

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 JTSB 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 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 and incident investigations. Relating to this, the following sections introduce each of our international activities in 2018.

2 Efforts of international organizations 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 comprises the Assembly, Council, Air Navigation Commission (a supporting body of the Council), Legal Committee, Air Transport Committee, and 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 2019, 192 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).

The Accident Investigation Group Panel (AIGP), a subordinate body of the Air Navigation Commission, is a place where members have discussions mainly about the amendment of Annex 13 and the draft of guidance materials. In AIGP/4 held in May 2018, JTTSB became a panel member and participated in the discussions in particular from the perspective of the state of design/manufacturing, against the backdrop of the development of domestic jet passenger aircraft.

In addition, the Asia Pacific Accident Investigation Group (APAC-AIG) operates as a framework for safety in Asia and Pacific Regions, and considers the building of a cooperative system for accident investigation in these regions.

In APAC-AIG/6 held in Bangkok, Thailand, in October 2018, an aircraft accident investigator participated from JTTSB, who conducted debates on the accident investigation-related issues in light of the local characteristics in the Asia-Pacific region and discussed how to improve the investigation capability and promote inter-country cooperation in the region.



**APAC-AIG/6
(Thailand)**

(2) Efforts of the International Maritime Organization and JTTSB’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 Cooperation Committee (TC) and Facilitation Committee (FAL). In addition, there is a Secretariat, and the MSC (and MEPC) has seven subcommittees. As of March 2019, IMO has 174 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.



III5

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 III5 was held in September 2018. 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.

(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 Chairperson 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 2019, the international organization has members from the transport accident



ITSA 2018 Meeting of the Chairpersons (Azerbaijan)

investigation authorities of 16 countries and territories. Organizations that are permitted to join must be permanent accident investigation authorities that are independent from any regulatory authority.

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 chairperson 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 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.

In the meeting held in Baku, Azerbaijan, in May 2018, the chairperson and board members of JTSA participated and give a presentation on the Shinkansen derailment accident caused by an earthquake and its countermeasures.

② International Society of Air Safety Investigators and 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 aims is to be achieved by improving further a cooperative system of investigation authorities, 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 Japan has participated in each one of them since the establishment of Japan Aircraft Accident Investigation Commission in 1974. In this seminar, working groups including the Flight Recorder Working Group, the Investigator Training and Education Working Group, the Cabin Safety Working Group, and the Government Air Safety Investigators Group are held in parallel with the general meeting. Japan also participates in these working groups to contribute to technical improvements in these areas.



**ISASI Annual Seminar
(UAE)**

In the 2018 Annual Seminar held in Dubai, UAE, with the theme “Future Development and Challenges to Investigation”, JTSA’s aircraft accident investigator participated and exchanged opinions actively with those who are involved in accident investigations in other countries.

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

In AsiaSASI, JTSA currently serves as Chairperson, with Hong Kong Civil Aviation Department

as Vice Chairperson, and Transport Safety Investigation Bureau of Singapore as Secretariat.

③ 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 authorities of each country hold a meeting every year. JTSB has participated in nearly all the conferences since 2006.

In the meeting held in Taipei, Taiwan, in September 2018, JTSB's aircraft accident investigator participated and exchanged information and opinions with accident investigators in charge of analysis in other countries, to collect and accumulate the latest information related to the analysis of flight recorders.

④ 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.

In the 27th meeting held in Singapore in November 2018, JTSB's marine accident investigators participated and made a presentation on the case where JTSB gained the cooperation of overseas investigation authorities for a marine accident investigation.



**MAIIF27
(Singapore)**

⑤ 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 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.



**MAIFA21
(the Republic of Korea)**

In the 21st meeting held in Seoul, the Republic of Korea, in October 2018, JTSB's marine accident investigator participated and made a presentation on major marine accident investigation cases in which JTSB was involved.

(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.

When in March 2018 an Airbus A320-214 belonging to Peach Aviation was holding on the runway with its nose-gear tire facing sideways after landing at Fukuoka Airport, JTSB conducted an investigation in cooperation with the accident investigation authorities of France, the state of design/manufacture, and Taiwan, where a company that had once been involved in the maintenance of the aircraft was located. Also, when in June 2018, a Boeing 777-300 belonging to Korean Air landed at Narita International Airport but while taxiing on the ground, was holding on the taxiway due to damage of the right main landing gear, and could not continue taxiing, JTSB conducted an investigation in cooperation with the accident investigation authorities of the Republic of Korea, the state of registry and operation, and the U.S., the state of design/manufacture.

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 JTSB launched investigations in 2018, with regard to the seven serious accidents involving ships engaged on international voyages, the accident investigation authorities of the states to which the ships were registered were notified of the accidents.

When in October 2018, the cargo ship ERNA OLDENDORFF registered with Malta contacted with the Oshima Bridge in Yamaguchi Prefecture, JTSB conducted an investigation in cooperation with the accident investigation authority of Malta, the flag state of the ship. Also, when in December 2018, the passenger ship NIPPON MARU registered with Japan contacted with the port facility while leaving the Port of Guam, JTSB conducted an investigation in cooperation with the accident investigation authority of the U.S., which was the coastal state.

Among the marine accident and incident investigation reports that were published in 2018, JTSB sent five draft reports to the flag states and other interested states upon request in order to invite their comments.

4 Technical cooperation

Since successive railway accidents occurred in India, a railway safety expert team constituted by the Japanese government, including a board member and two railway accident investigators of JTSB, was dispatched to Delhi. In the seminar held there, JTSB explained the Japanese accident investigation system and procedures based on the current state of accident investigations in Japan.

After that, according to the request from the Indian Government, “The Project for Capacity Development on Railway Safety” was launched as a technical cooperation of JICA (Japanese International Cooperation Agency). The first meeting of the project was held in Delhi in December 2018, and a board member and two railway accident investigators of JTSB attended.

JTSB will actively participate in the project that is about to begin, and provide information on the railway accident investigation procedures in Japan, so as to contribute to the improvement of railway safety in India.

5 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 accurately, and also actively participates in overseas training for accident investigations.

In 2018, JTSB 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. The content of this 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.

JTSB also dispatched an aircraft accident investigator to training held by a manufacturer in Canada to be familiarized with analysis software to analyze data from DFDRs in preparation for future investigations.

Column

Interaction with accident investigation authorities in other countries

International Affairs Office

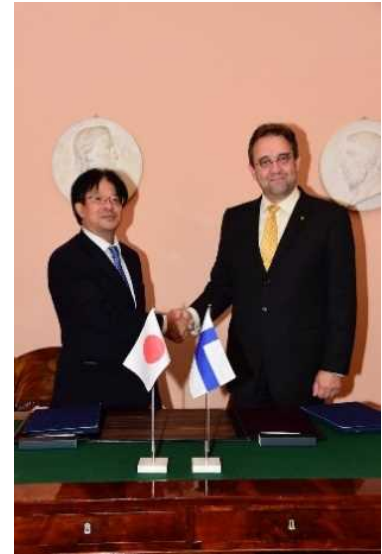
In April 2018, JTSB made a reorganization to deal with operations involving international coordination/cooperation and newly the “International Affairs Office” was established under the General Affairs Division. The major purpose of this reorganization is to reinforce the capacity to establish cooperation systems with related parties inside and outside Japan in case of an accident and respond to changes in the international rules, since Japan will assume additional international roles and responsibilities as the state of design/manufacture due to the development of domestic jet passenger aircraft.

In particular, close cooperation with accident investigation authorities of concerned countries is required for investigations. For this reason, JTSB is working to further enhance collaboration and promote exchanges with accident investigation authorities of foreign countries, so as to prepare a system allowing both parties to promptly and smoothly start and proceed with investigations and to share information regarding various accidents and investigation methods/lessons, thereby contributing to worldwide accident recurrence prevention.

○ Safety Investigation Authority of Finland

On October 9, 2018, JTSB and the Safety Investigation Authority (SIA) of Finland signed the Statement of Intent regarding aircraft accident/incident investigation.

Against the backdrop of increasing air traffic between Japan and Finland, this Statement of Intent aims to confirm that the accident investigation authorities of both countries will cooperate with each other to ensure aviation security. It is expected that the State of Intent will facilitate speedier and smoother accident investigations if an aircraft accident or incident involving both countries occurs, thereby contributing to improved aviation security.



○ French Bureau of Enquiry and Analysis for Civil Aviation Safety

On October 10 and 11, 2018, JTSB visited the French Bureau of Enquiry and Analysis for Civil Aviation Safety (BEA) to exchange opinions on accident investigations and took a tour of the facilities.

In 2002, JTSB (then Aircraft and Railway Accidents Investigation Commission) and BEA signed the State of Intent regarding aircraft



accident/incident investigations. Since then, staff members of both authorities have visited each other to exchange opinions regarding accident investigations.

In the future, Japan will assume additional international responsibilities as the state of design/manufacture of domestic jet passenger aircraft. Since BEA has significant experience as the accident investigation authority of the state of design/manufacture in aircraft accidents involving Airbus, etc., JTSB gained knowledge on the activities and know-how as the state of design/manufacture and promoted exchange.