

Emergency response: Turning to telecoms

During emergencies, telecommunications become the lifeline to relief efforts

Emergency telecoms | Satellites to the rescue

Help from above in times of trouble

When ground systems are down, satellite communications really come into their own. "Landline and terrestrial mobile services may be cheaper and more readily accessible, but both are highly vulnerable to structural damage and congestion that can render them unusable just when they're most critically needed," says Cosmas Zavazava, head of emergency telecommunications with the International Telecommunication Union's (ITU) Telecommunication Development Bureau.

"Flooding, earthquakes, hurricanes and tidal waves can quickly topple communication towers, destroy local exchange equipment and sever landlines, taking down the fixed and mobile backbones that support communications across a city or an entire region."

In such cases, latest-generation satellite systems are a godsend. Following the massive earthquake that struck the Pakistan-India border area in October 2005, ITU sent 55 solar-powered satellite terminals to help restore vital communication links to the region and facilitate international relief efforts. Fifteen GAN (global area network) terminals were deployed from ITU's own stock, procured through a long-term co-financing agreement with Inmarsat Limited, which also agreed to contribute a further 40 regional broadband global network (RBGAN) satellite terminals free of charge to the relief effort. ITU took charge of transporting and deploying the equipment as well as covering the cost of its use by humanitarian response teams on the ground.

Delivering voice, data and video services, the terminals played a vital role in coordinat-

ing large-scale relief and rescue operations that lasted nine months.

"They were also used to establish public call centers providing essential information and communication services for families searching for missing relatives or seeking to get in touch with loved ones abroad," says Zavazava, "as well as serving as the platform for a telemedicine service, which allowed 22 physicians at the Holy Family Hospital in Rawalpindi to speed treatment of injured people by local medical teams working on site over 100 kilometers [62 miles] away. Solar-powered charging was essential, because the public power supply had also been badly damaged."

More recently, ITU deployed solar-powered satellite terminals in Suriname, following an international call for aid in the wake of disastrous flooding in May 2006. With response efforts severely hampered by damage to roads, airstrips and conventional networks, ITU satellite equipment helped facilitate rapid information exchange between the relief workers in the field.

In addition to its continuing partnership with Inmarsat, ITU recently brokered a second partnership deal with United Arab Emirates-based Thuraya Satellite Telecommunications Company. As set out in the agreement, Thuraya will donate GSM-enabled solar-powered handheld satellite terminals supporting voice, data and GPS services, which boast the added advantage of automatically reverting to low-cost GSM service whenever a viable network is available. For its part, ITU will cover the cost of airtime — provided at a discount. ■

Satellite terminals played a vital role in relief and rescue operations

UN's special ICT arm | Funding early-warning systems

When disaster strikes, help could be just a phone call away

Natural disasters kill more than a million people every decade — more if that decade happens to include a particularly lethal catastrophe like the Indian Ocean tsunami, estimated to have claimed as many as 250,000 lives in December 2004.

While both developing and developed countries are equally vulnerable to natural disasters, poorer nations are hardest hit because of their already fragile economies and lack of resources.

Unfortunately for those on the front line of disaster relief efforts, the lines of communication tend to be among the first casualties, exacerbating the difficulty of estimating the scale of response needed, impeding rescue efforts and compounding the distress of those caught up in the aftermath.

As the United Nations specialized agency for telecommunications and information and communication technologies (ICTs), the International Telecommunication Union (ITU) is dedicated to ensuring communications are available when they're needed most.

ITU's emergency communications work involves all three core ITU sectors — Radiocommunication, Telecommunication Standardization and Telecommunication Development. These work together to optimize international regulations relating to emergency radio services, to develop globally agreed upon standards that optimize network availability for relief workers and to har-

monize international legislation relating to the cross-border movement and use of emergency communications equipment. They also work together to build cooperative deals with companies, organizations and other UN agencies that can bring critical help to disaster zones fast.

ITU recently signed a deal with German electronics specialist Rohde & Schwarz for the funding of a dedicated Handbook on Emergency Telecommunications and for network rehabilitation work in tsunami-affected countries. It also secured 500,000 Swiss francs (\$416,000) from the Australian government for work on Asia-Pacific early warning systems to rehabilitate networks and infrastructure hit by the 2004 tsunami, and entered into partnership agreements with satellite manufacturers Inmarsat and Thuraya for the provision of handheld satellite terminals and solar-powered chargers.

In addition, the agency recently signed a Memorandum of Understanding with Télécoms Sans Frontières, a nongovernmental organization with bases in France, Nicaragua and Thailand, which delivers rapid-response satellite communications facilities to relief teams and aid workers providing broadband Internet, telephone and fax. "In emergencies, there's an urgent need for food, water, shelter and medical help," says TSF President Jean-François Cazenave. "None of these things are possible without quick and reliable communications. Télécoms Sans Frontières



Télécoms Sans Frontières works with ITU to restore communication links in disaster-struck areas. TSF at work in Camp Meulaboh, Indonesia.

Forewarned is forearmed

Comprising some 17,500 islands in the Indian Ocean, Indonesia is one of the world's most populous countries and one of the most precariously placed, straddling the volatile volcanic juncture of the Indo-Australian, Eurasian and Pacific plates, within a climatic zone where tropical storms and widespread flooding are increasingly prevalent. The country was among the worst hit by the December 2004 tsunami, and in February suffered catastrophic flooding that displaced more than 340,000 residents in the capital, Jakarta.

Following the 2006 earthquake that decimated the Yogyakarta region, ITU set up a project with UNOSAT. This UN service provides international humanitarian relief and development communities access to satellite imagery and Geographic Information System (GIS) for disaster mitigation.

ITU provided Indonesia with satellite imaging and mapping services through a GIS laboratory in Yogyakarta. ITU contributed GIS software and experts, who trained local staff and volunteer students from Gajah Mada University to use the new software, which enables the creation of high resolution maps from satellite images. The maps provide key information about the potential vulnerability of key infrastructure and facilitate fast rehabilitation work after catastrophes strike.

is proud to be collaborating with ITU, and we hope this will encourage telecoms operators to recognize the potential of their products and services to save lives."

ITU also leads the Partnership Coordination Panel on Telecommunications for Disaster Relief, which brings together standard-setting organizations providing ICT solutions for emergency communications and relief organizations, to ensure that the systems developed and deployed will best meet users' needs.

The Organization for the Advancement of Structured Information Standards (Oasis), a not-for-profit international consortium promoting global e-business and Web-based standards, which participates in the panel's work, has developed a Common Alerting Protocol to allow a warning message to be consistently disseminated simultaneously over

many different warning systems and to many applications worldwide. Oasis's protocol is currently being evaluated for acceptance as a global ITU Recommendation to be adopted by mid-2007.

Believing that information is one of the most critical elements of any effective disaster-response effort, ITU also leads the organization of emergency telecommunication workshops throughout the developing world to improve awareness and preparedness. These events enable valuable information sharing on best practices and on resilient low-cost technologies that can be used for providing basic telecommunications, e-health and remote sensing when public networks are disrupted.

Following a call by ITU Secretary General Hamadoun I. Touré, recent meetings held in Bandung, Indonesia and Alexandria, Egypt,

endorsed the organization, by ITU, of a major multistakeholder conference in December. The conference will focus on establishing an international framework for cooperation during emergencies. During such emergencies, ITU will take the lead in providing the much-needed telecommunications/ICT support to affected countries.

"This is essential, if we really want to mitigate the effects of natural disasters on people's lives," says Touré. "When disasters strike, time is of the essence, and communications become a lifeline between the victims and the relief teams. To be up to the job," he adds, "communications systems must be readily available. This means open access, equipment and resources as well as appropriate legislative frameworks to allow for their rapid deployment wherever needed." ■

LIVES LOST: Number of people killed in the past 10 years (1997-2007)

	Volcano eruption	Wildfire	Drought	Slide	Windstorm	Epidemic	Flood	Earthquake	Wave/surge
Africa	201	114	1,164	241	1,530	55,547	9,611	3,009	312
Americas	59	92	53	1,511	28,464	789	38,410	2,813	3
Asia-Pacific	3	100	728	6,395	33,224	12,623	39,506	162,192	194,007
Europe and Russian Fed.	0	124	2	445	662	65	1,255	203	35,501
Worldwide	263	430	1,947	8,592	63,880	69,024	88,782	168,217	229,823

The source of the data is the "Centre for Research on the Epidemiology of Disasters (CRED)"

Enabling telecoms during disasters | 35 nations ratified

Tampere, 10 years after telecoms treaty

In mid-summer 1998, 225 delegates from 75 nations gathered in Tampere, a small Finnish town 200 kilometers (124 miles) north of Helsinki.

That landmark meeting culminated in the signing of the Tampere Convention on the Provision of Telecommunication Resources for Disaster Relief and Mitigation — the world's first global treaty recognizing the vital importance of modern communications technology in humanitarian crises.

The treaty sought to expedite the use of information and communication technologies (ICTs) by emergency teams working on the ground. The agreement enables the temporary waiving of national laws covering the importation, licensing and use of communications equipment, and assures legal immunity for aid workers in the field using emergency ICT systems in disaster response.

In too many countries, domestic laws and regulations routinely hamper — or in the worst case prohibit — the timely arrival and deployment of telecommunications equipment at disaster scenes, with local customs officials stymied by restrictive import provisions, and humanitarian agencies left struggling without access to even basic communications during search, rescue and cleanup operations. The treaty also provides for im-

proved disaster preparedness by creating a mechanism for sharing of information and best practice, as well as setting out a clear framework for international cooperation managed by the International Telecommunication Union (ITU) through national focal points.

Almost 10 years on, the Tampere Convention has become the global foundation for effective ICT deployment in emergency relief efforts. Thirty-five nations have now ratified the treaty, while a further 36 countries have signed up to the document and are completing legal formalities.

The UN Office for the Coordination of Humanitarian Affairs, which acts as the treaty's global operational coordinator, notes that major improvements have already been made in the area of disaster preparedness, with many countries proactively establishing emergency response partnerships. So far, so good — but experts agree more work is still urgently needed if the enormous potential of modern ICTs is to be put to best use.

One important area is radiocommunications. "To facilitate speedy authorization of radiocommunication-based equipment in emergency situations, we're encouraging national authorities to put rules in place ahead of time to facilitate the operation of equip-

ment by visiting personnel," says Valery Timofeev, director of ITU's Radiocommunication Bureau.

"We also urge manufacturers to ensure their radio and wireless equipment conforms to ITU recommendations, to avoid any chance of harmful interference to other services in any country in which it is deployed," says Timofeev, adding that the

World Radiocommunication Conference, set to begin in October in Geneva, will also seek to make available additional spectrum for Earth sensing systems that play a vital role in the prediction and detection of natural disasters.

Regulatory reform also needs to be addressed.

"One of the reasons more countries have not yet ratified the Tampere agreement is that under-resourced nations lack the expertise needed to ascertain the impact of the convention on existing legislation, national rights and responsibilities," says Sami Al-Basheer Al-Morshid, director of ITU's Telecommunication Development Bureau.

To encourage more countries to ratify, ITU's World Telecommunication Development Conference in Doha in 2006 adopted a resolution in which ITU will assume a more proactive role supporting national administrations in their work toward implementing the Tampere Convention.

Grassroots experience during the Asian tsunami indicates that ongoing support for

countries that have ratified the convention might also be needed. "Problems relating to the import and operation of telecommunications equipment persist in a number of countries, despite their ratification of the convention, sometimes several years back," says Chérif Ghaly, chair of the UN Working Group on Emergency Telecommunications.

"We clearly need to step up efforts to ensure states are fully aware of the provisions of the convention and their role and responsibilities."

Still, significant advances have been made since the convention was established. These are ensuring that emergency response partnerships are now firmly in place well ahead of any disaster.

"We can now rely on clear stand-by arrangements, stockpiles of critical telecommunications equipment and international rosters of available resources," says Ghaly. "Since Tampere, we have even more tools at our disposal to minimize the impact of natural disasters. We need to take advantage of this by establishing Early Warning Systems, adopting shared information systems like the Common Alerting Protocol and implementing technologies best adapted to disaster."

ITU has been tasked to support the work that involves the use of ICT with a view to providing robust, comprehensive early-warning, mitigation and relief systems at national, regional and international levels. ■

The Tampere Convention has become the global foundation for effective ICT deployment in emergency relief efforts

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