Chapter 6: International efforts for accident prevention

1 Objectives and significance of international cooperation

Aircraft and marine accidents, which are the part of Japan Transport Safety Board's investigation scope, are international in nature. Creating and operating systems for these kinds of investigations therefore involve international organizations. Also, it is necessary to cooperate and coordinate with the accident investigation authorities of the states involved during the investigation process.

In addition to the nation where the aircraft accident occurred, the aircraft accident also concerns the state of registry, the state of the operator, and the state where the aircraft was designed and/or manufactured. An annex in the Convention on International Civil Aviation (the Chicago Convention) states that the state of occurrence is responsible for starting and accomplishing an accident investigation, while the other states also have the right to appoint a representative to participate in the investigation. Proper cooperation with the accident investigation authorities of the concerned states is necessary for the accomplishment of an investigation.

Similarly, in marine accidents above a certain level, the International Convention for the Safety of Life at Sea (SOLAS) places the obligation of investigation on the flag state of the vessel. However, other concerned states, such as coastal states and the state(s) of victims are also entitled to investigate the accident. The convention defines the standard structure of marine accident investigations. The flag state and concerned states must cooperate with each other in multiple ways, such as through information sharing, when conducting accident investigations.

Based on this background, a variety of international meetings are held for each mode, which JTSB actively participates in. The meetings are for the purpose of facilitating collaboration in the case of accidents, sharing information on accidents and investigation methods on a regular basis, and achieving a high level of prevention for repeated accidents all over the world. Additionally, for the investigation of railway accidents, for which there is no international organization, various international seminars to exchange information on accident investigations are held in major countries. In regards to this, the fundamental investigation system of each state is generally standardized. Furthermore, some universities overseas have specialized training courses for accident investigations, to which JTSB is also actively dispatching investigators.

As shown above, JTSB aims to improve transport safety in Japan and all over the world. It hopes to do so through sharing of our findings worldwide, which have been acquired in individual accident investigations. Relating to this, the following sections introduce you to each of our international activities in 2014.

2 Efforts of international organization and JTSB's contributions

(1) Efforts of the International Civil Aviation Organization and JTSB's involvement

The International Civil Aviation Organization (ICAO, Headquarters: Montreal, Canada) was established as a specialized agency of the United Nations in 1947. Japan acceded to it in 1953. ICAO

is comprised of the Assembly, Council, Air Navigation Commission (a subordinate agency of the Council), Legal Committee, Air Transport Bureau, Technical Co-operation Bureau and Finance Committee, Secretariat, and Regional Offices (these and other committees are under the control of the Council), Secretariat, and regional offices. In addition, aviation meetings, regional aviation meetings, working groups, and specialist meetings, which are like panels, are called in for certain projects. As of October 2013, 191 states are members of ICAO.

The objective of ICAO is defined in Article 44 of the Convention on International Civil Aviation as being "to develop the principles and techniques of international air navigation and to foster the planning and development of international air transport." ICAO is engaging in a wide variety of activities, including the drafting of conventions regarding international air transport and aviation security such as countermeasures against hijacking. It also engages in audits of member states' security monitoring systems, and responses to environmental problems.

ICAO establishes the Annexes of the Convention on International Civil Aviation for items that must be covered by globally unified rules. The Annexes determines the rules for 19 fields, including personnel licensing, rules of the air, registration of aircraft, airworthiness, aeronautical telecommunications, search and rescue, security, and the safe transport of dangerous goods in air and safety management. Among them, Annex 13 defines the standards and recommendations for aircraft accident and incident investigations. In addition to this, the Act for the Establishment of the Japan Transport Safety Board states that: "The Board shall conduct investigations prescribed in items (i) to (ii) of Article 5 in conformity with the provisions of the Convention on International Civil Aviation and with the Standards, Practices and Procedures adopted as Annexes thereto." (Article 18).

Note that since November 2013, the 14th amendment of Annex 13, which added the definition of contributing factors, has been in effect along with Annex 19 (Safety Management), which is new.

In addition, ICAO established the Regional Aviation Safety Group, Asia and Pacific Regions, (RASG - APAC) in 2011. This group will operate as a new framework for safety in the Asia and Pacific area. Under this group, a subordinate group, the Asia Pacific Accident Investigation Group (APAC-AIG), discusses the building of a cooperative system for accident investigation in this region. JTSB dispatched an aircraft accident investigator to the meeting, which was held in May 2014 (Hong Kong).

APAC-AIG Meeting (Hong Kong)

(2) Efforts of the International Maritime Organization and JTSB's involvement

The International Maritime Organization (IMO, Headquarters: London, UK) was established in 1958 as a specialized agency of the United Nations. It was originally known as the Inter-Governmental Maritime Consultative Organization (IMCO). The IMO is comprised of the Assembly, the Council, and five committees. These are the Maritime Safety Committee (MSC), Legal Committee (LEG), Marine Environmental Protection Committee (MEPC), Technical Co-operation Committee (TC), and Facilitation Committee (FAL). In addition to this, there is a Secretariat, and the MSC and MEPC also have seven subcommittees. As of March 2012, IMO has 170 member states/regions and three associate

member regions.

IMO engages in various activities, such as the facilitation of intergovernmental cooperation and the drafting of effective safety measures and conventions that relate to technical and legal problems with maritime life safety and safe marine navigations. The Sub-Committee on Implementation of IMO Instruments (III) is a subordinate group of MSC and MEPC. It discusses how to ensure the responsibility of the flag state, including the investigation of marine accidents. III analyzes the accident investigation reports submitted from states. It does so based on SOLAS and the International Convention for the Prevention of Pollution from Ships (MARPOL) to draw lessons from, which III then makes public on the IMO website. By doing so, III promotes activities for the prevention of the repeated occurrence of marine accidents. The Correspondence Group (which implements analysis during periods outside of the session) and the Working Group (which verifies the analysis results during the session period) are comprised of volunteer investigators from the member states. They discuss these analysis tasks, which the III session then approves. Depending on the matter in question, if III determines that further discussion is required about a convention revision, it will submit recommendations or information to MSC, MEPC, and other IMO subcommittees. The III1 was held in July 2014. At this event, JTSB's marine accident investigators took part as a group member and analyzed accident investigation reports from various states. Tentative translations of these analysis results are published on JTSB website.

III1

(URL: http://www.mlit.go.jp/jtsb/casualty_analysis/casualty_analysis_top.html)

3 Cooperation and information exchange with foreign accident investigation authorities and investigators

(1) Participation in international meetings

① Chairman meeting of the International Transportation Safety Association

The International Transportation Safety Association (ITSA) was established by a group of accident investigation boards from the Netherlands, the United States, Canada, and Sweden in 1993. As of March 2015, the international organization has members from the transport accident investigation authorities of 16 states and regions. Organizations that are permitted to join must be permanent accident investigation bodies that are independent from any regulatory body.

Based on the idea that any findings from an accident investigation in one field can be used as a lesson for another field, ITSA holds annual chairman meetings where the participating accident investigation authorities present their experiences in accident investigation. These presentations are

for all the modes of aviation, railway, and marine. The parties learn about the causes of accidents and the methodologies of accident investigations, thus helping improve transport safety in general. As for Japan, the Aircraft and Railway Accidents Investigation Commission was approved for accession in June 2006. The board has participated in all the meetings held after 2007.

Participants in the ITSA chairman meeting (New Zealand)

Chairperson Goto from the Japan Transport Safety Board and another member participated in the conference held in Queenstown, New Zealand, in May 2014, and provided explanations about the current situation of accident investigations in Japan, the J-MARISIS developed by Japan, the activities that are being implemented to promote this system, and other matters.

② Board meetings of the International Society of Air Safety Investigators and the Asian Society of Air Safety Investigators

The International Society of Air Safety Investigators (ISASI) has been organized by national aircraft accident investigation authorities. The purpose of this society is to support accident investigations aimed at preventing the repeated occurrence of aircraft accidents. This aims is to be achieved by improving a cooperative system of investigation bodies, through the facilitation of communications between member states about their experience and knowledge, as well as information about the technical aspects of aircraft accident investigations.

ISASI holds annual seminars, and the Japan Aircraft Accident Investigation Commission has participated in each one of them since its establishment in 1974. In this seminar, a flight recorder workshop, an accident investigation training workshop, a cabin safety workshop, and a government investigators meeting are held in parallel with the general meeting. Japan also participates these workshops to contribute to technical improvements in these areas.

The annual seminar in 2014 was held in Adelaide, Australia, based on the theme “Accident Investigation and SMS (Safety Management Systems).” This was attended by an aircraft accident investigator and another member from the Japan Transport Safety Board. They delivered a presentation about the organizational factors in accident investigation, and participated in active exchange of opinions with accident investigation personnel from various countries.

ISASI has regional associations in Australia (ASASI), Canada (CSASI), Europe (ESASI), France (ESASI French), Latin America (LARSASI), New Zealand (NZSASI), Russia (RSASI), the United States (USSASI), and Asia (AsiaSASI). Each of these associations also holds their own seminars.

In AsiaSASI, the Hong Kong Civil Aviation Department currently serves as the Chairman, with JTSB as the Vice Chairman, and the Air Accident Investigation Bureau of Singapore as the Secretariat.

In May 2014, the AsiaSASI seminar was held in Hong Kong. An aircraft accident investigator

from the Japan Transport Safety Board participated in this seminar, and delivered a presentation about accident investigations on helicopters conducted in Japan.

③ The Accident Investigator Recorder (AIR) Meeting

The Accident Investigator Recorder (AIR) Meeting is an international conference for aircraft accident investigators who analyze digital flight data recorders (DFDR) and cockpit voice recorders (CVR). At this meeting, aircraft accident investigation analysts from all over the world share know-how by exchanging their experience, knowledge, information relating to the analysis of DFDR, and discuss the relevant technologies. Thus, the conference aims to further develop the technical capacity of accident investigation authorities around the world and to further improvement the cooperative system between them.

Established in 2004, the accident investigation bodies of each state hold a meeting every year. JTSB has participated in nearly all the conferences since 2006.

The 2014 conference was held in August in Singapore. JTSB dispatched aircraft accident investigators to acquire the latest information and know-how for the analysis of flight recorders. This was achieved through the exchange of information and ideas with foreign accident investigation analysts.

④ The Marine Accident Investigators' International Forum

The Marine Accident Investigators' International Forum (MAIIF) is an international conference held annually since 1992. It was originally based on a proposal from the Transportation Safety Board of Canada. Its purpose is to maintain and develop international cooperation among marine accident investigators and to foster and improve international cooperation for marine accident investigations. Its aim is to advance maritime safety and prevent marine pollution. In 2008, MAIIF was granted the status of an Inter-Governmental Organization (IGO) in IMO.

During this conference, marine accident investigators around the world improve their opportunities to exchange opinions and share information on marine accident investigations. Recently, there has been more demand to make use of the findings obtained from the investigations in the discussions in IMO. In 2009, MAIIF made a proposal based on the investigation results from the state investigation authorities to IMO for the first time. Japan has joined and actively contributed to it every year since the third conference and hosted the eighth conference in Tokyo in 1999.

Participants in MAIIF23 (Panama)

At the 23rd conference held in Panama City in Panama in October 2014, the director for international affairs from the Japan Transport Safety Board attended the conference and delivered a presentation on J-MARISIS and other topics.

⑤ The Marine Accident Investigators Forum in Asia

The Marine Accident Investigators Forum in Asia (MAIFA) was established by a proposal from Japan to build a mutual cooperation system for marine accident investigations in the Asia region and to assist developing countries enhance their investigation systems. From 1998 the meeting has been held annually, and Japan has played a leading role in this forum, including in the sponsorship of the 13th meeting in Tokyo in 2010. The network of investigators that has been established through the forum is now effective in its promotion of rapid and smooth international cooperation in accident investigations. Encouraged by the success of MAIFA, E-MAIIF was established in Europe in 2005. A-MAIF was then established in the Americas in 2009. These trends contribute more than ever in furthering the exchange and cooperation between marine accident investigators. In the Asia region, there are not only a lot of straits with sea traffic congestion, but also severe weather and hydrographic phenomena that often give rise to tragic marine accidents. Nonetheless, some countries have insufficient capacities or systems for accident investigations. This situation makes these regional meetings very important.

MAIFA17 (Thailand)

At the 17th conference held in Bangkok, Thailand, in June 2014, the director for international affairs and a marine accident investigator from the Japan Transport Safety Board attended the conference, and delivered a presentation about the current situation of accident investigations in Japan, as well as about the J-MARISIS.

(2) Examples of international cooperation among accident investigation agencies in individual cases

Based on the provisions in Annex 13 of ICAO, the state where an aircraft accident occurred must notify the state of registry, the state of design/manufacturing, and the state of operation. If necessary, these concerned states may appoint their own Accredited Representative (AR) to join the investigation.

With regard to the case of the batteries of the Boeing 787 aircraft, which occurred in Boston, United States, in January 2013, and a similar case that occurred in Japan immediately after that, an investigation was conducted jointly with the accident investigation agency of the United States. In addition, with regard to the case of three persons who had fallen to their deaths from a Japanese-made helicopter into the mountains in Taiwan in October 2013, an AR was appointed and assistance provided to the accident investigation agency in Taiwan. The final reports for both cases were summarized during 2014. As for the case of an injured crew member on a Japanese-registered aircraft that had been impacted by turbulence in Korea, which took place in September 2014, investigations were conducted by the Japan Transport Safety Board in response to a request from the accident investigation authority of Korea.

In marine accident investigations, the IMO Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code) states that the concerned states, including the flag state of the ship and the coastal state of the accident, must cooperate in the marine accident investigation. Also in Japan, if a marine accident occurs that concerns more than one state, Japan's accident investigators are to collaborate with the accident investigation authorities of the other related states in order to obtain information about the accident.

Among the marine accidents that the Japan Transport Safety Board launched investigations on in 2014, with regard to the six serious accidents involving foreign ships, the accident investigation authorities of the countries that the ships were registered under were notified of the accidents. Of these, with regard to the collision between the Panamanian cargo ship BEAGLE III and the Korean container ship PEGASUS PRIME which took place on March 18, 2014, certification documents related to the PEGASUS PRIME were obtained via the accident investigation authority of Korea.

Among the marine accident investigation reports that we published in 2014, we sent 18 draft reports to the flag states upon request, in order to ask for their comments.

4 Participation in overseas training

JTSB is making efforts to advance the capacity of accident investigators through measures such as training and international information exchanges to investigate accidents properly. We also actively participate in overseas training for accident investigations.

From last year onwards, in 2014 we dispatched an aircraft accident investigator and a marine accident investigator to Cranfield University in the UK, which has a good track record in accident investigation training. They were dispatched with the aim of improving their accident investigation capabilities. The training at the university let the participants learn about a variety of topics, from the basics to expert information about accident investigations. After the training, the participating investigator made the other investigators of each mode aware of what was learned in the training, thereby helping to improve the capabilities of all of our investigators.

Column

Technical tours during business trips overseas

Director for International Affairs

Overseas business trips taken by the Japan Transport Safety Board can be broadly categorized into the following two categories: trips taken for the purpose of accident investigation, and trips taken for the purpose of collection and dissemination information at international conferences. Regardless of the type of business trip, effort is put into gaining an understanding of the situation in the country that is visited, such as traffic situation and movement while carrying investigation equipment. These efforts are made in order to contribute to the work of the Japan Transport Safety Board going forward.

Of these overseas business trips, there are cases where technical tours are conducted during the conference period for trips taken for the purpose of attending international conferences. The host countries of these conferences often organize tours for participants to facilities that are strongly related to the objective of the conference, many of which are useful for accident investigations and for gaining an understanding on the traffic situation of each country. As such, they provide invaluable opportunities for the participants.

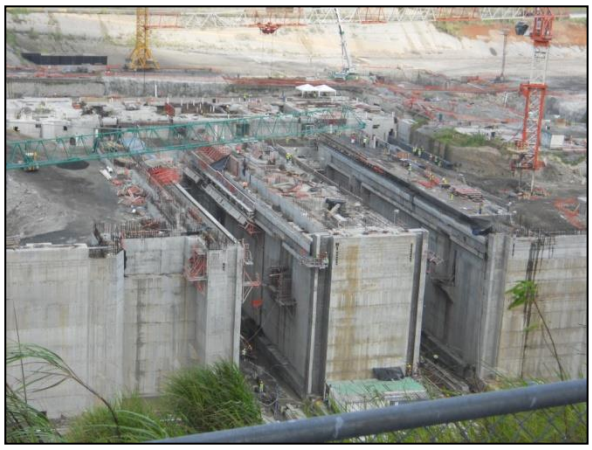
As an example, this section features a technical tour conducted as part of the 23rd Maritime Accident Investigators' International Forum (MAIIF23) held in Panama City, Panama, from July 28 to August 1, 2014.

The tour location was the world-renowned Panama Canal, which is a maritime and shipping hub. The canal was completed in 1914, and its shortest waterway width is about 36.6m, while its total length extends to about 80km. As a maritime and shipping hub that connects the Pacific and Atlantic Oceans, it has continued to play an important role from the time of its completion to the present day.

The canal, viewed in reality, was of a larger scale than imagined, and its dense structure was visible from all the different viewpoints. Described as the largest civil engineering construction project in human history, it honors the memory of the hard work put in by all the people who had been involved in the construction of the canal at the time.

Today, in light of the increasing size and speed of ships, the construction of new locks is currently underway with a target launch date in 2016.

【Locks currently in use】



【Locks under construction】