

Compendium of Good National Practices for Public-Private Engagement

KOREA: Public and Private Engagement in Korea's Weather & Climate business

Jaegwang Won, KMA Seconded expert to WMO

The Korea Meteorological Administration (KMA, hereafter), established as the governmental entity in 1949, is in charge of Korea's weather and climate operation in the national, regional and global context. The Korea Weather Act (No.14786) authorises KMA as the authoritative source of information in Korean sovereignty, especially for the disaster warning related to the extreme weather/climate events. KMA is an integrated part of the global weather and climate network, for example, as the global production center of NWP (GPC), the global information center (GISC), and the regional training center (RTC).

In modern times, and not only in Korea but also worldwide, the public needs for weather and climate information surpass the capacity of the sole government services. Since the beginning of the 21st century, the private sector has emerged to respond to such needs in Korea. In this regard, the government of Korea has introduced legal and societal frameworks to support national weather industry, and furthermore, the global weather enterprise, in which KMA and its governmental and private partners play the key roles for implementation.

National legislative framework

In 2009, the Korea government enacted the "Weather Industry Promotion Act" (No. 16101) that stipulates the definitions, conditions and procedure concerning the development of the weather industry. The general purpose of this act is "to prescribe matters concerning the support and fostering of the weather industry for the purposes of laying the foundation for the development of the weather industry and strengthening its competitiveness, thereby contributing to the development of the national economy."

In doing so, it mandates KMA related power and duty regarding the support of domestic weather/climate market. According to Article 3, KMA shall 1) endeavour to facilitate the advancement and development of the weather industry, 2) facilitate the private use of meteorological information to ensure that meteorological information in his/her possession may be

put to practical use for various types of industries, etc., and 3) endeavour to deliver accurate meteorological information to requesters.

Article 4 mandates KMA to formulate and implement a master plan every 5 years for the advancement of the weather industry, which is to include the objectives and basic direction of policies, the implementation of research and development, the government assistance and investment, the nurturing of specialists, and the facilitation for the enhancement and globalization of the domestic industry. And the Article 12 empowers KMA to carry out the survey on the actual state of the weather industry in order to facilitate the advancement of the weather industry in a systematic manner and efficiently formulate and implement master plans. Besides, the Article 17 stipulates that the Korea Meteorological Institute (KMI, hereafter) shall be established to provide efficient assistance for the advancement and development of the weather industry as a KMA's subsidiary with regard to PPE activities.

Based on the 5-yearly master plan, KMA has been providing grants for the domestic industries to promote their products and services more extensively and to develop new technologies required by the public needs. This plan also empowers KMA to support the foundation of new weather/climate companies with various measures. As a subsidiary of KMA, KMI takes its role of implementation partner that assists the government to carry the Act into effect.

Boosting collaboration with the private sector and academia

In the domains of weather and climate in Korea, the grants for academia's R&D are the conventional and formal governmental mechanism to support cross-sectoral collaboration and partnership. KMA had not operated any budget to directly support weather/climate industry until the end of 20th century, and the extent of public-private engagement had been far below the level to satisfy the needs and expectations of the public and business sectors.

In order to fill this gap, regular dialogues between KMA and private sector's representatives have been initiated in 2000 to set up new agendas for the public-private engagement (PPE), in view of strengthening weather and climate information value chain. Experts from the industries as well as from academia have actively participated in the process, resulting in the new national strategy for cross-sectoral collaboration followed by a series of feasibility studies. The establishment of the Weather Industry Promotion Act was the major achievement of this process.

Within the authority of this Act, KMA launched and implemented a new R&D funding mechanism to support private industries in 2009. Several collaborations between academia and private industry for new technology development have been subsidized in this framework, and a few new start-up companies have been established. The governmental budget was further extended in 2018 to boost up the new business models and to stimulate the development of the state-of-art technologies.

Events and partnering opportunities for weather and climate industry

One major event regarding the PPE in Korea is the annual “Korea Climate and Meteorological Industry Exhibition” organized by KMA and KMI. This began in 2016 with the participation of 57 organizations (company, institutes, etc.) and has grown to the size of 108 organizations’ participation in 2019. Based on the understanding that the whole value chain of weather and climate is highly dependent on the network of weather industry and other societal sectors, the series of exhibitions were organized in close coordination with responsible governmental and public entities of other industrial sectors – for example, convening the Exhibition at the same venue with other major exhibitions such as the ‘Korea Safety Expo’, the ‘Road Transportation Exhibition’ and the ‘Construction & Industrial Safety Expo’ in 2019. This is a prime opportunity for the weather and climate industries to promote themselves to the public and to a wide range of users. Participating companies, including the small and medium-sized enterprises (SMEs), are provided with the opportunities to meet new customers from Korea and other countries.



Fig. 1 Korea Climate and Meteorological Industry Exhibition in 2019



Fig. 2 Mr Jongseok KIM (Administrator of KMA, second to the right) and Mr. Young JIN (Minister of Ministry of the Interior and Safety, in the middle) visiting the Exhibition in 2019



Fig. 3 Business consultation meeting during the Exhibition, arranged by KMA



Fig. 4 Public visit and demonstration at the Exhibition

In order to expand Korean industries' business scope, KMA and KMI also select and provide financial and administrative support for several domestic SMEs to participate in bigger international exhibitions like the “World Meteorological Technology Expo”.

Challenges and opportunities in strengthening weather industry and PPE – data policy

In order to enhance PPE, one of the most decisive factors is data sharing between public and private sectors. On the technical side, KMA has been operating the national system in the past decade to share in near-real-time the hydrometeorological observational data that are collected by 27 public institutions including provincial governments and non-governmental public institutions. This system provides the weather and climate data at 3,411 locations within the Korea territory, which is a much larger number than the KMA branches of about 600 locations, indicating the extensive connectivity and utilization of this system across the domains and sectors in Korea. It was initially designed to share data and information among the public institutions, and to ensure their standardized quality under KMA's guidance. At the same time, the Korean government has emerged to the global leader in adopting and promoting the Open Government Data (OGD) policies - that promote transparency, accountability and value creation by making government data available to all¹. Public institutions like KMA become more transparent and accountable to citizens and society, and are able to promote

¹ Since 2015 until the present, the Republic of Korea has been ranked #1 in the world at the OECD assessment on Open, Useful and Re-usable data (OURdata): <https://www.oecd.org/gov/digital-government/open-government-data.htm>

more efficiently business creation and innovative services. In this context, the KMA-operated system for national hydrometeorological observational datasets has made the natural progression to become available to the private sector, along with the gradual development of server-to-server interfaces and agreements on related operational frameworks.

Yet, innovative information services by private weather industry, such as pin-point forecast services for different industrial sectors, require to share far more extensive data and information. Not only the extent/contents/quality of the datasets in question, but also improved governance of weather and climate data is a critical issue therein in the face of new business models embraced by the private and public sectors. KMA has been convening the annual “Weather and Climate Big Data Forum”, starting 2014, at which participants from the government agencies (including KMA), weather industries and major IT companies discuss KMA’s data policy and its future direction. At the most recent event in June 2019, the main topic of the Forum was about the state-of-art technology regarding big data collection and exchange via the cloud-based platform; all participants exchanged best practices and discussed the prospect for expanded utilization of weather/climate data in a more efficient manner in different societal sectors.

The policy is to continuously evolve. And in this development, enhanced communication between KMA and the private industry is imperative.

International cooperation and PPE

Korea’s national community is keenly aware of the need to overcome national boundaries in the activities of Korean weather/climate industries and academia. In this regard and beyond the administrative guidance, the private sector seeks advice of KMA - on behalf of the Korean government - on the global standards of weather/climate enterprises.

Aiming to the enhanced global capacity of weather and climate enterprise, KMA has been actively building up bi-lateral cooperative relationships with other WMO Members via research cooperation, expert exchanges, development cooperation projects, etc. KMA is also an active member of WMO contributing to a number of multi-lateral programmes and projects. The national resources and expertise provided to these activities are partly coordinated with the relevant PPE at the national level, while there is clearly a room to synergize both aspects through a transparent and effective channel that is agreed by the international and global communities.



PUBLIC-PRIVATE ENGAGEMENT

In Korea's national framework, KMA's role is critical not only as the government's authoritative voice and regulator of business sector, but also as the leading agency to support and foster the weather industry. Therefore, its expectation to the WMO and its Open Consultative Platform (OCP) is high: it is expected that the globally accepted references in weather and climate business will be developed through OCP, upon which KMA would formulate a forward-looking partnership with the industries, academia and other communities at the national and internal levels.