Resort Airports in Stormy SE Asia Leave Safety to Chance

JAKARTA/DENPASAR, INDONESIA - It's the invisible enemy: something all pilots dread as they land at Asia's tropical island resorts. Wind shear, or the sudden change in wind speed and direction, is particularly hazardous at landing, but some of the region's best known holiday spots in Indonesia, Thailand, Malaysia and the Philippines do not have detection systems on the ground to warn pilots, according to airport officials.

This phenomenon of turbulent winds is common in equatorial Southeast Asia. A Lion Air pilot of a new Boeing Co 737 passenger jet that crashed off Bali only last month told investigators how his plane was "dragged down" by wind into the sea just short of the runway. Remarkably, no one died.

"There are quite violent thunderstorms that are huge. You can easily exceed the capability of the airplane in severe wind shear," said Richard Woodward, a Qantas Airways Ltd captain who flies A380s.

"The beauty of having a ground-based system is they can tell in advance if wind shear is present," said Woodward, who has flown in the region for more than 30 years.

A ground warning system, which costs about $1 million, can help spot dangerous winds in the plane's flight path, giving pilots more time to avoid them.

But even as revenues rise and building work on glitzy new terminals

charges ahead, officials say the airports at Bali, Koh Samui, Langkawi and Cebu do not have the on-ground wind shear detection equipment.

Asked whether the industry supported ground-based systems, Airbus spokesman Martin Fendt said: "We would support any initiative that aims to improve aviation safety. Regarding installations at airports, that is a matter for airport operators and the relevant authorities."

Both Boeing and Airbus say they have on-board wind shear detection systems. Combined the two wind shear detection systems give pilots a better chance of flying to safety.

Act Fast

Adverse wind conditions are involved in more than 30 percent of accidents globally at approach or landing, Airbus says.

Upon hearing a wind shear alarm, the pilot has a matter of seconds to level the wings, apply full engine power and ease the nose up to cancel the landing and avoid the intense patch of turbulence.

The Lion Air budget carrier that crashed last month was caught in an unexpected downdraft in a rain cloud even as the airport reported clear weather, said a source who was briefed on the investigations, declining to be identified because the findings are not yet public.

Investigators are likely to examine whether the Boeing 737-800's onboard wind shear alarm went off, and if it did, when and how the pilot responded, and how the brand-new jet reacted.

Indonesia's air transport safety chief Masruri, who goes by one name, declined to give the cause of the crash ahead of its report on the investigation. Local media says it could take up to four months to publish the report.

Gleaming Facades

As the middle class grows in Southeast Asia, plane travel increases, with low-cost carriers such as Indonesia's privately-owned Lion Air and Malaysia's AirAsia Bhd winning 52 percent of the region's market share. That is almost double the level of five years ago.

But behind the facades of the new terminal buildings is a chronic shortage of weather detectors, runways, air traffic control staff and

pilots to cope with the burgeoning demand for flying in a region home to 600 million people.

None of the airports in Indonesia or the Philippines has low-level wind shear alert systems (LLWAS) on the ground, airport and government officials say.

The Jakarta and Bali airports might get LLWAS next year, according to the Indonesian state weather agency, which is responsible for funding such systems.

"LLWAS is not yet in place in Indonesia, maybe because of budgets," said Syamsul Huda, director for aviation and meteorology at the agency. "I feel it is more safe with the system."

The Malaysian island of Langkawi has an Instrument Landing System (ILS), which helps guide pilots when they cannot see the runway, but does not have a wind shear detection system.

The Thai island of Koh Samui, famed for its reefs and beaches, lacks both an ILS and wind shear detection systems. The country's top beach resort Phuket has both, and nearby Krabi recently installed a wind shear alarm.
Strong winds on approach to the Phuket runway led to pilot errors that resulted in a One-Two-Go plane crashing in 2007, killing 90 people, according to investigators. Budget carrier One-Two-Go, owned by Thai aviation veteran Udom Tantiprasongchai, now flies by the name Orient Thai Airlines.

Where's the Runway?

The state-owned airport in Bali has seen its number of passengers grow by two-thirds in the past five years to 14 million people annually, and expects over 20 million in coming years.

A $290 million new terminal, to be ready for an APEC summit of world leaders this year, will have a roof shaped like flowing waves that absorbs the sun's rays and recycles storm water. But there's no space for a new runway, with the current one having been extended into the sea already. It is, however, long enough to take U.S. President Barack Obama's Air Force One.

The existing runway has no ILS for planes approaching from the western side, as the ill-fated Lion Air jet did. Instead, it has an ILS system for planes coming from the east, and a simpler VOR navigational system that relies on the pilot seeing the runway, from

the west.

The Lion Air pilots lost sight of the runway in a rain cloud and the plane fell into the water as they tried to go around for a second landing attempt, according to the source briefed on the investigations.

NASA helped develop predictive systems for U.S. airlines and airports after the inability to detect wind shear led to a Delta Air Lines Inc crash that killed 137 in 1985. One of the companies manufacturing the ground system is Finland's Vaisala Oyj.

Research by Massachusetts Institute of Technology suggests there has not been a wind shear-related accident at an airport that operates modern wind shear detection systems. But equipping airports and planes with warning systems is only half the solution - you also need qualified professionals to operate and monitor the devices, and then act with a cool head.

In a run-down office at Bali's Ngurah Rai International Airport, the head of air traffic services Tri Basuki says staff do double shifts because he has less than 50 percent of the people needed to operate radar, surveillance and navigation systems.

For air traffic control it is even worse. There are only 43 people, or about a third of a government requirement for 115, to guide the airport's average of 330 landing aircraft a day.

Basuki said some of the controllers at Bali are suffering from cumulative fatigue.
"When the controller is fatigued, it's high risk, very high risk," he said.

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