

Recommendations for enhancing implementation of Additional Protocol declarations

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Abstract. Japan signed the Additional Protocol (hereafter, AP) in December 1998. The domestic law and regulation had been revised to implement the initial and annual declarations for the Agency and the Additional Protocol came into force in December 1999. Since initial declaration in 2000, Japan has submitted the annual declaration in every May. Until 2010, Japan has made 10 annual declarations. This paper gives recommendations to enhance implementation of Additional Protocol declarations based on 10-year experience in Japan and addresses the following:

- Current status of additional protocol declaration in Japan
- Outline of processing method
- AP Information Management System
- Recommendations for improving quality of declaration

Preparation of additional protocol declaration in NMCC has been conducted in the course of contract with Japan Safeguards Office (hereafter, JSGO) for safeguards information treatment.

1. Introduction

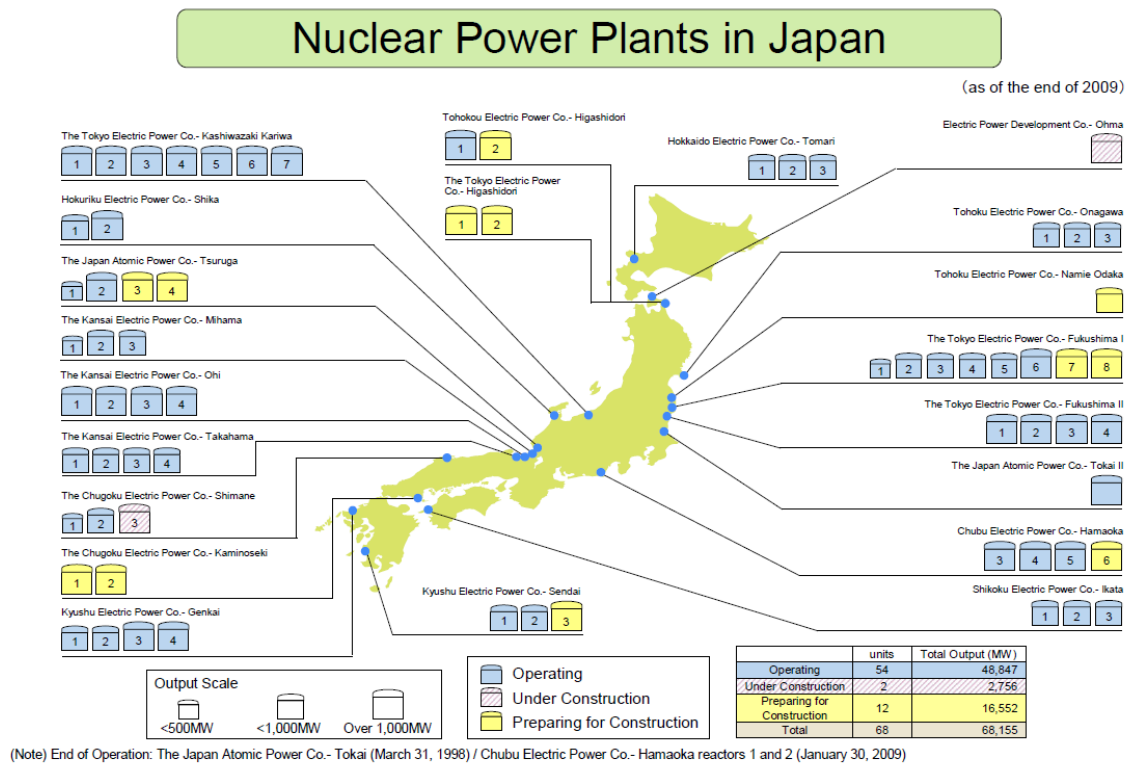
Japan became a member of NPT in 1976 and the Additional Protocol was signed on December 4, 1998. The Additional Protocol came into effect on December 16, 1999 after domestic nuclear law and regulation were amended to enable the collection of newly required information related to Additional Protocol. In January of 2000, meetings were held to help operators prepare declaration which was submitted to JSGO/NMCC by March. All the information necessary for initial declaration was processed from February to June for quality control, translation into English and entry in database. Initial declaration was submitted to the Agency in June 2000. Since then annual declaration has been submitted by every May 15.

The paper introduces Japan's experiences in processing of expanded declaration in terms of historical data of declaration and its characteristic, flow of process, and processing system as well as proposes some practical and personal recommendations to improve processing work of expanded declaration based on ten years experiences in Japan.

2. Current Status of Additional Protocol Declaration in Japan

There are many types of nuclear facilities in Japan including nuclear power plant, fuel fabrication plant, reprocessing plant, research and development facilities. Figure.1 shows the status of operation and construction of nuclear power plant in Japan as of the end of 2009. Currently 54 reactors are under operation.

The total number of sites is currently 151 of which breakdown is shown in Table 1. One nuclear power reactor site includes several reactors. One research institute site may include several different types of facilities such as reprocessing plant, enrichment plant, research reactors and critical facilities.



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Figure.1 Nuclear Power Plants in Japan [3]

Table.1 The number of sites including facilities and LOFs

as of the end of 2009	
Category	Number of site
Facility	
Power reactors	18
Fuel fabrication facilities	4
Reprocessing plant	1
Enrichment plant	1
Research reactors	7
Research institutes*, R&D facilities	12
LOF	108
Total	151

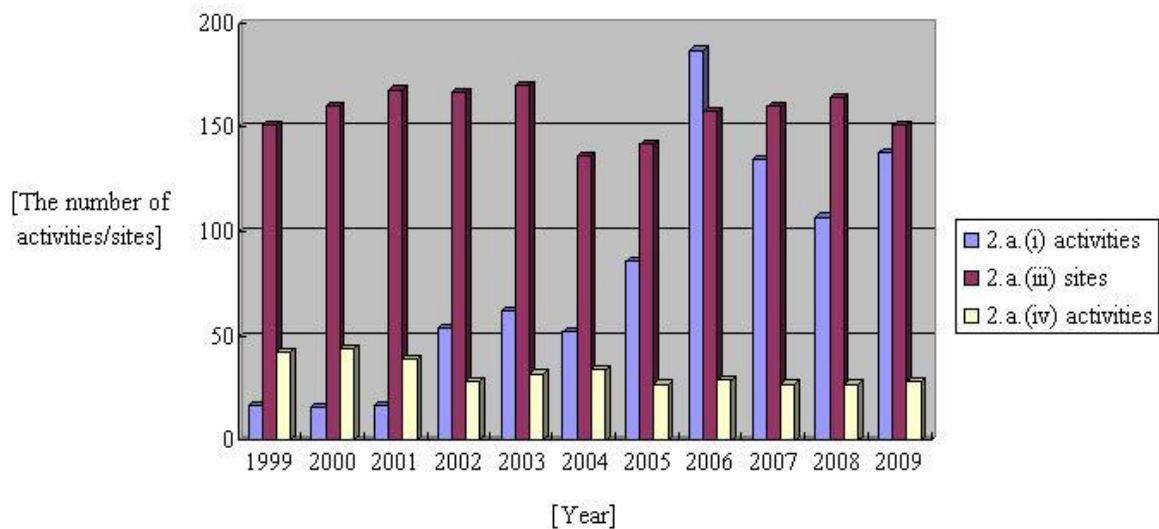
*Research institute site includes deferent types of plants such as reprocessing plant, enrichment plant, research reactors and fuel fabrication plant.

Public relation is important because of necessary cooperation between operators and JSGO/NMCC when AP declaration information is collected from operators. At the time of initial declaration several meetings were held to gain operators' understanding for high quality declaration. Further lectures are scheduled every year for operators to enhance the quality of information such as know-how to process building information at site. Manuals for preparing building information at site and R&D activities are updated every year for distribution to operators.

The annual declaration in May 2010 is the 11th report since the initial declaration in June 2000. Figure-2 shows trend of declaration in the past for article 2.a.(i), 2.a.(iii), and 2.a.(iv) which have the following features:

- 2.a.(i): Nuclear fuel cycle related R&D activity not involving nuclear material sponsored by government; The increase of declaration in 2006 was caused by new R&D activities of which application were invited by government.
- 2.a.(iii): Building information at site; The number of site for declaration is about 160. Variation of number is mainly caused by creation and decommission of LOFs. The number of the facility site is almost the same.
- 2.a.(iv): Operation scale of activities under Annex-I; The number of activities, about 30, is relatively stable. The trend of decreasing number can be explained by the fact that there were no declarations due to no change in activities at some plants.

Figure 2: The number of declared activities/sites



3. Process of Annual Declaration

AP declaration is submitted to the Agency by May 15. The work in JSGO/NMCC is scheduled to meet the deadline and high quality products using our own AP information management system which can cope with inherent aspect to Japan including translation issue from Japanese to English and large scale of nuclear activities.

3.1 Process schedule

From January through mid-February;

- The government collects information using questionnaire for nuclear fuel cycle related research and development activity not involving nuclear material.
- Operators report to the government information on each building within the site and Annex I activities.

From February through March;

- Confirmation and consistency check of collected information such as comparison of latest site layout map with previous one is performed in JSGO/NMCC.
- Collected information and site layout map written in Japanese are then translated into English.
- The translated data is again examined with original Japanese data.

From April through May;

- MEXT performs the final check of annual declaration and sends it to the Ministry of Foreign Affairs (MOFA).
- MOFA submits the annual declaration to the Agency by May 15.

3.2 Collection of information

Relevant information to AP declaration is collected in the following ways.

- 2.a.(i) and 2.b.(i): Nuclear fuel cycle related R&D activity not involving nuclear material; MEXT sends a questionnaire to the related operators.
- 2.a.(iii): Building information at site; The operators submit building information on site with site layout map to the MEXT every year using form 22 specified in “Regulations for Use of Internationally Controlled Materials”.
- 2.a.(iv): Operation scale of activities under Annex-I; The operators submit operation scale information to the MEXT every year using form 23 specified in “Regulations for Use of Internationally Controlled Materials”.
- 2.a.(v): Mines and concentration plant; The operators submit uranium mine information to the MEXT every year using form 24 specified in “Regulations for Use of Internationally Controlled Materials”.
- 2.a.(vi): Source material; The operators submit source material information to the MEXT every year using form 1 specified in “Regulation on Use of Nuclear Source Material”.
- 2.a.(vii) and 2.a.(viii): Exempted and terminated nuclear material; Information is obtained by accountancy reports.
- 2.a.(x): General plans for the succeeding ten-year period relevant to the development of the nuclear fuel cycle; Information is obtained by “Framework for Nuclear Energy Policy”.

3.3 Process Overview

The most of our work efforts is concentrated to 2.a.(i) and 2.a.(iii) area because large number of R&D activities and buildings require much time for consistency check and confirmation.

For several years since initial declaration the R&D activities (2.a.(i)) had been declared to the Agency using free format. However, it turned out that quality check for the free format was complicated and time consuming, and we begun to use list format (itemization) from 2004. The use of itemization improved the efficiency of quality check. The example of the itemization which has been used in the declaration of 2.a.(i) and 2.b.(i) is shown in chapter 4.

The 2.a.(iii) declaration, site reports, requires much time to translate Japanese into English because there are a lot of entries only in Japanese. Besides, for first several years, different types of sentence and words were used site by site, to express the almost same meaning. For instance, several kinds of words such as storage, warehouse and storehouse were used to show the same type of building. To solve such problems, we made the boilerplate and the glossary. In boilerplate, order of the necessary item for declaration was decided (building name, the number of stories, area and explanation of the building and so on). These processing effort led to reduction of our translation work for 2.a.(iii) declaration. The boilerplate has been renewed every year based on the experience gained so far.

Confirmation checks are usually conducted by a pair of two-person. In case of producing site layout the following steps are carried out.

- Has the demolished building disappeared from the maps?
- Are the direction, scale and site code indicated in the map?
- Is there any unclear figure or line?
- If there is no problem in the confirmation, a title of figure and a Japanese character in map are translated into English.

3.4 AP Information Management System

The AP information is processed with custom made AP Information Management System shown in Figure 3 consisting of server and client PC with oracle database. In the system we can store Japanese and English information with the function of search, delete and correction of data. As for quality control duplication of data is checked for consistency within a report and between current and past reports in terms of building code, facility code, report number, etc. The system can output reports both in IAEA format and domestic format as well as other documents used for our own quality check.

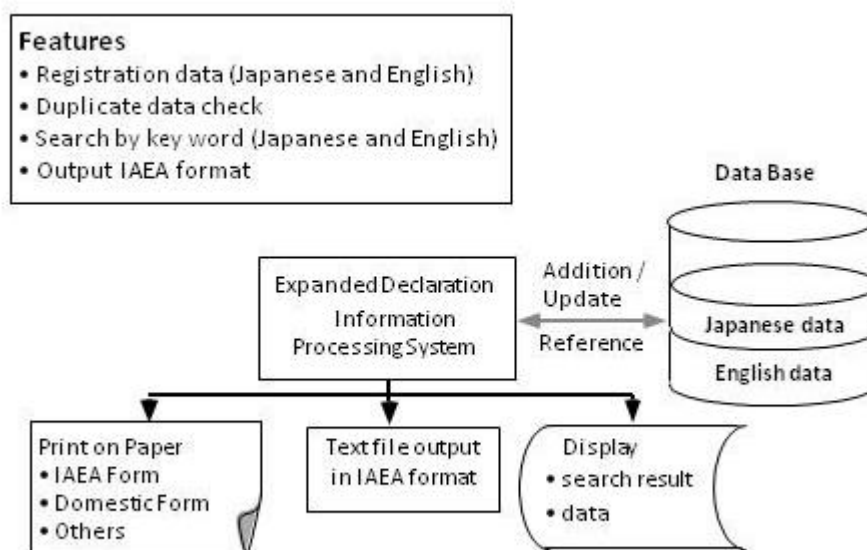


Figure.3 AP information management system

4. Recommendations for improving quality of declaration

Japan has been reporting 2.a.(i) and 2.b.(i) declaration by list format since 2004. The use of list format was useful to standardise the operator's report and enhance the quality check performance. The item of the list format which has been used in the declaration of 2.a.(i) and 2.b.(i) are shown below.

- Subject of Program :
- Subject of Project :
- Joint Researchers :
- Objectives :
- Description of R&D Activities :
- Status of R&D Activities :
- Managed Access :

We are thinking of further standardisation by introducing more formulaic questionnaire for effective and efficient declaration. The quality of AP declaration from worldwide countries will be improved if this type of standardization is promoted in the AP guideline.

When processing R&D activity information obtained by a questionnaire, the comparison table of latest and previous information began to be used from 2004 for finding what part has changed. This process greatly contributed to reduction of confirmation work.

The domestic report regarding to 2.a.(iii) is submitted to the MEXT based on a national regulation. This report also uses the comparison table similar to the R&D activities report mentioned above. Standardisation technique used in 2.a.(i) and 2.b.(i) is also available in this article.

A layout map should be simply enough with minimum required information. When we collect map information we give operators manual to inform in advance how to draw map and not to include unnecessary information such as contour line, trees, water tank, tennis court, etc.

Japan has submitted the annual declaration to the Agency with hardcopy. In future we would like to pursue declaration with electronic media.

5. Conclusion

Japan has a ten years experience for AP declaration as one of the countries with an extensive peaceful nuclear fuel cycle program. Our reporting system has evolved in several aspects through the ten years experience. Extensive use of standardisation when collecting information from operators has contributed to improvement of AP declaration. Our own AP Information Management System can deal with AP information in both Japanese and English.

The Protocol Reporter developed by the Agency will be more useful for non-English-speaking countries if it is enhanced to be able to process languages other than English. From the view point of effective and efficient processing of AP information it will be necessary to promote more standardization in the guidelines for preparation and submission of the AP declaration.

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