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Towards Climate-Adapted Airports

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Session 5: Climate adaptation and resilience





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Climate Change Challenge for Airports

- Assumptions on climate and weather based on historical records **but** climate change means that past events are not necessarily indicative of future events
- If climate change is not taken into account, expensive infrastructure could be inadequately designed for future needs
- Airport could be under-prepared for extreme weather events and associated service disruptions, and other financial and operational planning efforts might not be optimized

Example Climate Change Impacts on Airports

- Shifting averages and extremes in temperatures
 - Pavement deterioration may affect maintenance and capital expenditures
 - Increased frequency of extreme heat conditions may affect worker safety and delay construction schedules
 - Changes in weather-based tourism (e.g., skiing) may affect demand
- Frequent heavy precipitation events that stress drainage infrastructure, potentially causing flooding and damage
- Sea level rise may extend the reach of storm surge and chronic coastal erosion
- Changes in winter weather patterns may lead to adjustments in winter operations and equipment needs
- Water scarcity and drought could affect facility development and operational costs



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Being Proactive with Climate Change

- Save on maintenance costs for pavement repair, drainage system maintenance, and other weather-related costs
- Improve safety and security for staff and passengers
- Avoid being caught unprepared for an extreme weather event
- Avoid underestimating infrastructure sizing requirements
- Maintain compliance with environmental, safety, and other regulations
- Improve reliability and customer service
- Maintain continuity of operations plan during an extreme event
- Improve ability to recover from an extreme event

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Engage, assess, adapt, be adaptive

1. **Engage** – within airport & broader region
2. **Assess** – climate change & extreme weather vulnerability
3. **Implement** – resilience building & adaptive measures
4. **Be adaptive** – through engaged, adaptive management



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1: Engage

- Likely some climate change assessments done before
- Ensures policy & regulatory compliance
- Recognizes airport's critical regional role
- Accesses best practice
- Aids implementation



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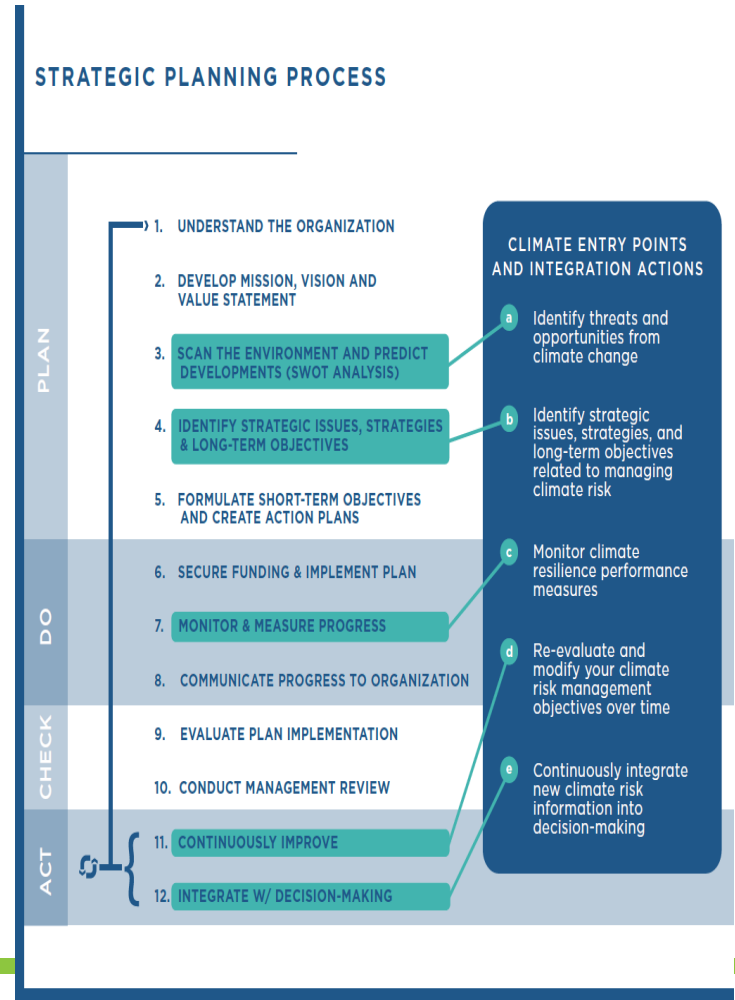
2: Assess

1. Historical extreme weather sensitivity
2. Short-term future extreme weather vulnerability
3. Long-term climate change vulnerability
4. Screen first; then focus in; then assess in detail
5. Many tools/techniques available

ACRP 02-74 Integrating Climate Change Risk into Airport Management Systems

How can airports use their existing systems to manage climate risks?

- Strategic Planning
- Master Planning
- Asset Management
- Capital Planning
- Emergency Management
- Enterprise Risk Management
- Safety Management





UNCTAD Climate Risk and Vulnerability Assessment Framework for Caribbean Coastal Transport Infrastructure

- How can airports and ports in Small Island Developing States (SIDS) adapt to climate variability and change?
- Identification of key “operational thresholds” associated with climate sensitivities



Hewanorra International Airport

Source: <https://www.stlucianewsonline.com/did-you-know-172/>



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3: Implement

1. You will not be alone!



Brisbane,
Australia

<http://www.bne.com.au/corporate/bne-major-projects/brisbanes-new-runway>

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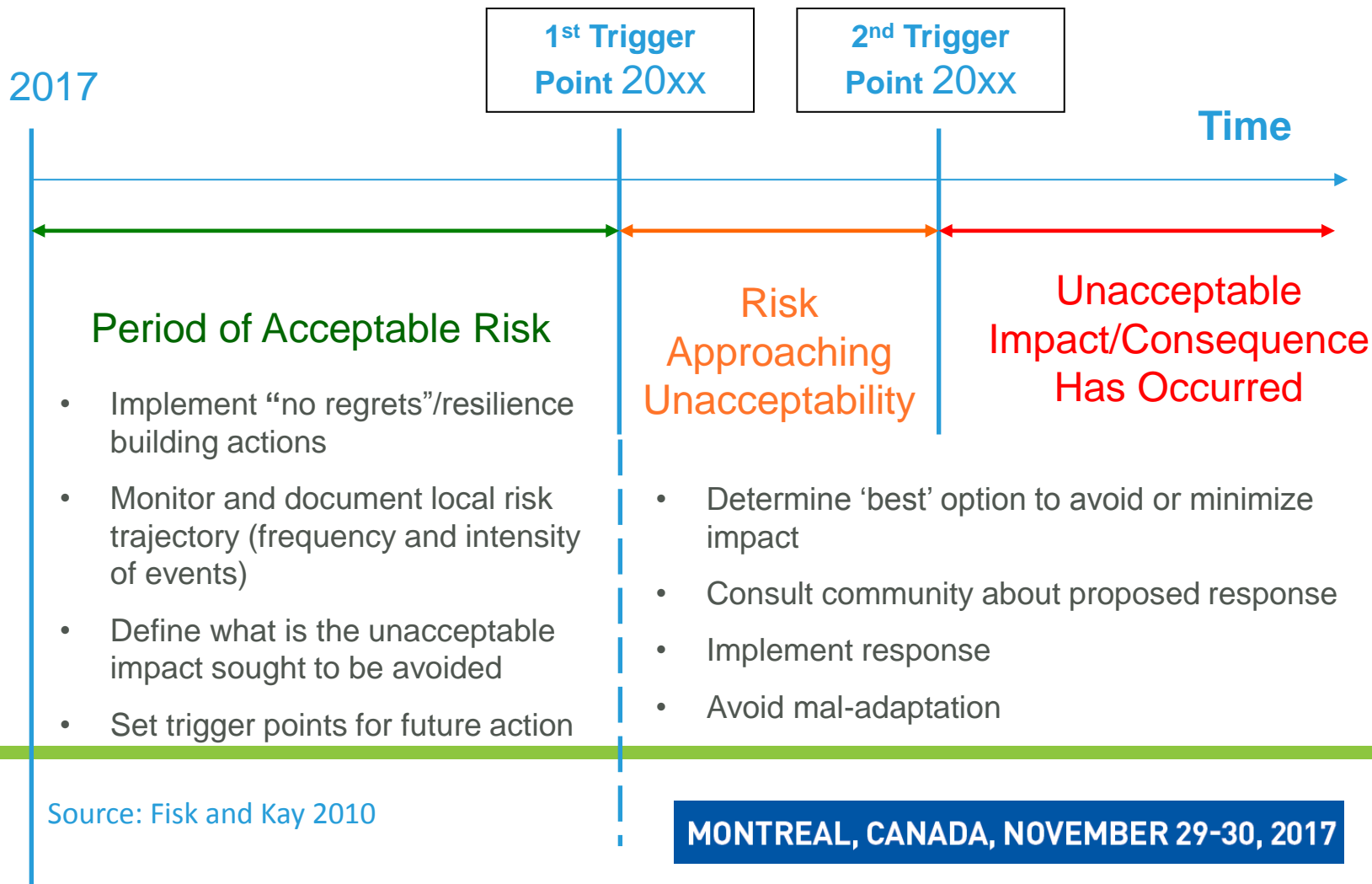
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4: Be adaptive

1. Monitor adaptive triggers & thresholds
2. Remain regionally engaged
3. Be agile to respond to opportunities

Triggers for Adaptation Response





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Thank you/Merci

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