

Chapter 7 International efforts for accident prevention

1 Objectives and significance of international cooperation

Aircraft and marine accidents, which are 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 concerned during the investigation process.

In addition to the nation where an aircraft accident occurred, the state of registry, the state of the operator, and the state where the aircraft was designed and manufactured are the states concerned. An annex to 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 and responsibility to appoint a representative to participate in the investigation. Proper cooperation with the accident investigation authorities of those states concerned is necessary for the accomplishment of the investigation.

Similarly, in marine accidents involving vessels 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. Additionally, other states concerned, such as coastal states in whose territory the marine accident occurs and the state(s) of victims are entitled to investigate the accident. The convention defines the standard framework of marine accident investigations. The flag state and states concerned 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 JTSCB actively participates in. The meetings are for the purpose of facilitating collaboration in the case of accidents or incidents, sharing information on accidents and investigation methods on a regular basis, and achieving results 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 and incident 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 and incident investigations, to which JTSCB is also actively dispatching investigators.

As shown above, JTSCB 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 and incident investigations. Relating to this, the following sections introduce each of our international activities in 2015.

2 Efforts of international organizations and JTSCB's contributions

(1) Efforts of the International Civil Aviation Organization and JTSCB'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

comprises the Assembly, Council, Air Navigation Commission (a supporting body of the Council), Legal Committee, Air Transport Committee, Committee on Joint Support of Air Navigation Services, all of which are the subordinate bodies of the Council, secretariat and regional offices. In addition, Air Navigation Conferences, Regional Air Navigation meetings, a variety of working groups and panel meetings, which are called in for certain projects. As of March 2016, 191 states are members of ICAO.

The objectives of ICAO is provided 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 services and aviation security such as countermeasures against hijacking. It also engages in audits of contracting states’ safety 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 and safety management. Among them, Annex 13 establishes the standards and recommendations for aircraft accident and incident investigations. In addition, 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).

Since November 2013, the 14th amendment of Annex 13, which included the addition of 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 operates as a new framework for safety in Asia and Pacific Regions. Under this group, a subordinate group, the Asia Pacific Accident Investigation Group (APAC-AIG), considers the building of a cooperative system for accident investigation in these regions. JTSB dispatched the director for international affairs and an aircraft accident investigator to the meeting, which was held in Colombo, Sri Lanka in June 2015.

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

The International Maritime Organization (IMO, Headquarters: London, United Kingdom) was established in 1958 as a specialized agency of the United Nations. It was originally called as the Inter-Governmental Maritime Consultative Organization (IMCO). The IMO comprises 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, there is a Secretariat, and the MSC (and MEPC) has seven subcommittees. As of March 2016, IMO has 171 member states/territories and three regions as associate members.

IMO engages in various activities, such as the facilitation of intergovernmental cooperation, effective safety measures and drafting of 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 and incidents. III analyzes the accident or incident investigation reports submitted from states based on SOLAS and the International Convention for the Prevention of Pollution from Ships (MARPOL) to draw lessons from, which III subsequently 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 undertakes analysis during periods outside of the sessions) and the Working Group (which verifies the analysis results during the session period) comprises volunteer investigators from some member states. They discuss these analysis results, which the III plenary subsequently approves. Depending on the matter in question, if III determines that further discussion is required for a convention revision, it will submit recommendations or information to MSC, MEPC and other IMO subcommittees. The III2 was held in July 2015. In this event, JTSB's marine accident investigators took part as group members and analyzed accident investigation reports from various states. Tentative translations of these analysis results are published on JTSB website.



III2

(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 accident investigation boards from the Netherlands, the United States, Canada, and Sweden in 1993. As of March 2016, the international organization has members from the transport accident investigation authorities of 16 countries and territories. 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 and incident 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 accidents and incidents. The chairpersons learn about the causes of accidents and the methodologies of



Participants in the ITSA chairman meeting (United Kingdom)

accident investigations, thus aiming to 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.

Chairperson Goto (at that time) from the JTSB participated in the conference held in London, United Kingdom in May 2015, and provided explanations about the background of the establishment of the JTSB, examples of its investigations, 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 repeating occurrences of aircraft accidents and incidents. This aim is to be achieved by improving further a cooperative system of investigation bodies, through the facilitation of communications between member countries about their experience and knowledge, as well as information about the technical aspects of aircraft accident investigations.

ISASI holds annual seminar each year, 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 in these workshops to contribute to technical improvements in these areas.



ISASI (Germany)

The annual seminar in 2015 was held in Augsburg, Germany, with the theme “Independence does not mean isolation”. This was attended by aircraft accident investigators from the JTSB, who 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.

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 on DFDR. The conference aims to further develop the technical capacity of accident investigation authorities around the world and to further improvement the cooperative system amongst the authorities.

This meeting was established in 2004, and the accident investigation bodies of each country hold a meeting every year. JTSB has participated in nearly all the conferences since 2006.

The 2015 conference was held in September in Washington, United States. 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 in 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.

Under this forum, marine accident investigators around the world take the opportunities to exchange frankly opinions and share information on marine accident investigations. Recently, there has been more demand to make use of the findings obtained from the marine accident and incident 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 the forum every year since the third conference and hosted the eighth conference in Tokyo in 1999.

At the 24th conference held in Antalya in Turkey in September 2015, the senior marine accident investigator and director for international affairs from the JTSB attended the conference and delivered presentations on fires occurring on car carrier ships, collision accidents involving foreign ships, 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 and incident investigations in the Asia region and to assist developing countries in enhancing their investigation systems. Since 1998, meetings have been held annually, and Japan has been playing a leading role in this forum, including 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



MAIFA18 (Singapore)

international cooperation in accident and incident investigations. Encouraged by the success of MAIFA, E-MAIIF was established in Europe in 2005. A-MAIF was then established in North, Central and South Americas in 2009. These trends contribute more than ever in furthering the exchange and cooperation between marine accident investigators in each region. 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 fora very important.

In the 18th meeting held in Singapore in August, 2015, a marine accident investigator from the JTSA participated, and delivered a presentation about hull listing accidents involving ferries.

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

For the aircraft accident and incident investigations, 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 states concerned may appoint their own Accredited Representative (AR) to join the investigation.

With regard to the case relating to the batteries of the Boeing 787 aircraft, which occurred in Boston, United States, in January 2013, together with a similar case that occurred in Japan immediately after that, an investigation was conducted jointly with the accident investigation agency of the United States, and the final report was compiled in the following year. Also, as for the accident resulting in an injured crew member on a Japan-registered aircraft that had encountered turbulence in South Korea, which took place in September 2014, investigations were conducted by the JTSA in response to a request from the accident investigation authority of South Korea, and the accident investigation report was published in May 2015. Furthermore, regarding the accident which occurred at Hiroshima Airport involving an Airbus A320-200 operated by Asiana Airlines in April 2015, South Korea and France appointed ARs to participate in the investigation, and the JTSA conducted its investigations in cooperation with the respective accident investigation authorities.

In marine accident and incident 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 interested 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 or incident occurs that concerns more than one state, Japan's accident investigators are to collaborate with the accident investigation authorities of the other interested states in order to obtain information about the accident.

Among the marine accidents and incidents that the JTSA launched investigations in 2015, with regard to the three serious accidents involving foreign ships, the accident investigation authorities of the countries to which the ships were registered were notified of the accidents.

With regard to the accident involving the Cambodian cargo ship MING GUANG which foundered off the coast of Ajigasawa Town, Aomori Prefecture, in December 2014, JTSA conducted

investigations after obtaining certification documents related to the ship via the accident investigation authority of the flag state of Cambodia, and the accident investigation authorities of China, the location of the ship management company.

Among the marine accident and incident investigation reports that were published in 2015, JTTSB sent six draft reports to the flag states upon request, in order to ask for their comments.

4 Participation in overseas training

JTTSB is making efforts to advance the capacity of accident investigators through measures such as training and international information exchanges to investigate accidents accurately, and also actively participates in overseas training for accident investigations.

In 2015, JTTSB made efforts to improve our accident investigation capabilities, continuing from the previous year to dispatch an aircraft accident investigator and a marine accident investigator to Cranfield University in the UK, which has a good track record in accident and incident investigation training, and also dispatching an aircraft accident investigator to the aircraft accident investigation training held by the USA's National Transportation Safety Board (NTSB). The content of each training session lets the participants learn about a variety of topics, from the basics to expert knowledge about accident investigations. After the training, the participating investigators made the other investigators of each mode of transport aware of what was learned in the training, thereby helping to improve the capabilities of all of our investigators.

JTTSB also dispatches aircraft accident investigators to training held by US manufacturers to familiarize themselves with methods for using tools to retrieve and analyze data from damaged DFDRs and CVRs, in preparation for future investigations.


Column

Smooth Information Exchange: Communication with Foreign Countries

Director for International Affairs

As to the accident and incident investigations, as described in “Chapter 7: International Efforts for Accident Prevention”, in addition to the efforts made for activities by the International Civil Aviation Organization and International Maritime Organization, and even recently in the railway field which has no international organization, the importance of sharing safety measures related to accident investigations internationally is growing, and cases involving communication with accident investigation organizations in foreign countries are continuing to increase.

Although e-mail is more commonly used than telephones as a method of everyday communication, depending on country, there are many instances where replies cannot be received without waiting until the following morning due to time differences. Foreign countries also have their own national holidays or it may be common practice, for example, to take longer summer vacations than in Japan, with replies failing to be received as expected in certain cases.

Additionally, there is a need to ensure the security of materials shared among relevant parties. Therefore, materials attached to e-mails sent from the JTSB to external parties are automatically encrypted by security systems before their transmission, but there may be cases where the receiver’s security system might determine the encrypted materials to be suspicious files and not accept them, and there is a growing number of cases where receivers inform the senders that “Attachment files could not be opened.” or that “Password has not been received.”

The level of security may also be different from country to country, leading to a number of troubles in sending materials.

At times, telephone conferences are held with accident investigation organizations in multiple countries. When setting up such conferences, first of all, a time must be found for them that is not an unreasonably late hour at night for any participating country. Telephone conferences with America and Europe often begin at around 9:00 pm in Japan (this is midday in Europe and early morning in America, but since America and Europe use daylight savings time in summer, the actual starting time may change depending on the season), preventing participants in Japan from returning home until late at night.

In telephone conferences, it also often becomes difficult to determine who is speaking at any given time, speakers may be difficult to understand due to poor sound quality, or it may be difficult to determine the appropriate timing to enter a discussion. Therefore, at the JTSB, telephone conference devices (microphone speakers) are connected to telephones, and three to four staff members face these devices to participate in discussions.



Microphone speaker for conferences

Even though advances in telecommunications technology have allowed information to be shared around the world instantly, special measures must still be taken to deepen the understanding of content among relevant parties effectively. We will continue to strive to achieve smooth communication with foreign countries, and hope to be able to expand the circle of international cooperation in accident investigations.