

ICAO-COSCAP Cabin Safety Seminar - Singapore 2013

Addressing Cabin Safety Threats

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Addressing Cabin Safety Threats – Risk Exposure

- Working Environment
- Service Expectations
- External Threats
- Equipment / Hardware Hazards
- Human skills/resource constraints

Risk Mitigation - Addressing Cabin Safety Threats



- Risk based approach



- Data driven – Reporting culture



- Timely action of fixes



- Change management



- Safety information sharing / awareness

Dragonair – Who We Are - Full Service Regional Carrier

Dragonair Route Network:
Shortest Flight Time; 1:00
Longest Flight Time; 5:40



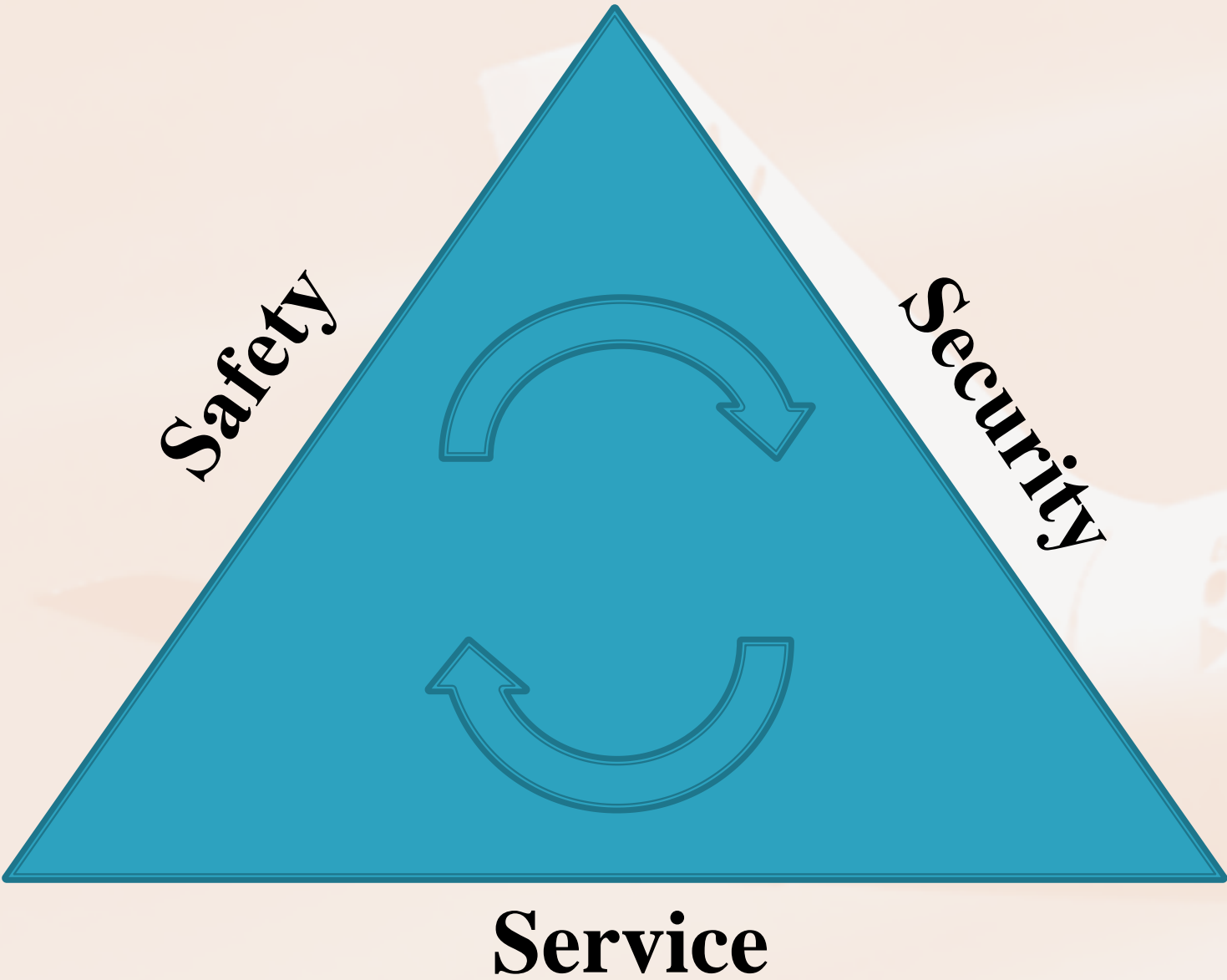
Daily Responsibilities for Cabin Crew – Management of the 3 S's

Safety

Security

Service

And their Priorities ?



Risk Based Approach

- The likelihood of having left open cabin doors by ramp vehicles is 'POSSIBLE', particularly at outstations.
- The severity of injury to crew is 'MAJOR'.
- The risk level associated with this hazard is 'HIGH'. (*significant risks that require immediate attention*)

Step 3 - Operational Risk Matrix

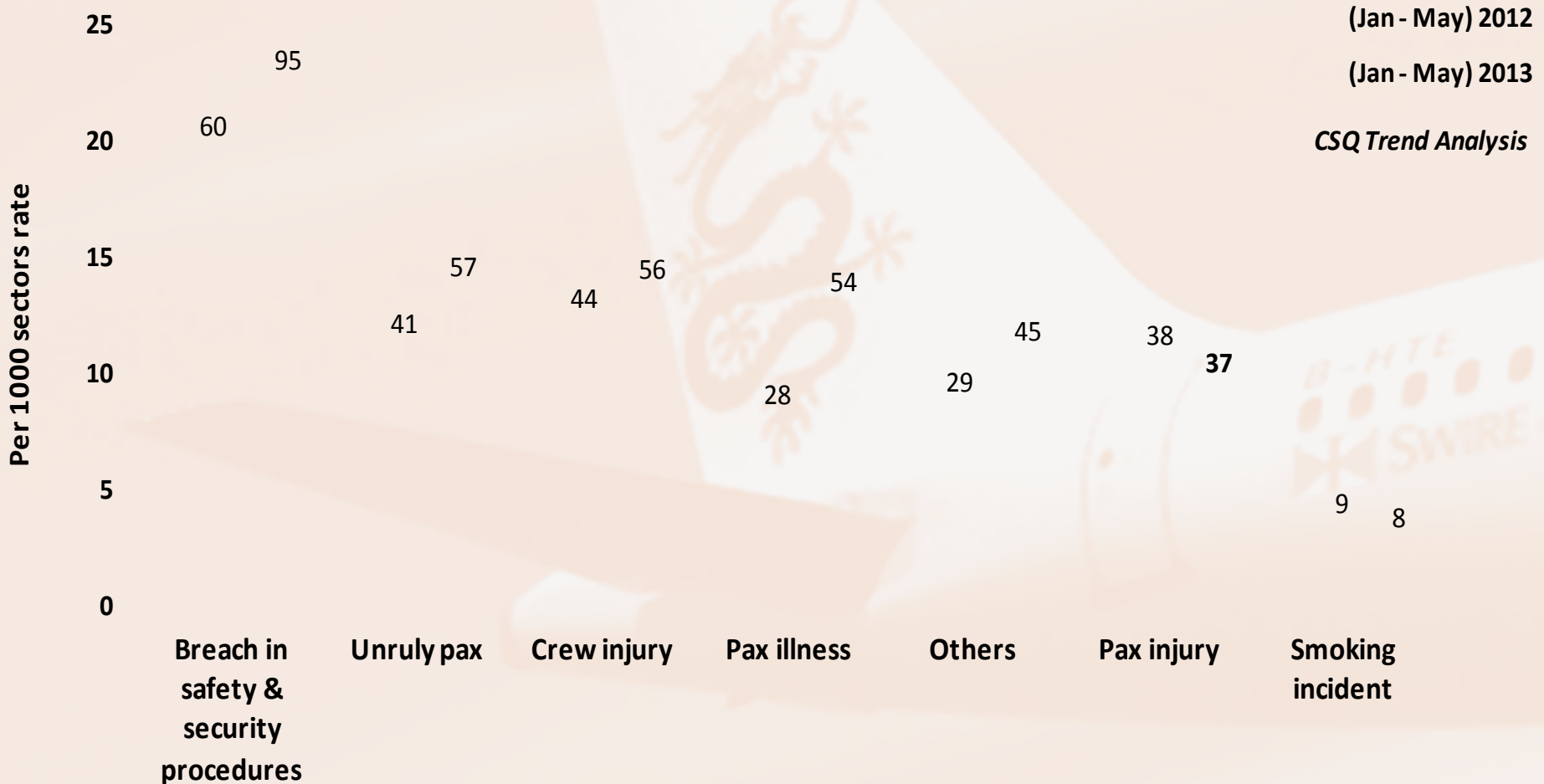
| | | | | | | |
|------------|---------------------|-----------------|---------------|---------------|------------|-------------------|
| LIKELIHOOD | ALMOST CERTAIN 5 | LOW | MODERATE | HIGH | ULTRA | ULTRA |
| | LIKELY 4 | LOW | MODERATE | HIGH | ULTRA | ULTRA |
| | POSSIBLE 3 | LOW | LOW | MODERATE | HIGH | ULTRA |
| | UNLIKELY 2 | INSIGNIFICANT | LOW | LOW | MODERATE | HIGH |
| | RARE 1 | INSIGNIFICANT | INSIGNIFICANT | LOW | MODERATE | HIGH |
| | | NEGLIGIBLE 1 | MINOR 2 | MODERATE 3 | MAJOR 4 | CATASTROPHIC 5 |
| | | SEVERITY | | | | |

Step 4 - Management Signalling

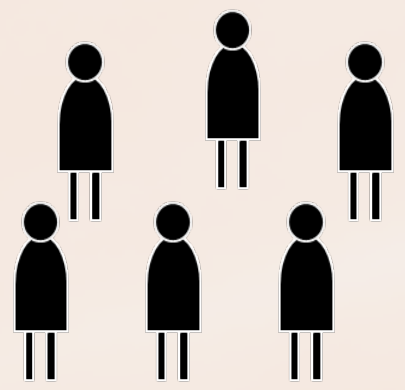
| Risk Ranking | Urgency of Action | Process | Level of Management involvement | Oversight |
|---------------|---|--|---------------------------------|----------------------------|
| Ultra | Stop. Immediate attention required. Do not proceed until risk is mitigated appropriately. | Specific action plan required before operation re-starts. | Board | Mancom and Audit Committee |
| High | Significant risks that require immediate attention. | Risks must be understood and a high level of risk reduction and control in place before operations continue. | GM or higher | Director |
| Moderate | Significant risks that requires appropriate mitigation and monitoring. | Management responsibility identified. Specific action(s) allocated. Implementation timetable determined. | Departmental Head | GM or higher |
| Low | Risks are considered as not significant. Appropriate mitigation and monitoring required. | Normally be managed by routine procedures or minor mitigation. | Level B / C | Level D |
| Insignificant | Risks are considered to be insignificant. No mitigation required. | For Statistics only or minimal intervention. | Level B / C | None |

Cabin Safety Report Data / Statistics

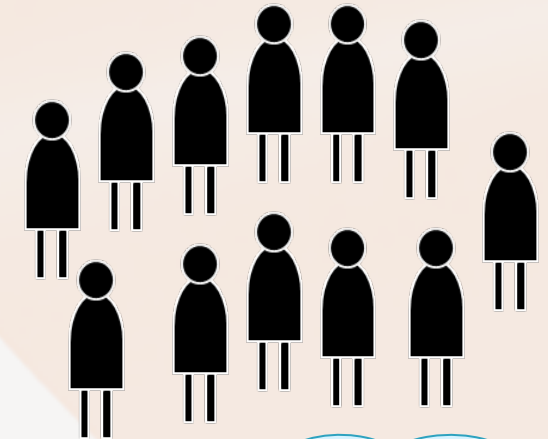
Cabin safety trend 2012 Vs 2013



Crew Size and Demographics



*In Jan 2012,
Cabin Crew: 1534*



*In May 2013,
Cabin Crew: 1750*

From Jan 2012 to May 2013, crew increase:

| | A320/321 | A330 |
|------------------|----------|------|
| New cabin crew | 340 | |
| Future expansion | 350 + | |

Cabin Safety Awareness - Enhance Communication



Baggage Handling Roadshow



Lithium Batteries – Cabin Threat



- **Mitigation:** Cargo Safety Review Group initiated to review carriage of Dangerous Goods, with particular focus on Lithium Batteries transportation
- **Major milestones so far:**
 - Embargo on Lithium-metal batteries shipment on PAX a/c
 - Loading segregation between Lithium-Batteries and DG
 - Lithium-Batteries info on NOTOC

Dealing with Lithium Battery Fires in Cabin

Solution :

Product “Firebane”

- Class D rated extinguishing agent,
- Designed for molten metal fires,
- Safe for people,
- A **GREEN** extinguishing agent .

Firebane can be used to douse the burnt P.E.D containing lithium battery to prevent re-ignition

Firebane are onboard all KA aircraft



DRAGONAIR
港龍航空

Dealing with Lithium Battery Fires in Cabin

FireSock

- Designed to contain fire in single or multiple cell lithium battery packs during a lithium battery fire.

FireSock kit includes :

- A pair of heat resistance gloves,
- A re-sealable storage tube,
- A re-sealable FireSock bag to contain the burnt P.E.D. after an incident.



Overhead Locker Handling / Access

Using footstep

• This surface is not designed for people to step on, and doing so may cause damage to cabin facilities or physical injuries when you lose your balance and fall.



• These are proper foot steps in the cabin



Hazard :

- Cabin crew injuries while stepping on the side of pax's seat without footstep/ non-skid pad.



To Assist with Overhead Locker Security Check

Hazard :

- Cabin crew injuries during “security check”/ “after landing check” when they climb up pax seat to look for “suspicious items”/ “left behind items” in the overhead lockers.



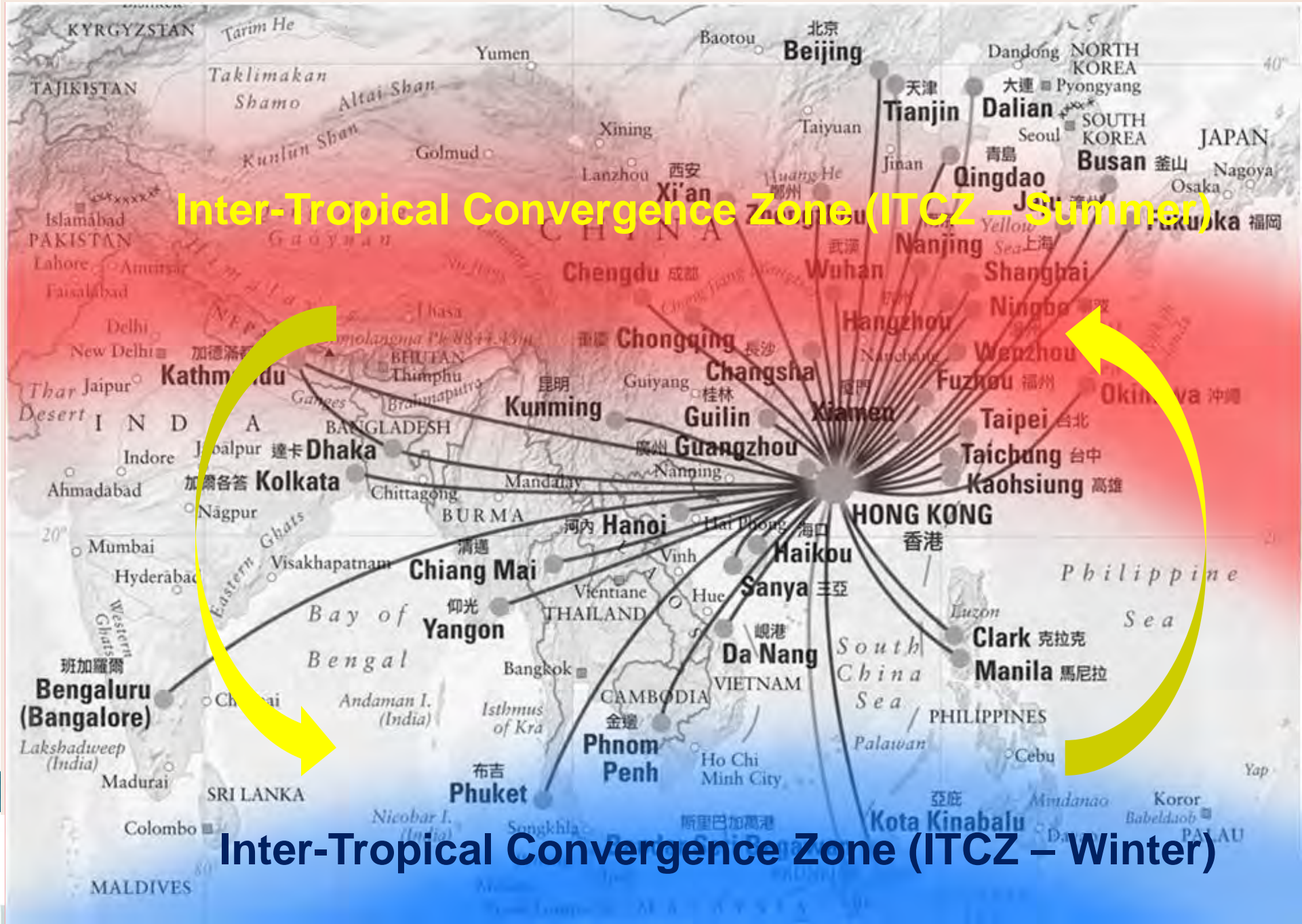
Weather System and Thunderstorm Activities

Turbulence Hot Spots – Historical Data from 2011



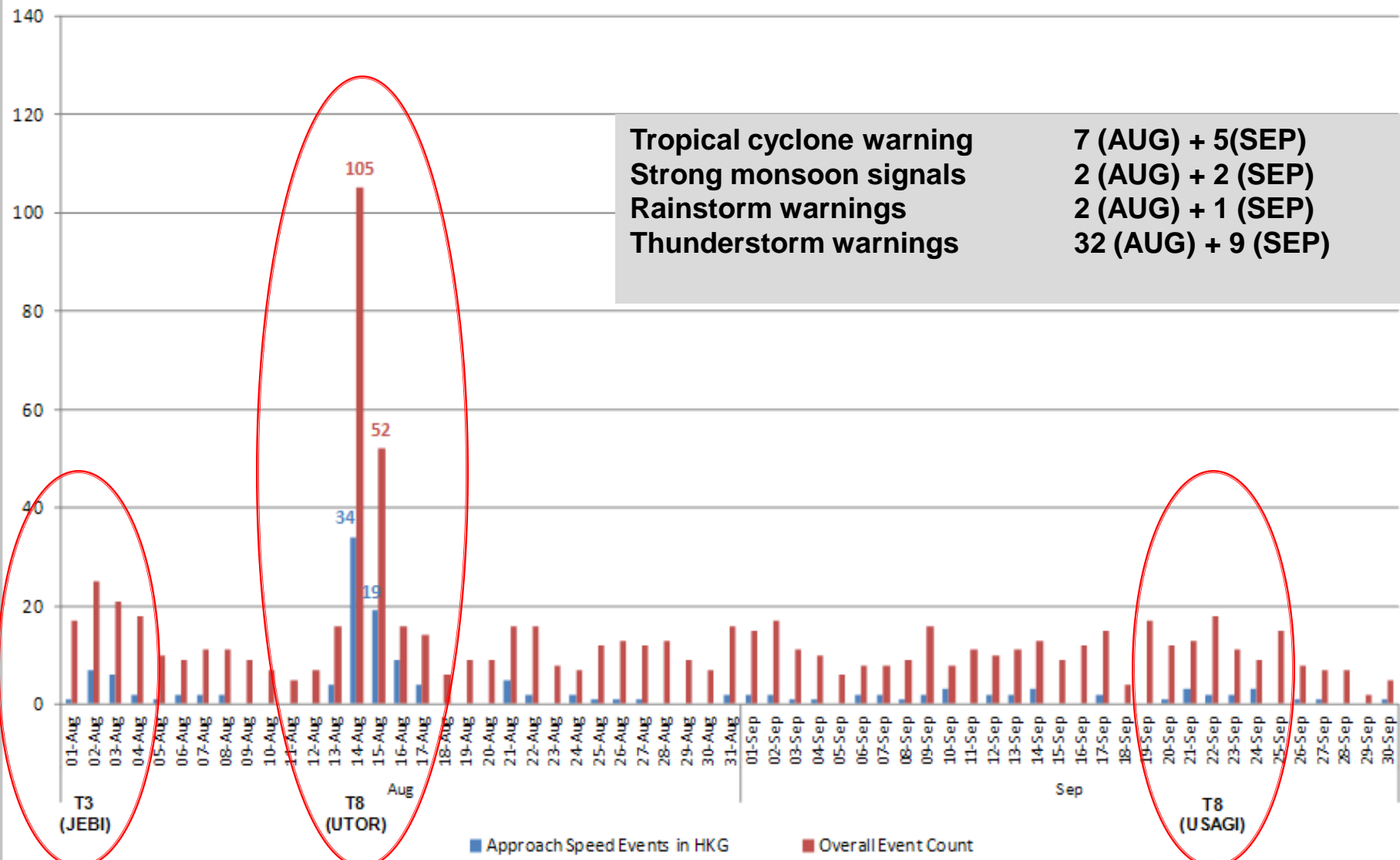
Inter-Tropical Convergence Zone (ITCZ – Summer)

Inter-Tropical Convergence Zone (ITCZ – Winter)



Weather System and Thunderstorm Activities

Daily Count of Events in HKG (Aug to Sep 2013)



Tropical cyclone warning 7 (AUG) + 5 (SEP)
Strong monsoon signals 2 (AUG) + 2 (SEP)
Rainstorm warnings 2 (AUG) + 1 (SEP)
Thunderstorm warnings 32 (AUG) + 9 (SEP)

T3 (JEBI)

T8 (UTOR)

T8 (USAGI)

■ Approach Speed Events in HKG ■ Overall Event Count

Flight Crew extensive use of the Onboard Weather Radar



- The flight crew community receive and tested on the use of the onboard weather radar annually
- Declare “Pan” for weather avoidance in congested routes, mainly in the PRC
- Employ new technology when available

Addressing the Threat of Turbulence Injuries

Procedures for cabin communications during weather avoidance after this event :

- ✓ Cabin crew must be briefed prior to the flight of any forecast or anticipated turbulence en-route. Use time markers rather than location.
- ✓ En-route if penetrating an area of weather is unavoidable, provide as much notice as possible to the cabin.
- ✓ If weather/turbulence is anticipated at descent, provide cabin crew with sufficient advance notice to prepare the cabin instead of the standard cabin preparation time markers.
- ✓ If necessary delay the descent P.A until it is safe to do so.

Unsecured Doors – A Death Trap!



- For this operator it is was normal procedure for the cabin crew to close an open cabin door from inside without any platform connection outside.
- The ramp vehicle did not wait till the aft left door was closed before retracting from the door.

Unsecure Doors – Avionics Bay Access Door in Cockpit



The mix of cabin crew and ground engineers entering the flight deck is perhaps unavoidable during line operations.

A number of incidents where cabin crew have fallen into the open void while carrying pre-flight duties in the cockpit.

Threat Mitigation :

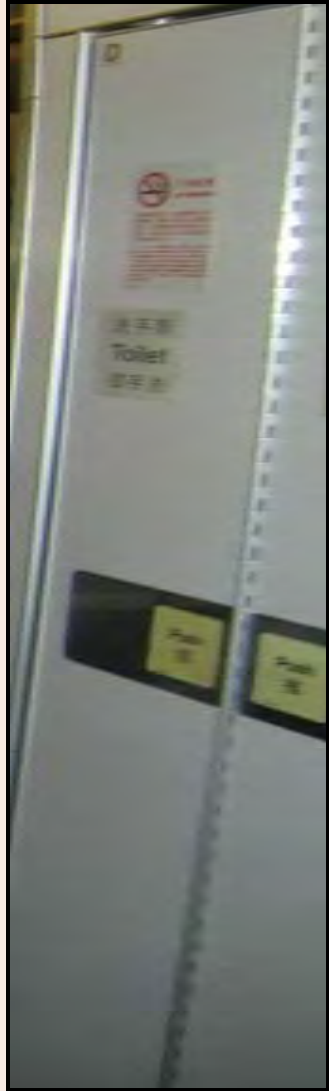
- Procedural; suspend pre-flight C/C duties and lock the Flight deck door (to be kept locked until hatch is closed)
- Technical (long term mitigation); change the hatch hinge orientation to be side opening (adopted on new production A350)

Doors – Oops, I didn't Know it was Armed !



Cleaning supervisor opened the R1 door from inside while the door was armed which resulted in the inflation of evacuation slide

Lavatory Doors : Bi-Folding Type !



- The bi-folding doors close automatically and fold inside the lav. Compartment
- “Push” stickers are close to the fold-in line of the door
- Quick automatic release & closing mechanism
- The doors are attached with a gas spring to keep the door always in a closed condition plus there is no adjustment
- Injuries are often minor and not reported ;
 - Hand/ finger injury while pushing the door open due to stiffness of the door.
 - Hand/ finger trapped at the fold-in line while pushing-in the door for entry.
 - Hand/ finger trapped during the quick automatic closing action

Bi-Folding Doors !

Immediate term mitigation :

- Cabin crew are to tech-log lavatory doors that has caused injury for engineering follow-up.
- Routine checks on the opening & closing mechanism of all bi-folding doors on whole fleet.



Long term mitigation :

- Engineering to ensure the bi-folding lavatory door mechanism on new aircraft can be adjusted.
- Engineering to review lavatory door type/design with new cabin retrofit.



Lavatory Doors : Single Blade Type



- ▶ The larger lavatory has a single blade door which does not close automatically.
- ▶ The opening action is outwards and in certain locations, into the aisle (causing injury to pax or crew)
- ▶ Requirement to have certain number of such doors for disable pax access

Short term action:

Engineering propose modification to reduce the opening speed and reduce the possibility of inadvertent opening of the existing doors, e.g, use of a damper

A warning sticker (inside) door to exercise caution when opening

Long term solutions:

Engineering to ensure future fleet specifications meet the requirement for the **number** of, new **specification** and **location** of handicap pax doors

Airbus/Cabin BFE supplier to redesign these doors from build

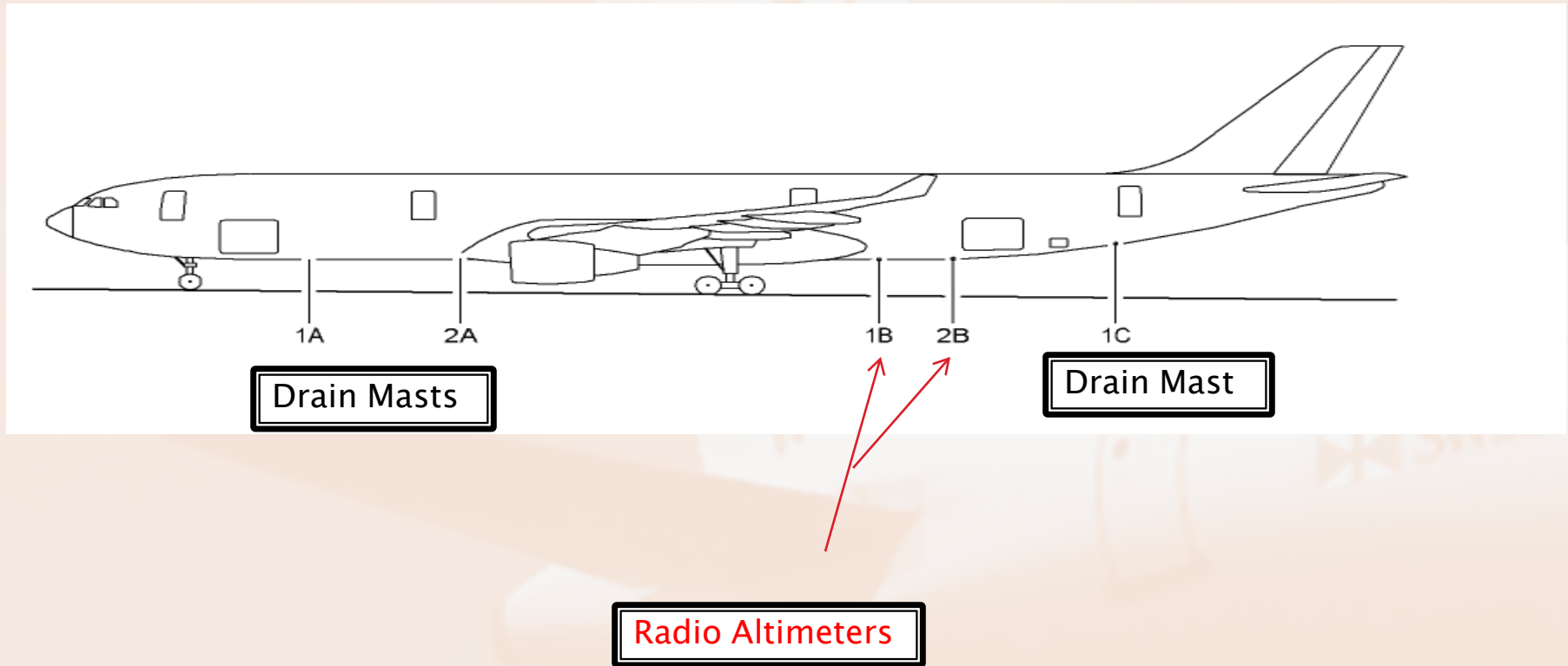
Doors : Where is the Toilet ?



Description of event :

- At around 1200LT, Captain informed CP L4 door was not locked.
- CP went to check the door and saw the door control handle was lifted slightly up.
- CP put the handle down immediately to lock the door.
- None of the crew in EY had witnessed anyone attempting to lift the door handle as they were all busy for meal service.
- Aircraft was cruising at 31000 ft.

Safety over Service – Coping with Aircraft Design Anomalies



Safety over Service



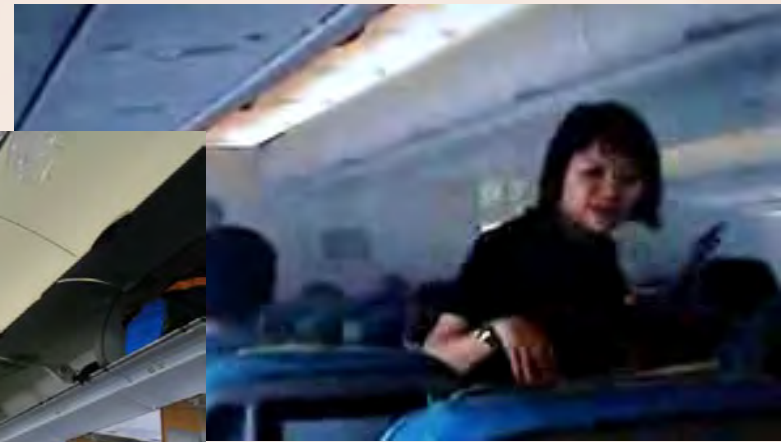
- A technical solution is preferred to avoid the direct contamination of the RA's from the galley drains
- In the absence of a technical solution , the pouring of certain liquids (grey water only) is prohibited



Alternative Design – B777 !



Dealing with an real emergency- smoke in the Cabin



- White dense smoke with strong burning plastic smell emitted from mid cabin, spreading to fwd & aft cabin.
- Oxygen masks were deployed in the smoke-filled cabin to provide oxygen for passengers
- P.A was made by cabin crew to instruct passengers how to activate oxygen and don mask as the oxygen masks were deploying in the cabin
- Passengers put on the mask as instructed and cabin crews were checking that passengers had donned masks correctly
- The majority of oxygen masks' reservoir bag did not inflate, but with green indication and weak oxygen flow (This phenomenon was subsequently confirmed as normal by the Engineering Department)
- Smoke eventually dissipated during descent into PEK. It lasted approx.10 minutes.
- Cabin was prepared for a normal landing following Captain's PA prior to landing

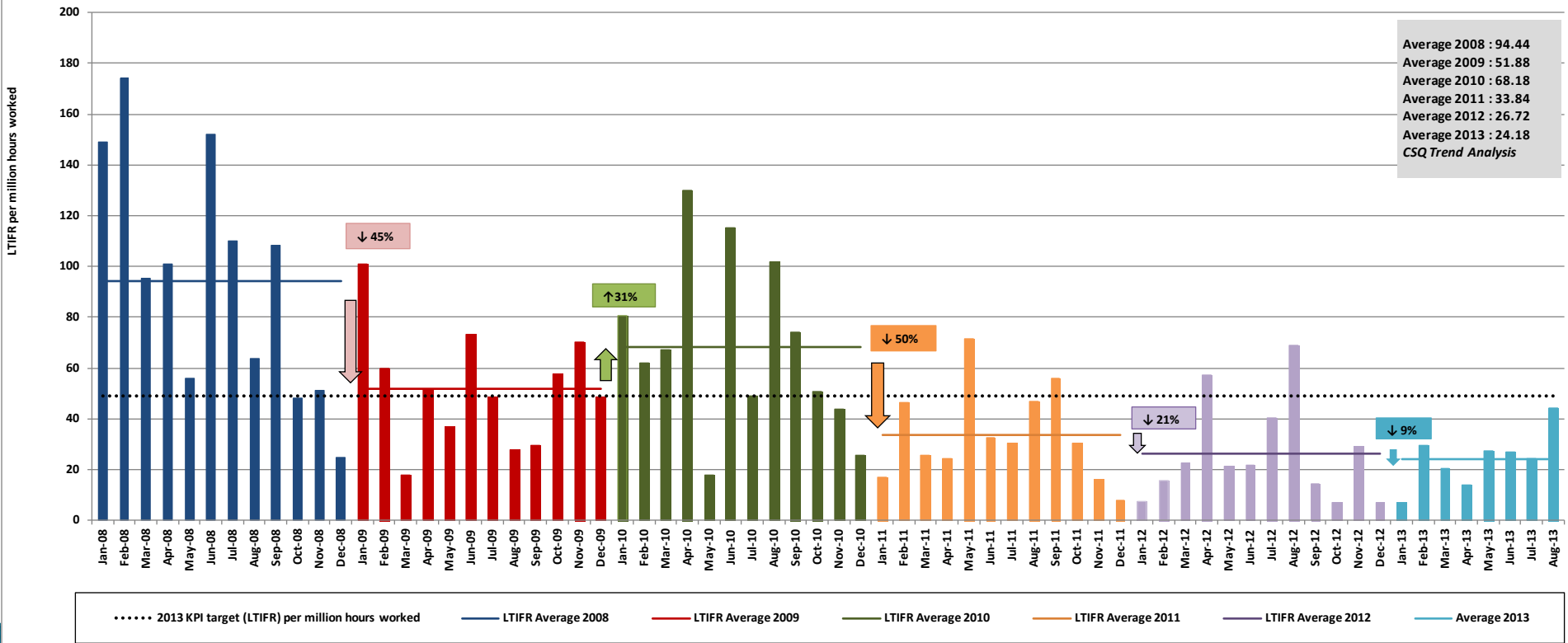
After Landing / Disembarkation Handling

- Initial “Mayday” call was downgraded to “Pan” call during the approach
- Emergency services (2 x fire engines + 2 x ambulances) met on arrival (requested by Captain)
- Normal disembarkation (stairs in L1 & L2) was carried out (Ground personnel were not present)
- Passenger buses did not arrive at the same time as the stairs



Consistent On Going Reduction in Cabin Safety Injuries

Lost Time Injury Frequency Rate



Average 2008 : 94.44
 Average 2009 : 51.88
 Average 2010 : 68.18
 Average 2011 : 33.84
 Average 2012 : 26.72
 Average 2013 : 24.18
 CSQ Trend Analysis

Key to Success - Addressing Cabin Safety Threats

- Healthy Safety Reporting Culture
- Timely and Efficient reporting of Cabin Equipment Defects
- Regular Crew Engagement and Safety Information Sharing
- Regular Feedback (Safety Report Follow Up)
- Awareness, Awareness..., through Roadshows

Create a Safe, Pleasant and Healthy Work Environment

Thank You

