International Civil Aviation Organization

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Siem Reap, Cambodia, 27 – 30 May 2025

Agenda Item 4: Asia/Pacific and Inter-regional SAR Planning, Coordination and Cooperation

SEARCH AND RESCUE OPERATION IN THE CRASH OF SMART AVIATION PK-SNE IN NORTH KALIMANTAN

(Presented by Indonesia)

SUMMARY

This paper presents an overview of the search and rescue (SAR) operation following the crash of Smart Aviation's Pilatus PC-6 aircraft, registration PK-SNE, in North Kalimantan, Indonesia, in March 2024. The operation involved multi-agency coordination under challenging terrain and weather conditions. The paper highlights key lessons learned and recommendations for improving SAR response in remote areas.

1. INTRODUCTION

1.1 On 08 March 2024, a Pilatus PC-6 aircraft operated by Smart Aviation, registered as PK-SNE, departed from Juwata Tarakan International Airport at 08:25 local time, carrying 583 kilograms of essential food supplies to Binuang, Krayan, Nunukan, North Kalimantan.

1.2 The aircraft lost contact during the flight. A joint SAR operation was initiated, involving personnel from the National Search and Rescue Agency (BASARNAS), the Indonesian National Armed Forces (TNI), the National Police (POLRI), and other local agencies.

1.3 The crash site was located in a mountainous and forested area near Long Liku, North Kalimantan. The pilot survived the crash and was found after signaling rescuers with smoke. The aircraft technician was found deceased.

2. DISCUSSION

Alerting and Activation

2.1 The aircraft, a Pilatus PC-6 (PK-SNE), departed from Juwata Tarakan International Airport at 00:25 UTC on 08 March 2024. It was scheduled to deliver essential supplies to Binuang Airstrip, Krayan.

2.2 The alert was received by the local Air Traffic Service unit, and the distress phase was declared based on the uncertainty and absence of contact. Shortly thereafter, the Indonesia Mission Control Centre (IDMCC) and the Indonesian Rescue Coordination Centre (RCC) received a distress signal transmission from the aircraft's Emergency Locator Transmitter (ELT) at 0442 UTC.

2.3 BASARNAS activated the Search and Rescue (SAR) system immediately, and coordination with relevant agencies commenced, including notification to the Rescue Sub-Centre (RSC) Tarakan to act as the Search and Rescue Mission Coordinator (SMC) in accordance with its area of SAR responsibility.

Planning and Operation

2.4 The SAR planning was conducted based on the aircraft's last known position (LKP), flight plan route, estimated time of fuel endurance, and ELT coordinates. The area of operation was identified to be within a remote and mountainous region of North Kalimantan, specifically in the Krayan Highlands, characterized by limited access, dense vegetation, and variable weather conditions.

2.5 Search grids were established for both aerial and ground teams. Due to the topography and weather limitations, aerial reconnaissance was prioritized during daylight. Supported by aircraft PK-SNG and PK-VVU, which were on-site at the time and subsequently diverted to conduct a search sweep from Malinau to Binuang, based on coordinates detected by the ELT at position 03°44.0'N 115°50.8'E. Ground teams, composed of SAR personnel, military, and local volunteers, were prepared to be inserted once the probable crash area was identified.

2.6 On 08 March 2024 at 0800 UTC, the Search and Rescue Unit (SRU) conducted preparations and departed from Anang Busra Airbase to the Last Known Position (LKP) using a BELL 412 EPI helicopter, registration HA-5224, operated by Kodam VI/Mulawarman. The helicopter carried 6 rescuers from Tarakan SAR Office and 4 crew. At 1053 UTC, the airborne SRU (HA-5224) attempted to reach the coordinates at 3°44'9.10"N 115°55'45.36"E; however, the area was obscured by cloud cover and characterized by high terrain with negative results.

2.7 On 09 March 2024 at 0010 UTC, the Joint SAR Team stationed at the Joint Command Posts at Juwata Tarakan Airport and Kol. RA. Bessing Airport conducted a virtual briefing in preparation for the continued search operation for the missing PK-SNE aircraft, in accordance with the established operational plan. The SRUs deployed included the BELL-412 EPI helicopter, registration HA-5224, Boeing AI-2703 and Smart Air aircraft PK-SND.

2.8 On 09 March 2024 at 0921 UTC, the airborne SRU aboard PK-SND landed back in Malinau and reported that they had discovered debris from the PK-SNE aircraft and observed a thick column of smoke from what appeared to be a campfire, suspected to have been made by survivors. Based on this finding, at 0955 UTC, the airborne SRU aboard HA-5224, carrying rescuers from Tarakan SAR Office and helicopter crew, departed Malinau en route to the location where the PK-SNE wreckage was found to conduct an airdrop of logistics and survival kits for the suspected survivors. Upon arrival at the location, the SRU was unable to perform the airdrop due to moderate rainfall and fog, which significantly reduced visibility. Considering the safety of the personnel on board, it was decided to return to Malinau.

2.9 On 10 March 2024, marking the third day of the search operation, surveillance support was conducted using a Boeing AI-7302 aircraft operated by the Indonesian Air Force, along with two helicopters—HA-5224 and Caracal 07 H-2207—for rescue operations. At 0822 UTC, the airborne SRU aboard Caracal 07 H-2207 successfully evacuated the first victim, who was declared deceased. At 0835 UTC, the second survivor was successfully evacuated in a conscious and stable condition and was immediately transported to Tarakan.

2.10 On Monday, 11 March 2024 at 0005 UTC, the Joint SAR Team stationed at the Joint Command Posts at Juwata Tarakan Airport and Kol. RA. Bessing Airport conducted a briefing to carry out the extraction of SAR personnel who remained at the incident site. At 1034 UTC, the airborne SRU aboard Caracal H-2207 landed in Tarakan. At 1100 UTC, the Joint SAR Teams at the Tarakan and Malinau Command Posts conducted a debriefing following the successful extraction of all SAR personnel and the handover of the Black Box and ELT from the Head of the Tarakan SAR Office as SMC to the KNKT Team. At 1115 UTC, the SAR operation was declared completed and proposed for closure. All involved units were released and returned to their respective agencies with expressions of gratitude.

SAR Operation Overview

2.11 The operation mobilized multiple agencies, including BASARNAS, TNI, POLRI, and local government units. Community participation and local knowledge were vital in accessing remote locations.

2.12 Over three days of intensive search, aerial assets detected smoke which led to the location of the crash site. Rescue teams reached the location shortly after and confirmed that the pilot had survived and was signaling for help using smoke. Unfortunately, the aircraft technician was found deceased.

2.13 Following the recovery of the survivor and the deceased, the aircraft's black box and key wreckage elements were secured for further investigation by the National Transportation Safety Committee (KNKT). The SAR operation was officially concluded after the retrieval mission.

Lessons Learned

2.14 The SAR operation for the missing aircraft PK-SNE involved multiple agencies and assets under challenging operational and environmental conditions. Throughout the course of the mission, several key insights and experiences were gathered which are essential to be documented and analyzed. These lessons are intended to serve as a reference for improving future SAR planning, coordination, resource deployment, and inter-agency collaboration. The following points highlight the lessons learned during the SAR operation for PK-SNE:

a) Timely ELT Activation and Visual Signaling

   While the ELT distress signal played a key role in initial detection, the use of smoke by the surviving pilot was decisive in guiding aerial assets to the crash site. This highlights the importance of both technological aids and basic survival signaling techniques.

b) Survival Skills and Preparedness

   The pilot's endurance over several days in harsh terrain underscores the critical value of survival training for flight crew operating in remote areas.

c) Remote Terrain Challenges

   The operation revealed the difficulties of conducting SAR in remote, forested, and mountainous areas, stressing the need for better terrain-adapted equipment and access planning.

d) Multi-agency Coordination

The successful outcome was facilitated by effective collaboration between national agencies, local governments, and community resources. Pre-established communication protocols and rapid mobilization contributed to operational effectiveness. The operation also leveraged online briefing platforms to conduct coordination meetings, pre-deployment briefings for Search and Rescue Units (SRUs), and post-operational evaluations. This approach enabled real-time information sharing and decision-making, especially when personnel and units were deployed from different regions. The use of virtual briefings significantly improved operational efficiency and inter-agency coordination during the mission.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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SAR OPERATION DOCUMENTATION