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COMMUNITY INFORMATICS : AN APPROACH TO ICT FOR RURAL DEVELOPMENT

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Abstract: As the full dimensions of the transformation initiated by Information and Communications Technologies (ICTs) has become more widely understood, the means by which these might be integrated into and enhance. the opportunities in such areas as "rural development" have begun to come to the fore. But in a context where there are severe limits to the accessibility and utility of the technology particularly for those outside of urban areas and in developed world contexts, the question arises as to how these opportunities might be realized not just in the abstract as a sense of possibility, but within the real context of specific conditions and limitations in the range of developing world contexts and specifically for those in rural areas.

Community Informatics (CI) is an approach that begins with the perspective that access to ICT can provide a set of resources and tools that communities, and individuals living in communities can use to pursue their goals in such areas local economic development, cultural affairs, civic activism, community based health and environmental initiatives. CI is an approach to ICT, which includes a concern for the accessibility of the hardware, the software, the connectivity and the information: and for the use and user to which the technology is being applied, particularly within the context of the user's physical community.

The present paper emphasizes to highlights the Community Informatics approach for rural development. The paper initially elaborates the concepts of Community Informatics approach. It also focuses on features of a Cl Rural Development Approach.

Key Words: Communications, Technologies, understood, integrated, enhance, opportunities, areas.

As the full dimensions of the transformation initiated by Information and Communications Technologies (ICTs) has become more widely understood, the means by which these might be integrated into and enhance the opportunities in such areas as "rural development" have begun to come to the fore. But in a context where there are severe limits to the accessibility and utility of the technology particularly for those outside of urban areas and in developed world contexts, the question arises as to how these opportunities might be realized not just in the abstract as a sense of possibility, but within the real context of specific conditions and limitations in the range of developing world contexts and specifically for those in rural areas.

The speed with which the new information and Communications Technologies (ICTs) and particularly the Internet have advanced in their dispersal and capabilities is truly astonishing. From what was in effect a standing start, in some five years the overall numbers of those with access to and use of the Internet has gone from less than 1,000,000 people worldwide to some 250,000,000 with those numbers doubling approximately every 18 months. While these numbers are truly astounding, there is a sad disparity as between the access "haves" and the access "have-nots". with the numbers of those with Internet access and accounts being signiticanti? skewed by income level and by location of residence. Regrettably. those in developing regions and particulat. the African continent overall have the least access, and even within those regions. the access is overwhelmingly

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among the higher income groups and particularly in certain urban areas.

WHAT IS 'COMMUNITY INFORMATICS' ?

Community Informatics (CI) is an approach that begins with the perspective that access to ICT can provide a set of resources and tools that communities, and individuals living in communities can use to pursue their goals in such areas as local economic development. cultural affairs, civic activism, community based health and environmental initiatives. Access of course, is more than simply technical access or even individual's access. It includes in the Developing Country context, how to ensure that individuals or communities may make use of the opportunities provided by ICTs both where there is a means for direct use of the technology and also where this is locally absent. This issue is one that is currently being examined in many countries where the cost of individual access is prohibitive. It is also being examined in contexts where there may be reasons for having "community" access in addition to "individual in-home" access. In these instances, how to provide this type of "access" through physical facilities or through the redesign of existing information dissemination systems is a significant starting point.

Having established a facility for providing "community access", it becomes necessary to determine how to manage and sustain the institution or organization through which the access is being provided. It is also necessary to organize the facility so as to optimize the use of the technology and the opportunities which it provides. Finally, there are questions as to how the public or community access opportunities are linked into on going non-technical service or other organizational structures, including how access and use of a public access site for example, for rural development purposes might be linked into existing rural and economic development facilities and institutions in a local community.

A 'COMMUNITY INFORMATICS' APPORACH : CI is an approach to ICT, which includes a concern for the accessibility of the hardware, the software, the connectivity and the information; and for the use and user to which the technology is being applied, particularly within the context of the user's physical community. Incorporating the user and his community into the system design process introduces new eiements and new "stakeholders" into an extended approach to ICT design, development, and implementation.

a) Access Facilities- How the user gets access to the technology is of particular interest. For many and particularly in less "connected" regions and countries, this will be through public or community-access facilities, i.e., Tele-centers, CAP sites, "cyber cafes", etc. These centers, in addition. to providing communications and small business support, also may become centers for the delivery of electronically mediated training, and public information including rural extension services..

b) The Design of the Service- Central to the success of the activity will be the information or service being provided. There are a vast amount of information and services available on the Internet. However, relatively little of it is appropriate or useable in contexts where environmental conditions, resources scarcities. skill deficiencies, and cultural expectations and practices are different from those in the developed countries. For services to be widely useful, information providers-must design and provide services of specific interest to the end user, and particularly which takes account of the specific corer:;:;,.. of the various regions and cultural and linguistic groupings. What would be best is if information service providers were widely distributed and close to those using the information so as to localize information from other regions and to develop information of special interest within local contexts.

c) Design of the Telecentre- The telecentre will be central to the capacity of a Rural Development initiative to have a broad impact in local communities. The range, number and

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Vol.-10, No.-I, Issues-11 YEAR- June -2019

distribution of telecentres will determine whether the service is available to the few or the many. The effectiveness and capacity of the centre will be the lynchpin of the effectiveness and success of the service. It will thus be necessary to undertake the planning of the telecentres in the context of their being the node through which Rural Development is delivered. It will also be necessary to design the operations ot' the telecentre so that the centre is able to act effectively as the intermediary between the information provider and the information user. The physical and organizational design of the telecentre should also reflect its possible user as a Rural Development facility and should include among other critical telecentre elements.

1. An institutional linkage and physical base
2. Connectivity
3. Multiple uses-education. extension. small business support, communications
4. A paraprofessional extension worker with online and information management skills
5. Translation facilities for the key languages served in the region
6. Some means to ensure sustainability

d) The design of the Information or Service

As already noted, there is a vast amount of information and services available on the Internet. However, relatively little of it would appear to be appropriate or useable in the Developing World context where conditions are so different from those in the North and particularly with respect to environmental conditions, resource scarcities, skill availabilities, and cultural expectations and practices.

For Rural Development ic-r services to be useful it will be necessary to develop the capacity with the information provider to design and provide service of specific interest and relevance to the Developing Country end user and particularly information which takes account of the specific contextual circumstances found in particular Developing Countries and regions and their various geo-physical, climatic, cultural and linguistic groupings. It would probably be most advantageous if information service provider facilities were to be developed in the Developing Countries themselves. which could both localize information from other parts of the world and develop information of special interest within the particular Developing Country context.

e) The community System- The design of the community system into which the ICT enabled service or information will be transmitted will be particularly for Rural Development working through public access telecentres. There is a tendency in the developed world to think that the mere presence of electronic resources will meet the requirements of a "community" without the need for further intervention or leadership. In the Developing World Context, the on-line information or service will probably for the most part be provided to groups rather than to individuals. In some cases these groups will already have been formed, in other cases they may need to be formed specifically to take advantage of the opportunities presented. Thus, for example, a local farmers group might be developed which meets regularly to obtain advice on crops and marketing related matters by means of the Internet. The group would identify its information needs,. the request or search would be undertaken by a paraprofessional trained for such activities and fie or she would in turn pass the information back to the group where it would be assimilatedi`processed/ applied.

It will, in this context, be necessary to look at the entire service process as a system, including the information or service provider/designer, the pars-professional intermediary, the professional and the group or community information user/recipient. F-lective planning and development for all stages of the process will be needed for the service activity to be successful. It may also be desirable to establish a process of information-sharing between groups with . concerns, as a parallel to the useful and beneficial interactive communication, .processes. wit ich have developed between individuals.

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On-Line Service Delivery- Among the rural development related services that 'are currently being provided or could be provided through the internet are :

* Information
* EduCation and training

Mentoring and consultation Diagnosis and monitoring- Transaction processing structures" linking the electronic "service" with the end user as for example, a technologically-trained paraprofessional translating the needs of a community support group into appropriate Internet search criteria and then sifting, interpreting, and translating the returned information into a form that is useable by the "client" community.

g) On-Line Support- "On-line support" is the mechanism whereby individuals provide information, comfort and mutual assurance to each other through the medium of the Internet. This can be done either by e-mail, newsgroup or web conference (asynchronous) or by chat (synchronous), although in most cases it is done asynchronously. Included in this would be a variety of groups of producers working in similar geo-climatic areas producers working with similar types of crops(sugar cane, sorghum), supports for a variety of exotic conditions and crop or animal diseases, and individual or cooperative support facilities. These groups provide the opportunity to discuss current conditions, or problems with others who have direct experience of the problem or circumstance. These online support groups are also being used in a variety of ways by researchers including crop and climate researchers and veterinarians.

RURAL DEVELOPMENT APPLICATIONS :

a) Rural Development Information- This includes a range of information of local interest such as local listings, directories, a local calendar / schedule of events, and so on. In many cases public extension information is provided 3. In some cases this is being done through the regional extension office or through NGO's, which, on a voluntary basis, are maintaining rural development data-bases, now generally in the form of a web-site.

b) Service Delivery On-Line- 1CT is being used as a means for providing rural development services, including information and registrations, extension information and counseling, and technical information and small business support (including mentoring). This direct provision of services is only in its infancy and particularly in a Developing Country Context. However, one can expect that this will grow dramatically in the very near future as it comes to be realized how cost effective this approach may be in a number of sectors and particularly in those areas which are highly information intensive such as information provision, training, registration/licensing and so on.

c) E-Commerce- Both commercial and non-commercial agencies are making efforts to ensure that some of the opportunities emerging through Electronic Commerce are being made available to geographic communities including rural Developing Country Communities, as for example through E-mails, community web-sites, links between SMEs and on-line commerce and others. A number of initiatives are currently underway to find way of linking local commercial and production activities with the facilities offered by e-commerce, both directly to retail and trade purchasers and to suppliers .

d) Education/Training/Learning Networks : A major and rapidly-emerging application area is in education, training, or life-long learning. Increasing areas of education and training are being provided on-line, including the on-line distribution of course material in text, oral, and even video format along with an asynchronous or synchronous interactive component through e-lists or forums or chat facilities. The medium is still in its early stages and techniques and curricula incorporating some of the unique opportunities which the technology affords are just now being developed. Also the methods for linking on-line facilities with training and life-long learning needs, and with existing community organizational and institutional

structures, are just now being developed along with the means to link this into on-going and emerging opportunities for extension training in a variety of geographic and production related contexts.

e) Community and Regional Planning- Much more sophisticated community involvement in local land use and environmental planning is now possible as a result of the application of Geographic Information System technology.

f) Telework- ICTs may support local economics by allowing for work to be done remotely from the workplace, or "telework". Some have suggested that technology would allow for certain enterprises or their employees to be located anywhere so long as they were tele-connected.

g) Civic/Community Participation On-Line- 1CTs are being used to enhance civic and civil society participation through non-partisan electronic democracy projects. and through public consultation initiatives.

FEATURES OF A CI RURAL DEVELOPMENT APPLICATION- The key characteristic of a CI Rural Development application, of course, is that it is meant to support RD objectives and to be useable by rural actors or agents.

a) Training : The application will necessarily include a significant training component, not as an afterthought or as an "add-on" but as an integral part of the system. The training should be directed to allow for the non-professional user to manage the system being operated.

b) Ease of use- The application will be designed so as to optimize its ease of use, including installation and on-going maintenance, where possible by the community or end user. While the "backend" of the application may be complex (they often seem to be based on UNIX/LINUX architecture which is famously not user-friendly), the "front-end" should be transparently easy to use and to implement.

c) Mediation : The application Nvill likely be designed so as to accommodate a "mediator" between the application or service provider and the end user, since the end use of the service is meant to be available to The general locally based producer and not just to specialists.

d) Applied technical system : The application is for the most part identified by what it does, not how it operates. Its support for community extension, for example, is assessed by its effectiveness in contributing to community extension, not by the elegance of its software design. The particular way in which the contribution is made or its technical features (for example, design elegance) will, from this perspective, be of lesser interest or relevance.

CONCLUSION- There is a window of opportunity at this time when policy. decisions are being made in regard to both the creation of a network of Telecentres and the creation of on-line Rural Development support services. Integrating the planning and operation of these endeavors could provide consideration cost savings and increase the effectiveness of programs, particularly if the infrastructure required is coordinated and cost-shared with the extension network that is already in place. Developing Country contexts for supporting rural sustainability by enabling accurate information about local agricultural matters, and by facilitating cooperation and interaction between organizations, institutions and communities distributed throughout the world.

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3. पाटनी, डॉ0 मंजु, एवं डॉ0 हरपालानी, प्रसार शिक्षा एवं संचार।

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