



ICAO

International Civil Aviation Organization

The Tenth Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/10)

Bangkok, Thailand, 10 to 14 August 2026

Agenda Item 7: Airport Environmental Initiatives

ACI APAC & MID PROGRAMMES AND TOOLS SUPPORTING AIRPORT CLIMATE ACTION

(Presented by AIRPORTS COUNCIL INTERNATIONAL)

SUMMARY

This paper presents ACI APAC & MID programmes and tools that support airports in strengthening climate resilience, reducing carbon emissions, and progressing towards Net Zero. It highlights essential resources: climate risk and maturity tools, a Regional Climate Dashboard, a Net Zero Roadmap Programme, and an Airport Carbon Accreditation (ACA) Incentive Programme for small developing-economy airports and invites the meeting to note these initiatives and encourage airport participation.

1. INTRODUCTION

1.1 The aviation industry currently contributes approximately 2% of global CO₂ emissions, with a higher overall climate impact when non-CO₂ effects are considered. Airports are actively implementing mitigation measures, such as transitioning to renewable energy sources and adopting advanced carbon management systems, to reduce their climate impact and support the global goal of achieving net zero carbon emissions by 2050. At the same time, airports across the Asia-Pacific and Middle East regions are already experiencing climate-related events including extreme heat, intense rainfall and storm events causing severe operational disruptions, which affect infrastructure, service provision and operational continuity.

1.2 In the Asia-Pacific and Middle East (APAC & MID) regions, 32 States have pledged carbon-neutral or net zero carbon emissions goals through their Nationally Determined Contributions (NDCs) under the Paris Agreement. While these commitments are increasing, not all airports have publicly available or detailed roadmaps outlining their pathways to net zero carbon emissions, and many are still at early stages in systematically assessing climate hazards, impacts and vulnerabilities. Airports are therefore expected to contribute to States' long-term decarbonisation objectives while also managing mounting physical climate risks.

1.3 The Intergovernmental Panel on Climate Change (IPCC) has urged governments to prioritise adaptation to mitigate severe climate change effects, with its Sixth Assessment Report emphasising that “accelerated implementation of adaptation actions would reduce projected losses and damages for humans and ecosystems”. At COP28 in Dubai, States agreed on targets for the Global Goal on Adaptation and its framework, which will guide countries in developing and implementing adaptation plans, including impact, vulnerability and risk assessments. By 2030, all Parties (including companies) are expected to conduct assessments of climate hazards, climate change impacts and exposure to risks and vulnerabilities and to use the outcomes to inform their plans, policies and strategies.

1.4 ACI Asia-Pacific & Middle East (ACI APAC & MID) has long recognized the strategic importance of climate adaptation. In 2022, the regional office published the "[Tendering Guides for Climate Resilience Planning for Asia-Pacific and Middle East Airports](#)" which aimed to build on airport operators' understanding of climate risk. To further strengthen these efforts, ACI APAC & MID launched a comprehensive 18-month regional study in January 2025 titled "The Study on Climate Change Adaptation Approach for APAC & MID Airports," which has since been completed. Additionally, the ACI APAC & MID provides the Green Airports Recognition (GAR) initiative to acknowledge sustainability achievements and share best practices on targeted environmental topics each year. Notably, the Green Airports Recognition 2026: Climate Change Adaptation theme recorded an impressive number of submissions, reflecting strong, proactive climate resilience efforts across the industry.

1.5 In parallel with these adaptation efforts, ACI APAC & MID actively support airport decarbonisation through the Airport Carbon Accreditation (ACA) program, the ACA Incentive Programme, and the Net Zero Roadmap Programme. Currently, over 100 airports in the region are certified under Airport Carbon Accreditation. To further advance this goal, ACI APAC & MID initiated the "Net Zero Roadmap: Decarbonise Your Airport Programme" in 2023. Following a successful pilot phase in 2024–2025, the program officially launched in May 2026 to provide airports with tailored, hands-on roadmaps toward net-zero carbon emissions.

1.6 This paper presents the key findings and final outcomes of the climate adaptation approach study and introduces the Climate Risk Assessment Guideline, Climate Risk Maturity Check Tool, Climate Risk Assessment Tool and their supporting guidance, together with a monitoring dashboard that summarises airport and regional climate risk profiles. It also outlines the Net Zero Roadmap Programme, Airport Carbon Accreditation and related initiatives, and highlights how this combined set of tools and programmes can support States and airport operators in advancing both climate resilience and decarbonisation at airports in the Asia Pacific & Middle East region.

2. DISCUSSION

Climate Risk Assessment Tools for Airports

2.1 ACI APAC & MID Climate Adaptation Study: ACI APAC & MID recognises the importance of consistent, transparent methods for assessing climate risks at airports of different sizes and capacities. To address this need, ACI APAC & MID developed the following guideline and tools under the [Study on Climate Adaptation Approach for APAC & MID Airports](#).

2.2 Climate Risk Assessment Guideline: The Climate Risk Assessment Guideline provides a structured approach to identify climate hazards, assess their impact on airport infrastructure and services, and prioritise adaptation actions.

2.3 Climate Risk Maturity Check Tool:

- The Climate Risk Maturity Check Tool assesses an airport's readiness to manage climate risks across governance and leadership, risk assessment processes, data and information management, monitoring and reporting, and integration into decision-making.
- Pilot results from 47 airports across Asia, Pacific and Middle East regions show substantial variation in maturity, with Pacific airports generally more advanced, Asian airports moderate and Middle East airports at earlier stages, indicating the need for tailored capacity building and knowledge exchange.

2.4 Climate Risk Assessment Tool:

- The Climate Risk Assessment Tool offers a practical template for recording hazards, risk ratings and adaptation options, and was piloted with 16 airports.
- Pilot results from 16 airports across Asia, Pacific and Middle East regions show that extreme heat, extreme rainfall and storms generate most high and extreme risks, that around 58% of identified climate-related risks affect airport infrastructure and service provision, and that risk severity increases over time across near-, mid- and long-term horizons.

2.5 Regional Climate Dashboard:

- A Regional Climate Dashboard aggregates outputs from submitted maturity and risk assessment tools, providing both individual airport and regional views of climate risk profiles and maturity levels.
- The dashboard allows airports to benchmark their position against regional data and enables ACI APAC & MID to identify common risks, systemic vulnerabilities and priority areas for support.

2.6 By adopting these tools, airports are better equipped to integrate climate resilience into master plans, safety management systems and business continuity planning, and to inform discussions with regulators and other stakeholders.

ACA Incentive Programme for Small Airports

2.7 Airport Carbon Accreditation (ACA) is the only institutionally-endorsed, global carbon management certification programme for airports, providing a common framework with seven progressive levels of accreditation: Level 1 (footprint measurement), Level 2 (carbon management and reduction), Level 3 (third-party engagement), Level 3+ (offsetting for direct emissions), Level 4 (transforming airport and partner operations for absolute reductions), Level 4+ (compensation of residual emissions with recognised offsets) and Level 5 (Net Zero balance for Scope 1 and 2 with active management of key Scope 3 sources). Globally, more than 600 airports in 97 countries are now accredited, including over 100 airports in the Asia-Pacific and Middle East regions. In APAC & MID specifically, 102 airports across 20 countries are accredited, handling around 1.4 billion passengers a year, which means approximately 37% of the region's passenger traffic is now covered by ACA airports. To help smaller airports in developing economies overcome financial and technical barriers to joining the programme, ACI APAC & MID has developed an ACA Incentive Programme to promote decarbonisation by fully sponsoring the initial Airport Carbon Accreditation.

2.8 The Programme is structured over a 12-month period to provide:

- Full coverage of fees for the first ACA cycle, including application fees, consulting support to establish carbon baselines and third party verification costs.
- A Master Consultant (ACI World Business Partner) responsible for guiding participating airports through ACA application, level selection (primarily Level 1), data collection, implementation of minimum requirements and verification.
- This Programme is designed to support small airports that may face financial and technical barriers to joining ACA, and to create national examples that can encourage wider participation.

Net Zero Roadmap Programme

2.9 ACI APAC & MID has established a Net Zero Roadmap Programme as an on-demand service to support airports in developing tailored, robust decarbonisation strategies towards Net Zero

carbon emissions. The Programme was piloted successfully with three diverse airports (Riyadh, Cebu and Bahrain) between 2024 and 2025 and is being launched more widely from May 2026.

2.10 Under this Programme, each participating airport develops a Net Zero Roadmap using a common structure that is tailored to its local context and ambition level. Each airport net zero roadmap typically includes:

- Executive summary and clearly stated objectives.
- Background information, including global, national and airport specific climate context and key stakeholders.
- Detailed carbon footprint, projections and key performance indicators.
- Findings and observations per emission source area, such as energy use, on site vehicles, buildings and ground operations.
- Recommendations and measures per area, prioritised by abatement potential, cost and feasibility.
- Pathways to Net Zero, target setting and emissions trajectories with interim milestones.
- A high level CAPEX plan and timeline for major investments, which pilot airports identified as critical to securing Board level support.
- Offsetting information as a residual measure, an implementation plan and a proposed pathway within Airport Carbon Accreditation, including recommended suppliers where relevant.

2.11 Feedback from the pilot airports indicates that the Programme provides strong project management, high quality roadmaps and valuable onsite assessments, while also highlighting areas for improvement such as ensuring consultants have regional regulatory knowledge, and clarifying data requirements.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the tools and programmes developed by ACI APAC & MID to support airport climate resilience and decarbonisation, including the Climate Risk maturity check tool, Climate Risk assessment guideline and Tool, Regional Climate Dashboard, Net Zero Roadmap Programme and ACA Incentive Programme; and
- b) urge States to encourage their airports to consider participation in the ACI APAC & MID Net Zero Roadmap and use complimentary Climate Maturity Check Tool and Climate Risk Assessment Tool to strengthen aviation preparedness and long-term resilience.

— END —

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AGENDA ITEM 07: Aviation and environment

Presented by

Airports Council International

Bangkok, Thailand,
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The Climate Imperative

Physical Constraints

Airports in the region face escalating operational disruptions from extreme heat, shifting rainfall patterns, and severe storm events impacting critical infrastructure.

Regulatory Alignment

ICAO Assembly Resolutions and UNFCCC COP28 set out climate action plans

2030

CLIMATE RISK ASSESSMENT TARGET

2050

ABSOLUTE NET ZERO EMISSION TARGET

Hong Kong's airlines evacuate planes as they wait out Typhoon Ragasa

By Lisa Barrington

September 24, 2025 3:08 PM GMT+8 • Updated September 24, 2025



Time	Flight	Aisle	Destination	Gate	Status	Time
18:30	AK 137	L	Kuala Lumpur		Cancelled	19:30
18:30	HB 704		Taipei		Cancelled	19:40
18:35	CX 6144	J	Hangzhou		Cancelled	19:40
18:40	CZ 1501		Chengdu Tianfu		Cancelled	19:45
18:40	UO 116	H	Taipei		Cancelled	19:45
18:45	CX 6261	D	Ho Chi Minh		Cancelled	20:00
18:50	FM 810	J	Shanghai/SHA		Cancelled	20:00
18:50	BR 2892	K	Taipei		Cancelled	20:00
18:50	CX 5528	H	Nha Trang		Cancelled	20:00
18:55	UA 802	G	Los Angeles		Cancelled	20:00
19:00	CA 6514	A	Beijing/PEK		Cancelled	20:00
19:00	AZ 5631	G	Dubai		Cancelled	20:00
19:05	CX 797	B	Jakarta		Cancelled	20:00

A departure board displays flight cancellations at Hong Kong International Airport, as Super Typhoon Ragasa disrupts travel, in Hong Kong, China, September 23, 2025. AP/PHOTOGRAPH BY PHOTOFEST/REUTERS

(Source: [Reuters](#))

In Germany, a Ryanair plane made an emergency landing due to turbulence, nine injured - media

Kyiv • UNN • June 5, 2025, 05:53 PM • 3686 views

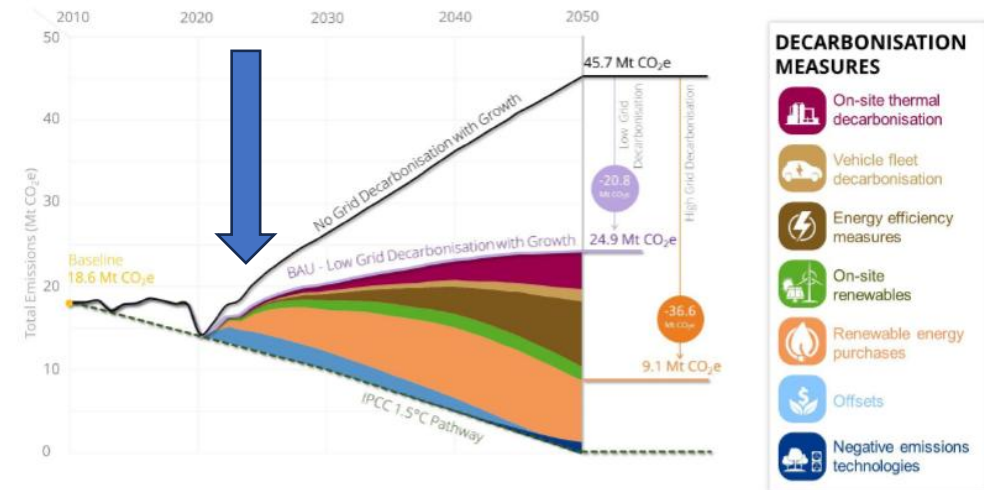
A Ryanair plane en route from Berlin to Milan made an emergency landing in Memmingen due to a thunderstorm. Nine passengers were injured, some were hospitalized.



(Source: [UNN](#))

Decarbonisation Gap

While momentum exists, a significant proportion of airports lack the technical capacity to establish verifiable baselines or long-term reduction roadmaps.





ACI APAC & MID Programmes and Tools Supporting Airport Climate Action-Executive Overview

This paper outlines a comprehensive, end-to-end framework developed to assist States and airport operators in meeting critical climate adaptation and decarbonisation targets.

RESILIENCE



Climate Risk Toolkit

Safeguards physical assets and ensures business continuity against escalating severe weather events.

ENTRY POINT



Airport Carbon Accreditation (ACA)

ACA Incentive Programme provides the crucial initial mechanism for capacity building and verifiable carbon baselining at emerging airports.

Airports Selected for 1st Cycle: ADJ, BWX, LAE, PBH, THS, TBU, TRW, ULN, VDH

LONG-TERM



Net Zero Roadmaps

Delivers the strategic CAPEX planning required to transition from carbon management to absolute zero emissions.



ACI APAC & MID Climate Adaptation Tools

A **unified methodology** developed specifically for **APAC & MID airports** to determine **climate risk maturity, climate risks** and **adaptation measures**.

- **1. Assessment Guideline**

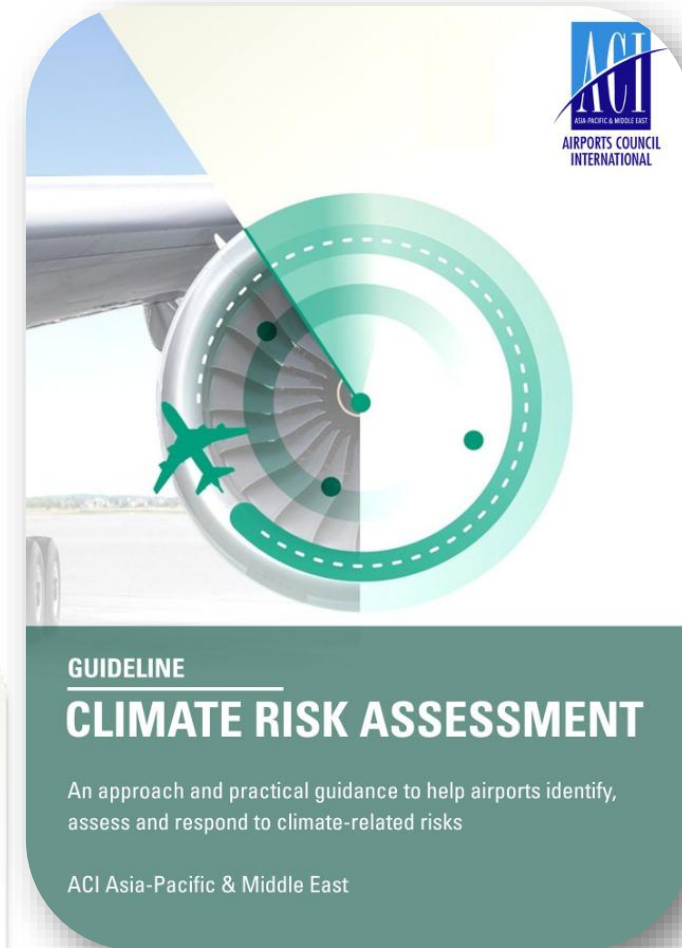
Standardized protocol for identifying hazards and evaluating impacts on critical infrastructure.

- **2. Maturity Check Tool**

Excel based tool evaluating organizational readiness across governance, data management, and operational processes.

- **3. Risk Assessment Tool**

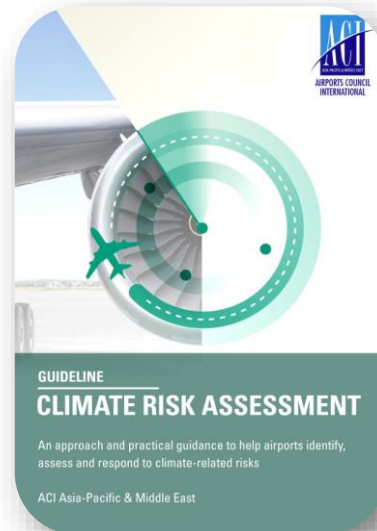
Excel based tool for assigning risk ratings and establishing mitigation priorities.



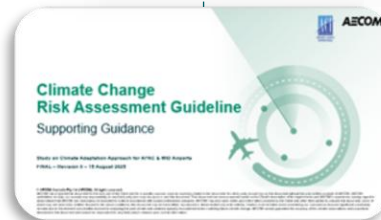


ACI APAC & MID Climate Adaptation Tools

Climate Risk Assessment Guideline



Climate Risk Assessment Guideline Supporting Guidance



Category	Item	Response	Item	Response	Item	Response	Item	Response
Enabling the context	Leadership and Governance	Yes	Policy and Strategic Alignment	Yes	Stakeholder Identification	Yes	Business Resilience Analysis	Yes
Enabling the context	Leadership and Governance	Yes	Policy and Strategic Alignment	Yes	Stakeholder Identification	Yes	Business Resilience Analysis	Yes
Enabling the context	Leadership and Governance	Yes	Policy and Strategic Alignment	Yes	Stakeholder Identification	Yes	Business Resilience Analysis	Yes
Enabling the context	Leadership and Governance	Yes	Policy and Strategic Alignment	Yes	Stakeholder Identification	Yes	Business Resilience Analysis	Yes
Enabling the context	Leadership and Governance	Yes	Policy and Strategic Alignment	Yes	Stakeholder Identification	Yes	Business Resilience Analysis	Yes

Climate Risk Maturity Check Tool



Climate Risk Maturity Check Tool Supporting Guidance

Climate Risk Assessment Tool Step 3a: Adaptation Summary Instructions: 1. Review each high-potential risk at all levels and profile from the 2. Risk Register. Check whether actions have been assigned and review them in the Near, Mid, and Long Term columns. 2. In the first three columns, enter the assessed likelihood, consequence, and risk rating based on the identified actions. Use the third column to determine the appropriate residual risk rating.	The summary sheet of high-potential risks displays the adaptation actions that have been tagged. Use the first three columns to assess the likelihood of each risk and apply a Likelihood, Consequence, and Residual Risk Rating, which will be completed manually. <table> <tr> <th>Risk ID</th><th>Risk Statement</th><th>Asset</th><th>Consequence</th><th>Current controls</th><th>2020 Risk Rating</th><th>2030 Risk Rating</th><th>2050 Risk Rating</th></tr> <tr> <td>01</td><td>Increased electricity demand (e.g. for cooling or heating) leading to increased operating costs for the airport</td><td>Airside buildings</td><td>Financial</td><td>Smart meters and energy use monitoring; upgraded HVAC systems in terminal 1 in 2024</td><td>Medium</td><td>High</td><td>Extreme</td></tr> <tr> <td>02</td><td>Wave overtopping may cause coastal erosion and sea wall degradation, resulting in inundation and damage to runway thresholds and coastal infrastructure</td><td>Runways</td><td>Infrastructure</td><td>Existing risk treatment, annual coastal condition inspection, limited buffer zone between coast and runway</td><td>Medium</td><td>Medium</td><td>High</td></tr> </table>	Risk ID	Risk Statement	Asset	Consequence	Current controls	2020 Risk Rating	2030 Risk Rating	2050 Risk Rating	01	Increased electricity demand (e.g. for cooling or heating) leading to increased operating costs for the airport	Airside buildings	Financial	Smart meters and energy use monitoring; upgraded HVAC systems in terminal 1 in 2024	Medium	High	Extreme	02	Wave overtopping may cause coastal erosion and sea wall degradation, resulting in inundation and damage to runway thresholds and coastal infrastructure	Runways	Infrastructure	Existing risk treatment, annual coastal condition inspection, limited buffer zone between coast and runway	Medium	Medium	High
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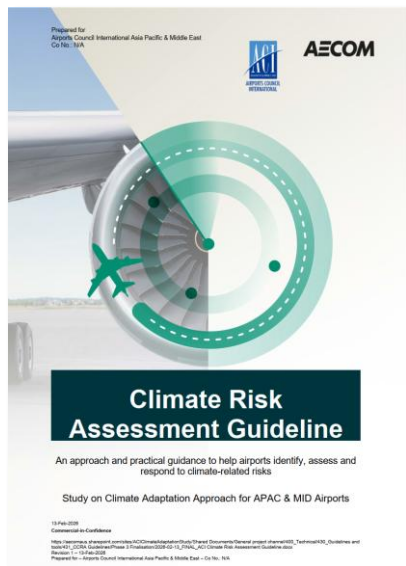
Climate Risk Assessment Tool



Climate Risk Assessment Tool Supporting Guidance



Climate Change Risk Assessment Guideline



Climate Risk Assessment Guideline

Step 1: Establish the context

- ★ 1.1 Assess organisation climate maturity
- 1.2 Identify drivers and objectives for the assessment
- 1.3 Obtain support and endorsement for the assessment
- 1.4 Establish a team and identify key stakeholders and information sources
- 1.5 Confirm the scope of the assessment
- 1.6 Confirm the climate-related parameters of the assessment
- 1.7 Gather historical and projected climate data

Step 2: Identify, analyse and evaluate risks

- ★ 2.1 Identify and draft climate-related physical risk statements
- ★ 2.2 Validate risk statements with stakeholders
- ★ 2.3 Identify existing controls to mitigate the impact of each risk
- ★ 2.4 Assess risks across relevant time horizons
- ★ 2.5 Evaluate which risks are material and should be prioritised

Step 3: Develop and implement adaptation measures

- ★ 3.1 Determine adaptation measures to address priority risks
- ★ 3.2 Assess residual risk based on planned implementation of adaptation measures
- 3.3 Develop a climate adaptation plan
- 3.4 Gain endorsement of the climate adaptation plan
- 3.5 Begin implementation of the climate adaptation plan

Step 4: Monitor, review and report

- 4.1 Develop a monitoring and evaluation plan
- 4.2 Communicate findings of the climate risk assessment and adaptation action plan
- 4.3 Periodically review and reassess physical climate risks



Step 1: Establish the context

Purpose of this Step

To define the scope, parameters, and governance of the climate change risk assessment. This ensures that the assessment is purpose-driven, aligned with internal priorities, and supported by leadership and stakeholders.

Expected outcome

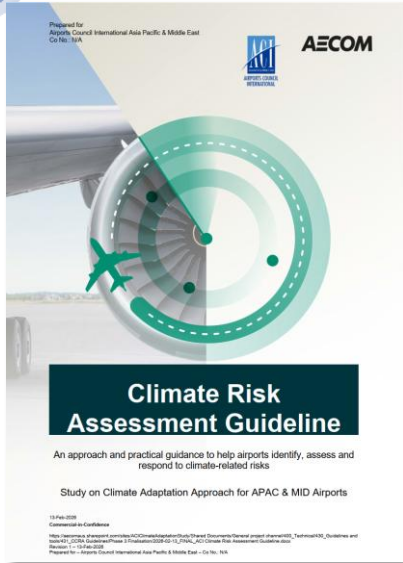
The scope and boundaries of the assessment are defined, and key stakeholders and commitment is confirmed.

Task summary

	Task	Output
1.1	Assess organisational climate maturity	☐ Completion of Climate Change Maturity Check Tool ☐ Understanding of organisational readiness
1.2	Identify drivers and objectives for the assessment	☐ Clear documentation of assessment drivers ☐ Defined assessment objectives
1.3	Obtain support and endorsement for the assessment	☐ Formal leadership endorsement
1.4	Establish a team and identify key stakeholders and information sources	☐ Documented roles and responsibilities of project team ☐ Identification of key stakeholders for engagement ☐ List of information sources to be used in the assessment
1.5	Confirm the scope of the assessment	☐ Confirmed physical boundary ☐ Confirmed operational boundary ☐ Confirmed temporal boundary
1.6	Confirm the climate-related parameters of the assessment	☐ Selection of climate scenarios ☐ Selection of time horizons ☐ Selection of climate hazards
1.7	Gather historical and projected climate data	☐ Understanding of past climate including long-term averages and past extreme weather events ☐ Sourced climate projection data across the selected climate scenarios, time horizons and climate hazards



Climate Change Risk Assessment Guideline



Climate Hazards



Extreme rainfall and flooding (pluvial and riverine) events
intense precipitation leading to surface flooding, drainage system overloads, and water ingress.



Storms and high wind events
includes cyclones, typhoons and wind gusts affecting airside safety, takeoff and landing and infrastructure integrity.



Snow, ice, and extreme cold
affects aircraft handling, runway conditions and de-icing operations, and performance of fuelling systems.



Sea level rise
gradual increase in baseline sea level leading to coastal inundation, increased salinity of groundwater, salt water intrusion and associated corrosion.



Extreme heat
acute heat spikes that can affect integrity of pavements, building facades and electrical components, and impact passenger and workforce comfort and aircraft performance.



Wildfire
direct fire threats, smog, haze or smoke impacts on visibility and health, disruption of take-offs, landings and surface movements and interruption of access roads or utilities.



Desertification
loss of vegetation and soil moisture in arid and semi-arid zones, affecting visibility, temperature variation and ecosystem services.



Drought
prolonged dry periods of low or minimal rainfall, affecting water availability for critical services, soil moisture and absorption.



Rising average temperatures
long term temperature increases that degrade assets and strain cooling and ventilation systems, requiring change to operational and maintenance procedures over time.



Coastal airport impacts

Coastal airports in tropical or semi tropical regions can be exposed to high winds and tropical storms that can limit operations and cause damage to critical assets. In particular, it is when climate hazards combine together to create compounding impacts - tropical storms, combined with sea level rise, can create storm surges that inundate runways and buildings, leading to operational disruption and potential closure. Sea level rise can also increase salinity of groundwater, affecting underground systems and water supply.



Arid and semi-arid airport impacts

These airports can be vulnerable to dust accumulation on runways and equipment as a result of low rainfall and desertification. Groundwater reservoirs can become more quickly depleted during periods of drought, or affected by salinity where there is an interaction with sea level rise. If these airports do experience intense rains, existing drainage infrastructure may not be adequately sized to manage more significant downpours.



Small and regional airports

Smaller airports may lack dedicated assets and equipment to manage certain climate hazards, or may be financially constrained to undertake significant upgrades, such as the installation of mechanical cooling and ventilation and additional shading to combat extreme heat events. Some regional airports may also be located in proximity to wildfire zones, experiencing either direct fire and ember damage, or being disrupted by smoke and haze.

ports incorporate fixed assets which typically cannot be relocated. Adaptive capacity to external disruptions like climate risks thus comes in the form of asset redundancies (additional equipment, multiple runways), or operational measures like management responses, operating without curfews. Long infrastructure life spans necessitate forward-looking risk assessments, as decisions made today will influence resilience capacity for decades to come. Airports are the gateways to host cities, and the capacity to manage operational disruptions can go on to influence city branding, tourism, trade investment and economic development.

Vulnerabilities in airport systems

ports consist of interconnected assets and systems that can be individually affected by climate hazards, or can be affected by multiple concurrent or cascading impacts across the airport site. The image below depicts how assets and systems across an airport can be affected by climate hazards, whether due to their exposure (e.g. being located outside above-ground), or sensitivity (e.g. due to material selection or sensitive componentry).

Access roads and carparks

Access roads and carparks can be affected by climate hazards through physical damage and degradation as well as operational disruption where access becomes blocked, due to surface flooding or snow and ice conditions. This can lead to delays or, under extreme conditions, people being isolated or stranded.

Energy supply

Airport operations depend on a stable energy supply for critical systems such as lighting, HVAC, security, communications and air traffic control. Extreme heat, storms and high energy demand can cause instability, outages or equipment failure across the electricity grid and to on-site solar generation, leading to operational disruptions, safety risks and potential closures in backup systems are insufficient.

Telecommunications

Reliable telecommunications infrastructure is critical to airport operations, including air traffic control, security systems, internal coordination, and passenger communications. Extreme weather events such as storms, high winds, heatwaves, and flooding can damage physical infrastructure (e.g., cell towers, underground cables) or disrupt data transmission, leading to loss of connectivity, delays in communication, and compromised safety and security operations.

Supply chain (fuel and food)

Climate hazards such as flooding along transport routes, or port closures due to intense tropical storms, can interrupt critical supply chains including aviation and ground transport fuels, food and beverage services and other logistics. This can lead to flight schedule disruptions, reduced service quality for passengers and airlines and customer dissatisfaction.

Water supply

Droughts, sea level rise, heatwaves and changing precipitation patterns affect water availability and quality. Airports may face restrictions on non-essential potable water use, or may face an increased need for desalination, impacting operational costs and maintenance of land and infrastructure assets.

Workforce and passengers

Airport staff, contractors, suppliers and passengers are all exposed to the impacts of extreme weather, making health and safety considerations critical. People can be physically injured as a result of climate hazards like flooding, or snow and ice conditions, or may suffer heat or respiratory illnesses due to high temperatures or nearby wildfires.



Climate Risk Maturity Check Tool



A Tool to qualitatively assess your readiness to respond to climate-related risks.

Step of Maturity Assessment	Domain	Level 1 Aware	Response	Level 2 Initiating	Response	Level 3 Developing	Response	Level 4 Advancing	Response	Level 5 Leading	Response	Additional comments	Domain score (out of 10)	Step score (out of 10)
These reflect the steps outlined in the Climate Risk Assessment Guideline & Tool.	Domains cover the different elements or core tasks of each Climate Risk Assessment step.	Read the outcomes against each domain and answer Yes, No or Partly based on your organisation's current efforts. Respond from left to right, i.e. starting with the lowest maturity (Level 1) to the highest (Level 5). Yes means you believe you have achieved that outcome; No means you do not believe you have achieved the outcome. Where an organisation is 'between' levels, this is where the response 'Partly' can be used, to show some effort is made to achieving that maturity level outcome, but perhaps not yet entirely in accordance with what the outcome is stating. NB maturity is cumulative, so generally organisations should be achieving the outcome of the lowest level (i.e., answering 'yes') before achieving the next/higher level of maturity.										Add comments to support justification for your scoring, including who you have consulted within the organisation to confirm/review the scores.	Score provided by Domain, Step, then overall maturity at the bottom of the table.	
Establish the context	Governance and Leadership	Senior leaders have been internally briefed and are aware that climate change presents a potential risk.		Climate-related roles and responsibilities are informally assigned within some teams.		Formal roles and responsibilities for climate risk management are established and documented, with sufficient resources allocated.		Senior management oversee climate risk activities and integration into wider airport strategies (e.g., investment business cases, sustainability policies, master planning).		Oversight of material climate risks and responses occurs at Board level, and climate risks drive strategic action across the organisation.			0	0.0
	Policies and Strategic Objectives	There is awareness that climate risks should be reflected in policies and strategies.		There is an overarching recognition within organisational policy/ies that efforts will be made to address climate change and reduce impact.		Climate change is described more explicitly within organisational policies, risk registers, and plans (e.g., investment business cases, airport master plans, enterprise or operational risk registers).		Climate risk management and adaptation commitments are integrated into strategic objectives and used to drive innovation and collaboration within and outside the organisation.		Climate change adaptation response is also captured through set goals and targets within organisational policies and plans, with consideration for informing commercial management and financial planning.			0	
	Data Availability and Management	Awareness of the importance of data (e.g., climate projections, historical events, asset vulnerability) is emerging. Incident data exists for historical weather events that caused damage or disruption.		Publicly available regional climate data sources have been identified and some initial projection datasets or visual maps have been obtained.		Data collection processes are underway that bring together climate projection datasets with asset and operational exposure information.		Data is systematically integrated into planning, asset management, and decision-making processes.		Local climate projections for key hazards are used to inform asset and operational resilience planning.			0	
	Stakeholder Identification	Initial internal awareness exists of the need to involve appropriate stakeholders in climate risk assessment.		Key internal stakeholders have been informally identified for future involvement.		A stakeholder mapping exercise has been conducted, including internal and external groups critical to climate risk assessment.		Individual stakeholders or groups have clearly defined roles and responsibilities for contributing to climate risk assessments.		Stakeholder networks are regularly reviewed and updated to maintain relevance and inclusion in climate risk assessments.			0	
	Climate Scenario Analysis	Some awareness exists within the organisation about the role of climate scenario analysis in understanding future climate risks.		Preliminary internal discussions on the importance of climate scenario analysis have begun and there is recognition of global scenario frameworks (e.g., IPCC, RCPs/SSPs).		A single climate scenario is selected and used to support the identification of physical climate risks over relevant timeframes. Scenario selection is informed by guidance or publicly available data.		Multiple climate scenarios are used over relevant timeframes to test sensitivity and understand a range of possible physical risks and impacts on airport assets and operations. Scenario analysis informs decision-making for climate adaptation planning.		Climate scenario analysis is conducted over relevant timeframes, is robust and iteratively updated using downscaled regional or local projections. Scenario outputs inform broader strategic planning and capital investment decisions.			0	



Climate Risk Maturity Check Tool

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File Home Insert Draw Page Layout Formulas Data Review View Automate Help Acrobat PDF-XChange ArcGIS

Spelling Thesaurus Workbook Statistics Check Performance Check Accessibility Translate Show Changes New Comment Delete Previous Comment Next Comment Show Comments Notes Unprotect Sheet Protect Workbook Allow Edit Ranges Unshare Workbook Hide Ink

A1

Climate Risk Maturity Check Tool

Supporting ACI APAC & MID airports to understand their readiness to respond to climate-related physical risks

Study on Climate Adaptation Approach for APAC & MID Airports

Version 1 Released February 2026

For Final Publication

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Navigation | Airport details | **Maturity Check Tool** | Results | Results_Bar Chart | Results_Radar Chart

Ready Accessibility: Investigate



Climate Risk Maturity Check Tool

Microsoft Excel interface showing the Climate Risk Maturity Check Tool. The tool is a spreadsheet with columns for Step of Maturity Assessment, Domain, Level 1 | Aware, Response, Level 2 | Initiating, Response, Level 3 | Developing, Response, Level 4 | Advancing, Response, Level 5 | Leading, Response, Additional comments, Domain score (out of 10), and Step score (out of 10).

The tool is currently displaying the 'Establish the context' step, which includes a table with the following data:

Step of Maturity Assessment	Domain	Level 1 Aware	Response	Level 2 Initiating	Response	Level 3 Developing	Response	Level 4 Advancing	Response	Level 5 Leading	Response	Additional comments	Domain score (out of 10)	Step score (out of 10)
Establish the context	Governance and Leadership	Senior leaders have been internally briefed and are aware that climate change presents a potential risk.		Climate-related roles and responsibilities are informally assigned within some teams.		Formal roles and responsibilities for climate risk management are established and documented, with sufficient resources allocated.		Senior management oversee climate risk activities and integration into wider airport strategies (e.g., investment business cases, sustainability policies, master planning).		Oversight of material climate risks and responses occurs at Board level, and climate risks drive strategic action across the organisation.			0	0.0
	Policies and Strategic Objectives	There is awareness that climate risks should be reflected in policies and strategies.		There is an overarching recognition within organisational policies that efforts will be made to address climate change and reduce impact.		Climate change is described more explicitly within organisational policies, risk registers, and plans (e.g., investment business cases, airport master plans, enterprise or operational risk registers).		Climate risk management and adaptation commitments are integrated into strategic objectives and used to drive innovation and collaboration within and outside the organisation.		Climate change adaptation response is also captured through set goals and targets within organisational policies and plans, with consideration for informing commercial management and financial planning.			0	
	Data Availability and Management	Awareness of the importance of data (e.g., climate projections, historical events, asset vulnerability) is emerging. Incident data exists for historical weather events that caused damage or disruption.		Publicly available regional climate data sources have been identified and some initial projection datasets or visual maps have been obtained.		Data collection processes are underway that bring together climate projection datasets with asset and operational exposure information.		Data is systematically integrated into planning, asset management, and decision-making processes.		Local climate projections for key hazards are used to inform asset and operational resilience planning.			0	
	Stakeholder Identification	Initial internal awareness exists of the need to involve appropriate stakeholders in climate risk assessment.		Key internal stakeholders have been informally identified for future involvement.		A stakeholder mapping exercise has been conducted, including internal and external groups critical to climate risk assessment.		Individual stakeholders or groups have clearly defined roles and responsibilities for contributing to climate risk assessments.		Stakeholder networks are regularly reviewed and updated to maintain relevance and inclusion in climate risk assessments.			0	
	Climate Scenario Analysis	Some awareness exists within the organisation about the role of climate scenario analysis in understanding future climate risks.		Preliminary internal discussions on the importance of climate scenario analysis have begun and there is recognition of global scenario frameworks (e.g., IPCC, RCPs/SSPs).		A single climate scenario is selected and used to support the identification of physical climate risks over relevant timeframes. Scenario selection is informed by guidance or publicly available data.		Multiple climate scenarios are used over relevant timeframes to test sensitivity and understand a range of possible physical risks and impacts on airport assets and operations. Scenario analysis informs decision-making for climate adaptation planning.		Climate scenario analysis is conducted over relevant timeframes, is robust and iteratively updated using downscaled regional or local projections. Scenario outputs inform broader strategic planning and capital investment decisions.			0	
		There is awareness that climate change may pose risks to the		Some climate-related risks (mainly		Direct and indirect climate-related risks are systematically identified across the organisation.		Climate-related risk identification is incorporated with strategic planning		Climate risk identification is dynamic and updated regularly to include				

The tool also includes a navigation bar at the bottom with tabs for Cover, Navigation, Airport details, Maturity Check Tool (selected), Results, Results_Bar Chart, and Results_Radar Chart.



Climate Risk Maturity Check Tool

Step of Maturity Assessment														
Domain		Level 1 Aware	Response	Level 2 Initiating	Response	Level 3 Developing	Response	Level 4 Advancing	Response	Level 5 Leading	Response	Additional comments	Domain score (out of 10)	Step score (out of 10)
These reflect the steps outlined in the Climate Risk Assessment Guideline & Tool.		Read the outcomes against each domain and answer Yes, No or Partly based on your organisation's current efforts.												
Domains cover the different elements or core risks of each Climate Risk Assessment step.		Respond from left to right, i.e. starting with the lowest maturity (Level 1) to the highest (Level 5). Yes means you believe you have achieved that outcome; No means you do not believe you have achieved the outcome. Where an organisation is 'between' levels, this is where the response 'Partly' can be used, to show some effort is made to achieving that maturity level outcome, but perhaps not yet entirely in accordance with what the outcome is stating.												
NB maturity is cumulative, so generally organisations should be achieving the outcome of the lowest level (i.e., answering 'yes') before achieving the next higher level of maturity.		Add comments to support justification for your scoring, including who you have consulted within the organisation to confirm/review the scores.												
Establish the context	Governance and Leadership	Senior leaders have been internally briefed and are aware that climate change presents a potential risk.	Yes	Climate-related roles and responsibilities are informally assigned within some teams.	Yes	Formal roles and responsibilities for climate risk management are established and documented, with sufficient resources allocated.		Senior management oversee climate risk activities and integration into wider airport strategies (e.g., investment business cases, sustainability policies, master planning).		Oversight of material climate risks and responses occurs at Board level, and climate risks drive strategic action across the organisation.			4	4.0
	Policies and Strategic Objectives	There is awareness that climate risks should be reflected in policies and strategies.	Yes	There is an overarching recognition within organisational policies that efforts will be made to address climate change and reduce impact.	Yes	Climate change is described more explicitly within organisational policies, risk registers, and plans (e.g., investment business cases, airport master plans, enterprise or operational risk registers).		Climate risk management and adaptation commitments are integrated into strategic objectives and used to drive innovation and collaboration within and outside the organisation.		Climate change adaptation response is also captured through set goals and targets within organisational policies and plans, with consideration for informing commercial management and financial planning.			4	
	Data Availability and Management	Awareness of the importance of data (e.g., climate projections, historical events, asset vulnerability) is emerging. Incident data exists for historical weather events that caused damage or disruption.	Yes	Publicly available regional climate data sources have been identified and some initial projection datasets or visual maps have been obtained.	Yes	Data collection processes are underway that bring together climate projection datasets with asset and operational exposure information.		Data is systematically integrated into planning, asset management, and decision-making processes.		Local climate projections for key hazards are used to inform asset and operational resilience planning.			4	
	Stakeholder Identification	Initial internal awareness exists of the need to involve appropriate stakeholders in climate risk assessment.	Yes	Key internal stakeholders have been informally identified for future involvement.	Yes	A stakeholder mapping exercise has been conducted, including internal and external groups critical to climate risk assessment.		Individual stakeholders or groups have clearly defined roles and responsibilities for contributing to climate risk assessments.		Stakeholder networks are regularly reviewed and updated to maintain relevance and inclusion in climate risk assessments.			4	
	Climate Scenario Analysis	Some awareness exists within the organisation about the role of climate scenario analysis in understanding future climate risks.	Yes	Preliminary internal discussions on the importance of climate scenario analysis have begun and there is recognition of global scenario frameworks (e.g., IPCC, RCPs/SSPs).	Yes	A single climate scenario is selected and used to support the identification of physical climate risks over relevant timeframes. Scenario selection is informed by guidance or publicly available data.		Multiple climate scenarios are used over relevant timeframes to test sensitivity and understand a range of possible physical risks and impacts on airport assets and operations. Scenario analysis informs decision-making for climate adaptation planning.		Climate scenario analysis is conducted over relevant timeframes, is robust and iteratively updated using downscaled regional or local projections. Scenario outputs inform broader strategic planning and capital investment decisions.			4	
		There is awareness that climate change may pose risks to the		Some climate-related risks (mainly		Direct and indirect climate-related risks are systematically identified across the organisation.		Climate-related risk identification is incorporated with strategic planning		Climate risk identification is dynamic and updated regularly to include				



Climate Risk Maturity Check Tool



Overall climate risk maturity score:

73%

Advancing

Aware

Initiating

Developing

Advancing

Leading

73%

Your current climate risk maturity:

Climate risk management is embedded across the organisation, with clear governance, cross-functional engagement, and integration of climate risks into strategic and operational planning. Long-term climate data and scenarios are informing adaptation, which is implemented through formalised plans and embedded as part of broader business planning for the organisation.

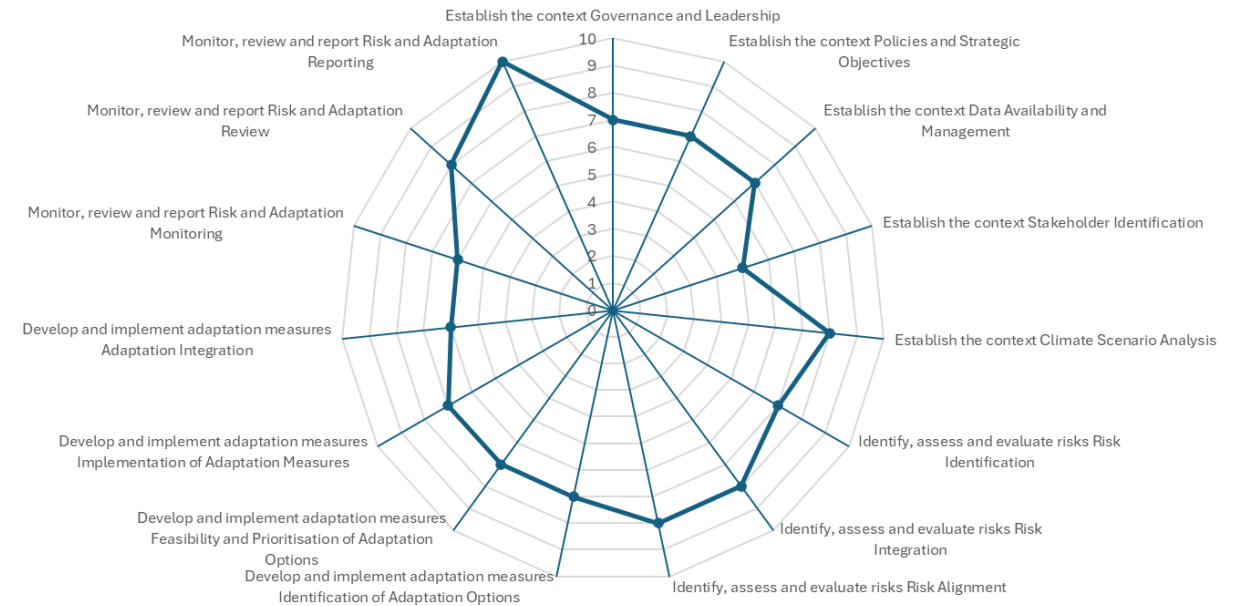
Potential avenues for improving maturity:

Enhance the tracking of progress and performance of climate adaptation actions, as well as the monitoring of climate risks. Consider how climate change management can form part of external reporting.

Climate Risk Maturity Results - Score by Domain



Climate Risk Maturity Results - Score by Domain





Climate Risk Assessment Tool



A Tool to conduct and record a climate change risk assessment for your airport.

Risk ID	Climate Hazard							Risk Description	Primary Asset Affected	Consequence descriptor	Existing controls	Near term (2021 - 2040)			Mid term (2041 - 2060)			Long term (2081 - 2100)			Notes/Comments
	Extreme rainfall and heavy flooding	Riverine flooding	Storms and high wind events	Snow, ice and extreme cold	Sea level rise	Extreme heat	Wildfire					Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating	
R1			✓			✓		Increased electricity demand (e.g. for cooling or heating) leading to increased operating costs for the airport.	Airside buildings	Financial	Smart meters and energy use monitoring; upgraded HVAC systems in terminal 1 in 2024	Likely	Minor	Medium	Likely	Major	High	Almost Certain	Major	Extreme	Existing energy upgrades may reduce short-term impacts, but long-term exposure likely to increase. Consider electrification trends and decarbonisation targets.
R2		✓		✓				Wave overtopping may cause coastal erosion and sea wall degradation, resulting in inundation and damage to runway thresholds and coastline infrastructure	Runways	Infrastructure	Existing rock revetment, annual coastal condition inspection, limited buffer zone between coast and runway	Very Unlikely	Major	Medium	Unlikely	Major	Medium	Likely	Major	High	Low short term risk but once SLR increases by ~50cm our sea wall is likely to overtop during a 1% AEP storm surge event
R3								User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input
R4								User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input
R5								User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input
R6								User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input





Climate Risk Assessment Tool



Climate Risk Assessment Tool Step 1a. Context

This tab helps to document the details and scope of the climate change risk assessment, i.e. why the assessment is taking place, who is managing the assessment, and the parameters of the assessment. The fields below follow the core tasks of Step 1 of the CGRA guideline.

Instructions

Review and fill out each of the fields in green to summarise the scope and context of your assessment, in line with Step 1 of the Climate Change Risk Assessment Guideline.

Instruction: Review and fill out each of the fields below

Section	Field	Input	Example / Guidance
A. Airport Details	Country	Australia	Select from list
	Airport name	Albany Airport	Select from list
	IATA	ALH	Autopopulated
	Organisation name	User input	e.g. Organisation name / parent entity / airport group
	Initial assessment date	16/05/2025	dd/mm/yyyy
B. Organisation and assessment details	Primary Assessor / Coordinator	User input	Name and title
	Other stakeholders contributing to the assessment	User input	e.g. List of team members helping to undertake the assessment - name, role, department
	Endorsing Authority / Reviewer	User input	e.g. Name and role, e.g., Head of Sustainability
B. Purpose and Objectives	What are the drivers for conducting this assessment?	User input	e.g., Board asking questions on climate response, mandatory climate disclosures, airport business partners seeking improved climate resilience

Displaying data for:

Albany Airport

Category	Hazard	Climate variable	Historical	SSP2				SSP5				Further comments / alternative data	Historical Events at Airport (Date & Description)	Is this hazard relevant?
				2030	2050	2090	Trend	2030	2050	2090	Trend			
Average precipitation	Average precipitation	Average daily precipitation (mm/day)	1.5	N/A	1.3	1.3	↘	1.4	1.3	1.1	↘	User input - free text	User input - free text	Select
Sea Level Rise	Coastal inundation	Total sea level rise (m)	N/A	0.12	0.12	0.26	↗	0.29	0.65	0.83	↗	User input - free text	User input - free text	Select
Cold Temperatures	Cold temperatures	Days with minimum temperature (TN) below 0°C (# days)	0.2	0.1	0.1	0.1	↘	0.1	0.1	0.0	↘	User input - free text	User input - free text	Select
	Cold temperatures	Coldest night of the year (°C)	4.3	4.9	5.1	5.7	↗	4.9	5.3	7.0	↗			

Climate Risk Assessment Tool Step 3b. Adaptation Summary

This summary shows all high/extreme risks alongside any adaptation actions that have been logged. Use the last three columns to assess the residual risk after controls have been identified. All fields are auto-filled except for Likelihood, Consequence, and Residual Risk Rating, which must be completed manually.

Instructions

1. Review each high/extreme risk; all details are pre-filled from the '2. Risk Register'. Check whether actions have been assigned and review them in the Near, Mid, and Long Term columns.

2. In the final three columns, enter the residual likelihood, consequence, and risk rating based on the identified actions. Use the 'Risk matrix' tab to determine the appropriate residual risk rating.

Risk ID	Risk Statement	Asset	Consequence	Current controls	2030 Risk	2050 Risk	2090 Risk	Action(s) assigned?	Near Term Action	Mid Term Action	Long Term Action	Residual risk rating 2030			Comments / notes
												Likelihood	Consequence	Residual Risk Rating (2030)	
R1	Increased electricity demand (e.g. for cooling or heating) leading to increased operating costs for the airport.	Airside buildings	Financial	Smart meters and energy use monitoring; upgraded HVAC systems in terminal 1 in 2024	Medium	High	Extreme	✓	1. Conduct detailed energy audit across all terminal and support buildings to identify key drivers of demand during extreme heat 2. Update building management systems (BMS) to improve monitoring and control of HVAC performance 3. Develop heatwave-specific operating procedures, including temperature set point adjustments and zone-based cooling prioritisation	1. Retrofit older terminal buildings to improve passive cooling (e.g. shading, insulation, glazing upgrades)	1. Install onsite renewable energy generation and storage to offset increased demand and manage energy costs	Unlikely	Moderate	Medium	Near-term actions (energy audit, BMS upgrade, operating procedures) are expected to reduce cooling-related peak demand. Remaining residual risk relates to unavoidable baseline demand and increasing temperatures. Longer-term investment still needed to reduce exposure further.
R2	Wave overtopping may cause coastal erosion and sea wall degradation, resulting in inundation and damage to runway thresholds and coastline infrastructure	Runways	Infrastructure	Existing rock revetment, annual coastal condition inspection, limited buffer zone between coast and runway	Medium	Medium	High	✓	No action noted	1. Reinforce and raise sea wall height in high-risk sections	1. Realign or elevate runway thresholds and relocate vulnerable coastal infrastructure	Very Unlikely	Major	Medium	While the likelihood of damage remains very low in the near term, residual risk persists in the long term due to uncertainty around sea level rise rates and storm surge behaviour. Ongoing monitoring and timely implementation of mid- and long-term actions will be critical to keeping risk at an acceptable level.
												Select	Select	-	User input



Climate Risk Assessment Tool

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A1

Climate Risk Assessment Tool

Supporting ACI APAC & MID airports to undertake an airport-led assessment to identify, assess and prioritise climate-related physical risks

Study on Climate Adaptation Approach for APAC & MID Airports

Version 2.0 Released February 2026

For Final Publication

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Cover Guidance 1a. Assessment Details 1b. Climate Data 2. Risk Register Risk matrix 3a. Action Log 3b. Adaptation Action Summary Example ris ... +



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R40 User input - free text

Climate Risk Assessment Tool

Step 1b. Climate data

Instructions

Review the climate projection data and historical impacts and identify which hazards should be considered for the climate change risk assessment. Consider projection values that show greater intensity for the climate hazard, areas of high exposure across your airport to those hazards, and where you've already experienced impacts in recent past.

Disclaimer

The climate projection data shown here is derived directly from the raster datasets in the IPCC's AR6 Interactive Atlas. No modifications have been made by AECOM to the underlying values. The projections are provided for indicative purposes only and should not be relied upon as definitive. Users should confirm the relevance and accuracy of

Understanding climate projections

The climate projections presented here are sourced from the IPCC's AR6 Interactive Atlas tool for the grid cell corresponding to the selected airport, except for sea level rise values, which are sourced from NASA's IPCC AR6 Sea Level Projection Tool (<https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool>) and represent the projected global average rise. Sea level rise figures do not account for significant local factors such as vertical land movement. These models are developed by international climate science institutions and are used in assessments such as the IPCC reports. They show possible future conditions under two different emissions scenarios: SSP2-4.5 and SSP5-8.5.

General global and regional trends include:

- Temperatures (both average and extreme) are projected to increase across all regions and timeframes
- Rainfall patterns will shift, with some areas becoming drier, and more intense rain events likely in many regions
- Wind patterns may change, including stronger gusts or changes to prevailing winds
- Sea levels are expected to continue rising, increasing coastal flooding risks

To interpret the projections:

Look at the direction and size of change over time

Compare projections across scenarios to understand uncertainty and range of possible outcomes

Think about how these changes align with the vulnerabilities of your airport – for example, does the site already flood during storms? Is the runway close to the coast? Are key operations exposed to heat?

Climate projections help describe exposure – the physical changes your airport will experience. Combined with site-specific information (e.g. ageing infrastructure, heat-sensitive systems) and how well your airport can adapt, this helps determine overall vulnerability.

Displaying data for: Brisbane International Airport

Category	Hazard	Climate variable	Historical	SSP2				SSP5				Further comments / alternative data	Historical Events at Airport (Date & Description)	Is this hazard relevant?
				2030	2050	2090	Trend	2030	2050	2090	Trend			
Average precipitation	Average precipitation	Average daily precipitation (mm/day)	2.6	N/A	2.5	2.5	↗	2.5	2.6	2.5	↘	User input - free text	User input - free text	Select
Sea Level Rise	Coastal inundation	Total sea level rise (m)	N/A	0.12	0.12	0.26	↗	0.29	0.65	0.83	↗	User input - free text	User input - free text	Select
Cold Temperatures	Cold temperatures	Days with minimum temperature (TN) below 0°C (# days)	0.8	0.5	0.3	0.2	↘	0.5	0.2	0.0	↘	User input - free text	User input - free text	Select
	Cold temperatures	Coldest night of the year (°C)	3.9	4.7	5.2	5.9	↗	4.6	5.6	7.9	↗	User input - free text	User input - free text	Select
	Cold temperatures	Average minimum temperature (°C)	15.7	16.6	17.1	17.9	↗	16.6	17.5	19.9	↗	User input - free text	User input - free text	Select
Drought and water stress	Drought / water stress	Consecutive dry days (# days)	27	28	28	29	↗	28	29	31	↗	User input - free text	User input - free text	Select
	Drought / water stress	Standardised Precipitation Index (6 month)	-0.9	-11.7	-12.4	-13.8	↘	-12.0	-12.0	-24.7	↘	User input - free text	User input - free text	Select
Energy demand	Energy demand	Cooling degree days (days)	539	645	726	861	↗	660	803	1281	↗	User input - free text	User input - free text	Select

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Count: 4

90%



Climate Risk Assessment Tool

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Climate Risk Assessment Tool

Step 2. Risk Register

This tab is where you complete the climate change risk assessment, identifying risks, controls and making an assessment of likelihood and consequence. It is here that you record your assessment, which could be conducted with stakeholder input and review.

Instructions

1. Use the example risks on the 'Examples' tab to help you get started.
2. Continue adding your own risks.
3. For each risk, check the climate hazard and existing controls. Then rate likelihood and consequence for 2030, 2050 and 2090. Add comments at the end of the row if needed.
4. Make sure all columns are filled in.

You can view the rating criteria on the 'Risk matrix' tab or by hovering over the column headings below. NB: if you adjust any elements in the 'Risk matrix' tab, these will not be updated in the hover text below.

To view Likelihood criteria hover here

To view Consequence criteria hover here

To view the Risk Matrix hover here

Risk ID	Climate Hazard	Risk Description	Primary Asset Affected	Consequence descriptor	Existing controls	Near term (2021 - 2040)			Mid term (2041 - 2060)			Long term (2061 - 2100)			Notes/Comments	
						Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating	Likelihood	Consequence	Risk Rating		
R1	Extratropical and tropical flooding	Storms and high wind events	Sea level rise	Coastal erosion and inundation	Wildfire	Drought	Desertification									
R1		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R2		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R3		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R4		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R5		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R6		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	
R7		User input	Select	Select	User input	Select	Select	-	Select	Select	-	Select	Select	-	User input	

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Cover Guidance 1a. Assessment Details 1b. Climate Data 2. Risk Register Risk matrix 3a. Action Log 3b. Adaptation Action Summary Example risks

80%

AIU AIRPORTS COUNCIL INTERNATIONAL

Middle East Airports



Middle East Airports



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D6

Climate Risk Assessment Tool Step 3b. Adaptation Summary

This summary shows all high/extreme risks alongside any adaptation actions that have been logged. Use the last three columns to assess the near term residual risk after proposed near term actions would be implemented. All fields are auto-filled except for Likelihood, Consequence, and Residual Risk Rating, which must be completed manually.

Instructions:
1. Review each high/extreme risk; all details are prefilled from the '2. Risk Register'. Check whether actions have been assigned and review them in the Near, Mid, and Long Term columns.
2. In the final three columns, enter the residual likelihood, consequence, and risk rating based on the identified actions. Provide comments to justify your residual rating. Use the 'Risk matrix' tab to determine the appropriate residual risk rating.

Risk ID	Risk Statement	Asset	Consequence	Current controls	2030 Risk Rating	2050 Risk Rating	2090 Risk Rating	Action(s) assigned?	Near Term Action	Mid Term Action	Long Term Action	Residual risk rating 2030			Comment
												Likelihood	Consequence	Residual Risk Rating (2030)	
R1	Extreme rainfall event causes disruption to BHS due to localised flooding, resulting in operational disruption and delays.	Baggage handling systems	Service provision	Regular maintenance of BHS Drainage system surrounding site and at critical service points on airside. Inspection of drains ahead of storm season.	High	High	High	✓	No action noted	1. Review BHS pinch point regarding drainage and determine where new design may be required to elevate equipment or floor levels.	No action noted	Select	Select	-	
R2	Power outages, energy scarcity and telecommunication outages, increasing operational costs and delays, customer dissatisfaction and reputational challenges.	Power distribution systems	Service provision	UPS available for critical systems	Medium	High	High	✓	1. Engage with local power supplier to identify seasonal or daily surges in energy demand to identify options for onsite demand management. 2. Review current UPS system for adequacy against energy demand.	No action noted	No action noted	Select	Select	-	
R3	Permanent inundation of drainage outfalls, airside and landside infrastructure, and transport links, resulting in increased flooding incidents, operational disruptions and the need for repair and replacement.	Water supply, treatment and drainage	Service provision	No current controls noted	Medium	High	High	✗	No action noted	No action noted	No action noted	Select	Select	-	User input
R6	Runways, taxiways, and roads may degrade more rapidly, increasing maintenance costs, shortening asset lifespans, and disrupting operations.	Runway and taxiway	Infrastructure	Regular inspections of runway pavements	Medium	Medium	High	✗	No action noted	No action noted	No action noted	Select	Select	-	User input
												Select	Select	-	User input
												Select	Select	-	User input

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Guidance 1a. Assessment Details 1b. Climate Data 2. Risk Register Risk matrix 3a. Action Log 3b. Adaptation Action Summary Example risks

80%



Examples of Findings (Pilot Phase)

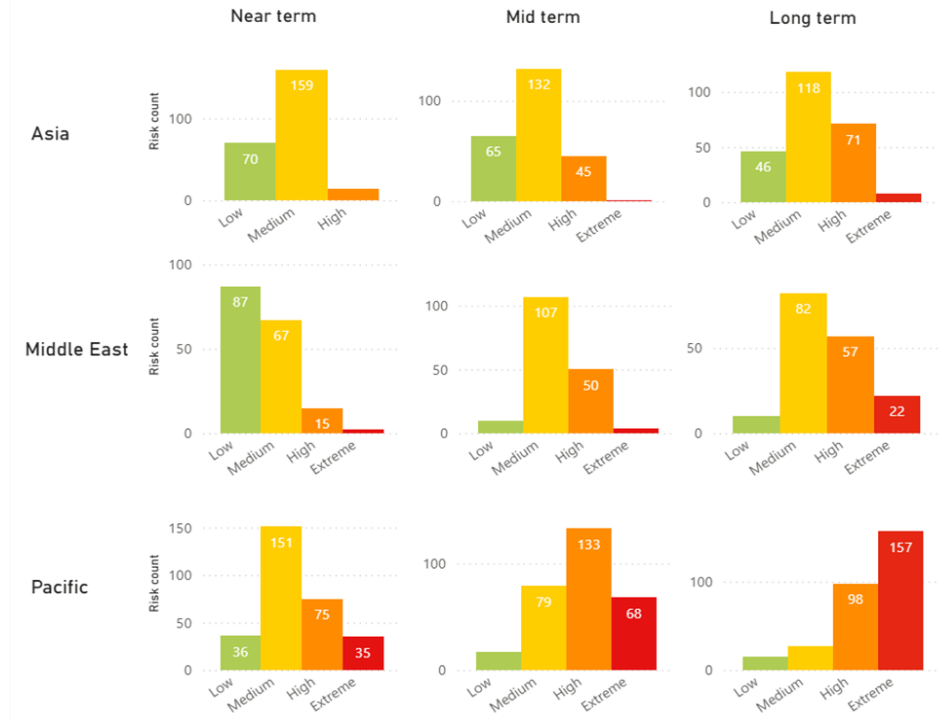
Average Maturity Score across Domains

Region ● Asia ● Pacific ● Middle East



Across all three regions, many domains need improvement especially **“Risk and Adaptation Monitoring”**

Spread of risk ratings across each of the three regions

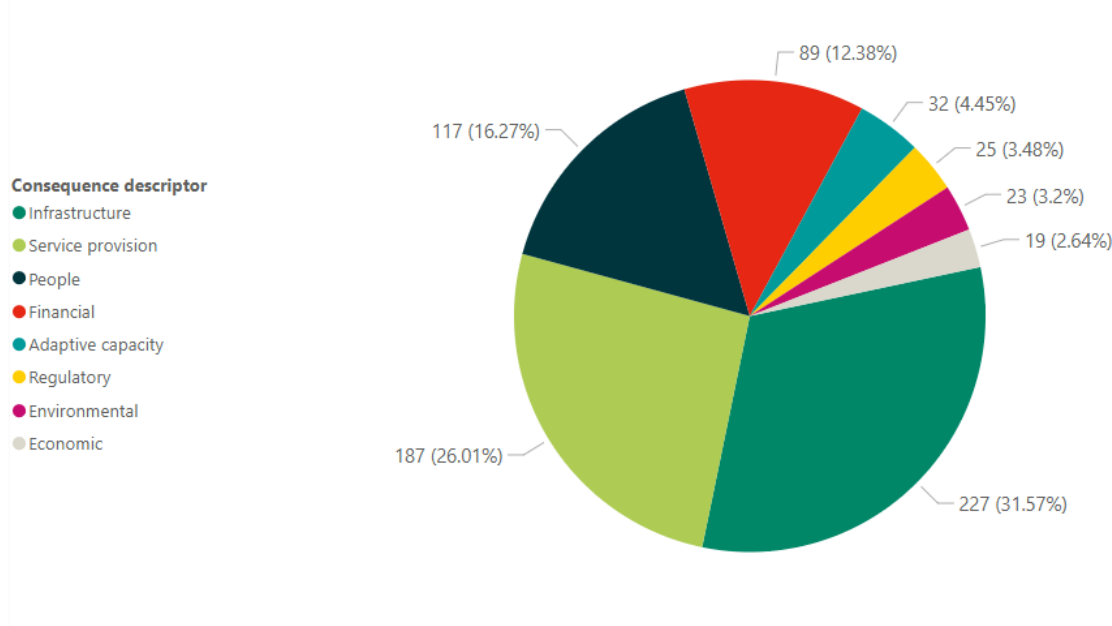


Across all three regions, a **consistent shift toward more severe risks** over **longer time** horizons. Airports in the **Pacific region** have identified a **greater proportion of high and extreme risks** across all time horizons.



Examples of Findings (Pilot Phase)

Number of risks by Consequence



Climate risks are often associated with impacts or consequences to infrastructure and service provision, which combined account for the largest share of impacts (58%).

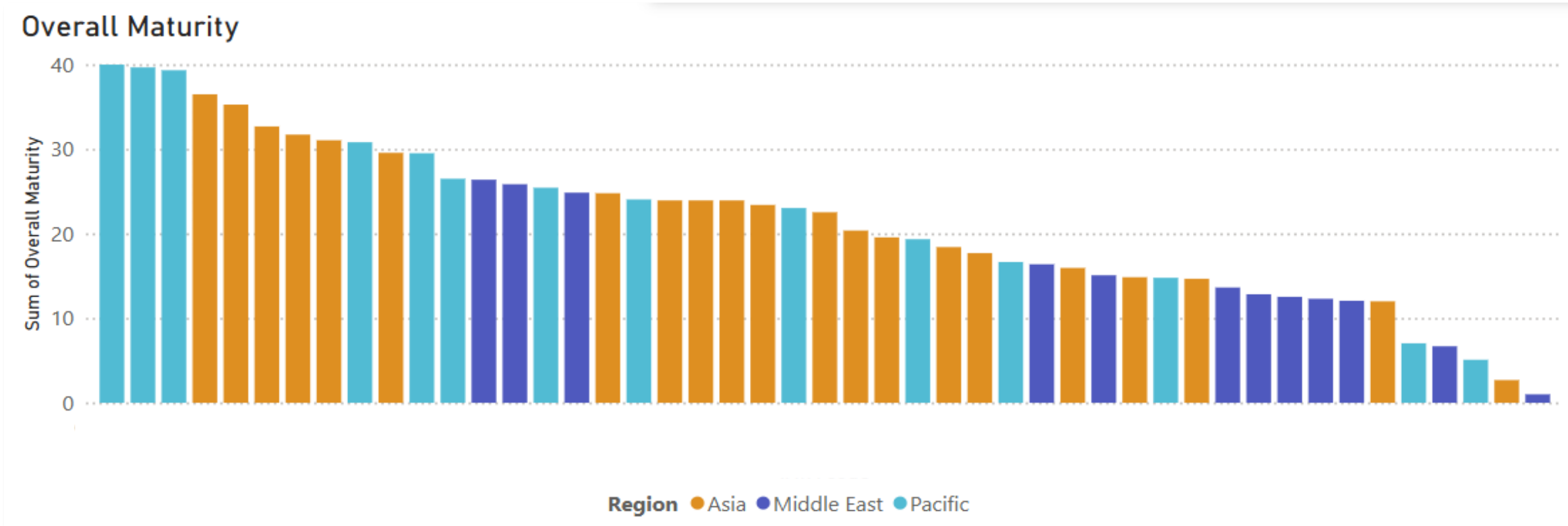
Adaptation actions by category



Adaptation actions related to infrastructure and buildings make up the largest share, indicating that physical upgrades and asset resilience are the primary focus of adaptation efforts.



Climate Risk Maturity Results



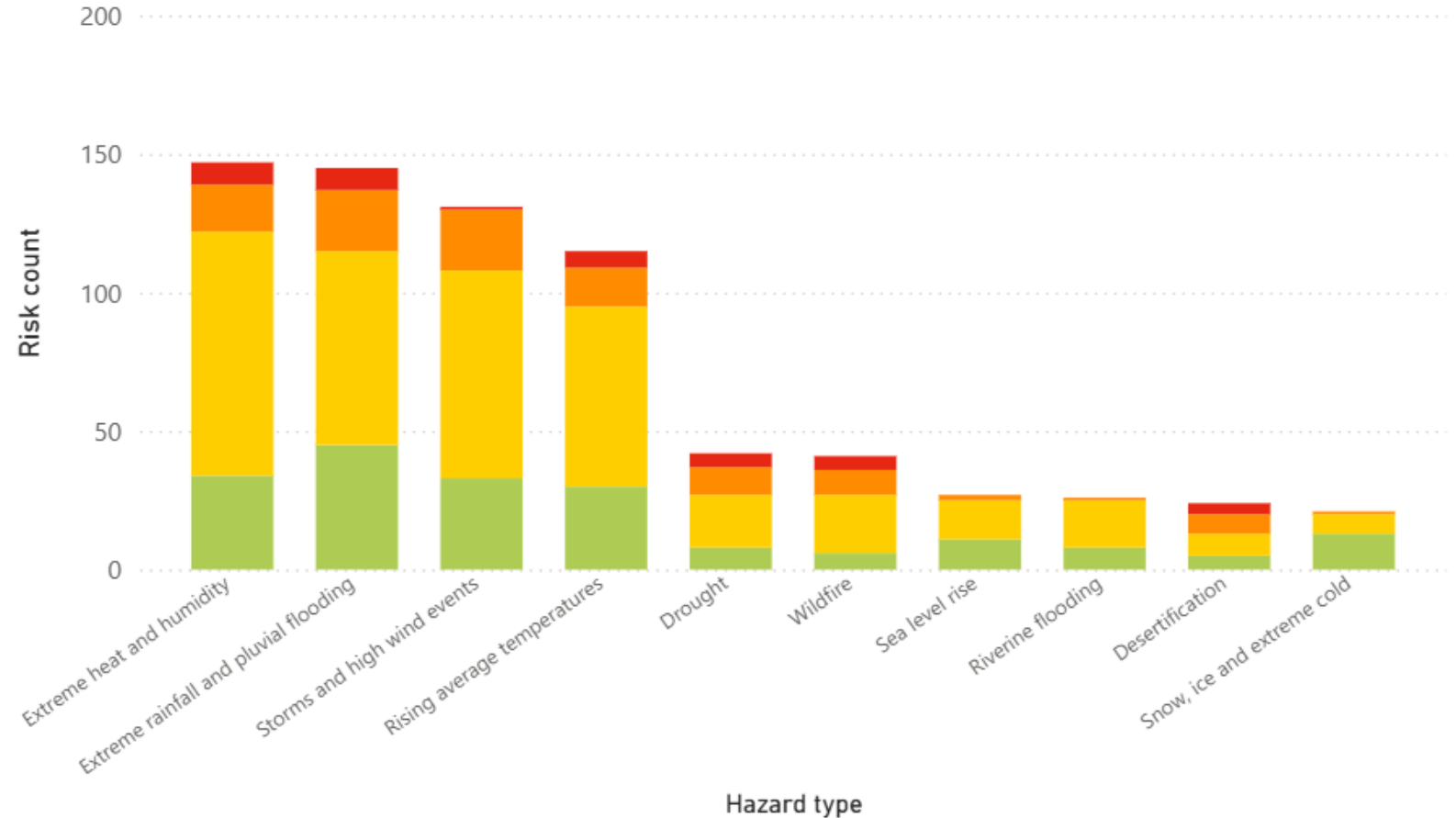
This chart shows overall climate maturity scores for 47 airports across three regions. Pacific airports (light blue, dominated by Australian and NZ airports) score highest — likely reflecting established national climate disclosure requirements. Asian airports cluster in the mid-range with the widest spread, given the region's geographic and country diversity. Middle East airports indicating earlier-stage climate maturity development.



Climate Risk Assessment Results

Number of risks by hazard type

Near term risk rating ● Low ● Medium ● High ● Extreme



Common risks were identified across airports for extreme heat, extreme rainfall, storms/high wind events and rising temperatures.

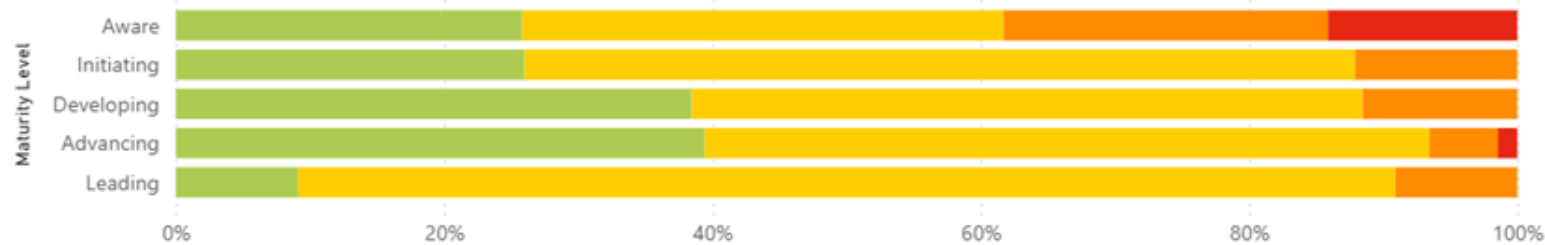
This signals that climate-related issues can persist even when operational, political and environmental conditions differ across regions.



Connecting climate maturity to climate risk profiles

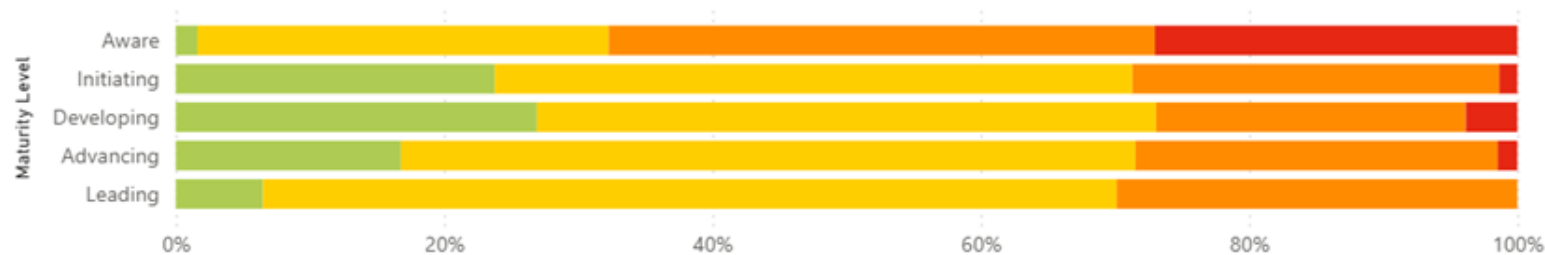
Spread of near term risk ratings across maturity levels

Near term risk rating ● Low ● Medium ● High ● Extreme



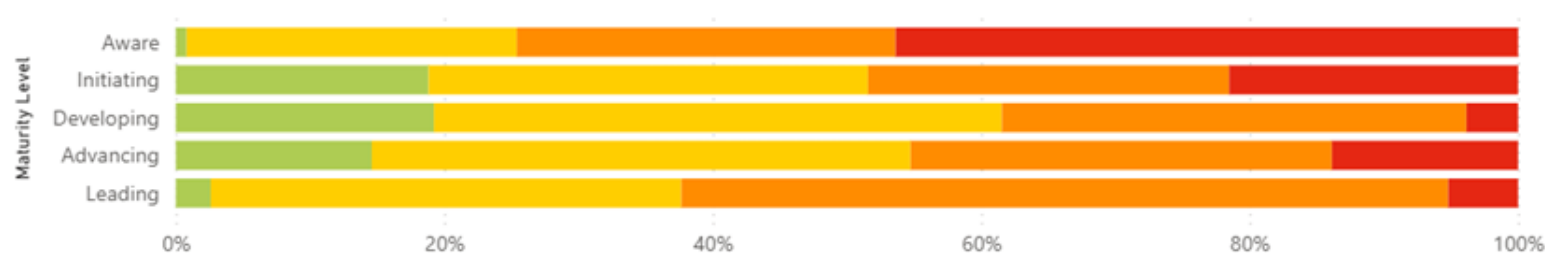
Spread of mid term risk ratings across maturity levels

Mid term risk rating ● Low ● Medium ● High ● Extreme



Spread of long term risk ratings across maturity levels

Long term risk rating ● Low ● Medium ● High ● Extreme



This analysis explores the relationship between climate maturity and risk levels across 16 airports. The findings indicate that airports with lower maturity levels tend to identify more high and extreme risks, particularly in the near and mid term, suggesting weaker preparedness and fewer established controls.

In the long term, airports with higher maturity levels report a greater share of high and extreme risks, likely reflecting stronger data availability, deeper analysis, and improved identification of systemic and cascading climate impacts. This suggests that higher maturity may improve the quality of risk identification rather than simply reduce risk ratings



Key Findings (Pilot Phase)

There are notable regional differences in climate maturity and readiness.

Higher maturity is closely linked to established climate-reporting frameworks.

Higher maturity airports show clearer, more strategic risk profiles.

Sample size doesn't allow robust conclusion on airport size-maturity relationship, but size may inform the identification of maturity barriers.

Monitoring and review remain the weakest domains of maturity across all regions.



Key Findings (Pilot Phase)

Climate risks intensify significantly with time across all regions.

Extreme heat, heavy rainfall and storms consistently generate the most severe risks.

Airport infrastructure and service provision were listed as the key area of impact for 58% of risks identified by participating airports.

Adaptation actions focus heavily on infrastructure upgrades and operational changes.

Effective airport climate resilience depends not only on strong internal integration, but also on close collaboration with external partners and stakeholders.

The Study's tools effectively stimulate internal engagement and cross-functional coordination.



ACA Incentive Programme & Net Zero Roadmap Programme



ACA Incentive Programme

-  Removes financial barriers by fully sponsoring the initial ACA cycle.
-  Provides expert consulting for carbon baselines and third-party verification.
-  Designed specifically for small airports in developing economies.
-  Creates national decarbonisation examples to encourage wider State participation.



Net Zero Roadmap Programme

Structured advisory service providing CAPEX-aligned pathways to achieve absolute zero carbon emissions by 2050.

- 01 Carbon footprint & baseline**
- 02 Analysis, measures to reduce CO2**
- 03 CAPEX & Implementation planning**
- 04 ACA Integration**

Pilot Phase Validation (2024-2025): Riyadh (RUH), Bahrain (BAH), Cebu (CEB)



ACTION BY THE MEETING

The meeting invited to:

Note

The tools and programmes developed by ACI APAC & MID to support airport climate resilience and decarbonisation, including the Climate Risk maturity check tool, Climate Risk assessment guideline and Tool, Regional Climate Dashboard, Net Zero Roadmap Programme and ACA Incentive Programme.

Urge

Urge States to encourage their airports to actively support and engage with the use of and airport operators to consider participation in the ACI APAC & MID Net Zero Roadmap and use complimentary Climate Maturity Check Tool and Climate Risk Assessment Tool to strengthen aviation preparedness and long-term resilience.

THE VOICE OF ASIA-PACIFIC AND MIDDLE EAST AIRPORTS



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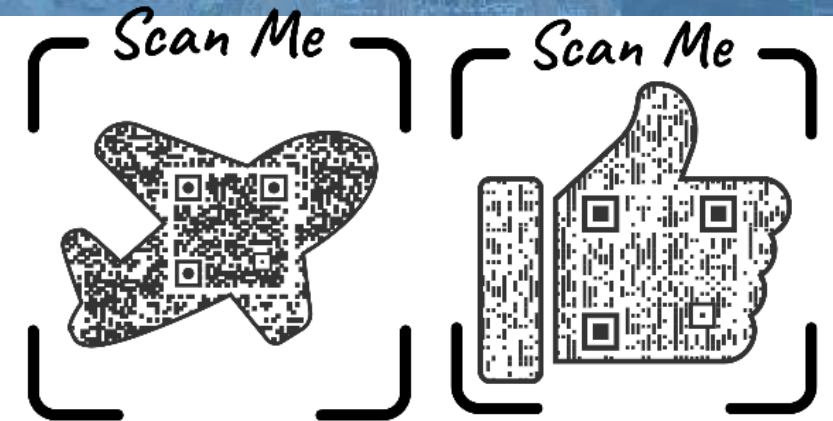
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