



International Radio for Disaster Relief (IRDR)

Introduction

The purpose of the IRDR project is to offer to the world community a global platform for a wireless radio service to audiences in disaster and post-disaster situations when local and even regional communication and information networks are destroyed or overloaded and the population affected by the disaster suffers from an information blackout.

The distribution of radio content has become more fragmented with the advent of new - mainly digital - technologies, but the role of shortwave broadcasting as "crisis radio" was again identified during the recent earthquakes in Haiti and Japan. International broadcasters and their listeners have been aware of the unique property of shortwaves. Shortwave radio is capable of covering all world regions and therefore its implementation for disaster risk reduction and mitigation needs a co-ordinated system. The present proposal sets out the groundwork for a project of participating broadcasters, technical specialists and frequency managers.

Since most of the tools needed are already in place, the platform could become operational very soon. In reality there is a certain urgency about the project, since the current adjustments and austerity measures that are in progress in international broadcasting have resulted in substantive reductions or complete closing down of shortwave services in a number of countries. Some of them might be irreversible and there is a danger that the technical facilities needed for the project will not be available in the future.

Background

Information and communication is vital and can be life-saving to disaster affected populations. This continues to be a daunting challenge. "Poor information flow is undoubtedly the biggest source of dissatisfaction, anger and frustration among affected people"¹ was one of the conclusions of a report on the Indian Ocean Tsunami of 2004.

After a disaster occurs, the media immediately starts reporting from the affected regions

1 *Links between relief, rehabilitation and development in the tsunami response, Tsunami Evaluation Coalition (TEC) July 2006*

to the outside world, whereas the flow of information in the opposite direction is largely missing. "Left in the Dark - the Unmet Need for Information in Humanitarian Responses" was the title of a BBC World Service Trust policy briefing issued back in 2008. The briefing noted that humanitarian aid was increasingly effective and coordinated in getting food, water, shelter and medical help to the people, but that the lack of information adds to stress and anxiety in emergency situations.

"Effective information and communication exchange with affected populations are among the least understood and most complex challenges facing the humanitarian sector in the 21st century."² "Empowering people through media and communications can educate and lift spirits, both crucial to galvanising people to help themselves. Hearing others share similar experiences of hardships and recovery can play a critical role in improving the psychosocial wellbeing of those affected by disasters."³

After four years one of the authors researched and wrote a follow up document for BBC Media Action (new name of BBC WS Trust) under the title "Still in the Dark?" published in March 2012 and reported: "Unfortunately, the reasons why so little systematic communication work takes place, and why so many communication needs remain, have changed little since they were outlined in the original "Left in the Dark" paper, including insufficient understanding or investment in communication, and lack of recognition and support from the humanitarian sector."⁴

The briefing then tries to conclude on an optimistic note. It points out that humanitarian agencies should hire and resource dedicated communication staff, since this is now all the more important in the quickly changing media landscape. The quick growth of social media - Twitter and Facebook - is also noted - especially their potential for communicating and getting feedback, including SMS messaging, although "In Haiti the going rate for phone charging on the streets of Port au Prince immediately after the earthquake was 40 gourdes or one US dollar – the average daily income – for just 15 minutes of charge time."⁵ The briefing then suggests that an effective communication network should be multi-platform and notes that the recommendation of the original 2008 "Left in the Dark" document that wind-up radios should be included in emergency supplies still remains essential and unfulfilled.

Important conclusions have been drawn about the role of media and communication in the Great East Japan Earthquake of 2011, during a symposium between the Ministry of Information and Communication of Japan and the ITU in March 2012. Japan has an 80 percent Internet penetration and a highly advanced media market. Radio was on top of the list of useful media and information sources at the time of evacuation in the study of two segments of population: those housed in emergency shelters and those in the group of internet users. 29 percent of the people in the evacuated group and 69 percent in the

2 *"Left in the Dark" by Imogen Wall, Lisa Robinson, BBC World Service Trust, October 2008, page 3*

3 *Ibid., Page 4*

4 *"Still in the Dark?" BBC Media Action Policy Briefing by Imogen Wall, March 2012, page 8*

5 *Ibid., Page 6*

internet group received useful information from radio. Community wireless systems and public announcements came next in the list, with around 21 percent each in both population segments. Twitter and the SNS and BBS web-based interactive systems recorded almost zero rating in the evacuated group and around 4 percent in the internet group. What was quite surprising was that only 8.7 percent of internet users found useful information on websites providing disaster information. The fact that on average about 48 percent of people got useful information by way-of-mouth indicates that the need for information from other sources was unmet.

A call for multi-channel flow of information was also made in the symposium: "The more diverse the media serving to relay information is, the higher the possibility that essential information will be communicated ", and further: "There is no singular media or network that represents the most appropriate means of relaying information in disaster-stricken areas; such media should be diverse in nature."⁶

Available evidence indicates that the multi-platform distribution of media is even more important in the delivery of humanitarian disaster relief information and that wireless sound radio in particular is on the top of the list. A number of media researchers believe that wireless terrestrial radio is going to be more resilient to the incoming changes of media content delivery than television.

The idea that terrestrial radio has got a solid footing and that it will continue to represent an indispensable technology in emergency situations is echoed in the 2012 analysis of the influential umbrella organisation of European telecommunication organisations: "Traditional on-air radio has many strengths and is a vibrant medium. It is likely that it will remain an important mechanism for the delivery of radio content for a quite long time. ... It enables the delivery of services to a mass audience at a guaranteed quality of service to fixed, portable and in particular mobile receivers in a cost effective manner. ... During emergency situations broadcast radio may be the only reliable means of providing service information and news updates."⁷

Unfortunately, communication systems collapse just when people need them most. This includes radio and television stations, mobile telephones and internet connections. Long distance wireless broadcasting remains the only source of radio information in many disaster scenarios.

Project Outline

The United Nations led World Conference on Disaster⁸ Reduction approved a pivotal resolution in the "Hyogo Framework for Action 2005-2015" that mandated international

6 *"Earthquakes and Media" by M.Sugaya (MIC-ITU symposium on disaster communications, Sendai, March 2012)*

7 *Possibilities for Future Terrestrial Delivery of Audio Broadcasting Services, April 2012, CEPT - Electronic Communications Committee*

8 *In keeping with the Hyogo Framework the term disaster in this project encompasses disasters caused by environmental and technological hazards and risks*

organisations to engage fully in supporting and implementing the strategy of disaster risk reduction and mitigation.

One of the five main conference objectives as endorsed by the United Nations General Assemblies has been "To increase the reliability and availability of appropriate disaster-related information to the public and disaster management agencies in all regions, as set out in relevant provisions of the Johannesburg Plan of Implementation"⁹ consistent with the Hyogo Framework. The Hyogo document serves as a generic and rolling framework which was already subjected to a mid-term review in 2011, in keeping with the new and emerging global agenda on disaster prevention and mitigation. The United Nations Office for Disaster Risk Reduction (UNISDR) is the focal point for the implementation of the Hyogo Framework.

The present information and communication project that has been proposed is in response to the call for action in the Hyogo protocol. The project is completely disaster-resilient, since it is based on the globally co-ordinated transmissions of international radio. The wireless radio energy of shortwave transmissions travels to the targeted disaster region via reflective layers in the upper atmosphere and the target may be hundreds or even thousands of kilometres away from the transmitter.

The project has been conceived by the HFCC - International Broadcasting Delivery association, in close co-operation with the Asia-Pacific Broadcasting Union and the Arab States Broadcasting Union, the HFCCs sister co-ordination groups. Despite the unique resilience of shortwave broadcasting, a dedicated system using technical facilities of international radio has not been developed yet for disaster risk reduction.

Important prerequisites for the setting up of a world-wide system are already in place. Frequency co-ordination of shortwave broadcasting was developed by an international group of broadcasting and telecommunication experts in the early 1990s. The group, later becoming the HFCC - International Broadcasting Delivery association¹⁰ includes major broadcasters such as the IBB (i.e. stations of US governmental broadcasting) RTC from China, The Voice of Russia, IRIB from Iran, BBC, RFI and many other smaller stations. The HFCCs global database contains about 85 percent of global shortwave frequency requirements used for broadcasting. The other 15 percent is comprised mostly of smaller stations, especially in the so called tropical broadcasting zone. These stations mainly serve local listeners and are not interested in international co-ordination.

According to ITU-R Resolution 647 (WRC-07): "The immediate availability of pre-identified and pre-coordinated frequencies, and/or spectrum-flexible technologies to allow near-instantaneous decisions to make use of available spectrum, are important for successful telecommunications in the very early stages of humanitarian assistance

9 *"Hyogo Framework for Action 2005-2015 - Building the Resilience of Nations and Communities to Disasters"*, Kobe, Hyogo, January 2005

10 More about the history of the HFCC co-ordination can be found here: www.hfcc.org

intervention for disaster relief".¹¹

This important requirement will be met in the IRDR project, since according to Article 12 of the International Radio Regulations individual frequency channels for broadcasting are not assigned, but are internationally co-ordinated in the High Frequency bands allocated to the Broadcasting Service.

Global web-based software is located on the HFCC server, to aid coordination between broadcasters and Frequency Management Organisations. An automated system checks for any frequency changes or additions every ten minutes. If any are detected, the processing of frequency schedule data then starts automatically, the global database is updated and any possible incompatibilities or "collisions" identified.

There are ten international shortwave bands and work is under way to identify one or two frequency channels in each band for the IRDR. The global coordination community is going to reserve the channels for disaster mitigation broadcasting and the ITU will be asked to include them in the relevant of Article 12 documents. The results of both frequency and time-slot compatibility calculations will be immediately visible on the website. Thus the current state of occupancy of the spectrum reserved for the IRDR will be available to all participants at any moment. Specialised software will be available for the selection of frequencies and suitable antennas. The commencement of emergency transmissions will be possible immediately after the start of an emergency. A station in an ITU member country that might be interested in the IRDR - and is still outside the global co-ordination process - would be able to join, and take part in the IRDR. Participating stations will be offered an option to register some of their regularly used frequencies for the IRDR.

Programme content of the IRDR is not the subject of this communication, but as was stated in connection with footnote 4 on page 2, a dedicated communication staff should be resourced in humanitarian rescue teams. Obviously an on-going contact with media outlets has been envisaged and this includes international broadcasting.

The project will benefit further from the digitisation of the AM broadcast bands that is already in progress. The globally standardised DRM¹² (Digital Radio Mondiale) system is a high quality digital replacement for current analogue radio broadcasting in the AM bands, capable of providing a listening experience comparable to local FM broadcasting, with easier tuning and added data services. The DRM consortium and Fraunhofer Institute from Germany have developed a DRM Emergency Warning System, which employs an alarm signal which can switch a receiver to an emergency broadcast, or switch the receiver on automatically, so that the emergency broadcast can be received. In addition, headlines and detailed emergency information may be sent to the receivers text screen. Textual information can be made available immediately in multiple

¹¹ RESOLUTION 647 *Spectrum management guidelines for emergency and disaster relief*

¹² *Digital Radio Mondiale TM (DRM) is the universal digital system for all broadcasting frequencies, including LW, MW, SW, and VHF bands I, II and III.*

languages.

The use of high-quality digital transmissions as a wireless long-distance feed of programme material is another possibility. The received programme can be relayed by a local community radio station that has survived or via a local low-power "Radio-in-a-Box" device that has been developed with the assistance of UNESCO in co-operation with the Asia-Pacific Broadcasting Union¹³

Summary and Conclusions

Integrative disaster risk management is a paradigm developed in the atmosphere of ever rising occurrence of natural disasters. This multidisciplinary approach is promoted by UNESCO and other United Nations agencies.

All available evidence collected during the preparation of this document suggests that media can play a crucial role in disaster risk reduction. The most effective dissemination of information to the disaster stricken population is multi-platform, but radio is the preferred technology, especially in early post-disaster situations.

The specific technology of international radio is disaster-resilient because the transmission facilities are well removed from the affected region and radio energy is beamed toward the target area by means of highly directional antennas.

The proposed co-ordinated global system is new. The current technology changes in the media create a multi-platform system and new channels of content distribution, but this should not reduce the potential of wireless-based technologies that may be the only information source for people in specific context situations.

The project should raise awareness of international radio for disaster risk management. It will be placed high on the agenda of the incoming conference of the HFCC association in Paris in August 2012. An effort will continue on how to position the International Radio Disaster Relief project within the structure of UN led agencies and institutions active in the disaster risk reduction. It has been conceived in the spirit of the Hyogo Framework as the contribution of international radio broadcasting to the integrated global management of disaster risk reduction.

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¹³ According to news reports "Thomson Broadcast" company placed on the market a DRM-FM transponder early in 2012. DRM reception capability is already incorporated with the unit that converts the programme material from a long-distance digital transmission to the local FM audience. The transmitting power and energy consumption are low, making it possible to use a photovoltaic power supply to free the system from public energy supplies and from running costs.