



Question 9/2: Identify study group Questions in the ITU-T and ITU-R Sectors which are of particular interest to developing countries and systematically, by way of annual progress reports, inform them of the progress of work on the Questions to facilitate their contributions to the work on those Questions as well as, ultimately, to benefit from their outputs in a timely manner

STUDY GROUP 2

SOURCE: INTERNATIONAL AMATEUR RADIO UNION

TITLE: AMATEUR SERVICES AND DISASTER COMMUNICATIONS IN
DEVELOPING COUNTRIES (INFORMATION DOCUMENT)

1 Background

The International Amateur Radio Union (IARU) is a United Nations recognised Non-Governmental Organisation (NGO), organised as a federation of the national amateur radio societies in 149 countries in all parts of the world. (See Annex 1 for list.) Founded in 1925 in Paris, IARU has taken an active part in all major ITU radiocommunication conferences since 1927. Admitted to ITU-D Sector Membership in 1994, IARU took part in the 1994 World Telecommunication Development Conference (WTDC-94) (Buenos Aires) and WTDC-98 (Valletta) but has not previously been active in the work of ITU-D Study Groups. There is, however, ample evidence that the amateur and amateur-satellite services have the potential to make an important and useful contribution to the work at hand.

Question 9/2 requests the identification of Questions in the other two sectors that are of particular interest in the Development Sector.

2 Amateur services in disaster communications and in developing countries

Question ITU-R 48/8 of ITU-R (see Annex 2) regarding Techniques and Frequency Usage in the Amateur Service and Amateur-Satellite Service has relevance to developing countries. It has been partially answered by Recommendation ITU-R M.1042 Disaster Communications in the Amateur and Amateur-Satellite Services and Recommendation ITU-R M.1043 Use of the Amateur and Amateur Satellite Services in Developing Countries. Both recommendations were published in 1994, however, updates to both were adopted by ITU-R Study Group 8 at its meeting on July 8-9, 1998 and are presently being circulated to administrations for final approval.

These Recommendations and their relevance are discussed in this section.

2.1 Recommendation ITU-R M.1043, Use of the Amateur and Amateur-Satellite Services in Developing Countries (see Annex 3 for text of the draft Revision as adopted for approval by circulation) reaffirms the opinion of radio technical experts that developing countries will benefit from the amateur services because they develop operator skills; train engineers and technicians and result in the establishment of stations in rural and remote areas.

IARU has observed that there is an approximate positive statistical correlation between the census of radio amateurs per thousand of population and the level of development of the technical infrastructure of a country. Of course, this correlation is not present where there are regulatory barriers to entry into the amateur service. For example, the number of radio amateurs per thousand population in several areas of the world is as given in Table 1. It is noted that North America, Europe and Japan (all of which are regions with a well developed telecommunications infrastructure) have significantly more intensive amateur service than do Sub-Saharan Africa, the Indian Sub-Continent and Asia (outside of Japan).

Table 1
Correlation between development and amateur radio and development in certain countries

Countries with well developed telecommunications infrastructure				
Country	Population¹	Number of amateur club stations²	Number of licensed amateur operators²	Licensed operators per thousand population
Australia	18 057	376	15 874	0.879
Canada	29 680	1 339	44 512	1.500
Germany	81 922	2 430	80 336	0.981
Japan	125 351	NA	1 219 907	9.73
United Kingdom	58 144	250	61 843	1.064
United States	269 444	5 504	676 028	2.509
Developing countries				
Bangladesh	120 073	1	10	0.00008
Belize	219	NA	50	0.228
Gambia	1 141	1	19	0.0167
Kenya	27 799	3	53	0.0019
Mongolia	2 515	3	19	0.0076
Senegal	8 532	2	175	0.0205

¹ Population (in thousands) for Countries of the World (UNDP: 1996)

² IARU Status Summary of Radio Amateurs & Amateur Stations of the World (29 June 1998)

While we cannot definitively assign cause and effect, a developing country would be well advised to foster and promote an indigenous amateur service as an inexpensive way of encouraging experimentation with new technology and low cost transfer of techniques for construction and design parameters.

2.2 Recommendation ITU-R, M.1042, Disaster Communications in the Amateur and Amateur-Satellite Services follows on from Resolution 7 adopted at WTDC-94 (Buenos Aires). The Intergovernmental Conference on Emergency Telecommunications was convened by Finland in Tampere on June 16-18, 1998 and resulted in the adoption by delegates of a Convention on the Provision of Telecommunications Resources for Disaster Mitigation and Relief Operations. Thus, the draft revision of Recommendation ITU-R M.1042 (see Annex 4) is especially timely. In particular, it should be noted that the amateur service, being a distributed network, is unlikely to be disrupted by natural disaster and thus is potentially capable of providing communications for relief operations and mitigation of the effects of disasters.

3 For consideration by the Study Group

The IARU has drafted two Preliminary Draft New Recommendations for consideration by the Study Group. One pertains to Effective Utilisation of the Amateur Services in Disaster Mitigation and Relief Operations. The second addresses Amateur Services Participation in Regional Human Resources Training.

ANNEX 1 - List of IARU Member Societies

(Revised: 22 July 1998)

Albania	Albanian Amateur Radio Association (AARA)
Algeria	Amateurs Radio Algeriens (ARA)
Andorra	Unio de Radioaficionats Andorrans (URA)
Anguilla	Anguilla Amateur Radio Society (AARS)
Antigua & Barbuda	Antigua and Barbuda Amateur Radio Society (ABARS)
Argentina	Radio Club Argentino (RCA)
Aruba	Aruba Amateur Radio Club (AARC)
Australia	Wireless Institute of Australia (WIA)
Austria	Oesterreichischer Versuchssenderverband (OEVS)
Bahamas	Bahamas Amateur Radio Society (BARS)
Bahrain	Amateur Radio Association Bahrain (ARAB)
Bangladesh	Bangladesh Amateur Radio League (BARL)
Barbados	Amateur Radio Society of Barbados (ARSB)
Belarus	Belarussian Federation of Radioamateurs and Radiosportsmen (BFRR)
Belgium	Union Belge des Amateurs-Emetteurs (UBA)
Belize	Belize Amateur Radio Club (BARC)
Bermuda	Radio Society of Bermuda (RSB)
Bolivia	Radio Club Boliviano (RCB)
Bosnia & Herzegovina	Asocijacija Radioamatera Bosne I Hercegovine (ARABiH)
Botswana	Botswana Amateur Radio Society (BARS)
Brazil	Liga Brasileira de Radioamadores (LABRE)
British Virgin Islands	British Virgin Islands Radio League (BVIRL)
Brunei	Brunei Darussalam Amateur Radio Association (BDARA)
Bulgaria	Bulgarian Federation of Radio Amateurs (BFRA)
Burkina Faso	Association des Radioamateurs Du Burkina Faso (ARBF)
Canada	Radio Amateurs of Canada (RAC)
Cayman Islands	Cayman Amateur Radio Society (CARS)
Chile	Radio Club de Chile (RCCH)
China	Chinese Radio Sports Association (CRSA)
Chinese Taipei	Chinese Taipei Amateur Radio League (CTARL)
Colombia	Liga Colombiana de Radioaficionados (LCRA)
Costa Rica	Radio Club de Costa Rica (RCCR)
Cote D'ivoire	Association des Radio-Amateurs Ivoiriens (ARAI)
Croatia	Hrvatski Radioamaterski Savez (HRS)
Cuba	Federacion de Radioaficionados de Cuba (FRC)
Cyprus	Cyprus Amateur Radio Society (CARS)
Czech Republic	Cesky Radioklub (CRK)
Denmark	Experimenterende Danske Radioamatoerer (EDR)
Djibouti	Association des Radioamateurs de Djibouti (ARAD)
Dominica	Dominica Amateur Radio Club (DARC)
Dominican Republic	Radio Club Dominicano (RCD)
Ecuador	Guayaquil Radio Club (GRC)
Egypt	Egyptian Radio Amateurs Assembly (ERAA)
El Salvador	Club de Radio Aficionados de El Salvador (CRAS)
Estonia	Eesti Raadioamatooride Uhing (ERAU)
Faroe Islands	Foroyskir Radioamatorar (FRA)
Fiji	Fiji Association of Radio Amateurs (FARA)
Finland	Suomen Radioamatooriliitto (SRAL)
Former Yugoslav Republic Of Macedonia	Radioamaterski Sojuz na Makedonija (RSM)
France	Reseau des Emetteurs Francais - Union Francaise des Radioamateurs (REF-Union)
French Polynesia	Club Oceanien de Radio et D'astronomie (CORA)
Gabon	Association Gabonaise des Radio-Amateurs (AGRA)
Gambia	Radio Society of The Gambia (RSTG)
Germany	Deutscher Amateur-Radio-Club (DARC)

Ghana	Ghana Amateur Radio Society (GARS)
Gibraltar	Gibraltar Amateur Radio Society (GARS)
Greece	Radio Amateur Association of Greece (RAAG)
Grenada	Grenada Amateur Radio Club (GARC)
Guatemala	Club de Radioaficionados De Guatemala (CRAG)
Guyana	Guyana Amateur Radio Association (GARA)
Haiti	Radio Club D'haiti (RCH)
Honduras	Radio Club De Honduras (RCH)
Hong Kong	Hong Kong Amateur Radio Transmitting Society (HARTS)
Hungary	Magyar Radioamator Szovetseg (MRASZ)
Iceland	Islenzkir Radioamatorar (IRA)
India	Amateur Radio Society of India (ARS)]
Indonesia	Organisasi Amatir Radio Indonesia (ORARI)
Iraq	Iraqi Association for Radio Amateurs (IARA)
Ireland	Irish Radio Transmitters Society (IRTS)
Israel	Israel Amateur Radio Club (IARC)
Italy	Associazione Radioamatori Italiani (ARI)
Jamaica	Jamaica Amateur Radio Association (JARA)
Japan	Japan Amateur Radio League (JARL)
Jordan	Royal Jordanian Radio Amateur Society (RJRAS)
Kenya	Amateur Radio Society of Kenya (ARSK)
Republic Of Korea	Korean Amateur Radio League (KARL)
Kuwait	Kuwait Amateur Radio Society (KARS)
Latvia	Latvias Radioamatieru Liga (LRAL)
Lebanon	Association des Radio-Amateurs Libanais (RAL)
Lesotho	Lesotho Amateur Radio Society (LARS)
Liberia	Liberia Radio Amateur Association (LRAA)
Liechtenstein	Amateurfunk Verein Liechtenstein (AFVL)
Lithuania	Lietuvos Radijo Megeju Draugija (LRMD)
Luxembourg	Reseau Luxembourgeois des Amateurs D'ondes Courtes (RL)
Malaysia	Malaysian Amateur Radio Transmitters' Society (MARTS)
Mali	Club Des Radioamateurs et Affilies Du Mali (CRAM)
Malta	Malta Amateur Radio League (MARL)
Mauritius	Mauritius Amateur Radio Society (MARS)
Mexico	Federacion Mexicana de Radio Experimentadores (FMRE)
Moldova	Asociatia Radioamatorilor din Republica Moldova (ARM)
Monaco	Association des Radio-Amateurs De Monaco (ARM)
Mongolia	Mongolian Radio Sport Federation (MRSF)
Montserrat	Montserrat Amateur Radio Society (MARS)
Morocco	Association Royale des Radio-Amateurs Du Maroc (ARRAM)
Mozambique	Liga Dos Radio Emissores de Mocambique (LREM)
Myanmar	Burma Amateur Radio Transmitting Society (BARTS)
Namibia	Namibian Amateur Radio League (NARL)
Netherlands	Vereniging voor Experimenteel Radio Onderzoek In Nederland (VERON)
Netherlands Antilles	Vereniging voor Experimenteel Radio Onderzoek In De Nederlandse Antillen (VERONA)
New Zealand	New Zealand Association of Radio Transmitters (NZART)
Nicaragua	Club De Radio-Experimentadores de Nicaragua (CREN)
Nigeria	Nigeria Amateur Radio Society (NARS)
Norway	Norsk Radio Relae Liga (NRRL)
Oman	Royal Omani Amateur Radio Society (ROARS)
Pakistan	Pakistan Amateur Radio Society (PARS)
Panama	Liga Panamena de Radioaficionados (LPRA)
Papua New Guinea	Papua New Guinea Amateur Radio Society (PNGARS)
Paraguay	Radio Club Paraguayo (RCP)
Peru	Radio Club Peruano (RCP)
Philippines	Philippine Amateur Radio Association (PARA)
Poland	Polski Zwiazek Krotkofalowcow (PZK)

Portugal	Rede dos Emissores Portugueses (REP)
Qatar	Qatar Amateur Radio Society (QARS)
Romania	Federatia Romana de Radioamatorism (FRR)
Russia	Soyuz Radiolyubitelei Rossii (SRR)
San Marino	Associazione Radioamatori della Repubblica di San Marino (ARRSM)
Senegal	Association des Radio-Amateurs du Senegal (ARAS)
Sierra Leone	Sierra Leone Amateur Radio Society (SLARS)
Singapore	Singapore Amateur Radio Transmitting Society (SARTS)
Slovakia	Slovensky Zvaz Radioamaterov (SZR)
Slovenia	Zveza Radioamaterjev Slovenije (ZRS)
Solomon Islands	Solomon Islands Radio Society (SIRS)
South Africa	South African Radio League (SARL)
Spain	Union de Radioaficionados Espanoles (URE)
Sri Lanka	Radio Society of Sri Lanka (RSSL)
Suriname	Vereniging Van Radio Amateurs in Suriname (VRAS)
Swaziland	Radio Society of Swaziland (RSS)
Sweden	Foreningen Sveriges Sandareamatorer (SSA)
Switzerland	Union Schweizerischer Kurzwellen-Amateure (USKA)
Syria	Technical Institute of Radio (TIR)
Tajikistan	Tajik Amateur Radio League (TARL)
Tanzania	Tanzania Amateur Radio Club (TARC)
Thailand	Radio Amateur Society of Thailand (RAST)
Tonga	Amateur Radio Club of Tonga (ARCOT)
Trinidad & Tobago	Trinidad and Tobago Amateur Radio Society (TRARS)
Turkey	Telsiz Radyo Amatorleri Cemiyeti (TRAC)
Turkmenistan	Liga Radiolyubiteley Turkmenistana (LRT)
Turks & Caicos Islands	Turks and Caicos Amateur Radio Society (TACARS)
Uganda	Uganda Amateur Radio Society (UARS)
Ukraine	Ukrainian Amateur Radio League (UARL)
United Kingdom	Radio Society of Great Britain (RSGB)
United States of America	American Radio Relay League (ARRL)
Uruguay	Radio Club Uruguayo (RCU)
Vanuatu	Vanuatu Amateur Radio Society (VARs)
Venezuela	Radio Club Venezolano (RCV)
Western Samoa	Western Samoa Amateur Radio Club (WSARC)
Yugoslavia	Savez Radio-Amatera Jugoslavije (SRJ)
Zambia	Radio Society of Zambia (RSZ)
Zimbabwe	Zimbabwe Amateur Radio Society (ZARS)

ANNEX 2

DRAFT REVISION OF QUESTION ITU-R 48-3/8
TECHNIQUES AND FREQUENCY USAGE IN THE AMATEUR SERVICE
AND AMATEUR-SATELLITE SERVICE

(1978-1982-1990-1993-1998)

The ITU Radiocommunication Assembly,

considering

- a) that the Radio Regulations define an amateur service and an amateur-satellite service, allocated frequencies to them on an exclusive or shared basis, and provide for the cessation of emissions from amateur satellites;
- b) that the amateur and amateur-satellite services provide benefits of self-training, intercommunication, and technical investigation carried on by amateurs, that is, by duly qualified and authorized persons throughout the world interested in radio techniques solely for the development of personal skills and mutual exchange of information without pecuniary interest;
- c) that, incidental to their basic purposes, the amateur and amateur-satellite services have pioneered in new and novel techniques for radio reception and transmission using inexpensive equipment with relatively small antennas;
- d) that frequency dependent factors determine to a large extent the effectiveness of radiocommunications in the amateur and amateur-satellite services;
- e) that the amateur service and the amateur-satellite service continue to make significant contributions to the observation and understanding of propagation phenomena;
- f) that amateur and amateur-satellite station operators continue to contribute to the development and demonstration of spectrum conservation techniques throughout the radio-frequency spectrum;
- g) that the amateur and amateur-satellite services are able to and do provide communications during natural disasters and other catastrophic events when normal communications are temporarily interrupted or inadequate for the needs of human relief operations;
- h) that the amateur and amateur-satellite services contribute to the training of operators and technical personnel, which is of particular benefit to developing countries,
- j) that Resolution 722 (WRC-97) resolves 2.2 provides in the preliminary agenda for 2001 World Radiocommunication Conference the consideration of Article S25 concerning the amateur and amateur-satellite services.

decides that the following Question should be studied

- 1 What are the most desirable technical and operational characteristics of future systems for the amateur and amateur-satellite services?
- 2 What techniques being applied or investigated in these services may be of interest to other services?

- 3 How can these services make greater contributions to training of operators and technicians in developing countries?
- 4 What are the appropriate criteria for frequency sharing between the amateur, amateur-satellite and other radiocommunication services?
- 5 What technical and operational characteristics are most suitable for amateur and amateur-satellite systems for communications during natural disasters?
6. What modifications, if any, should be considered in the provisions addressing communication, technical characteristics and operator qualifications in the amateur service and amateur-satellite service?

ANNEX 3

RECOMMENDATION ITU-R M.1043-1

USE OF THE AMATEUR AND AMATEUR- SATELLITE SERVICES
IN DEVELOPING COUNTRIES

(Question ITU-R 48/8)

(1994-1998)

The ITU Radiocommunication Assembly,

considering

- a) that in developing countries there is an urgent need for experienced radiocommunications operators and technicians;
- b) that there is a need for radio stations in rural and remote areas for use during natural disasters;
- c) that the amateur and amateur-satellite services have the potential to contribute to meeting these needs;
- d) that, in particular, these services offer the opportunity for obtaining interactive training and experience;
- e) Resolutions Nos. 14, 15 and 16 of [WARC-79](#) ~~the Radio Regulations~~,

recommends

1 that administrations encourage and facilitate the amateur and amateur-satellite services to:

- 1.1 develop radio operator skills;
- 1.2 train engineers and technicians to design, construct and maintain radio equipment and systems;
- 1.3 assist in forming groups capable of providing local support;
- 1.4 exchange technical and operational information;
- 1.5 experiment with new technology;
- 1.6 establish stations in rural and remote areas;
- 1.7 give special consideration to youth programmes;

2 that administrations facilitate the rapid deployment and effective use of telecommunication resources for disaster mitigation and for disaster relief operations by alleviating and, where possible, removing barriers and strengthening trans-border co-operation between States;

3 ~~2~~ that administrations use volunteers, where possible, to facilitate development of the amateur services;

4 ~~3~~ that, to accommodate the particular needs of developing countries, radio systems be developed with the following characteristics:

- 43.1 minimum investment;
- 43.2 capable of adapting to a variety of transportation and operational environments, e.g., vibration and shock, temperature and humidity extremes, dust, and a range of power sources;
- 43.3 sufficient flexibility to accommodate different communications distances, propagation conditions and population densities;
- 43.4 easy to maintain.

ANNEX 4

RECOMMENDATION ITU-R M.1042-1

**DISASTER COMMUNICATIONS IN THE AMATEUR AND
AMATEUR-SATELLITE SERVICES**

(Question ITU-R 48/8)

(1994-1998)

The ITU Radiocommunication Assembly,

considering

- a) Resolution 36 of the Plenipotentiary Conference (Kyoto, 1994);
- b) Resolution No. 644 (WRC-97) concerning telecommunications resources for disaster mitigation and relief operations;
- c) adoption of the Tampere convention on the provision of telecommunications resources for disaster mitigation and relief operations by the Intergovernmental Conference on Emergency Telecommunications, from 16 – 18 June 1998,

recommends

- 1 that administrations encourage the development of amateur service and amateur-satellite service networks capable of providing communications in the event of natural disasters;
 - 2 that such networks be robust, flexible and independent of other telecommunications services and capable of operating from emergency power;
 - 3 that amateur organisations are invited to promote the design of robust systems capable of providing communication during disasters and relief operations;
 - ~~4~~3 that amateur organizations be allowed to exercise their networks periodically during normal non-disaster periods.
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