

POLICY BRIEF ON ICT APPLICATIONS IN THE KNOWLEDGE ECONOMY

Using telecentres for disaster risk management at the community level

Telecentres are community centres that provide public access to information and communications technology (ICT) in the form of telephones, computers and the Internet. In addition to providing access to computers, they are gradually expanding their services to include e-learning, e-government, e-health, training and skills development, financial services and other services that are relevant to the local community.¹

Over the last decade, the number of telecentres has been growing rapidly in many developing countries. Mission 2007, a multi-stakeholder initiative in India, is setting up telecentres, known as knowledge centres in India, for 600,000 villages.² Similarly, Mission 2011 in Bangladesh is aiming to set up 40,000 community-based e-centres by 2011.³ The telecentres would enhance access to information and government services for rural people. In Sri Lanka, as of June 2009, there were 587 operational telecentres, and the number is estimated to grow to more than 1,000 in the coming year.⁴ With the expansion of telecentres and the growing interest of countries in addressing disaster risk reduction and climate change adaptation with a focus on actions at the local level, a possible area of service expansion for telecentres is to support communities in managing disaster risk, vulnerability and exposure through disaster prevention, preparedness, response and recovery.⁵

The Village Resource Centre programme of India is an example of a telecentre initiative that has expanded services to support disaster risk management (DRM) activities. The programme was initiated by the Department of Space in collaboration with partners to

provide rural communities with space-enabled services in order to improve their socio-economic conditions and quality of life. The scope of the services includes disaster warning.⁶ The Village Knowledge Centre in Pondicherry, India, sponsored by the M.S. Swaminathan Research Foundation, functions as a weather reporting station. Weather and wave height information is obtained from open sources on the Internet and is then interpreted and presented in the local language. The Village Knowledge Centre also provides natural disaster warnings. The Foundation is working on linking the Centre with the state's early warning system, and this attempt at disaster preparedness empowers communities by increasing their access to technology which will be used locally.⁷ In the Philippines, the Regional Electronic Access to Communication for Health in Eastern Visayas (REACH-EV) e-Centre, established with support from the United Nations Educational, Scientific and Cultural Organization, also serves as a databank of hazards and disasters in the area. The e-Centre involves the community by conducting a series of trainings for local and regional community leaders on topics such as disaster management and communications. Electronic content on disaster management, which is based on the lessons and experiences of the region in dealing with the various forms of natural disasters, is available online and on CD-ROM at the e-Centre.

Telecentres in vulnerable coastal regions have been serving as community-owned early warning systems for extreme sea weather conditions. These telecentres illustrate a variety of real life applications in support of disaster risk reduction. They also provide information and

¹ Global Alliance for ICT and Development, "Telecentre.org—scaling up for global success" (2008-2009), accessed from www.un-gaid.org/Networks/FlagshipPartnershipInitiatives/telecentreorg/tabid/878/language/en-US/Default.aspx.

² Geeta Sharma, "Mission 2007 in India: every village a knowledge centre", *Information for Development* (September 2004), accessed from www.i4donline.net/sept04/mission2007.asp.

³ *New Age National*, "UNDP project plans 40,000 telecentres by 2011 for rural people", 14 August 2007, accessed from www.newagebd.com/2007/aug/14/nat.html.

⁴ Seuwandhi Yapa, "Curriculum development for the telecentre.org Academy in Sri Lanka", *Telecentre Magazine* (June 2009), accessed from www.telecentremagazine.net/articles/article-details.asp?Title=Curriculum-Development-for-the-telecentre.org-Academy-in-Sri-Lanka&articleid=252&typ=Features.

⁵ Asian Disaster Reduction Center, "Total disaster risk management—good practice" (2005), accessed from www.adrc.asia/publications/TDRM2005/TDRM_Good_Practices/GP2005_e.html.

⁶ National Remote Sensing Centre, "Village Resource Centre", Indian Space Research Organisation, accessed from www.nrsc.gov.in/vrc1.htm.

⁷ Swayam Shikshan Prayog, "One year after tsunami", Disaster Watch, Tsunami update No. 6 (26 December 2005), accessed from www.disasterwatch.net/Best%20Practices/MSSRF.htm.



advisory services for livelihood recovery in post-disaster situations. In many developing countries in the region, telecentres that were set up after major disasters are now also addressing disaster preparedness.

These examples highlight the usefulness of telecentres as a tool for creating awareness and disseminating information for disaster risk reduction in rural communities. In rural telecentres, it is worthwhile to capture indigenous knowledge about hazards in order to help build up disaster resilience at the community level. In the coming years, telecentres could redefine the delivery of disaster early warnings and carry out the various activities related to disaster management. For that to happen, capacity-building in DRM needs to include community leaders and telecentre operators, and disaster management authorities need to recognize that telecentres could be part of the national framework for disaster management. This moves away from the established paradigm of top-down disaster management, and telecentres are enabling the transition to a more local community-based approach to disaster management.

This paper briefly examines the functional roles that a telecentre can add to its services to support DRM at the community level. It also examines the challenges that could affect the usefulness and effectiveness of the telecentre for DRM and provides policy options that could enable and encourage telecentres to take on the additional role.

How can telecentres benefit disaster risk management at the community level?

Many poor communities in developing countries are living in disaster-prone areas, mainly for economic reasons. As a consequence, these communities are more exposed to disaster risks and are more vulnerable to natural disasters

than other communities. The use of telecentres would help them become better prepared for and resilient to hazards.

Indigenous knowledge for community-based disaster risk management

Communities located in disaster-prone areas have indigenous knowledge relevant to disaster risk reduction and management, which can be captured and used for community-based DRM. It is this local knowledge of hazards, vulnerabilities and the resources available that has to be captured so that disaster managers can make plans together with the communities to manage the disaster risks they face. Community-based DRM is a set of processes and activities that is used to capture this local knowledge, and to enhance and manage the use of the captured knowledge by involving the local community. The aim is to strengthen the capacity of the communities to cope with the disaster risks that they face. For instance, Bangladesh began implementing community-based DRM through its Cyclone Preparedness Programme, which created awareness about risks and enhanced the capacities of communities to be prepared for and to respond to disasters.

DRM is very information- and knowledge-intensive. Leveraging the available ICT tools in the telecentre, maximizing the centre's use as a knowledge hub and expanding its role in supporting DRM at the community level could be effective ways to enhance disaster preparedness for rural communities and at the same time ensure the sustainability of telecentres.

Information bases for disaster risk management

Telecentres can be used effectively in helping to organize community inputs into the planning and execution of disaster risk reduction actions, such as creating or raising risk awareness, enhancing prevention and mitigation response, and improving public services and community facilities. The tools commonly available at a telecentre, such as computers, scanners, printers and office software, can be used to capture the local information in digital information bases. Examples of information bases include digitized hazard maps that track the hazards to which the communities are vulnerable, digitized resource maps that indicate the locations of the resources available to deal with the risks, and chronological logs of disasters that had previously taken place in the area. These information bases could be created with input and involvement from the local community with technical support from disaster management authorities.

Awareness raising and training

Data on local hazards and risks stored at the telecentres could be processed and redeployed to create information

for training materials and documentation for standard operating procedures. This training information could then be disseminated online and accessed through the Internet. It could also be recorded on disks and sent to different areas for offline, non-locale specific use. Telecentre networks can create non-locale specific DRM training in a collaborative manner with open-source online collaboration software, such as wiki software, and the final result could be used by all the communities that the telecentre networks serve. Information sharing through telecentre networks could provide the communities with greater insight. The end goal of disaster risk training is awareness of the risks and hazards that the community faces and of how the risks and hazards can be faced proactively.

Communicating risk and last-mile early warning

A potential role of telecentres could be to disseminate natural disaster warnings to local communities. It is widely recognized that ICT plays an important role in effective early warning systems and in successfully conducting activities for preparedness and response. Communicating risks and alerts to communities could be one of the services of telecentres. Through proper institutional arrangements and standard operating procedures, authorized and verified alerts could be sent to the telecentres, which would initiate and activate the response plan under the direction of community leaders. The example described in the box shows how telecentres could be a functional part of a last-mile early warning system.

Knowledge centre in India used to save lives during tsunami

The village of Nallavadu, located in the state of Tamil Nadu, India, was struck by the tsunami in 2004. The village's entire population of 3,600 was saved, however, by a phone call to a rural teleservice centre. Nallavadu is part of the M.S. Swaminathan Research Foundation Village Knowledge Centre project, and one of the project's volunteers, Vijayakumar, learned about the approaching tsunami while in Singapore. He immediately telephoned the Village Knowledge Centre, setting off an instant reaction. A warning was repeatedly announced over the public address system and a siren was set off. As a result, the tsunami claimed no victims there.

Source: T.S. Subramanian, "Their own warning systems", *Frontline*, vol. 22, No. 2 (January 2005), accessed from www.flonnet.com/fl2202/stories/20050128006701600.htm.

Disaster management support system

A telecentre could also act as a command centre for disaster response, using ICT equipment to create new information bases for disaster victims, for volunteer work and resource allocation, and for other critical disaster recovery functions. Telecentres could also be used as storage facilities for emergency equipment, such as hand-held loudspeakers, walkie-talkies and flashlights.

Challenges in the use of telecentres for disaster risk management

Resources for capacity-building and training

It is important for communities to be involved and trained in the use of ICT so that they can keep information bases updated and accurate. Essential local knowledge has to be documented in the information base so that the processed data can be trustworthy in a disaster scenario. Just as there is a need for external parties with skills and expertise to guide the DRM process, external capabilities are also required to guide and train the community in introducing and setting up ICT toolsets. The setting up of an information base requires the telecentre staff to have certain skills, and the resources for training both the telecentre staff and the community to use and maintain the systems have to be funded, allocated and sustained. This expertise needs to be recognized and funded as a component of national disaster reduction programmes.

Critical connectivity

During disasters, contact between disaster management authorities and the affected communities through telecentres is critical for liaising and coordinating assistance and support resources, and for upward reporting the disaster conditions to the government agencies responsible for disaster management. In this respect, the availability of power, connectivity and telecommunications equipment needs to be ensured so that communications with the disaster area will not be lost. These services have to be treated as part of disaster-management communication capacity.

Sustainability of telecentres

The sustainability of a telecentre is a major challenge. Plans should be in place to ensure that communities are able to sustain the telecentres. With the design and use of telecentres as part of national disaster management programmes, the sustainability of telecentres can be greatly improved. Funding for DRM functions and services as part of national disaster risk reduction initiatives could be used to supplement the ICT services provided by the telecentres that are involved in DRM. The

Policy recommendations

A collage of images related to the oil industry, including a boat with people, a man in a turban, a man on a phone, a hand holding a paper, and an oil rig.

hospitals and health clinics, transport systems, and centres for fire, police and public administration services.⁸ Telecentres with DRM functions should be regarded as critical facilities that guarantee the availability of services for disaster management. To ensure that the data and information collected by DRM processes are available pre- and post-disaster, policies and resources should be in place for the provision of emergency ICT and power-generation equipment. There should be provisions to back up and store the collected data in a separate area so that the information can be retrieved if the telecentre and the information bases are destroyed.

In a disaster scenario, having agreements with service providers for the recovery and availability of connectivity within an acceptable amount of time from the loss of the service would ensure that emergency communications and upward disaster reporting could continue. Going one step further, having agreements for contingency cases in which recovery is not immediately possible would allow for alternatives to be planned and implemented. Arrangements for the provision of spare ICT equipment and a facility to store this equipment and from which to deploy it in a timely manner could supplement the availability of telecommunications connectivity.

⁸ PreventionWeb, "Terminology: critical facilities" (2009), accessed from www.preventionweb.net/english/professional/terminology/v.php?id=7816.