

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 nation of registry, the nation of the operator, and the nation where the aircraft was designed and/or manufactured. An annex in the Convention on International Civil Aviation 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 countries 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 nation(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 countries 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 JTSA 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 JTSA is also actively dispatching investigators.

As shown above, JTSA 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 2013.

2 Efforts of international organization and JTSA's contributions

(1) Efforts of the International Civil Aviation Organization and JTSA'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 (“the Chicago Convention”) 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 March 2013, the Council approved the Policy Document on Assistance to Aircraft Accident Victims and their Families. This endeavor intends to call on contracting states to provide support for aircraft accident victims and their families. A task force for the drafting of this document was launched in ICAO. As one of its members, Japan appointed the manager of the Victims and their Families Liaison Office from JTSCB, and contributed to the discussions.

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. JTSCB dispatched



APAC-AIG Meeting (Indonesia)

aircraft accident investigators to each of the meetings, which were held in March 2013 (Bangkok, Thailand) and the following September (Bali, Indonesia).

(2) Efforts of the International Maritime Organization and JTSA'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 has been discussing a restructure of its subcommittees as a part of its efforts to improve efficiency of deliberation. As a result, in the 28th Assembly on November 2013, it approved a reduction of the number of subcommittees from nine to seven.

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 Flag State Implementation (FSI) 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. FSI 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 FSI then makes public on the IMO website. By doing so, FSI 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 FSI session then approves. Depending on the matter in question, if FSI determines that further discussion is required about a convention revision, it will submit recommendations or information to MSC, MEPC, and other IMO subcommittees. The FSI21 was held in March 2013. At this event, JTSA's marine accident investigators took part as a group member and analyzed 29 accident investigation reports from various states. Tentative translations of these analysis results are published on JTSA website.



FSI21

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

Note that FSI was renamed the Sub-Committee on Implementation of IMO Instruments (III) as a result of the subcommittee reforms.

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

(1) Participation in international meetings

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 2014, 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 boards 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



Participants in the ITSA chairman meeting (India)

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.

Committee members of the board's railway workgroup took part in the chairman meeting held in New Delhi in February 2013, where they informed the participants of the current situation of accident and incident investigations in Japan. They also spoke about the status of the investigation for the derailment accident in JR Hokkaido Sekisho Line.

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 aim 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 2013 Annual Seminar was held in Vancouver, Canada under the theme “Preparing the Next Generation of Investigators.” JTSB aircraft accident investigators took part in the seminar, actively communicating information with the persons engaged in the accident investigations.

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 June 2013, a second AsiaSASI seminar was held in Taiwan, in which JTSB’s aircraft accident investigators participated and made a presentation about the methods for recognizing aircraft accidents and analysis results for incorrect entries into runways.

The International Rail Accident Investigation Conference

In November 2013, the International Rail Accident Investigation Conference (IRAIC) was held in London. JTSB’s railway accident investigators participated along with other members in the conference and made a presentation about the accidents that arose from natural disasters, such as sudden gusts of wind, heavy rain, or earthquake. This attracted a lot interest from a variety of countries. The railway accident investigation authorities of various states, including the UK, drew up the concept for this conference. It

was hosted by the Institution of Mechanical Engineers (IMEchE). For the purpose of sharing the findings on railway accident investigations from multiple nations, the conference is held every three years from 2007, and JTSB has participated every time since its second one. The latest conference was attended by 122 persons affiliated with the accident investigation agencies, universities, and corporations of 19 states from Europe (the UK, Norway, the Netherlands, etc.), North America (the US and Canada) and Asia (Taiwan, South Korea, and Japan). The participants shared a large amount of information on various specialized areas related to railway accident investigations.



Presentation

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 improve 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 2013 conference was held in September in Brunswick, Germany. 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.

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.

At the 22nd conference in Busan, South Korea in October 2013, JTSB's associate marine accident investigator and others made a presentation about Japan-Marine Accident Risk and Safety Information System (J-MARISIS).

The Marine Accident Investigators Forum in Asia

The Marine Accident Investigators Forum in



MAIIF22 (Busan, South Korea)



MAIFA16 (Busan, South Korea)

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.

The 16th conference of MAIFA was held in October 2013 in Busan, South Korea, alongside the MAIIF conference. JTSB sent an associate marine accident investigator and others to MAIFA, and made a presentation on the investigation status of the collision accident involving the Yong Cai containership and Daini Shinyo Maru fishing boat.

(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.

Among the aircraft accidents that foreign accident investigation authorities started investigating in 2013, three were cases that Japan was one of the states of registry, design/manufacturing, or operation. For these cases, JTSB's aircraft accident investigators were appointed as ARs.

As for the case concerning batteries of Boeing 787 that occurred at Boston, USA in January 2013, JTSB's AR is working with the accident investigation authority in the US, as well as on a similar case in Japan. They have participated in various meetings and public hearings to share information and the investigators of both nations have coordinated closely with each other. For example, both of them witnessed the tests conducted in Japan and in the US. For the serious incident that occurred in Brazil in January 2013, where a small aircraft made in Japan belly-landed due to an inability to deploy its wheels, JTSB appointed AR to assist in Brazil's accident investigation. In addition, for the accident that occurred in Taiwan in October 2013 with three casualties, where a Japanese-made helicopter crashed in the mountains, JTSB also appointed an AR to support the accident investigation authority in Taiwan.

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 JTSB began to investigate in 2013, 11 were serious accidents that related to foreign vessels. JTSB notified the occurrence of these accidents to the accident investigation authorities of each flag state. In the investigation of the accident where the Cambodian cargo ship Favor Sailing rolled over at Sakai-Senboku Port in the Hanshin Port area on April 30, 2013, we obtained information about the seaman's competency certificate through the accident investigation authority of Cambodia. For the investigation of the incident where the Cambodian cargo ship Taigan caught on fire at Wakkanai Port on May 16, 2013, we obtained information about the certificates and rules in effect for the ship via the accident investigation authority of Cambodia.

Among the marine accident investigation reports that we published in 2013, we sent 11 draft reports to the flag states upon request, in order to ask for their opinions.

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 2013 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 students 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

How to read accident investigation reports from all around the world

Director for International Affairs

The accident investigation authorities all over the world, including JTSA, publish investigation reports in order to spread information to the public, thus helping improve transport safety.

However, it is very time consuming to check the accident investigation authority of each country, and access their websites one by one, in order to refer to the reports from various countries.

Therefore, by summarizing the reports drafted by the authorities all over the world, this column introduces you to websites that can help you to refer to the investigation reports from various countries.

- (Aviation) ICAO E-library of Final Reports

<http://www.icao.int/safety/airnavigation/AIG/Pages/E-library-of-Final-Reports.aspx>



Appendix 13 of the Convention on International Civil Aviation, which defines the international standards for aircraft accident investigations, states that if a member state conducts an investigation into an accident or incident involving an aircraft with a maximum mass of over 5,700 kg, that state must send the accident investigation report to ICAO.

This website, which is operated by ICAO, discloses the investigation reports (mainly in English) that have been sent to ICAO from states' aircraft accident investigation agencies.

Approximately 1,200 reports have been published as of March 2014. New reports will be added from time to time.

The disclosed reports can be searched for by aircraft models, the state of occurrence, keywords, and so on. For information on how to search, there is a user guide available on the website.

- (Maritime) IMO Global Integrated Shipping Information System (GISIS)

<http://gisis.imo.org/Public/Default.aspx>



Like ICAO, IMO requires the contracting states to send investigation reports of the marine accidents they investigated if the vessels involved are totally destroyed or if there are any fatalities.

This website, which is operated by IMO, requires users to register in order to access it. This can be done by clicking "Log In" in the upper-right hand corner. The information about accident investigations can be referred to from "Marine Casualties and Incidents," which discloses a variety of data about accidents, including investigation reports (mainly in English). You can search for data by vessel types, vessel name, date of occurrence, site of occurrence, keywords, and so on.

- (Maritime) MAIIF (Marine Accident Investigators International Forum) Investigation Reports page

<http://www.maiif.org/index.php/investigation-reports>



This page is on the MAIIF website, which is organized by marine accident investigators from all over the world. It summarizes the different pages where each of the marine accident investigation authorities publish their reports.

- (Railway) ITSA (International Transportation Safety Association)'s Members page

<http://www.itsasafety.org/home/members/>



This page is on the ITSA website, which is organized by the transport accident investigation agencies of the major advanced countries. It lists the members of ITSA and includes links to each member's website. Access to the website of an investigation agency will refer you to a page that discloses its railway accident investigation reports. Note that Russia (IAC), France (BEA), and Chinese Taipei (ASC) only conduct investigations into aircraft accidents and incidents.

