

Compendium of Good National Practices for Public-Private Engagement

JAPAN: Public-Private Engagement in Japan Underpinned by its Legislative Framework¹

Legislative Framework in Brief

The Japan Meteorological Agency (JMA), the National Meteorological and Hydrological Service (NMHS) of Japan, is one of the affiliated agencies of the Ministry of Land, Infrastructure, Transport and Tourism of Japan. The legislative framework under which JMA carries out its mandate comprises several laws and acts, as follows:

- *the Act for Establishment of the Ministry of Land, Infrastructure, Transport and Tourism,*
- *the Meteorological Service Act²,*
- *the Basic Act on Disaster Management,*
- *the Civil Aeronautics Act,*
- *the Act on the Protection of the Ozone Layer Through the Control of Specified Substances, etc. and Other Measures,* and
- other related acts, ordinances, rules and regulations.

Among those acts and regulations, the Meteorological Service Act has primary importance for the organization and operations of JMA. It is important to note that such a key legal instrument should be kept under review and amended from time to time as necessary. For instance, the Japanese Meteorological Service Act has been amended more than 30 times since its promulgation in 1952, a year prior to JMA's joining WMO, to account for new government policies, to meet new societal needs, and for other reasons, e.g., as part of administrative reform or to adjust the framework to the establishments or amendments of other acts.

The focus of this article is on how the Public-Private Engagement (PPE) has been treated in the legal framework. The PPE has a long history in Japan and some provisions related to the PPE, such as the licensing of forecasting service for specific users and the entrustment of observations, date back to approximately 65 years ago. More recent PPE-related provisions include the introduction of a new authorized system for verification of the accuracy of meteorological instruments (about 15 years ago) and the licensing of forecasting service for the general public (25 years ago).

Two Main Acts – the MLIT Establishment Act and the Meteorological Service Act

The Act for Establishment of the Ministry of Land, Infrastructure, Transport and Tourism³ (referred to below as the MLIT⁴ Establishment Act) provides for the establishment, head, mandate, jurisdiction and local offices of JMA⁵. This Act defines JMA's main mandate as "to ensure the sound development of meteorological services".

¹ This writing reflects author's personal views, and it does not necessarily reflect the official view of JMA.

² <http://www.japaneselawtranslation.go.jp/law/detail/?id=1968&vm=02&re=02> N.B. Currently available official English version of the Meteorological Service Act does not include new provisions on emergency warnings put in place in a recent-year amendment, however, there is almost no impact in PPE-related matters.

³ As of May 2020, there is no official English version available for the MLIT Establishment Act.

⁴ Ministry of Land, Infrastructure, Transport and Tourism

⁵ Detailed organization of JMA are provided for by the Cabinet Order on Organization of the Ministry of Land, Infrastructure, Transport and Tourism, the Ordinance on Organization of the Japan Meteorological Agency and other internal rules and regulations.

The expression here “meteorological services” includes not only those services provided by JMA itself, but also those provided by the private sector⁶⁷. It is interesting to note the evolution of JMA’s main mandate. It was originally defined as just “to principally conduct meteorological service” by itself. The revision to the current mandate stated above was done in 2001 as part of the administrative reform. The change from “to conduct meteorological services” to “to ensure the sound development of meteorological services” reflects a major change of the role and responsibility of the agency – from a simple service provider to a nation-wide organizer and regulator of services in a multi-stakeholder environment.

JMA’s mandate described above is underpinned by another act, the Meteorological Service Act, which goes further in defining JMA’s mandate in more detail. It also prescribes the basic systems concerning meteorological services, which are needed in order for JMA to achieve its overall goals described in the purpose of the Act (See Table 1).

From a historic perspective, JMA had its predecessor, the Tokyo Meteorological Observatory, which was established in 1875 (renamed as the Central Meteorological Observatory in 1887) and has provided services for more than seven decades. The Meteorological Service Act, first approved in 1952, had two major purposes: (i) to ensure enough authority to JMA to conduct its mandate for the provision of meteorological service in Japan, and (ii) at the international level, to observe the Convention of the World Meteorological Organization (WMO) and other relevant international commitments (to be) agreed to by WMO’s constituent bodies, which was necessary for Japan’s joining the WMO. The formal act of Japan becoming a WMO Member happened in August 1953 after deliberation and approval by the Diet, the national assembly of Japan.

Act	Text
MLIT Establishment Act (Article 46)	JMA’s mandate is <u>to ensure the sound development of meteorological services.</u>
Meteorological Service Act (Article 1)	The purpose of this Act is <u>to ensure the sound development of meteorological services by prescribing basic systems concerning meteorological services,</u> and thereby to contribute to the promotion of public welfare by preventing disasters, securing traffic safety, and promoting the prosperity of industries, and to offer international cooperation concerning meteorological services.

Table 1: Comparison of JMA’s mandate provided for in the MLIT Establishment Act and the purpose of the Meteorological Service Act, which underpins JMA’s duty by prescribing basic systems concerning meteorological services (the thick-underlined parts are common to the two Acts, while the double-underlined part is what the Meteorological Service Act is for.)

⁶ One clear evidence is that there is a provision in the Meteorological Service Act’s Article 24-29: “A center shall carry out the following services for the purposes of supporting the sound development of forecasting services performed under license pursuant to the provisions of Article 17 and other meteorological services in the private sector and”

⁷ Here, the private sector means all those other than JMA. For example, those licensees include the Ministry of Defense, Gifu University and individuals.

Meteorological Service Act

In short, the Meteorological Service Act:

- ✓ **consists of** nine chapters and 106 articles;
- ✓ **prescribes** basic systems concerning meteorological services so that JMA can discharge its duty provided for in Article 46 of the MLIT Establishment Act and repeated within the purpose (Article 1) of the Meteorological Service Act, thereby achieving its overall goal mentioned above;
- ✓ **also prescribes** duties of the Director-General of JMA in Article 3, quite similar in tone to WMO's purposes prescribed in the Article 2 of the WMO Convention; this resemblance seems to reflect that the Act was promulgated partly to ensure that Japan, through JMA, can fulfil its obligation in WMO, including the collective adoption and adherence to international standards and regulations;
- ✓ **clarifies** different roles to be played by JMA and by persons or bodies other than JMA;
- ✓ **highlights** JMA's sole authority of issuing warnings for Japan by prescribing that no person other than JMA may give warnings; and
- ✓ in the PPE context, **also provides** opportunities for the private sector⁸ to take part in or collaborate for meteorological services to achieve its overall goal in Japan, e.g., in such domains as:
 - **Instruments** (as authorized "measurers" and/or as instrument manufacturer obtained type certification),
 - **Observations** (as persons/bodies entrusted with observations),
 - **Prompt dissemination of information** (as co-operators, willing partners, or licensed forecasting-service providers),
 - **Provision of tailored/localized detailed data, products and information** originated by JMA or other forecasting-service providers (as contractors to broadcasting companies or web/app-service providers; as weatherpersons; as web/app-providers or as data providers for business scenes), and
 - **Forecasts** (tailor-made forecasting as licensed forecasting-service providers).

Besides, the Weather Business Consortium (WXBC) was established in Tokyo on 7 March 2017 by public, private and academic sector operators including current and potential meteorological data users. The purpose of WXBC is to drive commerce involving intensive usage of meteorological data in technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI) via extensive joint efforts in the public, private and academic sectors, thereby enhancing socio-economic productivity in Japan. JMA functions as the consortium's secretariat in line with afore-mentioned JMA's mandate as well as part of JMA's overall goal, "to contribute to the promotion of public welfare by ... promoting the prosperity of industries".

In the following part, a brief explanation on the provisions of the Act is provided in three parts, highlighting PPE-related provisions and along with facts and/or examples.

⁸ In this writing, the phrase the private sector includes, in most cases, the academic sector and civil society as well as individuals.

1. Observation

By provisions of the Meteorological Service Act and other subordinate rules/regulations, observation networks and methods of observations by JMA itself and by other persons or bodies in Japan are ensured, including the aspects of instruments, maintenance/environment, data acquisition/exchange and entrustments.

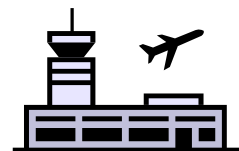
As regards **methods of observations by JMA**, the Act provides that JMA shall perform observations in compliance with methods of observation specified by a ministry's ordinance. The Act also allows JMA to **entrust observations** (for details, see PPE-related Features shown below). Concerning the **observations by persons other than JMA**, the Act prescribes that those must follow technical standards when the observations are intended for announcements or disaster risk reduction, including their compulsory use of verified instruments, and must notify the facility to JMA. JMA has a guiding function on the methods of observations.

For observations by persons other than JMA, **verification of instruments** are conducted by a registered verification body. The Act prescribes **criteria for verification test, verification mark and certificate, a validity period of verification, type certification** (for details, see PPE-related Features shown below), and **authorization of measuring capability** (ditto).

PPE-related Features:

- Entrustment

- ✓ The Meteorological Service Act stipulates that JMA may entrust groups or individuals with (i) observations of phenomena and (ii) provision of the results.
- ✓ The above stipulation is necessary for JMA to efficiently and effectively ensure observations at necessary locations, not all by itself but in collaboration with other bodies, and within limited financial and human resources.
- ✓ **Examples:**
 - JMA has entrusted municipalities or the private sector with aeronautical meteorological observations (and reporting) at a large number of airports, constantly providing necessary education and training.
 - JMA had/has long entrusted municipalities and individuals with meteorological observations, such as precipitation and snow depth, to supplement its automated weather station network. The entrusted municipalities and individuals who have contributed to the meteorological service for a long period of time are commended by the JMA Director-General or heads of JMA regional headquarters and local offices on the occasion of annual meteorological memorial day, 1 June.



- Verification of Instruments

- ✓ To utilize instrument manufactures' measuring capability and to ease the burden to those manufacturers to go through verification tests, deregulations were made at the very beginning of this century.
- ✓ **Type certification:** After the deregulation, the Act and subordinate rules/regulations provide that JMA shall grant type certification for instruments specified in the ordinance for meteorological instrument verification, and such type-certified instruments are exempted from structural tests in verification tests.
 - The number of type-certified instruments reached 266 as of January 2020, including the number of those whose certification has already expired.

- ✓ **Authorization of measuring capability:** Also, JMA may grant authorization of such capability as measuring instrumental errors, and calls such bodies authorized measurers, who can pass verification tests of type-certified instruments only by documentary examination.
 - The number of authorized measurers is 22 as of February 2020.

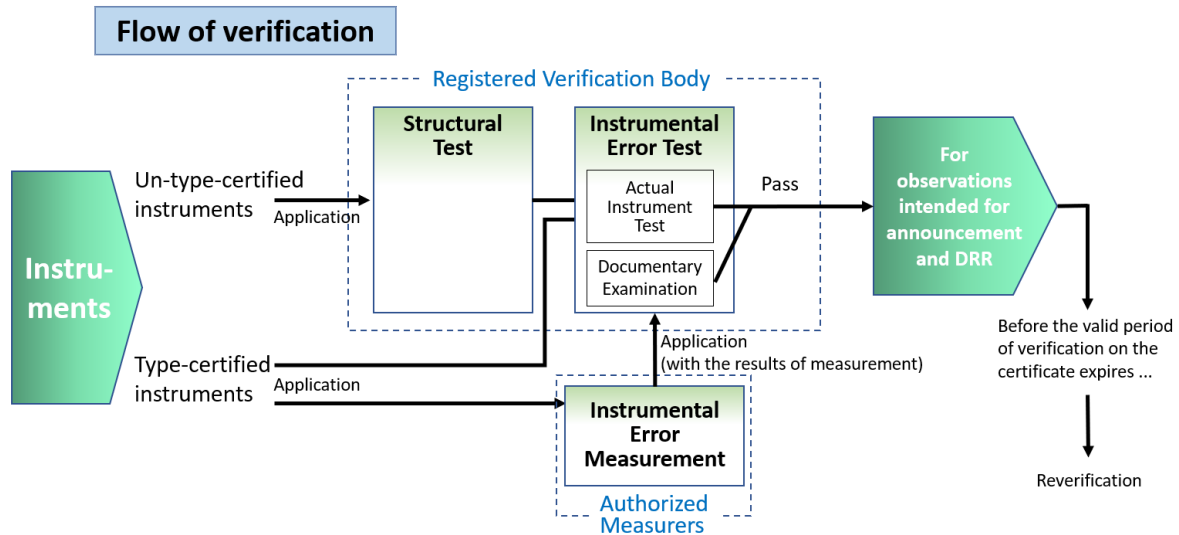


Figure 1: Flow of verification of instruments to be used by persons other than JMA

2. Dissemination

Data, products and information, including forecasts and warnings, are disseminated or widely made available to national/regional/local disaster management authorities and citizens, in line with provisions of the Act and other subordinate rules/regulations, supported by or in collaboration with relevant public- and private-sector bodies.

PPE-related Features:

- ✓ The Meteorological Service Act stipulates that when JMA finds it in the public interest, it shall endeavor to immediately announce the results of observations and information on meteorological phenomena and make them publicly known by seeking cooperation from the mass media.
- ✓ Similar provision in the Act says that JMA shall, when giving the forecasts and warnings, (not only independently take measures to publicize the forecasts and warnings but also) endeavor to make them publicly known by seeking cooperation from the mass media.
- ✓ In addition, when JMA issues warnings, JMA shall immediately notify the warning matters to the applicable organs, while (i) direct/indirect recipients from JMA shall endeavor to⁹ immediately notify prescribed bodies and (ii) the public broadcaster shall immediately broadcast them.
- ✓ Also, licensed forecasting-service providers shall endeavor to quickly transmit to the users of said forecasting service JMA's warning matters pertaining to the purposes and scope of said forecasting service.
- ✓ The above stipulations are indispensable for JMA to efficiently, effectively and promptly make such information publicly known within its limited financial and human resources.

⁹ In the case of emergency warnings, this part is obligatory.

- ✓ **Examples:** The latter example may not strictly fall under provisions of the Act, but shows Win-Win results for JMA, the private sector and users.
 - Near or non-real-time data provision through JMA's website is one of JMA's measures to publicize the forecasts and warnings.
 - In May 2019, JMA has invited applications from those (i.e. the private sector) who would like to take part in a new push notification service of the state-of-the-art Real-time Inundation Risk Map and Real-time Flood Risk Map. The new push notification service by five accepted collaborators has started from 2019 summer onwards one after another¹⁰. Those collaborators consist of companies who have been proactively involved in weather-for-business activities in Japan.

3. Forecasting

JMA's authorities for its forecasts and warnings are clearly prescribed in provisions, namely, forecasts and warnings for general use, for special purposes such as aircraft and vessels, and for use in flood prevention activities. As mentioned above, provision to ensure the single authoritative voice is included in the Act, where it is described that no person other than JMA may give warnings.

A number of provisions describe **licensing of forecasting services** by the private sector, licensing of **certified weather forecaster(s)**, staffing of certified weather forecasters by the licensed forecasting-service providers, and supports to the private sector for the sake of sound development of meteorological services in the private sector, such as the **provision of data, products and information**, consultation and training.

PPE-related Features:

- Licensing of Forecasting Services

- ✓ Those who wish to conduct forecasting services must apply for the license to JMA. Standards for licensing are defined in relation to facilities and personnel* involved in data collection and analysis and to receive warnings (*See the next item on the Certified Weather Forecaster).
- ✓ **Facts and Examples:**
 - A total of 81 persons or bodies are licensed to issue weather forecasts in Japan as of 5 June 2020.

- Certified Weather Forecaster

- ✓ Those who are licensed to provide weather forecasts must staff certified weather forecaster(s), who is/are with the requisite levels of expertise to perform the core part of forecasting (i.e., prediction of phenomena).
- ✓ The above stipulations assure the quality of forecasting services provided by the private sector.
- ✓ The examination for a certified weather forecaster's license is held twice a year (the frequency of the exam is not stipulated in the Act).
- ✓ **Facts and Examples:**
 - There are currently more than 10,000 certified weather forecaster licensees. A large number of certified weather forecasters work for licensed forecasting-service providers and at other weather-for-business companies.

¹⁰ The followings are the links to press releases in Japanese (use free on-line translation services to your language):
Press release on 8 May, 2019: http://www.jma.go.jp/jma/press/1905/08a/20190508_pushtsuchi.html
Press release on 10 July, 2019: http://www.jma.go.jp/jma/press/1907/10c/20190710_pushtsuchi_launch.html

- In addition, many of TV/radio weatherpersons in Japan are certified weather forecaster licensees.
- Certified weather forecasters are also expected to play an active part in interpreting meteorological data, products and information at municipalities for disaster risk reduction, and also in the analysis of meteorological data and other data together at a variety of business scenes.



Figure 2: Many of weatherpersons in Japan are qualified as a Certified Weather Forecaster.

- Support to the Private Sector, such as Data Provision, Consultation and Training

- ✓ Based on the provisions in the Meteorological Service Act, since 1995, JMA provides most of the meteorological data, products and information it collected and/or produced to the private sector online at cost¹¹ for commercial usage, via the Japan Meteorological Business Support Center (JMBSC), a designated public foundation as the private weather service support center, defined in the Act, to support the sound development of meteorological services in the private sector.
- ✓ **Facts and Examples:**
 - Fee system for the data provision are revised every three years.
 - The number of users of the data provision service is approximately 300 (as of March 2018) and increasing.
 - Anybody can obtain data, products and information through JMBSC, including those who promptly disseminate or further intelligibly provide meteorological data, products and information by TV, radio, web and apps, without forecasting.
 - The other supports by JMBSC include consultation, e.g. holding of information sessions on new/improved data, products and information), and training to users, promoting further and suitable use of data and products.

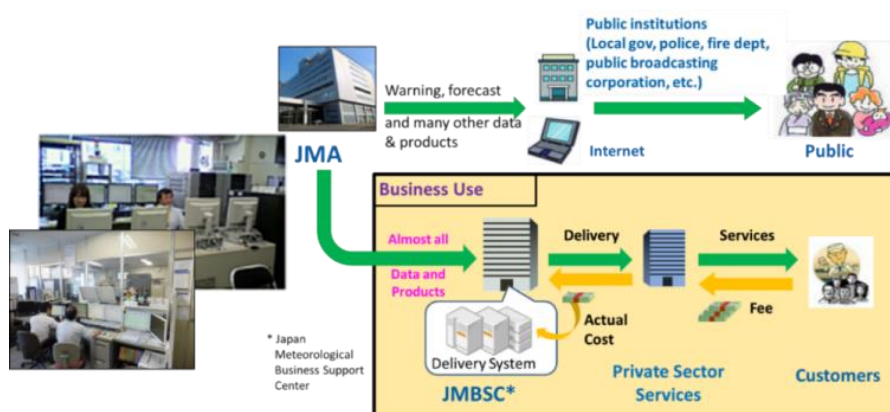


Figure 3: Provision of data, products and information to the private sector

¹¹ Data, products and information themselves are free of charge. Users of the data provision service collectively share operating expenses.



Figure 4: Information session to users of data, products and information provided by the Japan Meteorological Business Support Center (JMBSC) (Tokyo, Japan, November 2013)

Conclusion

We present the case of Japan, where the meteorological services including those by the private sector are regulated and developed in all aspects under the permissive environment for PPE in general. Regulatory and oversight function is guaranteed to JMA in all domain by its rigorous legislative framework, so that it can ensure the sound development of meteorological services in Japan, while assuring the quality of services and social order as well as satisfying the general public's needs. Opportunities are ensured to those interested in the following types of PPE supported by legislative framework of Japan. In the observation domain, there are opportunities of being entrusted with observations; in instruments verification, there is an authorized system for verification of the accuracy of meteorological instruments to utilize the capability of the private sector. A recent case in the dissemination of state-of-the-art information for DRR, opportunities were provided to willing partners. Very high affordability of meteorological data, products and information enables the private sector to obtain them at marginal costs, and creates opportunities for small-scale companies to start-up weather-for-business activities such as the provision of tailored/localized detailed data, products information along with supports by a body founded for the sound development of meteorological services. Forecasting service for the general public has been allowed to the private sector for the last 25 years by a licensing system including staffing of certified weather forecaster licensee(s), while JMA's single authoritative voice is ensured by law. The Weather Business Consortium (WXBC) was established in 2017 to drive commerce involving intensive usage of meteorological data via extensive joint efforts in the public, private and academic sectors. JMA functions as the consortium's secretariat in line with JMA's mandate prescribed in the legislation.

References

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- Hatori, Mitsuhiko. 2016: History of the Meteorological Service Act – Characteristics seen from the legal system and their significance (in Japanese). Weather Service Bulletin (Sokko-Jiho), 83