

The Role of Hydrographic Capability and QZ 8501 Search and Rescue Mission¹

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The flight of AirAsia QZ8501 departed from Surabaya and planned to land at Singapore with around 162 passengers and crews onboard. Lost contact to the aircraft in the vicinity of Karimata Strait and Java Sea occurred 40 minutes after it took-off. It was assumed due to a bad weather condition at that time. Airasia QZ-8501 was declared missing officially three hours later.

The moral driven effort to the provision of aid has led almost 40 ships and 20 aircrafts in 9 nationalities has been involved in the search and rescue operation of the crashed aircraft. Including Indonesia, those nationalities were namely Australia, China, Japan, Malaysia, Republic of Korea, Russia, Singapore and the United States. It could be said that was a multilateral sea-air rescue effort under the coordination of Indonesia's National SAR Authority (BASARNAS). Considering the involvement of many assets, equipment, experts while battling the time and the wave to rescue the bodies and to retrieve the Black box (the Flight Data Recorder and the Cockpit Voice Recorder), without good understanding, cooperation and coordination among those who participated, despite any circumstances, this operation would have been more difficult.

The obligation to render aid for people in distress is covered by International conventions; such as LOS Convention, SAR Convention and SOLAS. The participation of Indonesian Navy Hydro-Oceanographic Service (DISHIDROS) assets in Humanitarian Assistance and Disaster Relief (HADR) and SAR was also directed by Indonesia's National Regulation under the Indonesian Armed Forces Act number 34/2004. Furthermore, a marine research institution - Agency for the Assessment and Application of Technology (BPPT), a survey association, and private company assets were also participating in short notice in the search effort without being requested by the SAR authority. This showed how the survey communities in Indonesia are dedicated to a moral obligation to assist while knowing their ability to perform such search. Hydrographic survey communities have the ability to search and detect underwater objects by recent enhanced underwater acoustic technologies, a full coverage of bottom sweep using multi beam echo sounders and side scan sonars. The method of a bottom object search that has been long adopted as part of day-to-day hydrographic survey activity to ensure the safe marine navigation has proved to be effective and very supportive for search and rescue operations. Bringing this ability to the surface, it is a

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duty to render assistance and at the same time to ensure the remaining wreckage will not impede a safe passage of navigation.

Open source web-based applications enable us to gather such important information, such as “flight radar”, as the more deep restricted data is not accessible quickly. The application showed the last track of the aircraft. The information retrieved from this source was used an initial datum of the missing aircraft. This is the beauty of digital information nowadays yet its accuracy is not to be relied on too much. However, by taking the advantages of the modern information technology, the last position of the ill-fated aircraft was able to be looked at. Underwater search area on the east part of the main search area was established on day-7 where all ships with underwater detection technology were assigned to.

Search area was established based on three probable last locations of the missing aircraft. The first response was to search and rescue the bodies or survivors as many as possible on the surface. DISHIDROS assets, KRI PULAU ROMANG-723, a 500 tonnage ex-mine hunter vessel, and two Mobile Survey Teams, arrived on the assigned search sector one day after, but they could not perform the bottom searching optimally due to the weather.

Severe weather condition limited the ability to conduct the search. High rate of precipitation, low visibility above and under water, breeze and rough sea state were encountered during the course of the search. Thus the aerial searches and victim evacuations were not able to be conducted accordingly. This condition was also became operational constrain for sonar fish-towing activity. The existing ship wrecks were also became false targets in the search area. However, a very well coordination among those ships with underwater detection capability and more stable platform, the first wreckage could be identified, which was than revealed as the tail section.

Under severe weather condition, the underwater sea current was measure up to 30 meters deep of water to support salvage. Mobile Survey Team One was onboard KRI PULAU ROMANG-723, and then was moved to KRI BANDA ACEH-591, an LSD, provided the SAR Task Command on the strength of the sea current. Indonesia’s Chief Hydrographer, Commodore Dede Yuliadi, was onboard the LSD on that time. Those ships were at anchor during the measurement. By providing the 15-minute interval data, divers were able to identify the best time to go under to conduct visual identification of the wreckage and salvage.

The tail section was identified within 9 days of search, approximately 110Nm West Southwest direction of Pangkalanbun, South Kalimantan. The tail was successfully evacuated and stored ashore for further investigation by Indonesia’s National Transportation Safety Board (KNKT). Follow-on search than was conducted in the

vicinity of the tail. Focusing on more probable bottom objects could be detected. The fuselage was captured by Indonesia's private-owned SV GEOSURVEY's sonar on 14 January, approximately 3400 meters away from the tail. An ROV boarded MV SWIFT RESCUE, a Singaporean Navy's submarine support and rescue vessel, was deployed to identify the fuselage.

The initial "ping" of the FDR was caught by KN JADAYAT, an Indonesia's DGST's vessel where a joint team from Indonesia's National Transportation Safety Board (KNKT) and Singapore searching team onboard with the "ping locator". It was on 11 January 2015, 2 weeks after the search begun. The FDR and the CVR were retrieved underwater on 13 January.

70 bodies were recovered by the time SAR Task Command dismissed on 28 January 2015. The follow-on search operation is conducted by the BASARNAS in a daily basis operation. The location of the remaining wreckage was marked with special-mark buoy.

Hydrographic awareness and moral are one entity when operating at sea. The role of hydrographic community cannot be neglected in support of SAR mission while no other bottom detection capability is available. The involvement of hydrographic assets is important to be able to provide undersea picture where any bottom anomalies exist can be derived as the objects of concern.

A rescue mission is very time dependent. It is about saving life. As the sea is our domain, thus hydrographic survey clearly holds significant supporting role to play in sea-air search and rescue mission. Able to detect and locate the wreckage on the bottom of the sea does not mean that there will be many survivor saved, but at least it will give any parties who concern with further investigation on the incident a data to recover that led to the information needed for the families of the victims.