

Societal Benefits of Amateur Radio

Summary:

Amateur Radio provides important societal, educational, and emergency communication services to the community.

Modern networked communication systems are delicate and interdependent, and often fail during natural disasters. Traditionally, trained Amateur Radio operators have provided communication support to government and relief agencies in times of national disaster. This has been recognised by many governments who now include Amateur Radio operators in formal disaster drills.

Many people have an out-dated view of Amateur Radio. Modern Amateur Radio encompasses digital electronics, computing, building and launching satellites, bouncing signals off the moon, pioneering new digital modes for weak signals and many more areas of modern electronics and communication.

Amateur Radio has tremendous educational value for science and technology students. The Amateur Radio community has an active schools program where school students have been able to build satellites, learn modern software coding techniques, and even talk directly by radio with astronauts on the International Space Station.

Like most high technology areas these days Amateur Radio operations, equipment, and software is developed and carried out by a global community. If Australia is to benefit from all the opportunities Amateur Radio has to offer, then spectrum allocation and technical standards need to be harmonised with global standards.

The importance of Amateur Radio to the community needs to be recognised in the Minister's Strategic Policy Statements to ACMA.

Detail:

Many countries around the world recognise that Amateur Radio provides important societal, educational, and emergency communication services to the community.

Emergency Communication:

US politician Mike Ross (House of Representatives), commenting on the role of HF communications after Hurricane Katrina, said: “Citizens throughout America dedicated to this hobby - a hobby that some people consider old-fashioned or obsolete - were true heroes in the aftermath of Hurricane Katrina as they were often the only line of communication available into the storm-ravaged areas. Flashier means of communication and technology are highly vulnerable. Ham radios, entirely self-contained transmitters, require no cell towers or satellites, simply a battery and a strip of wire as an antenna.”

The Indian government was so impressed by the amateur radio response to the Nepal earthquake, that they are planning a number of amateur radio-equipped emergency operation centres.ⁱ

Modern networked communication systems are delicate and interdependent, and often go down during natural disasters. Traditionally, trained Amateur Radio operators have provided communication support to government and relief agencies in times of national disaster.

When a magnitude eight earthquake hit China’s Sichuan area in May 2008, all other communication means failed, but an amateur repeater was setup the next day and used to pass command for government instruction, and to organize transportation of supplies and wounded immediately after the quake.ⁱⁱ

Closer to home WICEN the Wireless Institute Civil Emergency Network handled emergency communications for the 1939 Black Friday bushfires, Cyclone Tracy in Darwin 1974, Ash Wednesday bushfires 1983, the Newcastle Earthquake 1989, the Black Saturday disaster in February 2009, the 1994 and 2002 Sydney Bushfires, the Queensland floods in January 2011, the Tasman Peninsula fires in January 2013, a stricken yacht of the WA coast in 2015, and the rescue of injured mountain bikers in 2015.

Amateur radio has proven itself a reliable and robust backup during emergencies. Many countries now involve amateur radio operators in earthquake and national disaster drills.^{iii iv}

Modern Amateur Radio:

Many people have an out-dated view of Amateur Radio. Modern Amateur Radio encompasses digital electronics, computing, building and launching satellites, bouncing signals off the moon, pioneering new digital modes for weak signal and

many more areas of modern electronics and communication. It also has tremendous educational value for science and technology students.

Schools Program:

The Amateur Radio community has an active schools program as part of the STEM initiative, designed to attract students to the important Science, Technology, Engineering, and Mathematics subjects that are so important for our country's economic development. Through these Amateur Radio activities, school students have been able to talk with Amateur Radio operators on the International Space Station, build Amateur Radio satellites (called Cube Sats), and learn modern software coding techniques for sending digital information by radio. School children are motivated to take up science subjects when they experience the thrill of talking with astronauts directly using amateur radio.

Research and Innovation:

Amateur Radio is also used in universities to enable important research. One area often ignored by modern communication companies is weak signal reception. Many important breakthroughs have been made by Amateur Radio in this area. It is well known that Amateur Radio software was used by the Australian defence vessel Ocean Shield in the search for missing Malaysia Air flight MH370 to detect the minute signals from the plane's black box.^v Closer to home the EPIRB locator used by many emergency services in Australia was developed by an Australian Radio Amateur.^{vi}

Benefits globally recognised:

The societal benefits of Amateur Radio are also recognised formally by the International Telecommunication Union (ITU):

“Incidental to their basic purposes, the amateur and amateur-satellite services have pioneered new and novel techniques for radio reception and transmission using inexpensive equipment with relatively small antennas.

The amateur service and the amateur-satellite service continue to make significant contributions to the observation and understanding of propagation phenomena and to techniques which exploit these phenomena.

Amateur and amateur-satellite station operators continue to contribute to the development and demonstration of spectrum conservation techniques throughout the radio frequency spectrum.

Amateur and amateur-satellite services provide communications during natural disasters and other catastrophic events when normal communications are temporarily interrupted or inadequate for the needs of human relief operations.

Amateur and amateur-satellite services contribute to the training of operators and technical personnel, which is of particular benefit to developing countries.”^{vii}

“In times of disasters, if most terrestrial-based networks are destroyed or impaired, other networks in the amateur and amateur-satellite services may be available to provide basic, on site communications capability.

Important attributes of the amateur services include stations distributed throughout the world which have trained radio operators capable of reconfiguring networks to meet the specific needs of an emergency.”^{viii}

Recommendation:

Like most high technology areas these days Amateur Radio operations, equipment, and software is developed and carried out by a global community. If Australia is to benefit from all the opportunities Amateur Radio has to offer, then spectrum allocation and technical standards need to be harmonised with global standards.

The importance of Amateur Radio to the community needs to be recognised in the Minister’s Strategic Policy Statements to ACMA.

Mike Hammer
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ⁱ WIA News 12/07/2015

ⁱⁱ IARU 19/06/2008 www.iaru.org/uploads/1/3/0/7/13073366/sichuan_earthquake.ppt

ⁱⁱⁱ WIA 19/01/2015 “Emergencies and Amateur Radio”

^{iv} WIA News 17/01/2017

^v ARRL News 07/04/2014 “Amateur Radio-Developed Software Assisting in Search for Missing Airliner”

^{vi} WIA News 23/07/2017

^{vii} ITU-R 48-6/5 Techniques and frequency usage in the amateur service and amateur-satellite service

^{viii} ITU-R 209-4/5 Use of the mobile, amateur and the amateur-satellite services in support of disaster radiocommunications