

# Temporary Standard Operating Procedure in Support of Medical Evacuation Helicopter Operation in Mandalika

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**Abstract**— This research was conducted based on the discovery of a hazard that arose due to the flight path of the medical evacuation helicopter from the Pertamina Mandalika International Circuit to the General Hospital of West Nusa Tenggara Province. This research was conducted at Lombok Branch Office of Indonesian Air Navigation Service Provider, AirNav Indonesia, from September to December 2022. It was carried out using qualitative research methodology which is observation. The data and facts were processed using descriptive analysis. Based on the analysis of the data obtained, author concluded that a temporary standard operating procedure regarding medical evacuation helicopter is required and the author has come up with one.

**Keywords**— hazard, temporary standard operating procedure, medical evacuation helicopter, priority

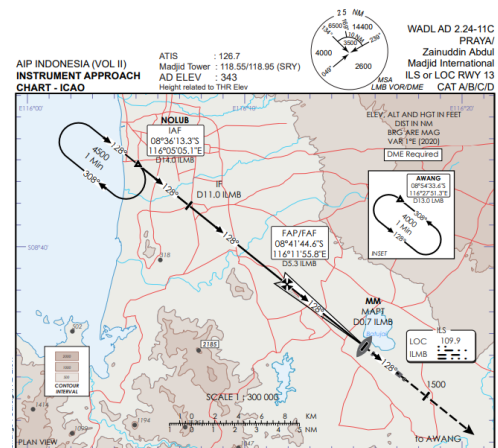


Fig. 1. ILS or LOC RWY 13 Lombok International Airport[1]

## I. INTRODUCTION

Lombok is a beautiful island located in West Nusa Tenggara Province, Indonesia. It has many eye-catching vacation destination which attracts local tourists and even from overseas. Besides that, it is also a home to one of Indonesia's international circuits, the Pertamina Mandalika International Circuit. That particular circuit has held several race events such as World Superbike 2021, MotoGP 2022, and World Superbike 2022.

During World Superbike which took place in Mandalika from November 11<sup>th</sup> to November 13<sup>th</sup> 2022, a problem arose from the existence of medical evacuation helicopter that was intended to carry any racers that might had been involved in a crash during race. Logically, the flight path of the medical evacuation helicopter needs to be the shortest path between Mandalika and the General Hospital of West Nusa Tenggara Province. But, that particular flight path had become a conflict with the approach area runway 13 in Lombok International Airport. Not to mention that straight flight path does not have any reporting points. It became a hazard.



Fig. 2. Conflict between medical evacuation helicopter flight path and approach area runway 13 Lombok International Airport

Hazard[2] is a condition or an object with the potential to cause or contribute to an aircraft incident or accident. Any hazards that have been recognized must have their mitigation measures.



Air Traffic Controller operates based on 5 objectives, which are:

- a) prevent collisions between aircraft;
- b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;
- d) provide advice and information useful for the safe and efficient conduct of flights;
- e) notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required[3].

When managing air traffic, ATC consider few factor in giving priority, one of which hospital aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention[4]. Therefore, it was necessary to come up with a mitigation measures that ensure the medical evacuation helicopter can operates without delay and does not affect the safety of itself and other aircrafts.

## II. METHOD

This study utilized a qualitative methodology. Qualitative research is generally employed to support a researcher in generating a deep and nuanced understanding of a given phenomenon[5]. Qualitative research is a form of social inquiry that on the way people interpret and make sense of their experiences[6]. The ultimate goal of using qualitative methods is to produce a plausible and coherent explanation of the phenomenon under investigation[7] This methodology is used because it suits the purpose of this research which is to analyze the potential hazard that arises from the existence of medical evacuation helicopter.

Data collection technique used in this research is observation. Observational techniques are used whenever the researcher wants to document actual behaviors and practices as they happen (not as they are explained or recorded historically)[8]. It best suits the research due to the fact that the medical evacuation helicopter did not operate frequently and it directly communicated with the author when the author was operating as the Executive Controller at the Aerodrome Control Tower in Lombok International Airport.

## III. RESULT AND DISCUSSION

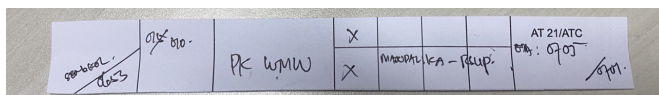


Fig. 3. Flight progress strip of medical evacuation helicopter

That particular flight in Figure 3 became conflict with an arriving aircraft which was executing an instrument approach runway 13. When considering the state of both flights, the arriving aircraft loses priority. According to ICAO Doc 4444 which states "Priority shall be given to hospital aircraft or aircraft carrying any sick or seriously injured persons requiring urgent medical attention", medical evacuation helicopter gets priority over other aircrafts which are not in emergency situation.

Therefore, arises a need for a mitigation measure to lower the risk of conflict to happen. Author had come up with a solution that could be considered to do so, which is a temporary standard operating procedure.

When flying in VFR, the pilot has to maintain constant visual contact with the terrain, constantly checking the actual and predicted position and speed of the airplane[9]. Since the medical evacuation helicopter flies according to VFR, it needs reporting points to notify ATC of their position. Utilizing the already existing reporting points in Lombok airspace, the author had come up with a draft of temporary standard operating procedure that could be implemented during similar kind of events in the future.

### A. Helicopter Movement Procedure from Mandalika to General Hospital of West Nusa Tenggara Province

- 1) Medical Evacuation Helicopter that flies from Mandalika to General Hospital of West Nusa Tenggara Province must fill out a flight plan[10] and submit it to the radio operator personnel on duty at Mandalika.
- 2) Radio operator personnel send the flight plan to the ATS unit of AirNav Lombok branch for further distribution in accordance with applicable regulations.
- 3) Radio operator personnel on duty at Mandalika must inform the ATD (Actual Time Departure) of the helicopter to ATS unit of AirNav Lombok branch.
- 4) Medical evacuation helicopters fly through SENGKOL - PENUNJAK RIVER - General Hospital of West Nusa Tenggara Province or according to ATC instructions.
- 5) Transfer of responsibility and communication from radio operator to ATC Unit AirNav Lombok branch at SENGKOL point.
- 6) When the medical evacuation helicopter is airborne, all aircraft that will be making an approach on runway 13 must be held at point NOLUB until the helicopter has reported on the ground at General Hospital of West Nusa Tenggara Province.

### B. Helicopter Movement Procedure from General Hospital of West Nusa Tenggara Province to Mandalika

- 1) Medical evacuation helicopter that flies from General Hospital of West Nusa Tenggara to Mandalika must submit a flight plan to the ATS Unit of AirNav Lombok branch and the flight plan to be forwarded to the radio operator personnel on duty at Mandalika.
- 2) ATC on the duty inform the ETA (Estimate Time Arrival) of helicopter heading to Mandalika to radio operator personnel in Mandalika.
- 3) Medical evacuation helicopter fly to Mandalika from the General Hospital of West Nusa Tenggara Province via PENUNJAK RIVER - SENGKOL - MANDALIKA or according to ATC instructions.
- 4) When the medical evacuation helicopter has reported airborne from the General Hospital of West Nusa Tenggara Province, all arriving aircraft that will be making an instrument approach on runway 13 must

be held at NOLUB until the helicopter reports over PENUNJAK RIVER or when it is seen by the controller and considered to be safe from the approach area runway 13.

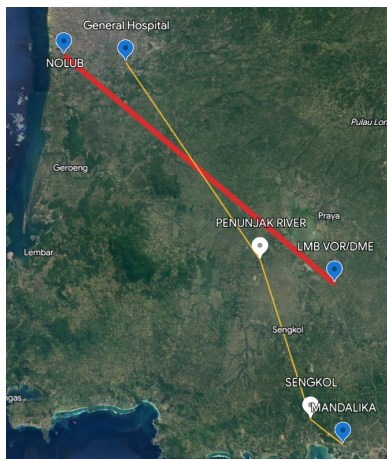


Fig. 4. Flight path of medical evacuation helicopter according to the temporary standard operating procedure

#### IV. CONCLUSION

In managing air traffic, Air Traffic Controller (ATC) operates based on 5 objectives of air traffic services, one of which to prevent collisions between aircraft. In performing their duty, they also have to consider which aircraft must be given priority.

Since the establishment of Pertamina Mandalika International Circuit, there had been several racing events that took place there. Due to the possibility of a crash, medical evacuation service using helicopter was established. During execution, the flight path of medical evacuation helicopter which crosses the approach path runway 13 in Lombok International Airport became a hazard that needs to be mitigated.

The author has presented a solution, which is a draft of a temporary standard operating procedure that has been elaborated in point III.

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