The Impact of the Regulatory Environment of Telecommunications on Connectivity and Information Sharing in International Humanitarian Assistance

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Abstract

The regulatory environment determines the degree to which telecommunications can support disaster response and humanitarian assistance. Decision-making on all levels depends on the availability of reliable information. Mobile personal communications systems and satellite communications have increased the quantity of information available, and other new and advanced technologies can be expected to do so even more. The regulatory environment still does not fully reflect the technological progress and the requirements of users with special needs, such as disaster and emergency responders. The further development of international and national communications law will thus need the close and continuous cooperation between the disaster managers in national and international organizations, the regulators, and the developers of new communications technologies and services.

Information Exchange in Disaster Situations

There is an old German dictum: *"Wissen ist Macht"* - knowledge is power. Knowledge is gained through exchange of information, the process of communications. Telecommunications are the logistics of information management. What does this mean for their use in disaster response and humanitarian assistance?

First of all, the decision making process depends on the availability of the appropriate knowledge on all levels of response, and on the consolidation of previously gained experience with the real-time information about an acute situation. An increasing number of entities and individuals are involved in the process of providing assistance and alleviating human suffering. They all have their own "corporate culture," their own ways to communicate, and their own rules for the sharing of information. The increasing number of available communication links and networks and that of information sources appear to facilitate the decision-makers' task and thus the provision of appropriate response. Inevitably, this diversity increases the risk of loss of information through incompatibility of systems.

At the same time, the fact that knowledge is power subjects the tools of information exchange, those of radio communications most of all, to control and restrictions. A complex regulatory environment governs the use of telecommunications, and as radio communications are, due to their very nature, not limited by national boundaries, their legal framework cannot be limited to national regulations either. The frequency spectrum is a natural resource, and only international regulations allows for

sharing this precious asset in a way beneficial for all users, and can ensure the technical inter-connectivity through standardization. Any such regulation will, however, inevitably reflect numerous national interests as well, ranging from real or perceived needs for government command and control all the way to consideration of the economic interests of countries with major stakes in the telecommunications industry.

It is within this field of tensions, created by common goals and multiple interests, that international telecommunications law has developed its elaborate and intricate character. And while technology appears to offer unlimited possibilities, specialized users are often confronted with regulatory hindrances when trying to apply them in their work.[2]

As part of its mandate, the United Nations Office for the Coordination of Humanitarian Affairs has the task of facilitating the work of all partners in international disaster response. It is therefore the voice of this particular group of specialized users in the regulatory environment of telecommunications.

Historical Developments in Emergency Telecommunications Law[3]

Almost since the invention of the telegraph, the importance of telecommunications in emergency situations was recognized in all major agreements, conventions, laws, and similar legal instruments created since 1865. The absolute priority of emergency messages was first stated in the *Convention Télégraphique Internationale de Paris*, and was reiterated in the revisions to this treaty in the following years[4].

Following the introduction of wireless communications, corresponding rules were included in the International Radio Telegraph Convention of 1906, requiring all radiotelegraph stations to accord absolute priority to calls of distress[5]. In the same year, service regulations defined the format of distress signals (…---… *"SOS"*)[6], and when a lack of communications contributed to the *Titanic* disaster in 1912[7], installation of radio equipment and continuous "radio watch" became mandatory for all larger seagoing vessels[8]. The commercial interests of the providers of proprietary technologies and services and national interests resulting from the nationality of such enterprises had a major influence on the deliberations already at this early stage of development of telecommunications technology.

In no case, however, was consideration given to a possible application of telecommunications in emergency situations other than those encountered in the maritime and later also in the aeronautical context. A main reason for this shortcoming in early international regulatory work is certainly the lack of anticipation of the role of land-based services in operations beyond national boundaries. A truly global regulation of emergency radio communications for land-based services was simply not seen as necessary. This is reflected in the fact that emergency frequencies or channels were defined only within the frequency bands allocated to the maritime and later also to the aeronautical services, while no such definitions were made within the allocations for land-mobile services, including those for public protection[9] and disaster relief[10]. Full compatibility within maritime communication systems was thus achieved at an early

time, even when a fierce competition between the private enterprises supplying the equipment and services prevented the exchange of other than emergency-related traffic between ships using different brands of radio equipment even in cases where inter-operability was technically possible. Regulations concerning other than maritime traffic were far more general. The Radio Regulations[11], the basic international instrument governing the use of the frequency spectrum, define emergency traffic frequencies for the maritime and the aeronautical services, but leave it to the national authority of each country to define their own standards for priority communications in other sectors. The fact that today land based radio mobile telecommunications equipment is used increasingly in trans-border operations, in territories under the responsibility of a regulatory authority other than their own and often for communication with other 'foreign' partners, has not changed the traditional regulatory approach. The availability of global satellite communications networks has added a new dimension, and the need to consider numerous new, and increasingly more complex, features to the management of the radio frequency spectrum[12].

The resulting lack of harmonization still today hampers communications between providers of disaster response. Well-documented examples can be found even in cases where such operations included only partners from neighboring administrative entities under the jurisdiction of one single telecommunications regulatory authority. "Analysis of the 1993 World Trade Center Bombing, the 1995 Oklahoma City Bombing, and the standoff between the Federal Bureau of Investigations and Branch Davidians in Waco, Texas, in 1993, in which nearly 100 people died, all pointed to interagency communications as one of the weakest links in emergency management. […] Similar miscommunication hampered emergency responses to the Amtrak train derailment in Arizona in 1995 and the Florida forest fires in 1998. After each tragedy, the need for interoperability, for linking communications networks of the various agencies, was a significant issue. The lessons were visible for everyone in the field. Still nothing had changed in 1999, the year of the Columbine tragedy."[13]

No better is the situation in Europe: In 1999, heavy snowfall caused three gigantic avalanches, burying part of the village of Galtur in Austria and trapping 60 people under the snow. The public mobile telephone network, overloaded, but with a mostly intact infrastructure, was initially available to at least partially overcome the lack of inter-operability between various rescue agencies' networks, but only for the few hours until the batteries of the relay stations were empty. The connection to the power grid being lost by the physical impact of the disaster, re-charging was not possible, now a one-channel analog radio link of the Austrian gendarmerie remained the only link between the affected village and the outside[14]. The double lack of interoperability and of outside connections seriously hampered rescue efforts and may actually have cost lives.

Implications for International Disaster Management

While the situations described above primarily affect on-site disaster response operations, the availability of real-time information about events at any point on earth has consequences for the decision-makers in emergency response on all levels in a number of ways. What telecommunications technology and services offer is not always appropriate for use in support of humanitarian assistance, and what would be

appropriate is not always accessible. While solving some of the problems, new technologies and their applications also raise additional questions, some of which are not yet fully recognized, and even less understood.

With the massive increase of information and with the equally increasing commercialization of the entities creating and handling it, the consolidation and analysis of information becomes not only an increasingly important but also a very complex process. The de-regulation and privatization of public telecommunication and information services contributes to this development. Information is a commodity, and as such it is subject to the rules of supply and demand. The process of information consolidation starts on-site, where the observer concentrates his attention on those aspects of the event which are likely to interest the ultimate users of his product. TV reporters, as well as the editors and producers, will focus on the optically most spectacular detail, independently of its real significance for the overall situation. Mobilization of international response exceeding the actual needs by far resulted in one case, where international media continuously showed two or three buildings severely damaged by an earthquake, without indicating that these were actually the only buildings affected. On the assumption of wide area destruction of the same nature, several international search and rescue teams were sent to the region while other types of assistance would have been far more needed. The very limited transport capacity should at that time have been used for relief commodities rather than for redundant manpower. Similar problems are being encountered wherever eyewitnesses focus on their own priorities or those of the service they work for. Such a demand-driven selection process repeats itself throughout the information channels. Its final product will consequently reflect the agenda and the possible prejudice not only of the on-site observers, but of all those who handle or consolidate the information on its way to the ultimate user.

To some extent, the assignment of a priority status to communications of those users of public networks, who can be expected to provide the most qualified reports, could help in the first stage of information gathering and facilitate the consolidation of the inputs to this process. Any application of such a concept will however depend on mandatory standards and on an end-to-end applicability throughout the networks involved.

The above limitations apply in various degrees to all information available to decision-makers in crisis response. The usefulness of data available to the decision-maker is diminished by the subjective filters applied enroute. The resulting need for a potentially time-consuming process of re-establishing the best possible objectivity affects its real-time character. An increase of bandwidth all the way from the event location to the information consumer does not change this situation; it only shifts the selection process to a later stage or a higher level. A capability to forward "rough," un-processed information reduces the functions of a disaster-manager to those of an observer or reporter, and creates a strong temptation to "pass the buck" to the next hierarchical level. In the reverse direction, too much communications capacity or bandwidth may encourage micro-management. Only the availability of an adequate quantity of information can ensure a truly effective decision making appropriate for each level of disaster management.

The widespread availability of personal mobile communications has the potential to shorten the route from the event location to the "consumer" of information; but contrary to what one might expect at first sight, this form of "cutting out the middleman" does not necessarily facilitate the provision of an objective image. Verification of any and all information remains necessary, in particular if information is to be applied to the decision making process needed for the provision of appropriate disaster response.

Telecommunications have changed the way disasters are perceived. Information about many of the greatest disasters which ever struck mankind, used to reach people outside the affected region some times centuries, if not millennia, later, when the traces of such tragedies were discovered by researchers applying more recently developed methods. Before the twentieth century, news about earthquakes, volcanic eruptions, storms and other dramatic events traveled far too slow to allow for what we know today as international assistance. Disasters were historical events by the time they were brought to the attention of the outside world.

No longer so: In the 21st century, the news about an airplane crashing into one of the World Trade Center Towers traveled so fast, that minutes later people in all continents were the horrified real-time eyewitnesses of the attack on the second tower. At the same time, in the New York urban area, with one of the world's densest communications infrastructures, most public wired as well as mobile telecommunications collapsed under a traffic load, which exceeded all design expectations. Equally hampered was the usefulness of public communication systems for tasks beyond information exchange among their subscribers. Communication between rescue agencies with incompatible equipment, and the possible application of mobile equipment such as cellular phones in the location of survivors, was equally limited[15].

The speed by which information travels is the decisive element in outside response to a sudden-impact event. It determines the number of potential providers of assistance who can be reached in time, and thus may well decide how many lives can be saved. Even access to permanent telecommunications facilities can contribute to rescue efforts only to the degree that is designed into them. The low economic attractiveness of including features like disaster survival capability or priority access concepts makes them unattractive for the commercial service providers, and only mandatory regulation on national and international levels can and will ensure their availability when and where these expensive features are needed.

The telegraph had brought the first dramatic change, initially for privileged regions, and gradually for most of the world. The “telegram style” dictated by this technology, providing only a decidedly "unpersonal" communications link with very little bandwidth, ensured a certain degree of objectivity, until the telephone allowed conveying emotions by a live voice from person to person. The evolution of the "wireless telegraph" into voice broadcast finally established an inevitably emotional link from the site of a dramatic event to an ever-increasing audience. This development, from reporting facts only to relaying emotions, culminates in today's multi-media landscape. Increased inter-operability and thus the very functioning of

information sharing concepts require attention not only to technological and operational, but also equally to regulatory aspects.

Today's Legal and Regulatory Framework for Disaster Communications

The removal of all hindrances for the full use of what is available, appropriate, and, not to forget, affordable, needs to remain a major element in the advocacy for humanitarian needs. In respect to telecommunications, the adoption of the "Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations"[16] by the Intergovernmental Conference on Emergency Telecommunications (ICET-98, Tampere, Finland, June 1998) was a major step in the right direction[17].

"The Convention is only the most recent tangible recognition of the extraordinarily important role played by communications in disaster prevention and relief. Although the number and impact of natural disasters are increasing at a dramatic rate, virtually all loss of life and much property damage caused by disasters are preventable. The most reliable and cost-effective disaster mitigation involves effective, reliable communication."[18]

The United Nations Secretary-General is the Depositary of the Convention.[19] The Office of Legal Affairs, Treaty Section, United Nations Headquarters, New York, is in charge of the relevant procedures. The United Nations Emergency Relief Coordinator and Under Secretary-General for Humanitarian Affairs is the Operational Coordinator for the application of the Convention[20]. The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Geneva Office, is in charge of the implementation and execution of the respective functions and works closely with the International Telecommunication Union (ITU).

The following are the key elements of the *"Tampere Convention"*:

- The Convention has the purpose of expediting and facilitating the use of emergency telecommunications within the framework of international humanitarian assistance. Such telecommunication assistance can be provided as a direct assistance, as part of, or in support of other disaster mitigation and relief activities to national institutions in charge a location or region affected by a disaster.
- The Convention defines the status of the personnel of the various partners in international humanitarian assistance, including that of government entities, international organizations, non-governmental organizations and other non-state entities, and defines their privileges and immunities.
- The Convention fully protects the interests of the States either requesting or receiving assistance. The host government retains the right to supervise the assistance.
- The Convention foresees the establishment of bilateral agreements between the provider(s) of assistance and a State requesting/receiving such assistance. Standard frameworks for such agreements are being developed. To avoid delay in the delivery of assistance, "best practices" will be codified into common implementing language. The use of such model agreements will allow the

immediate application of the Tampere Convention in any sudden impact disaster situation.

For States providing international assistance, the *Tampere Convention* ensures un-hindered, immediate deployment of all telecommunication equipment required for the efficient provision of appropriate response, ensuring in particular:

- real-time information about the situation at the disaster site and in the affected region,
- coordinated deployment and utilization of all available resources,
- immediate access to information from sources outside the affected location or region, and
- greatly increased safety and security for humanitarian personnel in the field.

For States receiving international assistance, the *Tampere Convention* ensures:

- immediate deployment of rescue teams and experts arriving from abroad,
- appropriateness of response through continuous feedback from the affected location or region to the providers of international assistance,
- efficient and coordinated use of transports and all other elements of logistics,
- compatibility between the communications equipment and networks used by international and national providers of emergency assistance, and
- greatly increased safety and security for national humanitarian personnel[21] working together with international teams.

Many States can thus benefit from the convention in two ways, as a number of States having been repeatedly the recipients of international assistance, are now also using their expertise to provide international assistance to others.

In its unanimously adopted Resolution 36[22], the ITU Plenipotentiary Conference 1998 called upon all Member States to sign and ratify this Convention as soon as possible. A number of related resolutions and recommendations of other major conferences of the United Nations, of the ITU[23], and of regional organizations[24] have reiterated the call for signature and accession. More than 60 States have so far signed the Convention, and 24 States have become parties to it by ratification or accession, but this is still only a small portion of the States tha are likely to either require or provide international humanitarian assistance. Both providers and recipients have equal benefits from being parties to this international treaty, even as its principles are already applied as the standard guidelines among governments and providers of assistance even in countries not yet party to the Convention.

Major Tasks for Lawyers, Managers, International Organizations

As in emergency and disaster response, the use of telecommunications in the service of humanitarian assistance depends on a coordinated approach by all partners. Only a consolidated definition of requirements, a continuous evaluation of emerging technologies and the full participation of users as well as engineers in the further development of the regulatory environment can and will ensure success.

Misunderstandings and wrong expectations have in the recent past led to a number of problems in all too many sectors of telecommunications: Exaggerated expectations in respect to personal communication systems led to immense investments in the terrestrial European G3 license auctions and related plans[25], and at the same time similar expectations led more than one satellite operator into chapter 11. In emergency telecommunications and in disaster response we simply cannot afford such failures.

The providers of international humanitarian assistance have the benefit of a forum for the exchange if information and the development of common positions. The inter-agency Working Group on Emergency Telecommunications, WGET[26], has served as the steering committee for a common approach of the users vis-à-vis the developers and operators of systems, equipment, and networks since 1994. The latter have their industry associations, which work with the regulators on the creation and the continuous adjustment of the regulatory environment for their products. The International Telecommunication Union (ITU), as the specialized international organization of the United Nations system, works through its conferences and study groups and in its secretariat in all sectors of international legislature. Multi-disciplinary institutions, in particular the International Institute of Communications, (IIC)[27], have in the past provided very valuable opportunities for cooperation. Last but not least, the Amateur Radio Service, with its key role in emergency telecommunications is also an very important, efficient, and successful partner in the work towards the facilitation of information exchange through improvement of the regulatory environment[28].

What needs to be reinforced further is the partnership in the academic field between the specialized professionals from the side of users, technology developers, and regulators. The work on emergency and disaster relief mechanisms needs to consider the implications, which the use of telecommunications and IT for emergency and disaster operations have for the further development in information sharing. The development of an *International System Model in Emergency Management* is an important and very timely step and can bring more intellectual resources of the academic world into the vast arena that is international humanitarian assistance.

Lessons Learned - some "Do's" and "Don'ts"

Experiences shows that only an earliest possible consideration of the regulatory environment in which operations take place can avoid complications and possible hindrances. It also shows that only a consolidated approach by all partners in an operation can ensure an efficient and successful cooperation with the regulatory authorities.

Problems have been encountered in particular in respect to networks that might be perceived as a "public service". The most visible case[29] recently was in Afghanistan with the deployment of a temporary infrastructure for a mobile telephone (GSM) system. While the network was primarily intended for use by UN entities and their staff, phones were also handed out to national institutions of the host country. This inclusion of some essential partners was certainly desirable from an operational point of view; it did however affect the status of the network as an instrument of international humanitarian assistance and thus its privileges under international treaties such as the Vienna Convention and the Tampere Convention. By order of the authorities

concerned, the infrastructure had to be dismantled at a time when the restoration of the national networks was not yet completed, resulting in a deterioration of the communications capabilities of the providers of humanitarian assistance.

An additional shortcoming was the waste of resources resulting from the impossibility of integrating the temporarily established service into the future development of permanent networks. Timely consultations with the national authority responsible for the licensing of public telecommunication services could have allowed the application of the initial emergency network in the process of transition from relief to development.

In several cases, different agencies approached the regulatory authorities individually with requests for radio licenses. This led not only to duplication of efforts and to a negative reaction of the authorities in respect to such duplication, but it actually affected the inter-operability between systems, which were assigned different frequencies or channels. This, in turn, prevented the effective use of the equipment in the service of safety and security of the users, as it prevented the application of common standards for communication with the existing radio room operating 24 hours per day / 7 days per week for just this purpose. It furthermore led to discrepancies in respect to general conditions and license fees for different agencies within the same operation.

To overcome such problems, the WGET has agreed on the concept of the Telecommunications Coordination Officer (TCO)[30]. The Terms of Reference for this post include the representation of all users of telecommunications in international humanitarian assistance vis-à-vis the national regulatory authorities. In a recent case in SYria, the consolidated approach led by the TCO led to the conclusion of a very favourable framework agreement with the government of the host country[31].

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[1] The views expressed in this text are those of the author and do not necessarily reflect the position of the United Nations.

[2] *Telecommunications in the Service of Humanitarian Assistance*, Hans Zimmermann, in: International Civil Defense Journal, April 1998, p.20 ff.

[3] An *Annotated Bibliography and a List of Legal Document*s related to the use of Telecommunications in Disaster Relief and Humanitarian Assistance is available at http://www.reliefweb.int/telecoms/policy/index.html

[4] *Convention Télégraphique Internationale de Paris (Paris Convention)*, Paris 1865, Art. 11; *Vienna Revision of the Paris Convention*, Vienna 1868, Art. 11; *Règlement de Service International Destiné à Compléter les Dispositions de la Convention Télégraphique Internationale de Paris (Vienna Revision of the Paris Convention Regulations)*, Vienna 1968, Sect.VII para. 2

[5] *International Radio Telegraph Convention of Berlin*, Berlin, 1906, Art.9;

[6] *Service Regulations Affixed to the International Radio Telegraph Convention*, Berlin, 1906, Art.XVI

[7] A detailed description on the direct effect of the "Titanic" disaster on the development of international telecommunications law and procedures is available at URL http://www.marconiusa.org/history/titanic.htm in the article *"TITANIC Tragedy Spawns Advancements"*.

[8] *International Radiotelegraph Convention*, London 1912, Art.9; Detailed Service Regulations Appended to the International Radiotelegraph Convention (London Convention), London 1912, Art.11,21,45 para.1;

[9] Public Protection is the continuous activity of services ensuring the safety and security of the public within their geographical areas and substantive fields of operation and with access to a permanent telecommunications infrastructure. [Definition developed for *Study-Group 8 of the ITU Radiocommunication sector (ITU-R)*, WP-8A, Rome, 2002]

[10] Disaster Response is the response to disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the ability of affected society to cope using its own resources, often in locations with disrupted or non-existing infrastructure, under particularly hazardous conditions, outside the customary geographical area of operation of the participating services, typically involving a large number of different services and in a possibly international environment. [Definition developed for *Study-Group 8 of the ITU Radiocommunication sector (ITU-R)*, WP-8A, Rome, 2002, adopted from the *"Internationally agreed glossary of basic terms related to disaster management",* Geneva, 1992]

[11] The *Radio Regulations* set out the distribution of the radio-frequency spectrum to radio services in different parts of the world and the regulatory provisions to be applied in order to access that spectrum. They are a consolidated document incorporating the provisions, Appendices, Resolutions and Recommendations of the ITU World Radiocommunication Conferences. The *Radio Regulations* are annexed to the International Telecommunication Convention signed by all Member States of the ITU, and are therefore mandatory.

[12] *The Use of Satellites in Disaster Relief Operations*, Hans Zimmermann, in: Acta Astronautica, volume 37, 1995, p.437 ff., and Panacea *or Placebo - The Use of Satellites for Emergency Telecommunications under an Improved Regulatory Framework***,** Ei Sun Oh and Hans Zimmermann, Geneva, 1998

[13] *Emergency Communications, The Quest for Interoperability in the United States and Europe*, Victor Mayer-Schoenberger, in: International Journal of Communications Law and Policy (IJCLP), Issue 7, winter 2002/2003.

[14] *Various sources,* quoted in *Emergency Communications, The Quest for Interoperability in the United States and Europe*, Victor Mayer-Schoenberger, in: International Journal of Communications Law and Policy (IJCLP), Issue 7, Winter 2002/2003.

[15] Wireless Emergency Response Team (WERT*), Final Report for the September 11, 2001 New York City World Trade Center Terrorist Attack,* October 2001, p.8, Download from www.emtel.etsi.org/Workshop/non-presented.htm

[16] *"Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations"*, Tampere, Finland, 1998, official text in Arabic, Chinese, English, French, Spanish, Russian available at URL http://www.reliefweb.int/telecoms/tampere/index.html

[17] A Beacon in Times of Distress, Hans Zimmermann and Ei Sun Oh, in: Global Communications, London, 1998, p.90 ff

[18] *Disaster Communications*, Prof. Fred Cate, School of Law, Bloomington, Indiana, 1998, text available at http://www.law.indiana.edu/webinit/disaster/

[19] *"Tampere Convention"* art. 16

[20] *"Tampere Convention"* art. 2

[21] *Telecommunications for the Safety and Security of Relief Workers: Saving the lives of those, who save lives.* Goli Farrell, in: Global Communications Interactive 1998, pp. 49-50, Hanson Cooke Ltd., London, UK, 1998 available also at http://www.reliefweb.int/telecoms/optech/savinglives.html

[22] *Telecommunications in the Service of Humanitarian Assistance* (ITU Plenipotentiary Conference, Minneapolis, Minnesota, 1998, Resolution 36, revised (ITU Plenipotentiary Conference, Marrakech, Morocco, 2002)

[23] *Resolutions and Recommendations* related to the use of Telecommunications in Disaster Relief and Humanitarian Assistance are listed in at http://www.reliefweb.int/telecoms/policy/index.html

[24] *Conference Européenne des postes et des télécommunications / European Conference of Postal and Telecommunications Administrations (CEPT)* < http://www.cept.org/>, *Caribbean Association of National Telecommunication Organizations (CANTO)* http://www.CANTO.org, Inter American Telecommunication Commission (CITEL) http://www.citel.oas.org/ are among the regional entities which have taken specific interest in the subject.

[25] *Wireless Local Area Networks and the European 3G Tragedy*, Chris Marsden, in Inter Media, Vol.30/No.5, London, UK, December 2002

[26] For details of this subsidiary body of the Inter-Agency Standing Committee on humanitarian affairs, the web site http://www.reliefweb.int/telecoms/ refers.

[27] International Institute of Communications, Westcott House, 35 Portland Place, London, http://www.iicom.org

[28] The work of the International Amateur Radio Union (IARU), http://www.iaru.org, most recently in the World Radiocommunication Conference (Geneva, June 2003) refers.

[29] Temporary deployment of a GSM system with three temporary bases in Afghanistan in 2001.

[30] *Generic Terms of Reference for Telecommunication Coordination Officers*, revised version approved by the 14th WGET Plenary Meeting (Geneva, February 2003).

[31] Syria, during the humanitarian support in the context of the crisis in Iraq, 2003.

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Mr. Zimmermann's earlier assignments included long-term posts in Lebanon, Ethiopia, Pakistan, Afghanistan, Iran and Liberia, and assessment and evaluation missions in Somalia,

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About the Symposium

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