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Asia and Pacific Office

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Agenda Item 5: Regional Cooperation

ENHANCING THE INVESTIGATION COOPERATION MECHANISM THROUGH AN UPDATED APAC AIA CAPABILITY DATABASE

(Presented by Indonesia)

SUMMARY

This working paper highlights the Investigation Cooperation Mechanism (ICM)'s benefit in strengthening regional investigation capability and cooperation. Indonesia's experience identifies the need for more detailed information on available investigation expertise, facilities, equipment, training, and recorder readout capabilities. The paper proposes enhancing the existing APAC AIA database to facilitate timely access to appropriate assistance.

1. INTRODUCTION

1.1 The Asia and Pacific Regions (APAC) have developed an investigation cooperation initiative since 2013, namely the Code of Conduct on Cooperation Relating to Civil Aviation Accident/Incident Investigation, which then evolved into the Investigation Cooperation Mechanism (ICM). The purpose of the cooperation initiative is to strengthen, promote and develop cooperation to enhance aviation safety.

1.2 The ICM provides a framework through which participating State Accident Investigation Authorities (AIAs) may seek and provide assistance, subject to applicable national laws, regulations, policies, procedures, and available resources. The mechanism includes opportunities for sharing expertise, manpower, facilities, equipment, training, and technical advice.

1.3 The ICM should not be considered a replacement for State AIA's investigation capability. Rather, it provides a means to complement existing capability when specialized resources are not immediately available. This working paper will discuss the benefits of the ICM for enhancing and complementing the State's investigation capability, and the possibility of improving the efficiency of the ICM in obtaining appropriate assistance from other State AIAs, using Indonesia's experience.

2. DISCUSSION

2.1 Benefits of Investigation Cooperation Mechanism (ICM)

2.1.1 Based on the APAC webpage (<https://www.icao.int/APAC/RASG/AIG/ICM>), as of August 2026, 26 of 39 APAC Member States have subscribed to the ICM, representing approximately 66% participation. This demonstrates significant regional commitment to investigation cooperation while also indicating an opportunity to further increase participation and utilization of the mechanism.

2.1.2 In several investigations, *Komite Nasional Keselamatan Transportasi* (KNKT) Indonesia has been assisted by other State AIAs in the APAC region under the ICM. For example, in 2021, during the investigation of the most recent major accident involving lost control in flight of the Boeing 737, Indonesia requested assistance from Singapore and Australia, to use their recorder readout toolkits and technical expertise to read out the damaged flight recorder.

2.1.3 Apart from technical assistance during an investigation, in 2023, under the ICM, KNKT Indonesia sought assistance from Transport Safety Investigation Bureau (TSIB) Singapore in preparing for the Universal Safety Oversight Audit Programme (USOAP) preparation. TSIB Singapore conducted a sharing session with KNKT Indonesia, focusing on how the TSIB Singapore aligns its investigation processes with ICAO USOAP Protocol Questions (PQs).

2.1.4 In implementing the ICM, in 2024, KNKT Indonesia also conducted in-house Basic Accident Investigation Training for the Air Accident Investigation Unit (AAIU) Cambodia and the Aircraft Accident and Incident Investigation Office (AAIIO) Lao PDR. Upon completion of the initial training, in 2026, both AIAs participated in On-the-Job Training (OJT) in Indonesia, to further develop the competencies in interviewing operational personnel, analysis/critical thinking, and report writing.

2.1.5 These examples of sharing expertise, manpower, facilities, equipment, training, and technical advice under the ICM demonstrate how the ICM has enhanced the investigation capabilities of participating AIAs. The implementation of the ICM also reaffirms the shared commitment of involved States to strengthen, promote and develop regional cooperation to enhance aviation safety.

2.1.6 Effective implementation of the ICM depends not only on the commitment of participating States/Administrations, but also on the ability to identify in a timely manner, the expertise, facilities, equipment, and other resources available within the region. Indonesia's experience has identified the need for more detailed and up-to-date information on the investigation capabilities available from other AIAs.

2.1.7 The importance of maintaining access to specialist expertise and resources is also reflected in Doc 9756 Part I – Organization and Planning, which emphasizes the need for investigation authorities to establish arrangements for obtaining specialist assistance when required. The ICM provides such a framework within the APAC region; however, its effectiveness is enhanced when participating States have access to accurate and up-to-date information on available regional capabilities.

2.2 Updated AIA Database for Improving the ICM Implementation

The ICAO APAC Office has created a database of investigation agencies in the APAC region that includes information on AIA investigation capabilities. While the existing APAC investigation agencies database contains basic information on participating AIAs, it does not currently provide sufficient detail regarding specialist areas of expertise, laboratory support, recorder readout capabilities, or training resources. Consequently, States may still need to conduct extensive bilateral consultations before suitable assistance can be identified.

2.2.1 Since 2024, KNKT Indonesia has not had a permanent investigator with flight operation background. Apart from relying on assistance from Accredited Representatives, KNKT Indonesia also established cooperation with the Indonesia Pilot Association under a Memorandum of Understanding (MOU) to use its members as seconded investigators. Cooperation with the pilot association has the advantage of providing technical experts with adequate knowledge of various aircraft systems and operations.

2.2.2 Seconded investigators from non-investigation authorities requires additional training to ensure familiarity with the Standards and Recommended Practice contained in ICAO Annex 13, as well as the investigation methodologies described in Doc 9756 Part III – Investigation. In contrast, investigators from other AIAs would generally already possess the qualifications, competencies and investigation experience necessary to support investigations conducted in accordance with ICAO standards.

2.2.3 In 2025, when KNKT Indonesia lacked specific recorder readout toolkits during an investigation, KNKT Indonesia had to conduct a series of bilateral enquiries with other AIAs. This highlighted the absence of a readily accessible regional inventory of recorder readout resources and introduced avoidable delays in determining the most appropriate source of assistance. Thereafter, KNKT Indonesia began developing and maintaining a database of on-board recorders installed on Indonesian-registered aircraft. Based on that on-board recorder database, KNKT Indonesia identified several recorders that cannot be readout using the available readout toolkits in Indonesia.

2.2.4 Maintaining an up-to-date and accessible regional database that includes detailed information on areas of investigation expertise and recorder readout capabilities would improve the efficiency of obtaining appropriate assistance from other State AIAs.

2.2.5 The investigation cooperation mechanism among European States has been implemented since 2011 through the establishment of the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA). The cooperation mechanism has strengthened the investigation capabilities of Member States, in particular by developing and managing a framework for sharing resources.

2.2.6 The appropriate assistance within ENCASIA includes, but is not limited to, providing a list of investigators, equipment and capabilities available in other Member States for potential use by the State conducting an investigation. Up-to-date information on investigation capabilities is maintained through the ENCASIA Resource Map, which includes the following information:

SAFETY INVESTIGATION AUTHORITY (SIA) ABILITY										KEY CAPABILITIES										
IIC/A-IIC				SKILL OR GROUP LEADERS						EVIDENCE GATHERING & ANALYSIS						RECOVERY				
Major Event	Limited CAT Event	GA Event	Other*	Operations	Engineering (System /Structure)	Engineering (System /Avionics)	HAFCS	Lawyer	UAV	SMS	CV/DFDR			3D Imagery	Memory readout – component level	Metallurgy laboratory	Flight path recon.	CV/FDR UWR Detection	CV/FDR UWR Recovery	Wreckage recovery
											Non-Damaged Download	Damaged Download	Full Analysis							

2.2.7 The ENCASIA Resource Map provides an example of how detailed capability information can be structured to facilitate the identification of appropriate resources among participating Member States. The ENCASIA experience demonstrates that a structured regional inventory can reduce the time required to identify suitable assistance and improve resource utilization among participating authorities. This approach could be adapted to the APAC context, taking into account the existing APAC AIA database and the specific needs of the region.

2.2.8 KNKT Indonesia proposes adopting the ENCASIA Resource Map as a reference for enhancing the structure of the existing APAC investigation agencies database with additional information as follows:

- a) Area of Particular Expertise (based on the Manual of Aircraft Accident and Incident Investigation (Doc. 9756) Part III – Investigation):
- Wreckage
 - Organizational
 - Flight Operation
 - Remotely Piloted Aircraft System (RPAS)
 - Meteorological
 - Air Traffic Services
 - Aerodrome
 - Aircraft Performance
 - Flight Recorders
 - Structures
 - Mid-Air Collision
 - Fire Pattern
 - Power Plant
 - System
 - Maintenance
 - Helicopter
 - Human Factors
 - Survival, Evacuation, Search, Rescue and Firefighting
 - Pathology
 - Explosive Sabotage
 - System Design Issues
- b) Investigation Facilities and Equipment
- Flight Recorders Readout
 - List of recorder capability (non-damaged), e.g. L3 FA2100 FDR, Honeywell HFR5-V
 - List of recorder capability (damaged)
 - Flight Recorders Analysis
 - List of analysis software
 - Material Failure Laboratory
 - Directional Underwater Locator Beacon (ULB) 37.5 kHz Detector
 - Omni-directional ULB 37.5 kHz Detector
 - ULB 8.8 kHz Detector
 - Aerial Survey Equipment
 - Ground Survey Equipment
 - Underwater Survey Equipment
- c) Training Capability (based on Manual on Aircraft Accident and Incident Investigation Training (Doc. 10206))
- Initial Formal Training
 - OJT Training
 - Advanced Formal Training
 - Specialty Training

2.2.9 The enhanced database is not intended to replace or modify the ICM, but to support its effective implementation by providing timely information on the capabilities and resources available within the region.

2.2.10 The enhanced database could also support preparedness activities before an occurrence by enabling AIAs to identify capability gaps within their own organizations and establish cooperative arrangements in advance. This proactive approach would complement the objectives of the ICM by strengthening regional readiness to respond effectively to aircraft accidents and serious incidents. The proposed enhancement of the APAC AIA database is consistent with the guidance contained in Doc 9962 – Manual on Accident and Incident Investigation Policies and Procedures, which encourages the establishment of procedures and arrangements enabling investigation authorities to obtain timely access to appropriate resources and specialist expertise. An enhanced database would therefore serve as an enabling tool to support the effective implementation of the ICM and the broader objectives of ICAO Annex 13.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

- a) Encourage States/Administrations that have not yet done so to pledge their support to the Asia and Pacific Regions Investigation Cooperation Mechanism (ICM) Relating to Civil Aviation Accident/Incident Investigation; and
- b) Endorse the enhancement of the existing APAC AIA database and request the ICAO APAC Regional Office, in coordination with participating States/Administrations, to implement the enhancement in two phases:
 - i. Phase 1: Develop a standardized process for the collection and periodic updating of detailed information on investigation areas of expertise, investigation facilities and equipment, training capabilities, and recorder readout capabilities available within AIAs.
 - ii. Phase 2: Establish and maintain database containing detailed information on investigation areas of expertise, investigation facilities and equipment, training capabilities, and recorder readout capabilities available within participating AIAs, to facilitate the timely identification of appropriate assistance under the ICM.

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