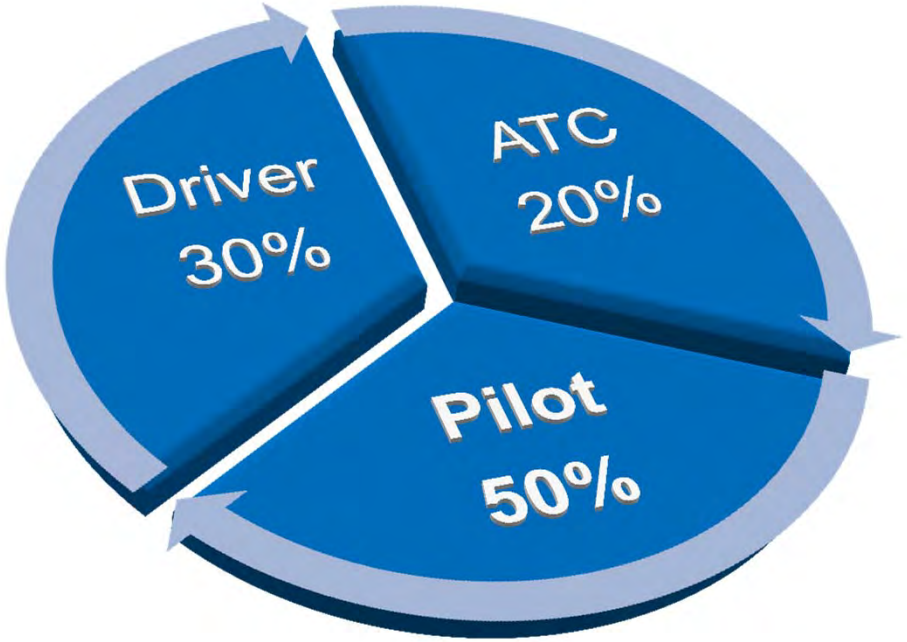
RUNWAY SAFETY

MINISTRY OF TRANSPORT REPUBLIC OF INDONESIA
DIRECTORATE GENERAL OF CIVIL AVIATION
DIRECTORATE OF AIRWORTHINESS AND AIRCRAFT OPERATIONS

RUNWAY SAFETY

A runway safety issue is any safety issue that deals with the runway environment (or any surface being used as a runway) and the areas immediately adjacent to it (e.g., overruns, high-speed taxiways). *(Flight Safety Foundation)*

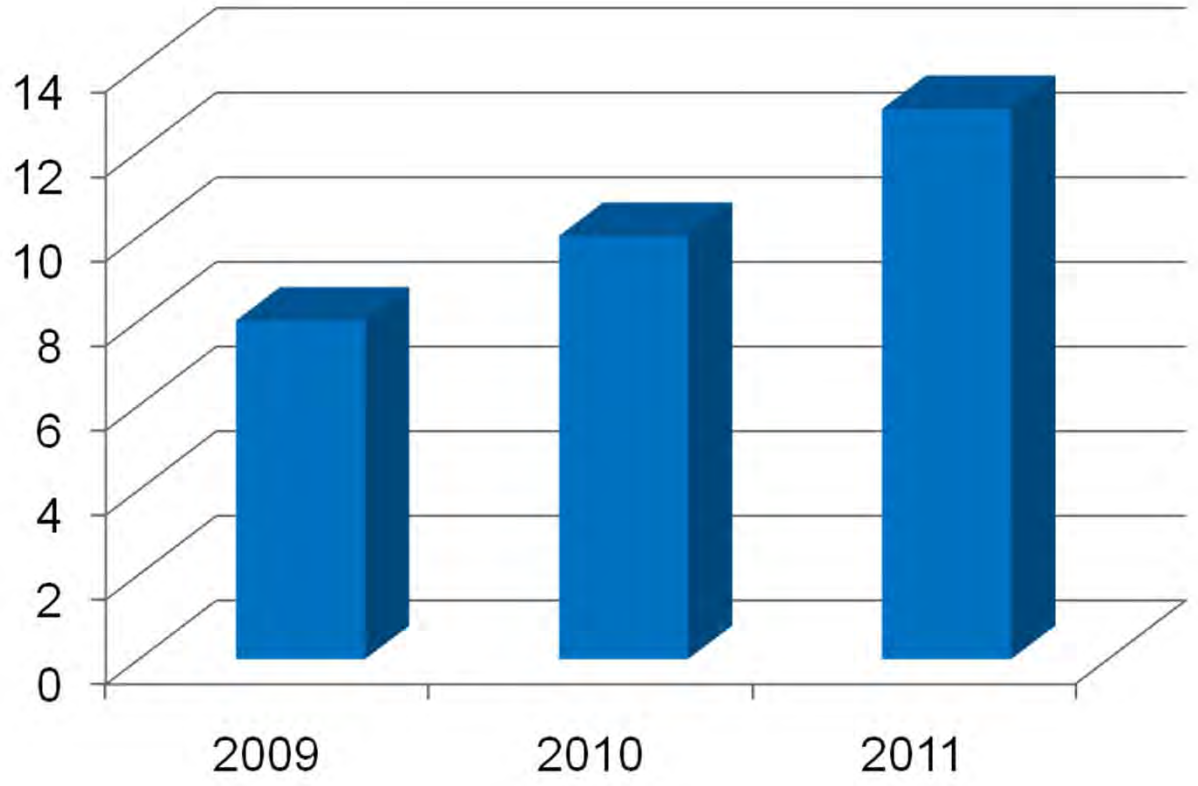
Contributory factor



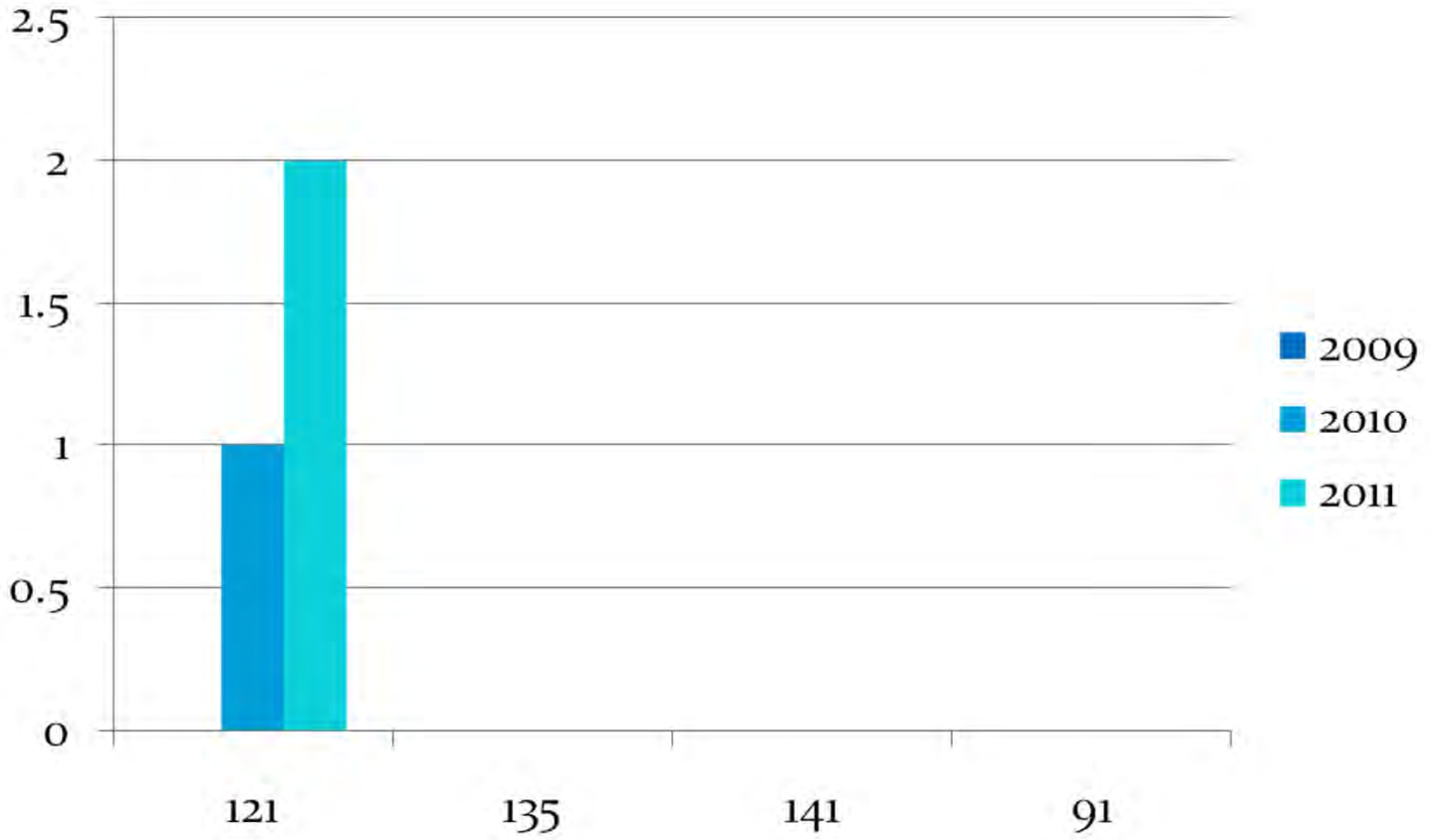
RUNWAY SAFETY ISSUE :

- RUNWAY INCURSION
- RUNWAY EXCURSION
- RUNWAY CONFUSION

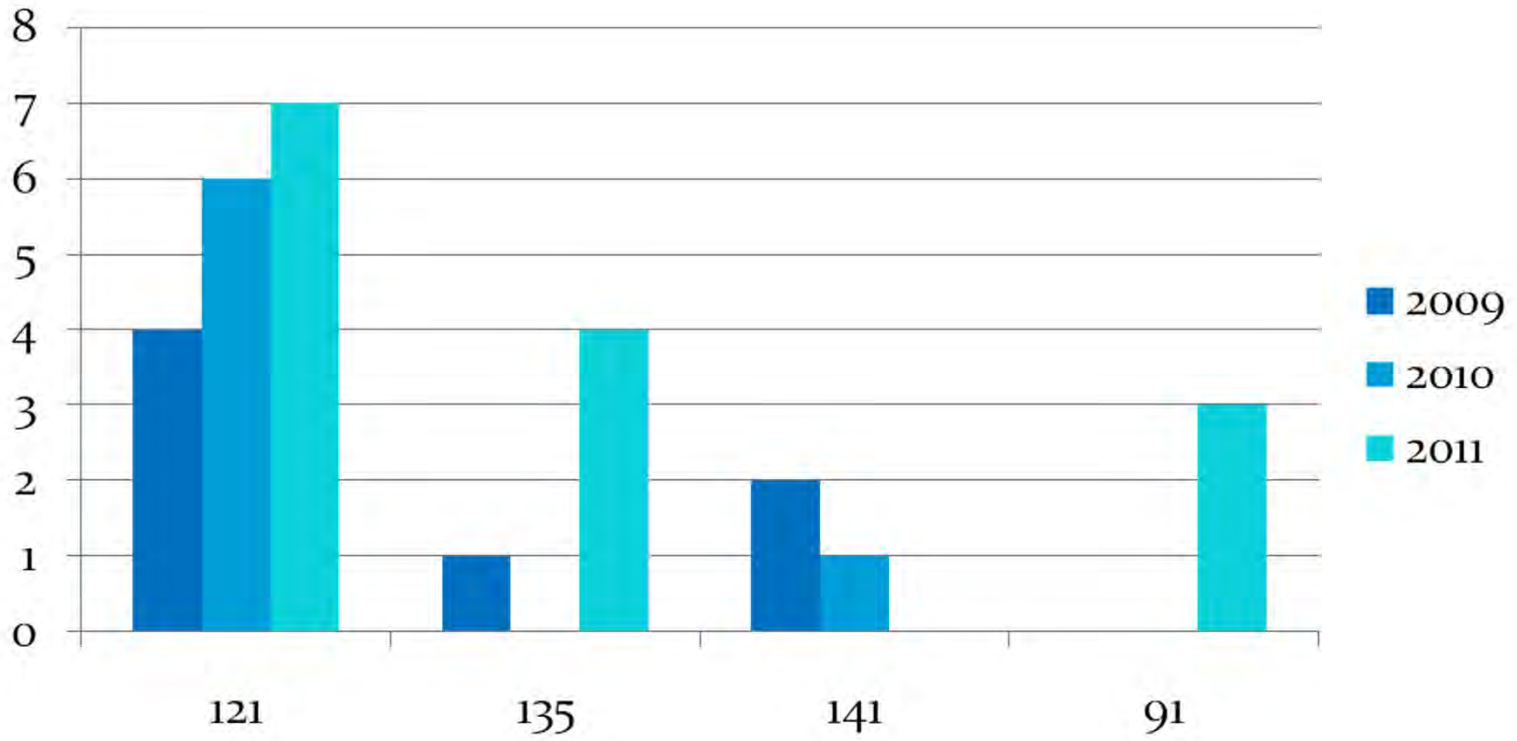
SERIOUS INCIDENTS



RUNWAY INCURSION



RUNWAY EXCURSION



RUNWAY INCURSION

Indonesian Civil Aviation Institute
PK-AGU
Socata Tobago TB-10
Budiarto Airport, Curug
Tangerang, Banten
Republic of Indonesia
19 April 2010

During the second circuit of touch and go, the aircraft bounced and tend to the left then hit to a running motorcycle on runway.

At the time of accident, both of motorcycle riders were fatally injured. About three months later the flight instructor was fatally injured and the student pilot was serious injured.

The aircraft was substantially damaged.

RUNWAY INCURSION

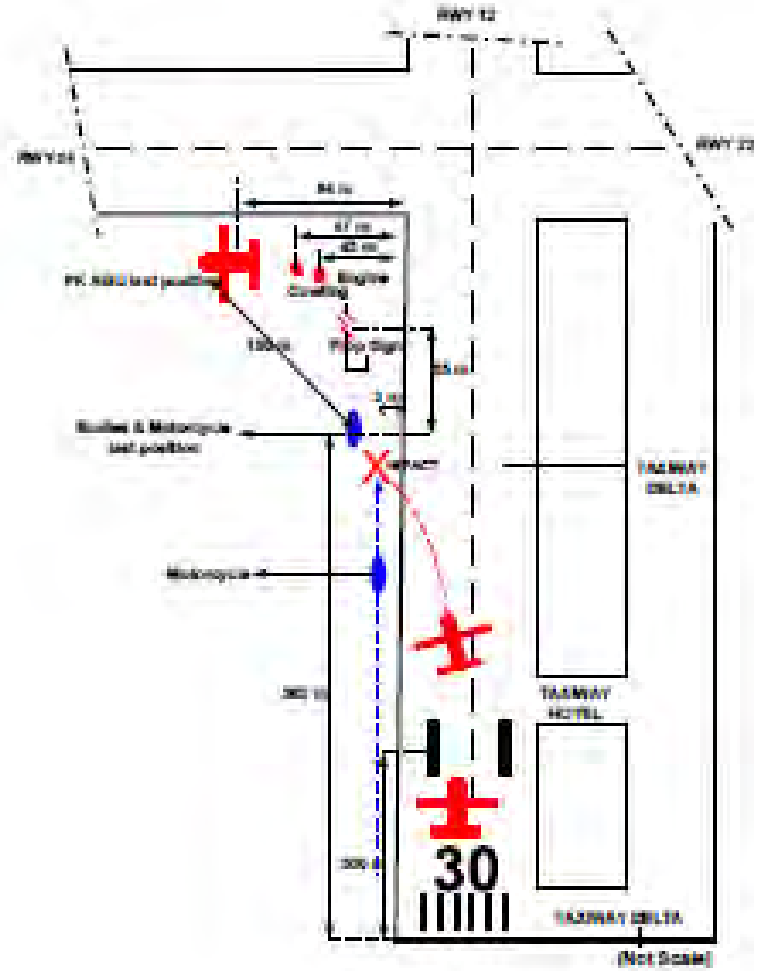


Figure 2: Aircraft Accident Scheme

RUNWAY EXCURSION

PT Lion Mentari Airlines
PK-LFI
B 737-900 ER
Sultan Syarif Kasim II Airport
Pekanbaru, Riau
Republic of Indonesia
14 February 2011

The flight depart from JKT heading to PKU. Reported weather was rain, when the crew commencing their descent.

Two holdings procedure was made, waiting the weather to improves, and then the aircraft continue its approach procedure.

The aircraft landed and turning on end of runway 36, then over turn and the right main landing gear out of asphalt runway.


BOEING 737-900ER
PK-LFI
Lion
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RWY BEARING 18/36
RUNWAY ELEVATION 78 FT
RUNWAY LENGTH 2,240 M
RUNWAY WIDTH 30 M

RUNWAY CONFUSION

→Runway confusion occurs when pilots enter, take off on, or land on the wrong runway.

→Runway confusion involves a single aircraft, and is used to describe the error when the aircraft makes "the unintentional use of the wrong runway, or a taxiway, for landing or take-off".

RUNWAY CONFUSION

PT Garuda Indonesia
PK-GWT
B 737-4K5
Sultan Mahmud Badarudin II
Palembang, South Sumatra
Republic of Indonesia
2 October 2008

The aircraft were cleared for VOR/DME Approach Runway 29, as the ILS was not in service due to the replacement of its localizer antenna. .
The PIC reported that he had the runway insight after assured the co-pilot that they all have seen the runway. The Aerodrome Controller gave the crew the clearance to land.
The ATC saw that the aircraft was not on the approach path properly and came close to the parallel taxiway, the aircraft landed on the parallel taxiway.
Both pilots were concentrating looking inside and not sufficiently cross checking to the outside situation. Pilot monitoring was not sufficiently looked outside to cross-check the flight path to the runway.
There was misalignment of the VOR approach path.
The controller noticed that the aircraft was not aligned with the runway.
According to the ATS procedure, the controller could only command the pilot to go around whenever the runway is unsafe to land.


Garuda Indonesia
PK-GWT
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GROUND TRACK
CLOSED TAXIWAY

Breakdown in communication

- use of non-standardized phraseology;
- failure of the pilot or the vehicle driver to provide a correct readback of an instruction;
- failure of the controller to ensure that the readback by the pilot or the vehicle driver conforms with the clearance issued;
- the pilot and/or vehicle driver misunderstanding the controller's instructions;
- the pilot and/or vehicle driver accepting a clearance intended for another aircraft or vehicle;
- blocked and partially blocked transmissions; and
- overlong or complex transmissions.

Contributory pilot factor

- an aircraft or vehicle crossing in front of a landing aircraft;
- an aircraft or vehicle crossing in front of an aircraft taking off;
- an aircraft or vehicle crossing the runway-holding position marking;
- an aircraft or vehicle unsure of its position and inadvertently entering an active runway;
- a breakdown in communications leading to failure to follow an air traffic control instruction;
- an aircraft passing behind an aircraft or vehicle that has not vacated the runway.

Contributory pilot factor

- inadequate signage and markings (particularly the inability to see the runway-holding position lines);
- controllers issuing instructions as the aircraft is rolling out after landing (when pilot workload and cockpit noise are both very high);
- pilots performing mandatory head-down tasks, which reduces situational awareness;
- pilots being pressed by complicated and/or capacity enhancement procedures, leading to rushed behaviour;
- a complicated airport design where runways have to be crossed;

Contributory pilot factor

- incomplete, non-standard or obsolete information about the taxi routing to expect; and
- last-minute changes by ATC in taxi or departure routings.

Establishing a runway incursion prevention programme

- *Runway safety team from aerodrome operations, air traffic service providers, airlines or aircraft operators, pilot and air traffic controller associations and any other groups with a direct involvement in runway operations.*

Recommendation for the prevention of runway incursions

- **AIRCRAFT OPERATORS**
  - Pilots should be thoroughly trained on aerodrome signage, markings and lighting.
  - A requirement to obtain an explicit clearance to cross any runway should be included in the Flight deck procedures. This includes runways not in use.
  - Best practices for pilots' planning of ground operations should be promoted.
  - The concept of a sterile flight deck while taxiing should be adopted.

Recommendation for the prevention of runway incursions

- **PILOTS**
  - Pilots should never cross illuminated red stop bars when lining up on, or crossing, a runway unless contingency procedures are in use that specifically allow this.
  - Pilots should not accept an ATC clearance that would require them to enter or cross a runway from an obliquely angled taxiway.
  - If lined up on the runway and held more than 90 seconds beyond anticipated departure time, pilots should contact ATC and advise that they are holding on the runway.
  - Pilots should turn on aircraft landing lights when take-off or landing clearance is received, and when on approach.
  - Pilots should turn on strobe lights when crossing a runway.

Recommendation for the prevention of runway incursions

- **PILOTS**
  - If there is any doubt when receiving a clearance or instruction, clarification should be immediately requested from ATC before the clearance or instruction is enacted.
  - If pilots have any doubt as to their exact position on the surface of an aerodrome, they should contact ATC and follow the associated ICAO procedure.
  - Pilots should be “head-up” for a continuous watch during aerodrome surface operations.
  - the sterile flight deck.

Safety Actions :

- *2007, ALAR Training & Implementation*
- *DGCA will develop PBN Training Program for Pilots (CASR Part 91 Amdt.3 & ICAO Doc.9613)*
- *2010, Rainy Season's Awareness*
- *2012, Runway Inspection to Reduce Runway Excursion*

Oversight for those Safety Actions :

- Yearly Surveillance Calendar, Cockpit En-route Surveillance 4x yearly.
  - **Perform (98%)**
- Operator Flight crew training and checking (Stabilized Approach, ALAR).

Conclusion

- ***Strictly*** *adhere to all relevant CASR, procedures and guidance material.*
- *Ensure that flight crews* ***follow the clearances or instructions*** *that are actually received and not those they expect to receive.*
- *Ensure* ***good planning*** *of ground operations in order to decrease the workload during taxi. The flight and its associated risks starts during the preparation.*
- *Ensure that* ***good situational awareness*** *is the top priority during taxi, and involve all crew members.*
- *Make* ***"crew resource management" principles*** *during taxi as important as during the other phases of flight.*
- *Be* ***defensive and let the built-in safety nets*** *do their work so that a single mistake does not lead to a serious incident or accident.*
- ***Never take anything for granted****.*

Thank You..