hardware was setup, and are waiting to link to Central Server Station.

Apart from information retrieval, there are two client-based applications, to serve the farmers needs. They are (1) Dairy Information System (2) Sugarcane Information System.

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In Dairy Information System, the information on all the farmers, who are part of the dairy system is maintained. Other details available to members of the dairy cooperatives include the quantity of milk supplied by each farmer, fat content, their billing information and credit details etc. This information is maintained and updated at the central database on daily basis.

In Sugarcane Information System, information on shareholders is maintained. About 200-350 shareholders are there in each village for sugar cane crop. This system maintains the details of the cultivation schedule, quantity harvested and supplied to the society, deductions effected by the Society towards credit, net income due to the farmers is available with respect to each shareholder.

Every village is also linked with the Directorate of Marketing in Pune, which facilitates farmers in getting information on rates of vegetables, fruits and other crops.

The computer booths are provided with a Pentium II computer having 64 MB ram, 2 GB hard disk, printer and a UPS power backup system. A dial-up connectivity with a modem and telephone line has been used to connect the main computer center to retrieve the information, send the queries, grievances to the central server station. The speed of dial-up connection is around 19200 BPS to 28000 BPS and average connectivity time is about 10 seconds. Telephone charge of around Rs. 350/-, is paid by village level society.

Information Technology Center

Six Information technology Centers have been established to give training to staff, students and farmers of the village. These centers also function as computer booths and are maintained by a booth operator. The Centers have been provided with six Pentium II computers with configuration of Pentium II, 64-Mb RAM, 2GB hard disk and a dot-matrix printer. A dial-up connectivity with modem and telephone line has been used to connect the central server station to retrieve information, send the queries, grievances to the main center.

NIC, Pune has developed a Computer Based Question Bank, in the local language "Marathi" which will be used to test the Computer knowledge awareness of the students of 5th to 10th standard. These students are being trained to get acquainted with the computer systems. Testing will be in subjects covered in the school like mathematics, science etc. and a certain percentage of marks will be awarded from this test to the final marks of the students. A batch consisting of 5 students will be examined for 1 hour. This center also serves as a computer booth. NIIT is engaged in helping create CDs on different topics which when available will be used at these centres for interactive coaching.

The team from MANAGE which carried out the study also had the opportunity to interact with farmers, field operators and booth operators.

The field officer Mr. Kulkarni V.V., Agriculture Officer, Panhala village at Kolhapur district. expressed that **Cyber-Extension** would be the major form of technology dissemination in the near future and added that the advantages of the WAN systems were on spot data availability for different purposes , avoidance of unnecessary movement of farmers from their home village to data center for different purposes., and access to all the information at village level.

An interaction with a few farmers in villages of Paragoam, Kuralap, Bhariwadi etc. indicated that farmers like the concept. They believe that the information from Wired Computers (WAN) is major source of getting information on crop technology. The ranking given by the farmers for source of information on crop technology, ranks wired computers as the best source followed by field officers and staff, radio &TV, print media and company sales persons. They agree that WAN provides all necessary information on cultivation technology and market situation etc., information is timely, the language is understandable as it is in the local Marati language, information is reliable and it's not costly. They also agree that it is beneficial not only for big farmers but also for marginal and small farmers. The farmers are expecting some more features to be added like processing of all loan, legal documents etc. from their village wired computers. The farmers are also ready to learn operating computers, if any training is given and are ready to contribute any marginal amount necessary for the maintenance and up-keep of the system.

Booth operators of Paragoam, Bhairwadi, Kuralap and Panhala informed that an average of 20-25 farmers visit the computer booths every day for information on crop cultivation practices and disease control, marketing, dairy and sugarcane billing details etc.

(Study by Bhaskar, G. and Venkateshwar Rao, K., Research Associates, MANAGE, March 1999).

The Information Villages Project

The Information Village Project, implemented by MS Swaminathan Research Foundation in collaboration with International Development Research Centre (IDRC), is aimed at bringing the benefits of modern information and communication technologies (ICTs) to the rural population.

Objectives

The project objective is to assess the impact of ICT in fostering transition to sustainable agriculture and rural development and document their role in promoting the process of knowledge empowerment of rural families.

The specific objectives of the project are

- To set up six Village Information Shops that enable rural families to access modern information and communication technologies
- To train educated youth especially women, in rural areas in operating Information Shops
- To train rural youth in the organisation and maintenance of a system that generates locally relevant information from generic information
- To maintain, update and disseminate information on entitlements to rural families using a blend of modern and existing channels of communication
- To measure the impact of information shops and ICT through surveys, participatory rural appraisal and other methods and
- To build models of information dissemination and exchange in rural areas that use advanced information and communication technologies.

The Project is located in the Pondicherry region in South India. A Value Addition Centre (VAC) has been established at Villianur and is functional since February 1998. It acts as the hub of the communication network in the project. Four Village Information Shops have been set up at Kizhur, Mangalam and Embalam, and Veerampatinam.

Value Addition Centre

An office in Villianur, serves as a Value Addition Centre. Villianur is a market centre for many hamlets that surround it and is also an administrative node and a road junction. Villianur has been selected based on the access of rural families to infrastructure and markets. Project staff at VAC scan the WWW for useful contacts and technology. Data gathering and value addition to data are carried out here and information is transformed to suit local queries or needs. This is also an exchange point for a variety of locale specific information on health, transport, public events, subsidies, prices etc. Information on developmental programmes (entitlements, credit, inputs etc.) and markets is maintained here.

The Centre has two PCs, a scanner and a printer; a telephone line for long distance calling facility. This telephone has dial up access to Internet provided by VSNL. A LAN based on VHF radio has been established with Villianur office serving as a hub handling voice and data. The strategy is to create a wireless network(VHF) in the local area which connects to a fixed telephone line through which access to Internet is available. From here e-mail can be sent on-line while e-mail to other villages can be received at Villianur and forwarded.

There is a reading room with a small collection of books and documents in Tamil on various aspects of agricultural production. A collection of government notifications is also maintained in the centre.

A number of locally relevant databases in Tamil have been created to meet the felt needs of the rural families on Families below poverty line; Public welfare schemes or entitlements to the rural population.

Village Information Shops

Four Information Shops have been established at Kizhur, Embalam, Mangalam and Veerampatinam and are linked to VAC. Meetings were held with various groups within the community in each village to identify volunteers who would operate the Information shop and to identify the shop's location. This helped in identifying community's information needs. The shops provide information related to health, credit, input price and availability, transport, market information, meteorological information, information for pest surveillance and agronomic practices, data on entitlements to rural families.

Each shop has a Pentium PC with multimedia, VHF transceiver with a workstation-cum-storage box designed by the project staff, and a desk jet printer. The PC can be connected to the wireless network through a modem and a specially designed interface. Each shop also has a board to display bulletins received on e-mail from the Value Addition Centre. The shop also enables a visitor to make voice call within the region. A circulating library of educational CD-ROMs is maintained by VAC for use in the shops.

In *Kizhur* volunteers were chosen by the general body of the council, which also nominated a 23-member group of 14 men and 9 women to guide the shop's operations. The volunteers, one woman and one man, belong to the elected family which has set aside a portion of their house for the shop. They have been trained on basic operations of PC, handling e-mail and use of HTML.

In *Embalam* all volunteers are women. Each of them spends half-a-day at the shop and takes turns to attend work. The shop is located in the premises of the village temple owned by the community. In addition to bulletins by e-mail this shop also receives Real Audio files containing the same information to facilitate its use by illiterate women.

In *Veerampatinam* where majority are fisher families, the village has its own panchayat which has allotted space in its own office for the centre to function from. Three volunteers, 2 women and 1 man have been identified and trained in handling PCs and data communication. This centre receives data on fish aggregation off the coasts of TN and Pondicherry from NRSA. The shops are open on all working days from 9 AM to 6 PM.

Impact

- A farmer with a 2 acre plot in Embalam has started cultivating a hybrid variety of paddy, first time in six years as he was able to obtain information on price of seeds and its availability from the shop at the right time. A woman labourer in Embalam could negotiate better for wages, which was partly paid in kind in grain. Knowledge of grain prices enabled her to make sure she got the right quantity of grain as wage. Fourteen farmers in Kizhur had their sugarcane crops ravaged in previous 2 years due to red rot disease resulting in losses. This year before planting they established contact with an entomologist through the shop who prescribed preventive measures.

(Extract from the M.S. Swaminathan Research Foundation web site at <http://www.mssf.org>.)

Community Building through the Telecottage Network in Estonia

"Kodukant" (Home Neighbourhood) Project in Estonia was initiated by a group of village people, with the objective of supporting rural people and rebuilding village communities and assisting the process of social change with local people playing a leading role.

Telecottages were established, the first in 1993, to provide people, farmers and small entrepreneurs vital

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information and consultation opportunities to elaborate business plans.

In 1995 the Estonian Association of Rural Telecottages was established to coordinate the telecottage network, review the feasibility of its activities, and encourage the development of local telecottages. Telecottages were subsequently established by enthusiasts and consultants, developers, small entrepreneurs, and farmers across Estonia. Currently 32 telecottages are operating.

To enable people to easily reach a telecottage, they are located in busy places such as shops, village centres, schools, and libraries. Most telecottages are open five days a week, and an average 8 hours per day. Access is usually free for users requiring ordinary information, while those requiring more specific services (plans, projects, design information) are charged. Information collection relies on a network of volunteers, primarily from local community schools, libraries, and clubs.

These telecottages are disseminating local information and advice, providing distant students and workers with Internet connections, and businesses with the opportunity to market their company products and communicate with customers. Village events are also publicised. Telecottage information is made available on Internet homepages, telecottage newlists and info-bulletins. Information dissemination is also through organisation networks, mass media, e-mail, local study circles, and local village development groups.

Telecottages are also participating in elaborating sustainable development village plans, informing the public about environmental problems and proposed investments, disseminating information on the environment, and helping to facilitate the organisation of events. (<http://www.fao.org>)

Electronic information networks in Latin America

Silvia Balit describes approaches and activities developed by an FAO regional project in Latin America to promote rural communication. The project concentrated on two communication systems: audiovisuals to train small farmers and electronic information networks to provide information to agricultural producers and their associations. Focus here is on electronic information networks.

In Chile and Mexico, information networks were established for agricultural producers and farmer associations. The networks provided data on crops, inputs, prices, markets, weather conditions, social services, credit, through the Internet to farmers' organisations, cooperatives, town councils, equipped with computers.

The process started with an assessment of the local knowledge and information needs of farmer and their associations, which indicated a need for an improved communication system and better methods for information sharing. Extension services, local leaders and institutions required information for organising and managing agricultural development activities. The project provided the electronic network design, equipment, and logistical support, and training in using electronic information technology, analysing and disseminating locally relevant information to extension and farm organisation personnel. Small information centres equipped with computers, modems and printers were created within the offices of farmer organisations and NGOs. These centres distributed messages to individual farmers and associations, according to local conditions and the facilities available. Messages to farmers were timely, appropriate and transmitted in a form that could be easily understood by the farmers.

The national extension service in Chile established an Electronic rural information system which connected farmer organisations, rural municipalities, NGOs and local government extension agencies to World Wide Web (WWW) information services. Five local information centres were established in offices of farmers' organisations or NGOs. Transmitting price and market information this way was estimated to cost 40 percent less than using traditional methods. Information was also more timely.

A farmer association in the State of Sonora, Mexico reported that by using the market price information provided through electronic mail by the Information and Communication Unit, it was able to sell its cotton

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crop at a higher price than the price local buyers were trying to impose. Knowing the future prices for cereals and oilseeds also enabled the association to better plan the quantities of crops to plant. Vegetable producers reported that the information on meteorological conditions informed them of climatic conditions faced by competitors in other states and countries thus enabling them to plan markets for their products.

Lessons

- The communication systems supported the rural and sustainable development policies of Governments in the region.
- Technologies and methodologies used were appropriate to the conditions and needs of the rural areas in Latin America.
- A participatory and interactive approach was applied, with farmers becoming partners in their own development
- A holistic and systems approach was applied which included agriculture, forestry, fisheries, and natural resource management.
- New institutional frameworks were created, involving all stakeholders, including the public and private sector. (Silvia, Balit. *Listening to farmers: Communication for participation and change in Latin America*. Posted at <http://www.fao.org> on November 12, 1998)

Farming and Rural Information Expertise and Dissemination Services

FRIENDS (Farming and Rural Information Expertise and Dissemination Services) is an EU-funded project providing an "information and expertise" system for remote Greek agriculture communities. The objective was not only to create a dedicated electronic information system for Greek agricultural communities, but also to include services connecting rural organizations and local cooperatives throughout Greece and the rest of Europe.

FRIENDS users include: Access point users from the Greek Union of Young Farmers (UYF) and Internet users including individual clients (farmers, students) and corporate clients (agribusinesses, institutions, government organisations, other farming co-ops, etc).

FRIENDS' headquarters in Agros, Greece oversees the collection, maintenance and distribution of a wide variety of agricultural information services. FRIENDS channels the information --aggregating, filtering, packaging and disseminating it to the farmers and other consumers of agricultural information. The number of users and information providers is growing. Based on client feedback information systems and services are being improved.

Success factors

- FRIENDS attempts to aggregate a variety and depth of agricultural information from many sources in one format and presents them in one place thus saving time.
- Information is filtered and then finally information which is recognised as most useful and interesting to its clients, is channelled.
- The System has established a critical mass of both information providers and information users. Over 200 agribusinesses and agricultural organisations have provided contact information within the system and there are 800 regular users accessing the services.
- FRIENDS' focuses on its users.

Involvement of users of the system in the identification of services, the design of the interface and continued evolution of the system, has been the key to success. (Thompson, Michael. *FRIENDS in Greece: Commercializing an agricultural information service*. Posted FAO Web site at <http://www.fao.org>)

Digital Library in Extension Training

A digital library was designed and developed to provide extension services for Greek beekeepers. It was

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A digital library was designed and developed to provide extension service for Greek beekeepers. It was designed on the basis of a thorough analysis of information needs of beekeepers and system requirement. A brief summary of the digital library is given here.

The digital library provides information on the five main areas on which the need for information has been expressed viz.: Bee biology and colony manipulation; beekeeping products; biological and environmental issues; financial and law issues; and management skills.

The information is globally accessible through the World Wide Web (WWW) and is easily extensible, as information can be added. In authoring the hypermedia digital library, a hypermedia system called HyperTree has been used.

A central WWW server is used as an intermediary between the beekeepers and the five individual hyperbases. Using the WWW client software, the user can browse through the information stored in each of these five hyperbases or, alternatively create and submit a query and cooperatively retrieve relevant information.

It is believed the hypermedia digital library could be part of a new approach in education, training and development process for Greek beekeepers as it facilitates immediate access to up-to-date information, and faster and easy communication between beekeepers and information providers. (Batzios, Christos A. *A hypermedia digital library for the Education and Extension training of Greek Beekeepers. Paper presented during the First European Conference for Info Technology in Agriculture at Copenhagen, Denmark during 15-18 June 1997*)

Internet for Custom Tailored Crop Information

[PI@ntelno](#) , is a Danish WWW-based information system for crop production developed in collaboration between the Danish Institute of Plant and Soil Science (DIPS), and the Danish Agricultural Advisory Centre (DAAC). This is an information system for crop production which uses internet to supply farmers and agricultural advisors with Just-in-time info about risks for diseases, pests, drought etc.

[PI@ntelno](#) has facilities for custom tailored information, where users can submit farm specific data to tailor the information to their local conditions. These facilities include: Predictions of crop development stages, local irrigation need, Local nitrogen fertilisation need.

By using the Internet as a medium for distributing information the information can be custom tailored based on input data from the user., information can be processed from input data from different independent sources, Information from different sources can be integrated automatically into the same Web page. The Internet facilitates collaboration between institutes of different expertise or similar institutes in different countries. (Jenson, Allan Leck et al. [PI@ntelno](#) - using the Internet for custom tailored crop information. Paper presented during the First European Conference for Info Technology in Agriculture at Copenhagen, Denmark during 15-18 June 1997.)

Connecting the country

The Virtual Village is an initiative, which takes advantage of the latest advances in telecommunications technology, to address the need for the provision of local services, information and opportunities to rural communities. Through a partnership of public, private and community organisations, it delivers Information services; Employment opportunities; Advice, guidance and counselling; Vocational training to villages in Nottinghamshire, U.K.

To deliver these services the Virtual Village is creating a network of computer and video conferencing

facilities which links community centres in the rural villages with each other and the rest of the world. The Virtual Village project has been launched and facilitated by the [Nottinghamshire Rural Community Council](#). A computer network has been created which links 12 key villages in the county to each other and to a hub of central services. Internet and videoconferencing technologies form the backbone of this infrastructure, allowing new ways of delivering services and information to even the most remote of rural communities.

Virtual Village services

The services provided are the ones the communities themselves ask for'. The Virtual Village is seeking to promote video conferencing as a means of delivering advice and counselling sessions from various agencies, and to expand its use as a tool for small businesses.

Service Delivery

- ◊ A Virtual Village web site provides a hub for all the information services which users access through the Virtual Village. Centres have the opportunity to place their own web pages, so promoting local activities to a much broader audience.
- ◊ Video conferencing - online advice and counselling will shortly be available on a regular basis for all users, from a variety of agencies.
- ◊ Bulletin boards - local community activities and sharing of information and experiences is also possible through a network of bulletin boards lodged with the web site. Users can also gain access to global newsgroups catering for specialist interests.
- ◊ E-mail facilities.

Community forums

As Virtual Village facilities develop, village 'residents' are consulted both individually and through a programme of Community Forums ie. regular meetings of the Virtual Village team and the people managing the village centres for constant monitoring of the system to ensure that the services available are useful and that there are no problems in accessing them. Groups can also put forward their ideas on what new facilities they would like to see on the network. (<http://www.nrec.org.UK/inforurale>)

The Internet and rural and agricultural development

Internet service is fast becoming a tool for development communication. However, most rural communities are not yet able to take advantage of this new mechanism/tool. In this paper FAO recommends an integrated approach to facilitating Internet services and application that will benefit rural communities and agricultural organizations. This approach is based on FAO's experience with communication for Development methodology begins with the needs of rural people and grassroot agricultural organizations and works to establish vertical and horizontal channels of communication.

The paper gives recommendations for strategies, funding mechanisms and support systems, together with examples of innovative approaches. It concludes with a call for action and better ways for donor agencies to work together and share lessons learned.

It is stressed that Internet initiatives for rural and agricultural development must consider the fact that different regions, organizations and communities have different applications and technical needs. In some areas it is possible to have farmers and rural residents as direct Internet users while in other areas the capacity of intermediary organizations (such as extension field officers, NGOs, rural schools, libraries, health clinics, government satellite offices) need to be built up, or assistance given in the establishment and

promotion of community information centres linked to the Internet.

Internet and Development initiatives

- . Managing the Information for Development Program of the World Bank is a global, multilateral donor programme to help developing economies benefit from modern information technologies.
- International Fund for Agricultural Development is supporting the "FIDAMERICA" project to assist the rural poor in Latin America and the Caribbean to access agricultural market information, technical information, improve access to financial systems and access commercial channels through use of information technologies. A similar project, "FIDAFRIQUE," is being considered for West Africa.
- International Development Research Centre (IDRC) Internet related programmes include the Pan Asian Networking programme which supports the development of local commercial Internet service providers and providers of Information, via the Internet, on sustainable development in Asia (Philippines, Indonesia, India, Singapore, Malaysia, Sri Lanka, Mongolia and Thailand). IDRC also houses BellaNet, a multilateral door project that includes the Indigenous Knowledge Program which incorporates Internet tools to help support the development of local communities based on their own culture, traditions, knowledge systems and practices, to ensure the continuation of local knowledge systems, and promote the equitable sharing of benefits from possible commercialization of the knowledge.
- Canadian International Development (CIDA). Hosting a free and open global dialogue on the Internet on the use of information and communication technologies for development, in order to assist in developing strategies and programmes.

Successful rural and agricultural Internet communication and information systems have some common elements.

Some of the elements include preliminary participatory assessment of communication and information needs with intended users.

Awareness building, sensitizing decision makers; commitment to participatory rural and agricultural development; user participation in design, implementation and management of information and communication services and commitment to manage and sustain these services; provision for technical training, user support and outreach within the user community.

As Internet services become more widely used it is important to facilitate the exchange of lessons learned and best practices that emerge. The paper recommends eleven activities to assist rural stakeholders in gaining access to and developing creative uses for Internet services. (FAO(1999). *The Internet and rural and Agricultural Development: an integrated approach.*)