UNCTAD Regional Workshop

5 – 7 December 2017, Bridgetown, Barbados

"Climate Change Impacts and Adaptation for Coastal Transport Infrastructure in the Caribbean"

Addressing the challenge of climate change adaptation and resilience building for key international transportation assets: Perspectives

By

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AIRPORTS COUNCIL INTERNATIONAL ACI

AIRPORTS AND CLIMATE ADAPTATION

UNCTAD REGIONAL WORKSHOP

December 7, 2017
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Airports Council International (ACI)

- **Represents 623 members operating 1940 airports in 176 countries**
- **5 Regions**
  - ACI Africa (Casablanca, Morocco)
  - ACI Asia-Pacific (Hong Kong)
  - ACI Europe (Brussels, Belgium)
  - ACI Latin America-Caribbean (Panama City, Panama)
  - ACI North America (Washington, DC, USA)
- **Primary purpose**
  - Advance the interests of airports
  - Promote professional excellence in airport management and operations

ACI World Environment Standing Committee

- Working to develop ACI policy and best practices on Environment
- Secretary
  - Juliana Scavuzzi
- Members from all 5 ACI Regions
- Regional Representation from LAC
  - Jaime Perez, Quito Airport
- Currently working on Adaptation to Climate Change
- Upcoming publications
  - Adaptation Briefing Note
  - ACI GHG Manual Update

ACI WENSC Adaptation Approach

- **Objectives**
  - Raise Awareness
  - Move Beyond Environmental Departments
- **Adaptation Task Group formed in 2015**
- **Briefing Note completed in 2017**
- **References**
- TRB Airport Cooperative Research Program (ACRP)
  - http://www.trb.org/ACRP/ACRP.aspx
- **Case Studies**
  - AVINOR – Norwegian Airports
  - Brisbane Airport Corporation – Brisbane Int'l
  - Airport Authority of Hong Kong – Hong Kong Int'l
  - Napi International Airport - Figi

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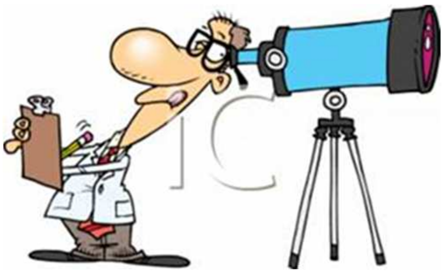
Airport Adaptation – Refocusing Perspective



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Planning, Engineering, Operations Perspective

Potential Impacts and Climate Stressors	Changes to Seasonal Precipitation	Increased Heavy Precipitation	Increased Temperatures (Higher Averages; Hotter Extremes)	Increased/Variable Visibility Restrictions (Fog, Wildfire Smoke)	Rising Sea Level and Storm Surge	Thunderstorms (Increased Lightning; Increased Hail)	Wind (Changes in Prevailing Direction, Speed; Microbursts, Tornadoes, Hurricanes, Typhoons)
Access Roads							
Access Road Flooding	•	•			•		
Erosion and Undermining, Damage of Pavement	•	•	•		•		
Flooding of Tunnels		•					
Thermal Expansion of Bridge Joints			•				
Aircraft Fuel Storage / Fueling							
Jet Fuel System Valves, Pumping and Controls Equipment Located in Underground Vaults on the Ramp Become Submerged and Potentially Inoperable	•	•			•		
Lifting and Rupturing of Buoyant Underground Tanks	•	•			•		
Potential Increase In Fire Risks (Flashpoint of Aviation Fuel Is 100°F)			•				
Aircraft Performance							
Changes to Approach Routes				•			•
Greater Turbulence						•	•
High Winds Interfere with Landings and Takeoffs						•	•
Increased Cooling Demand			•				
Reduced Climb Rates and Increased Power Demand			•				
Reduced Visibility Due to Heavy Precipitation		•				•	

Airport Development and Operation Risks

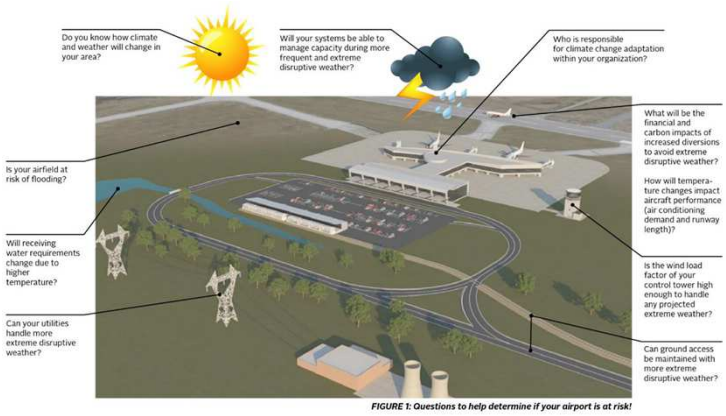
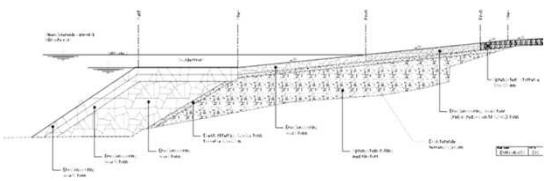


FIGURE 1: Questions to help determine if your airport is at risk!

Norway. Wetter and wilder weather! Preparing for more water at Norwegian airports

- New RW safety reqs.
  - All runways at least 7m above MSL
  - Increase storm system capacity by 50%
  - Raise battery storage above flood elevation



Brisbane. Preparing for sea level rise yet minimizing costs of airport development

- Project
  - Min Design Levels for SLR Established
  - Automall - $125M AUD+ for fill and drainage needs
- Alternative
  - Reduce useful life from 100-years to 50-years
  - Reduced fill and re-engineered with flood gates and storage basins
  - Reduced costs to $85M Aud

Hong Kong. Taking control of rapid recovery from adverse weather

- Severe Events
  - Achieving rapid response and recovery
- Response
  - Ongoing coordination with local community on early warning system
  - Airport leading coordination
    - *Assist with ground control*
    - *Coordinates with all stakeholders i.e., airlines, ground and ramp services agents, Government depts, public transport operators, retail and catering outlets in the terminal and passengers*

FIGI. Nadi floods challenge airport resources

- Flooding Effect
  - Runway handling 747s closed for 16 hours
  - All roads to airport closed for 1.5 days
- Response
  - Ongoing coordination with Department of Town and Country Planning on new developments effecting runoff
  - Improving both landside and airside drainage to ensure fast free flow of water to sea

Some organizations' activities on Disaster Management and Adaptation

- **ACI World Facilitation Committee**
  Working on Disaster Management
- **UN Office of Outer Space Affairs (OOSA) UN-Spider Program**
  Space-based Information for Disaster Management and Response
- **UNDP/(DHL) Get Airports Ready for Disaster (GARD)**
- **UNCTAD Adaptation for Coastal Transport Infrastructure in the Caribbean**

Exploring Possible Areas of Synergies

- **Raising Awareness**
  - Events
  - ACI World Report – monthly publication
- **Identifying stakeholders that need to coordinate**
- **Sharing tools, methodologies, case studies**
- **Coordinating with the ACI World Committees**
  - Facilitation on Disaster Management
  - Environment on Adaptation
- **ACI Global Training**
  - http://www.aci.aero/Global-Training
- **ACI Developing Nations Assistance (DNA) Program**
  - http://www.aci.aero/Services/DNA-Assistance-Programme
- **ACI Airport Excellence (APEX) Programmes**
  - http://www.aci.aero/APEX

Questions?