Radio and Television Bureau of Guangxi Zhuang Autonomous Region

Guangxi's emergency broadcasting system realises the "Last Step" in providing public services

ABSTRACT

This article introduces the features of Guangxi's emergency broadcasting system and its role in coping with public emergencies. It expounds the experiences and practices of Guangxi Radio and Television Administration in constructing and promoting the local emergency broadcasting system.

By technological innovation, Guangxi has created a safe, stable and efficient emergency broadcasting system, which can realise coordinated actions, be safe, reliable and available both at ordinary times and in crisis, thus effectively realising the "last step" in providing public services.

INTRODUCTION

The emergency broadcasting system is an important infrastructure for national social governance, an important part of constructing the public radio and television service system, a social project to protect the lives and property of the people.

Guangxi Zhuang Autonomous Region is located in southern China and enjoys geographical proximity to Southeast Asia. The region's total land area is 236,700 square kilometres. Guangxi has a population of more than 50 million. Zhuang nationality is a minority with more population than any other minorities in China.

In recent years, Guangxi Radio and Television Administration has used new technologies to build an emergency broadcasting system in Guangxi. The system can promptly and effectively publicise government policies, disseminate news and agricultural knowledge, and enrich the cultural life of the masses. In the event of sudden public emergencies, the emergency broadcasting system could deliver immediate information to the masses without delay, playing a role in information dissemination, risk warning, social mobilisation, etc., thus ensuring the safety of people's lives and property. This is an efficient way of ensuring the "last step" in making public services realisable.

THE ROLE OF GUANGXI'S EMERGENCY BROADCASTING SYSTEM IN SUDDEN PUBLIC EMERGENCIES

The first role lies in publicising information. Since the start of the COVID-19 pandemic, Guangxi Radio and Television Administration has been activating the emergency broadcasting system as soon as possible to give full play to its strong publicity capability for sending information directly to rural areas. The system is widely used to release authentic information on combatting COVID-19 to innumerable rural households. At the same time, given the special needs of ethnic minorities, minority languages have been used to broadcast information on COVID-19 containment. This effort has effectively prevented the pandemic from spreading to rural areas. The unusual role of the emergency broadcasting system in the joint COVID-19 epidemic prevention has been reported by mainstream media, shaping Guangxi's experience.

Figure 1: People of ethnic minority group are using the emergency broadcasting system

The second role lies in early risk warning. According to the practical situation, Guangxi's emergency broadcasting system issues regional risk warnings in a regular and seasonal way, effectively ensuring the safety of people's lives and property. In July 2021, Typhoon Cempaka hit Guangxi. At Weizhou Island Tourist Zone of Beihai City, Guangxi, the emergency broadcasting system played a role in emergent response to the typhoon. It released information on shipping suspension, tourist transportation, risk warning, meteorological disasters, etc., covering the whole island and promptly reminding people to disembark from fishing boats, and islanders and tourists to take safety measures. With the timely information provided by the emergency broadcasting system, about 23,000 tourists along the Weizhou Island-Beihai route were evacuated during the typhoon, and the safety of people's lives and property was ensured. On August 4, 2021, a magnitude-4.8 earthquake struck Debao County, Baise City, Guangxi. The local emergency broadcasting system released the earthquake warning to the public instantaneously, promptly reminding people to keep themselves safe. It is the most efficient way for local citizens to get the latest news about the situation in and beyond the disaster area.

FEATURES OF GUANGXI'S EMERGENCY BROADCASTING SYSTEM

Guangxi People's Government has placed high value on the emergency broadcasting system by including the "improvement of the emergency broadcasting system" into the Outline of the 14th Five-Year Plan (2021-2025) for Economic and Social Development of Guangxi Zhuang Autonomous Region and the Long-Range Objectives through to the Year 2035. A safe, stable and efficient network of emergency broadcasting systems has been forged under unified planning, standardisation, construction and supervision, featuring one platform + multiple channels + multiple terminals. It can realise coordinated actions, safety, reliability and availability both at ordinary times and in disaster. Guangxi's emergency broadcasting system is listed as a model case of Smart Broadcasting by the National Radio and Television Administration of China.

Guangxi's emergency broadcasting system adopts a construction model of advancing from one county to another. Emergency broadcasting can vertically link five tier, province, city, county, township, and village levels, and horizontally connect to the information local systems of emergency, meteorology, earthquake, health, water conservancy, and other government authorities. Currently, there are 57 county-tier emergency broadcasting systems, completed or still under construction, in Guangxi, covering 669 towns and townships and 8,106 administrative villages, accounting for 51% of the total construction tasks. In counties under the jurisdiction of Liuzhou City, Guangxi, the system has extended to remote natural villages, realising complete coverage of emergency broadcasting. The following are the features of Guangxi's emergency broadcasting system.

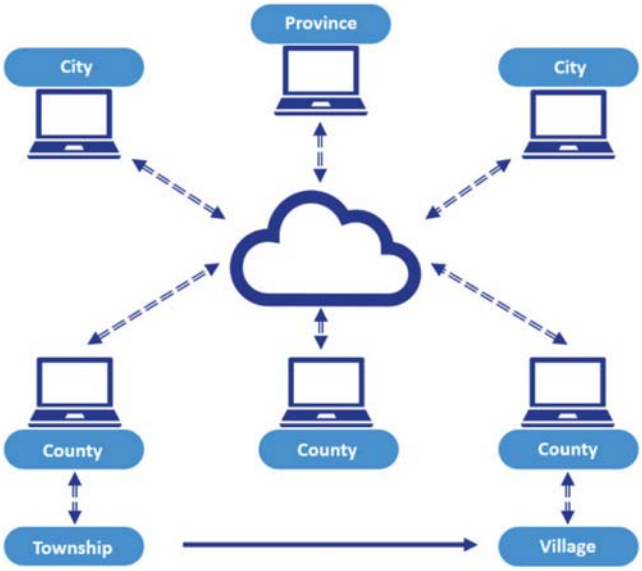

Figure 2: The structure of emergency broadcasting system

First, it has a set of technical standards to ensure the effectiveness of the system. Guangxi Radio and Television Administration strictly implements the technical standards of emergency broadcasting issued by the National Radio and Television Administration of China, has organised a technology task force to carry out research on key emergency broadcasting technologies and strive to master core technologies, so as to ensure the standards of the whole autonomous region are unified.

Second, it has a unified platform to ensure low cost. Guangxi Radio and Television Administration has used cable TV network coverage resources and new technologies such as cloud computing, big data and artificial intelligence to build an emergency broadcasting online platform. This platform allows emergency broadcasting centres at all tiers to adopt the lowest configurations, so that they don't have to purchase more servers, switches, adapters and other hardware equipment. It can greatly reduce the costs of construction, operation and maintenance of emergency broadcasting centres at all tiers.

Third, it has multiple channels to ensure successful broadcasting. The emergency broadcasting system mainly uses cable TV network as the mainstay, wireless network as the backup, and 4G communication network as the supplements. With transmission routes including the cable TV network, terrestrial digital broadcasting network, FM broadcasting network, 4G communication network, and Beidou satellites network, it feature wide coverage, low latency, and prompt response.

Fourth, it has multiple terminals to ensure messages are heard. The terminals include loudspeakers, broadcasting STB, access controller, Beidou receiver, radio, and other terminal equipment. The emergency broadcasting system has multi-terminal management capabilities. It can send emergency messages to different types of terminal to achieve accurate coverage of different areas.

Fifth, it has integrated multiple resources to ensure wide coverage. Guangxi Radio and Television Administration has given full scope to local radio and television broadcasting institutions to carry out the daily management of emergency broadcasting and explore the establishment of a daily scheduled broadcasting mechanism for emergency broadcasting

Figure3: Emergency broadcasting online platform

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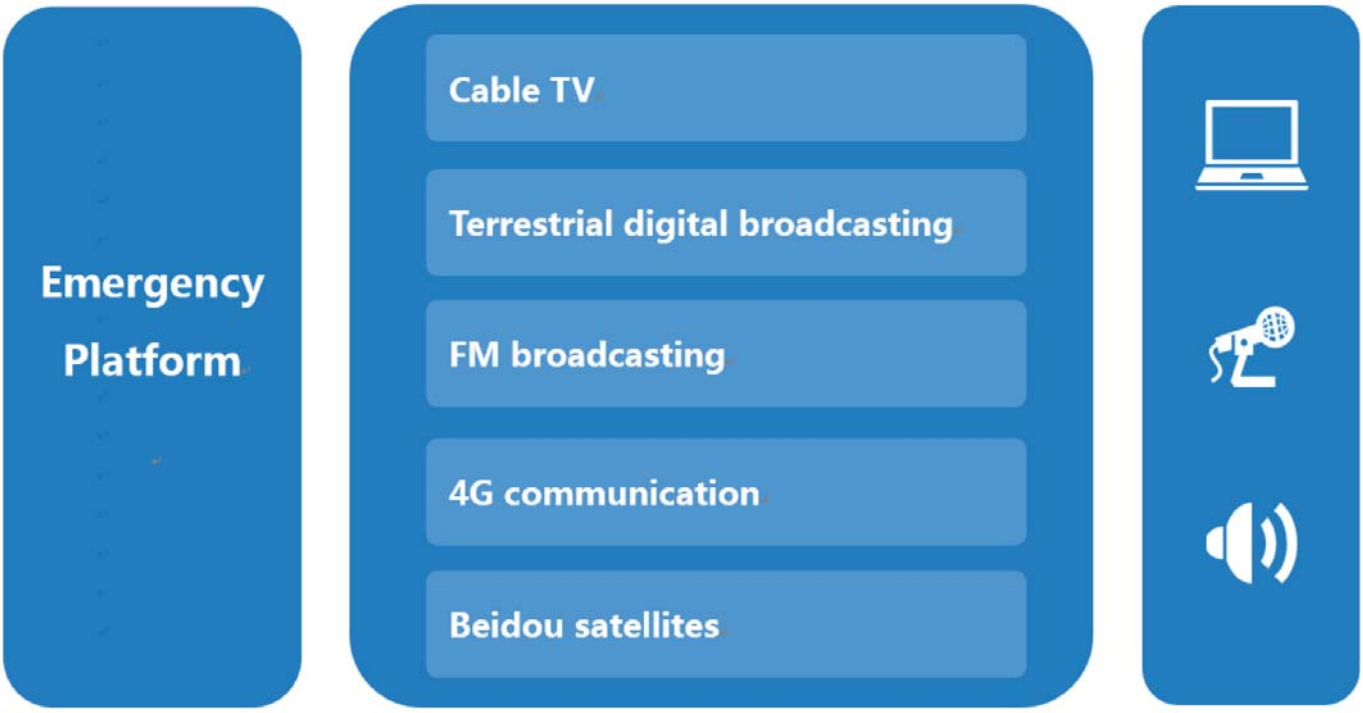

Figure 4: Multiple channels used by emergency broadcasting system

in the early, mid and late hours. On one hand, it has strengthened cooperation with the government emergency management authority for the application of the emergency broadcasting systems in the field of emergency management, and the improvement of an emergency information release mechanism. On the other hand, it has signed the Business Cooperation Framework Agreement with the government meteorology authority, to jointly build and share the dissemination channels of meteorological warning information, and to improve the coverage and timeliness of warning information, especially on major meteorological disasters.

Loud speaker

Broadcasting STB

Access controller

Radio

Beidou receiver

Figure 5: Multiple terminals used by emergency broadcasting

THE WAY FORWARD

Guangxi Radio and Television Administration will further develop and improve the emergency broadcasting system and expand its coverage. We will strive to achieve full coverage of emergency broadcasting in all 14,335 administrative villages under Guangxi's jurisdiction and extend broadcasting terminals to natural villages and urban communities. We will also fully leverage the role of the system in social governance and information dissemination.

AUTHOR

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Lan Zhaohua was born in China in June 1982. He received his B.Sc. and M.Sc. in Electronics Information from Guangxi University in 2005 and 2008, respectively. He has over 14 years of experience in the Broadcast and Media industry. He is currently the Chief of Science and Technology Division at Radio and Television Bureau of Guangxi Zhuang Autonomous Region. His current research interests include high-speed networking, cloud computing, SDN/NFV, networking algorithms, video retrieval and artificial intelligence. ■