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Lectures' Purpose

- The audience will understand the risks of business jets brazilian fleet and the respective proposed mitigations to avoid them

Issues specific to general aviation and business jets

- Size of Brazilian fleet
- Main risks and Mitigations
  - Communication - Language proficiency
  - Performance
  - Human Factors Long Standbys
  - Environment

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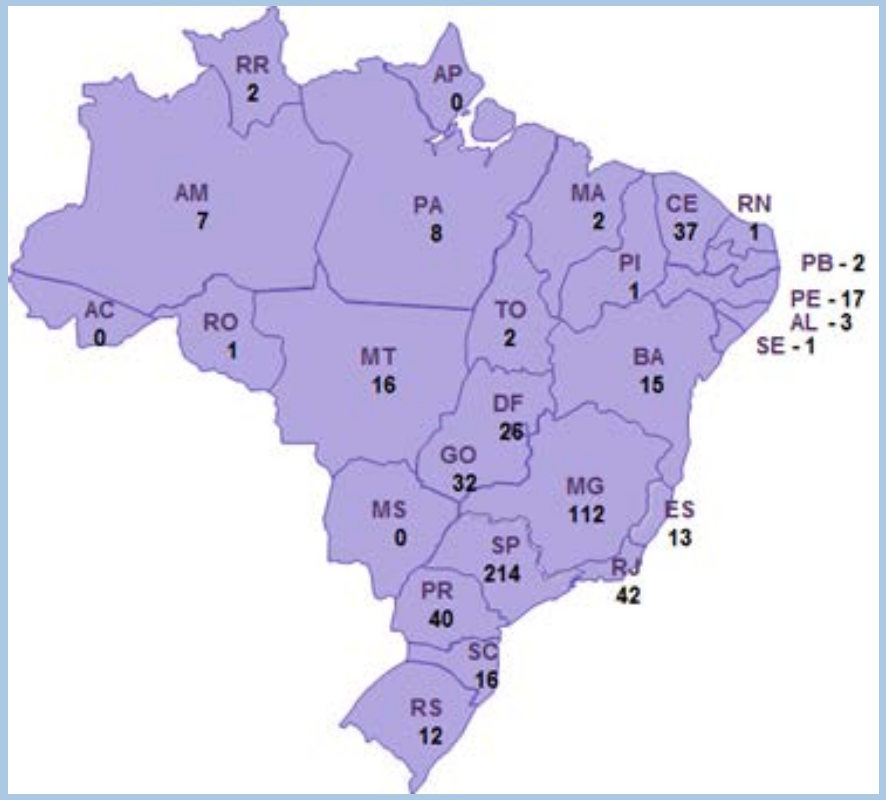
Brazilian General Aviation Fleet

- Brazilian General Aviation fleet in 2011 was composed of conventional aircraft, turboprops, jets and helicopters tallying 13,094 aircrafts, in which 623 are jets representing 4.8% of the total.
- The fleet has an average age of 26 years from date of manufacture and average age of jet aircraft is 13.
- The General Aviation, in 2011, connected 3,400 aerodromes. The 32 main Brazilian airports generated 640,200 flights with landings and takeoffs, in which Jets represented 16%.

The Business Jet Fleet in Brazil



- In 2011 a total of 623 jets were registered, representing 4.8% of Brazil's General Aviation fleet. Leading in new registrations were the States of São Paulo (↑19), Minas Gerais (↑13) and Goiás (↑11).

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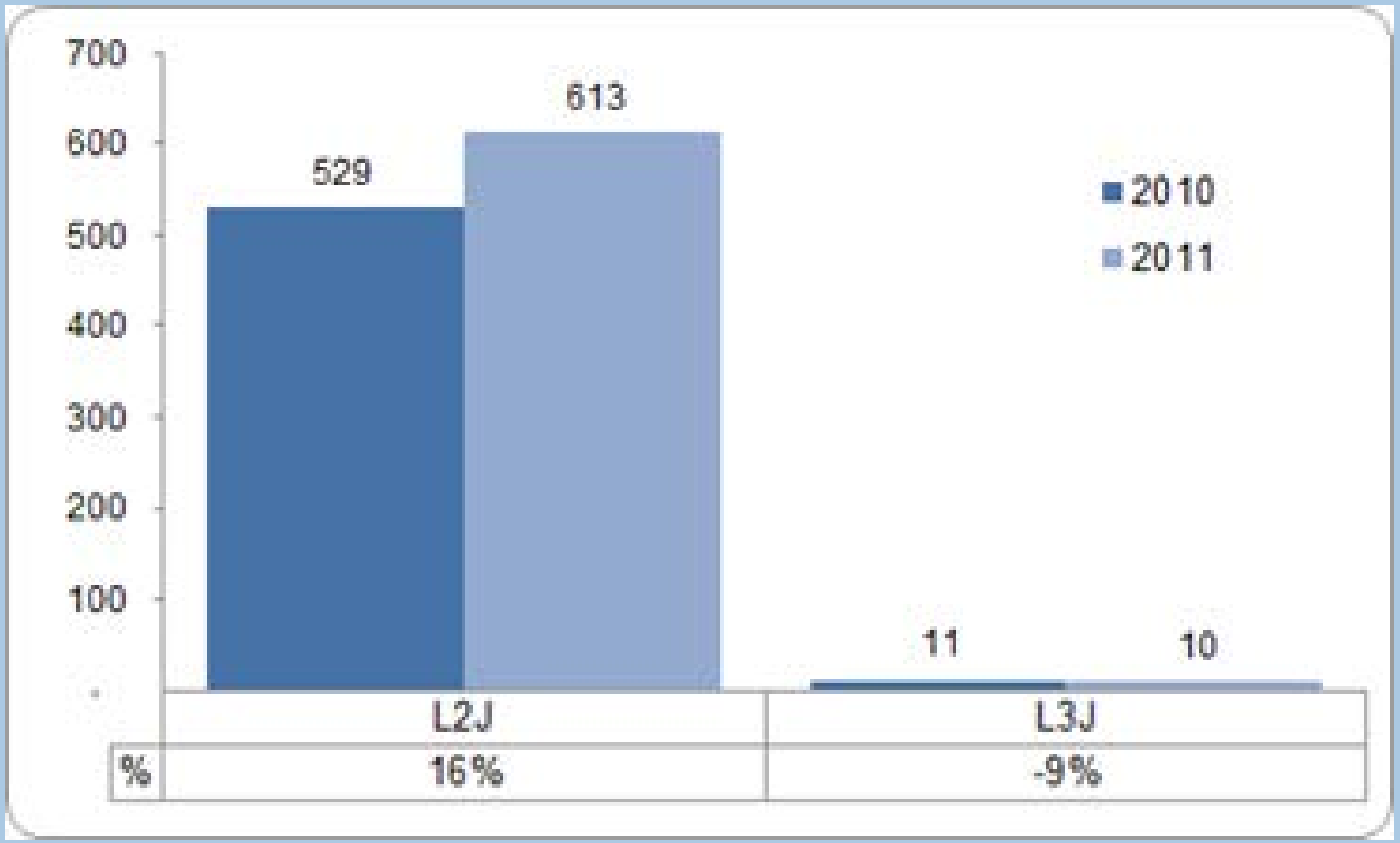
Jets by Engine Type



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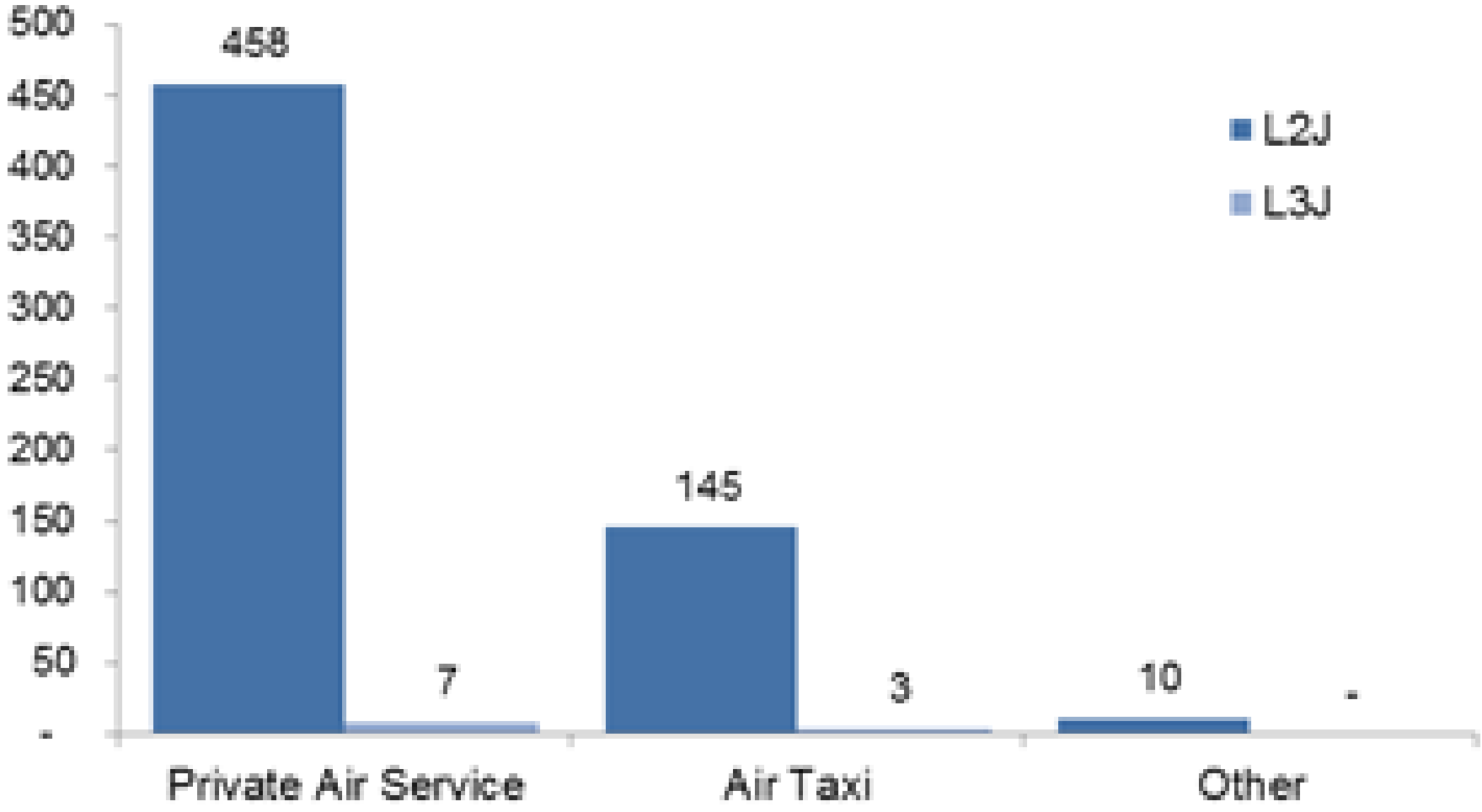
Usage Category of Jets



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Communication - Language Proficiency at Foreign Countries

- Risk – crew not able to understand traffic control comm at foreign countries
- Mitigation – implementation of ICAO english levels qualification

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South America

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Communication
Language proficiency

- Since 2007 Brasil has adopted ICAO english level qualification to all pilots and controllers
- Only levels 4, 5 or 6 are allowed to fly beyond the country boundaries, or to control bigger airports and terminals
- To Brasil it was more necessary than our neighbors because it is the only one which speaks portuguese in all three american continents
- For business jets it’s a strict requirement

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Performance

- Runway contamination
  - Tabulated Data Available at Aircraft Flight Manuals (AFM)
  - Lack of real wet runway situation
- Aircraft with different performances operating at the same airport
- Equipments and capabilities
  - ABS
  - TCAS
  - RVSM

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Runway excursion

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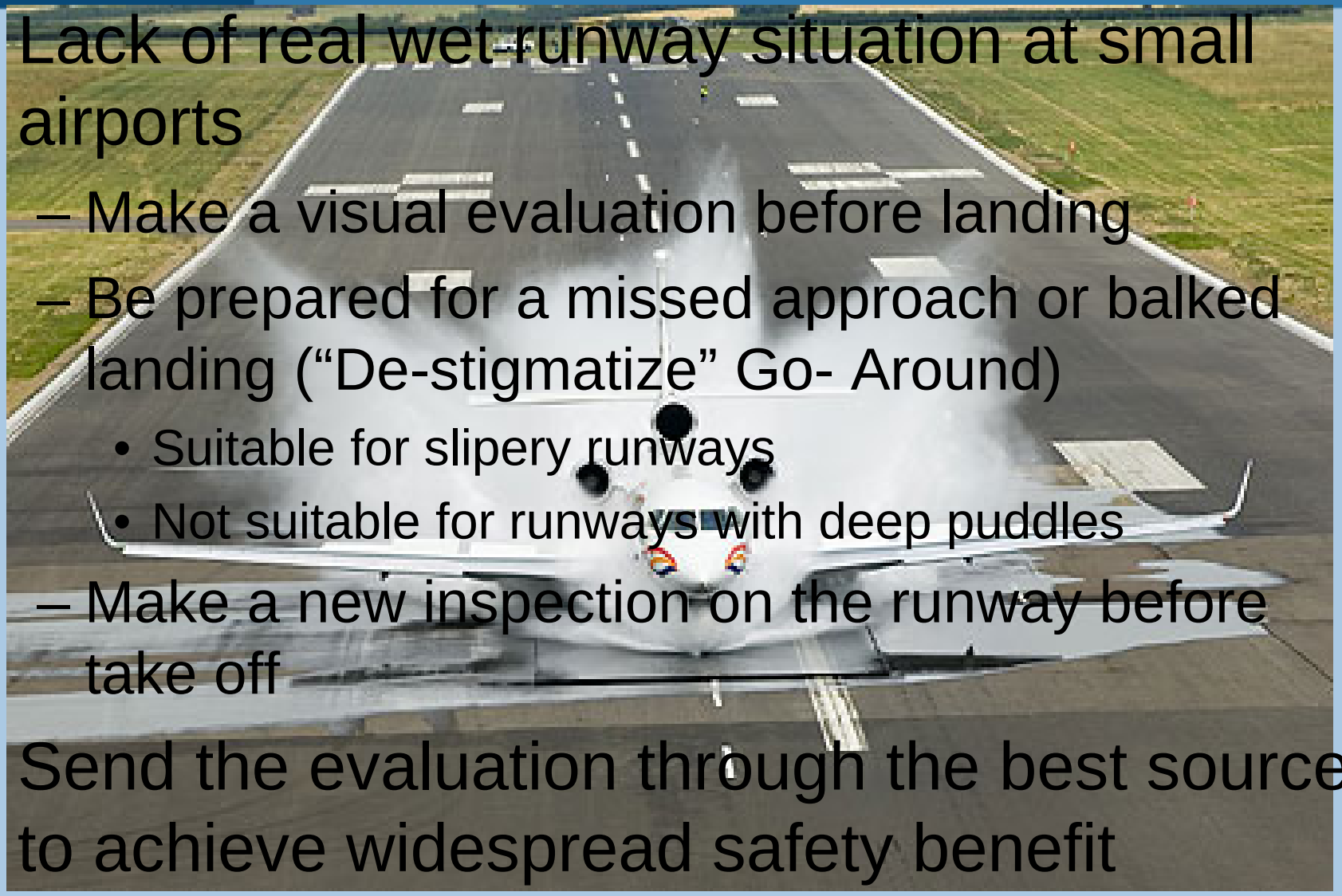
Runway Contamination

- Risk – runway overrun or runway excursion
- Note – risk is higher at small airports than at big airports
- Mitigation at big airports – application of tabulated data
- Mitigation at small airports – special inspection procedures before landing or before take off

Runway contamination

- Tabulated Data Available at AFM
  - Many AFM have calculations for dry, wet and slipery runways
  - At big airports specialized teams evaluate the depth of puddles
  - Other airplanes report if brake action is good or not
  - Grooved runways
- Lack of real wet runway situation at small airports – so, what to do?

Runway contamination



- Lack of real wet-runway situation at small airports
  - Make a visual evaluation before landing
  - Be prepared for a missed approach or balked landing (“De-stigmatize” Go- Around)
    - Suitable for slipery runways
    - Not suitable for runways with deep puddles
  - Make a new inspection on the runway before take off
- Send the evaluation through the best source to achieve widespread safety benefit

Aircraft with different performances operating at the same airport

At big airports (good points)

- Logistic support is much better
- Security is stronger at all aspects
- IFR devices are better
- Longer runways

At big airports (bad points)

- Risk – wake turbulence from heavier airplanes
- Mitigation – comply to ATC instructions for separation
- Risk – runway incursion
- Mitigation – crew work as a team to taxi, good comm, ensure when you are in doubt, CRM philosophy

Aircraft with different performances operating at the same airport

Risks at small airports

- Non-qualified or no ramp personnel (Marshaller)
- Low security level
- Only VFR or night VFR capability without glide slope lights (VASIS or PAPI)
- Slower aircrafts

Mitigation

- Crew work as a team to taxi, good comm, ensure when you are in doubt, CRM philosophy
- Visual inspection whenever it's possible before landing or take off
- Technique to check airplane altitude with distance from threshold
- Improve situational awareness

Equipments and capabilities

– Mitigations
  - ABS
  - TCAS
  - RVSM

- Bus jets make a very fast after landing run; tires condition are very important
- Bus jets operate sometimes among basic airplanes
- Conditions to fly RVSM can’t be violated

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Human Factors

- Risk – long standbys; pilots that work directly to aircrafts' owners are more likely to this
- Mitigation – aviation regulatory agencies audities
- Mitigation – aircrafts' owners shall attend Flight Safety Conferences and similars

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Environment

- Constructions near the airports violating the visual segment surface (VSS)
- Airports capacity saturation

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- Constructions near the airports violating the visual segment surface (VSS)
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VSS violation

Risk

- Constructions and near to airports violate the VSS endangering approaching and departing airplanes

Mitigation

- To convince people responsible for the constructions to remove them; or to convince people responsible for the airdrome to reduce runway lenght to avoid the danger; problem to be managed by aviation authorities

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Environment

- Constructions near the airports violating the visual segment surface (VSS)
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SBGL

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SBRJ

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SBCT

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SBFL

Airports capacity saturation

Risk

- Longer flights
- No green flights
- Comm & air traffic jam
- Runway incursion
- Aviation development stagnation

Mitigation

- Imediate and strategic solution for operating airports
- Strategic planning for new airports
- Availability of efficient ground transportation at least at airliners' airports

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Thank You
Muchas Gracias
Obrigado