Amateur Radio Communication Technology Evolution and Issues in Malaysia

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ABSTRACT

The adoption and use of wireless communication technology such as Amateur Radio Communication Technology (ARCT) have made the sharing and dissemination of information more easily achieved among community in particular situation. The evolution and issues in adoption of ARCT in Malaysia is discussed in this article. The study begins by making reference literature review which is related to ARCT. Qualitative research methodology is used to collect data, including participant involvement in Amateur Radio Community (ARC) program, casual interview among individual whose are related to ARCT and through review imperative article**.** The significance and passionately debated issues which are related to ARCT are also described in this article.

Keywords: Amateur radio, community, communication, evolution.

I. INTRODUCTION

Amateur Radio Communication Technology (ARCT) is a part of wireless communication technology (Laster, 2001; Cox, 2004; Haykin, 2005). The evolution of ARCT has not lag behind and become important in several developed countries such as Japan, USA, Holland, Canada and our neighboring country, Thailand.

However ARCT is still less use among community in Malaysia (Abdul Aziz, 2014; MARTS, 2015). The problem is until now there is still limited study to discuss the evolution and issues of ARCT in Malaysia. Therefore, this article is significant to highlight the evolution and issues regarding the ARCT in Malaysia.

II. METHODOLOGY

Qualitative research is to get responses through structured and casual interview to understand their perception of the issues at hand (Fontana & Frey, 2005; Chism, Douglas & Wayne, 2008). That means necessary to capture responses to conclude on their opinion about the evolution and issue of ARCT in Malaysia.

The methodology involved structured interview approach to ensure usability prior to get accurate information. Casual interviews with several individual among Amateur Radio Community (ARC) are done to obtain an issues related to the adoption of ARCT in their daily life. Respondents that have been interviewed for the preliminary action to gain initial information are respondent from MCMC, ASTRA, MARES and related ARC entire of Malaysia.

According to Howell et al. (1997) and Blossfeld (2001) casual interview is a kind of interviews conducted without preparation or planning beforehand. Mishler (1991) and Rubin et al. (2011) stated that personality interviews are interviews with public figures were well-known, or it could be against those who considered the nature / habits / accomplishment that are unique, exciting to be appointed as news material. Theme, angle of study, outline and background of the problem should be harmonized to conduct interviews with respondents who have been in the study population. Thus the outline and background of the problem of this study is about issue in adoption the ARCT in Malaysia.

The number of respondents who were interviewed was not an issue because no specific method to determine the size of the sample to interview (Patton, 2002; Ismail, 2008; Connaway & Powell, 2010). Indeed, Litwin (1995), Forrest (2006) and Crawford & Irving (2009) asserted, the respondents interviewed should be have particular experiences, lessons, expertise and knowledge in a particular issue. Thus, respondents were selected based on their involvement in ARCT and involved the management of communication in Malaysia. In addition, the selection of respondents took into consideration the recommendations of the respondents interviewed before. This approach is recognized by Patton (2002), Ismail (2008) and Crawford & Irving (2009).Therefore, this study was interviewed eleven individuals were directly involved in the field of ARCT and communication management in Malaysia.

III. EVOLUTION OF ARCT IN MALAYSIA

Based on literature review, at the beginning, ARCT was a hobby (ARES, 2011; IARU, 2013; ARRL, 2014). It is commonly used in remote areas (Haring, 2003). ARCT is a wireless communication technology that using radio signals (wave), which is more effective than from mobile phones and Internet during emergency situation occurrence. Information is transmitted simultaneously to ARC in related area at the same time. This is the advantages and the unique of ARCT which are not have in other communication device (Laster, 2001, 2012; Pitt, 2014; ARRL, 2014).

Based on interview among related people, ARCT has begun transmitting the signal to the public in Malaysia since 1928. According to Abdul Aziz (2014) and MARTS (2015), during that time Malaysia is known as Malaya. Amongst the pioneers in ARCT during that time, is Richard Earle, who was active in radio transmission since 1928 to 1930.

In the early stages of ARCT evolution, the British government was not interested in the ARCT. Therefore the electrical companies, telecommunications personnel, radio fans and practitioners started to collect donation to establish ARCT network among the community who are interest in the broadcasting technology.

In 1921 Birch, the chief electrical engineer of the Johor state government experimented with a set of ARCT which are obtained from England and in 1923 formed the Johor Wireless Society. The influence of these efforts, Malaysia is one of the first British colonies began to adopt the ARCT. The first radio station was established in Kuala Lumpur is to share and disseminate the information among rubber estate workers and tin miners. Even though the experimental broadcasts among the Singapore ARC had begun earlier, the ARC in Kuala Lumpur is successful than Singapore. The Kuala Lumpur ARC started experimental work in November 1929 and officially commenced its regular broadcast service from the Selangor Club as base station (Agil & Hamzah, 2008; MARTS, 2015; MARES, 2015).

The British government encourages the ARC to broadcast the ARCT, using station located at Bukit Petaling Kuala Lumpur. The station was constructed in 1928 (McDaniel, 1994). The Kuala Lumpur Amateur Radio Society (KLARS) has begun to use the transmitter crystal controlled equipment named "Marconi S3A" through government channels in May 1931. They have successfully to transmit radio wave throughout the peninsula, parts of the Netherlands East Indies and Borneo. (McDaniel, 1994; Abd Latif, 2005). This is the uniqueness and greatness of the expertise of ARC of that era.

In 1933 temporary location was given to the amateurs when they were allocated space to construct a station at Bukit Petaling. The British government gave the permission to ARC to setup and establishes their own station after two years of operations (Raja Iskandar, 2005; MARTS, 2014). This is due to positive enhancements in the sharing and dissemination of information, especially on the plantations ARC and tin mines ARC.

ARCT progress is blocked during Japanese colonial era. Anyone who has ARCT equipment will be beheaded. Broadcasting facilities are only controlled by the Japanese army. They stayed for three years and eight months. They used the radio wave to broadcast the propaganda. After Japan surrendered, the British military took over broadcasting and allowed ARC to share and disseminate information through the ARCT (Daniels, 1982; Asiah, 1994).

With the re-establishment of sharing and dissemination of information through ARCT, the alliances independence movement has emerged in Malaya at that time. The alliance movement to fight against the Malayan Union was proposed by the British government. The Malay community during that time has adopted and used the ARCT among the ARC to share and disseminate their effort to against the British government. On April 1, 1946, the day the Malayan Union was launched, the British government set up the Radio Malaya as the official department of broadcasting to defend their efforts against the establishment of the Malayan Union. In addition, they also feel threatened by the sharing and dissemination of information through ARCT among ARC and the public who were strongly demanding the independence from the British government. The main function of the official broadcasting until the country independence in 1957 was to help the government to control the social and political confusion that followed the war and the communist of 1948 until 1957 (Ramli & Othman, 2012). Girard (1992) and Raja Iskandar (2005) argued that the fact is ARC are the first who started transmitting their signals on High Frequencies (HF) before the birth of Radio Malaya but their roles were not mentioned in the radio broadcasting history.

Based on interviews among related peoples in ARCT field and identify related literature review, a table regarding ARCT evolution in Malaysia was constructed as in Table 1.

Table 1. ARCT Evolution

Years	Evolution of ARCT in Malaysia
1921	A.L Birch is a first person to transmit radio signal and set up ARCT which are obtained from London
1923	Johor Wireless Society, is the pioneer formation of ARC in Malaya
1928	The beginning ARCT used among the ARC in limited locations in Malaya
1929	Selangor Club is a base station for KLARC
1930	The radio wavelength in 75 meter band (4 MHz) is a best signal reception to the entire of country.
1932	The radio wavelength was upgraded to 48.92 meter band (6.125 MHz).
1933	British Company allocates permanent station to construct a transmission centre at Bukit Petaling.
1942	ARCT is blocked during Japanese colonial era until 1945.

1946	April 1, the opposition to Malayan Union was launched, the British government set up the Radio Malaya as channel to defend their efforts.
1948	ARCT is adopted to support the government to control the social and political confusion that followed the war and the communist of 1948 until 1957.
1957	ARCT is adopted to support the government to share and dissemination of information after independence day.
1980 to Present	The adoption and use of ARCT is only active among ARC and not widespread use. The adoption and use of ARCT in Malaysia is still lack and lagging compare to other country such as as Japan, USA, Holland, Canada and our neighboring country, Thailand.

IV. ARCT ISSUES IN MALAYSIA

Today Malaysian Communications and Multimedia Commission (MCMC) is encouraging community to use the ARCT as an alternative communications technology. Those who like to use the ARCT are required to take the examination which is prepared by MCMC to enable them to be registered practitioners of amateur radio. The adoption and use of ARCT is mainly to providing information and to assist the victim in emergency situation during disaster in a remote area that does not have good access to the telephone line or cellular phone (Mohd Aris, 2014; MART, 2014; MCMC, 2014).

Therefore the roles of non-governmental organizations like ARC are able to prepare, provide relief and support to government agencies in emergency situation during any the disasters. As example ARC in Japan helped to share and disseminates information to the public long before the public announcements were made by their government. The numbers of ARC in Japan are far higher compare to other country in the world (Fujiki, 2007; Nollet & Ohto, 2013). Unfortunately ARC counterpart in Malaysia, not only are few in numbers, are also not taken up by the government to support relief agencies in the emergency communications until this recent 2014 flood.

When severe flooding hit Kelantan and Terengganu on December 22, 2014, there was a major challenge to communication due to the failure of the telecommunication services. Existing communication during that situation was only through ARCT from the volunteer groups among ARC. Communication becomes more critical as the number of ARCT practitioner is limited (Ahmad, 2015).

The recent flood disaster in Malaysia highlighted several challenges and issues such as the need the alternative communication like ARCT when their failure to maintain the current telecommunication due to the breakdown of the power station and electrical supply. The majority of the victim in the remote areas were not only stranded by the flood but were not able to communicate to ask for help, shelter and food (Ahmad, 2015).

Even adoption and use of ARCT as a hobby among ARC, their contributions and supports in emergency cases cannot be denied. For example, when the floods hit Johor in 2007, ARC has extended support in terms of online and mobile communication systems due to disruption and failure to operate. They have been a frontline in emergency communication in emergency situation during that time (Mohd Aris, 2014; Roszeta, 2014).

According to Bahari (2014), when huge floods hit Perlis and Kedah in 2010, ARC from ASTRA have been a frontline to support the Polis Diraja Malaysia (PDRM), Jabatan Kebajikan Masyarakat (JKM) and Badan Operasi Mencegah Bencana Alam (BOMBA) due to the failure of the entire communication system to operate.

Until July 2014, only 11,626 an Amateur Radio practitioner or HAM operators who are volunteers capable of giving support in the event of an emergency or natural disaster in Malaysia. Peninsular Malaysia has 9,919 individual registered and qualified ARCT operators, 1,487 operators in Sabah and 220 in Sarawak. In developed countries, ARCT widespread adopted mainly in emergencies but our country is still lagging behind in adoption the ARCT and still less exposed to the community (MARTS, 2014; Roszeta, 2014). This is issues that differentiate the developed countries against our country.

Furthermore our neighbours Thailand, has allowed their peoples to use ARCT since 1982. Currently, Thailand has more than 240,000 licensed amateurs' radio practitioner. Their government encourage the people to have experience in the field of wireless communication. In fact, ARCT can create economic opportunities such as services to construct a radio tower or antenna, product sales such as ARCT gadget, radio accessories and etc. Business activities involving ARCT gadget is greatly developed in Thailand (Pettit et al., 2014; Abdul Aziz, 2014).

ARC has brought many benefits to government, businesses, community and individuals. According to NSC (2012), Malaysian government encourages civilian to improve of individual who wants to be ARC, to get new knowledge, to be part of support in emergency situation. ARCs are both recipient and providers of information to alert each other as well as other stakeholders quickly. They can play a supportive role in early warning, search and rescue

and relief and support (Rashid & Zainal, 2013; Abdul Aziz, 2014).

Japan is the most popular in the adoption and use of ARCT and the highest number of ARC. ARC in Japan has been supported the relief agencies to save many lives in Japan tsunami 2011. Primarily to share and disseminate early warnings to the public before the tsunami occurred. Whereas the percentage of ARC in Indonesia is too low compared to its citizens, and maybe one of the main reasons why many lives were lost during 2004 tsunami, was the lack of information sharing and dissemination among relief agencies to the public (Yusuf, 2009; Koshimura et al., 2009; Izumi Aizu, 2011). Based on this perspective, we can look at the role and contribution of ARC as important to these countries.

ARCT are considered a highly appropriate option for developing countries, mainly in emergencies. However, researchers regard the adoption of ARCT is still lacking and lagging around the world and popularized as a hobby and a volunteer activity only (Laster, 2001; Haddow, 2009; Cuellar, 2012).

ARCT can play an important role as alternative communication in emergency situation. Thus, an effort to form collaboration with the experts in the field of ARCT in order to establish emergency communications in emergency situation during disaster is important (Mohd, 2011; Jailani, 2014). However, exposure of the importance of ARCT to the community in Malaysia is still lacking compared with neighbouring country such as Thailand (Pettit et al., 2014).

V. CONCLUSION

Furthermore ARCT is a contingency communication and significant as alternative communication in emergency situation when other communication device fails to operate.

As a conclusion, ARCT has lot of benefits may influence the stakeholders and role players in our country, but there are still a lot of issues abounded. Therefore need to carry out further study to understand the factors that influences ARC in the adoption of ARCT in Malaysia.

Until now, no specific study to explore this area. Many of the existing literature do not talk about the factors that influences ARC in the adoption of ARCT and implications to the country (Mohd, 2011; Rashid & Zainal,2013; Ahmad, 2015). Thus in future a specific study in this area should be done to clarify and understand this issue in Malaysia. Therefore, the ARCT evolution and the issue were described and highlighted is significant to stakeholders and role players in related field in future. Hence, the information aforementioned and hopefully provide a useful benefit to everyone.

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