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Session 4: Taking Flight Towards Climate Resilience:
Building Adaptation Strategies for Airports



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NACO has supported airports worldwide in their sustainability & resilience journey

Selected projects



Global Study on Disaster Resilience of Airports

- Report captures perception of airport managers on hazards, exposure, vulnerability and resilience of infrastructure and its systems.
- Provides case examples and recommendations for airports, governments and knowledge institutions.

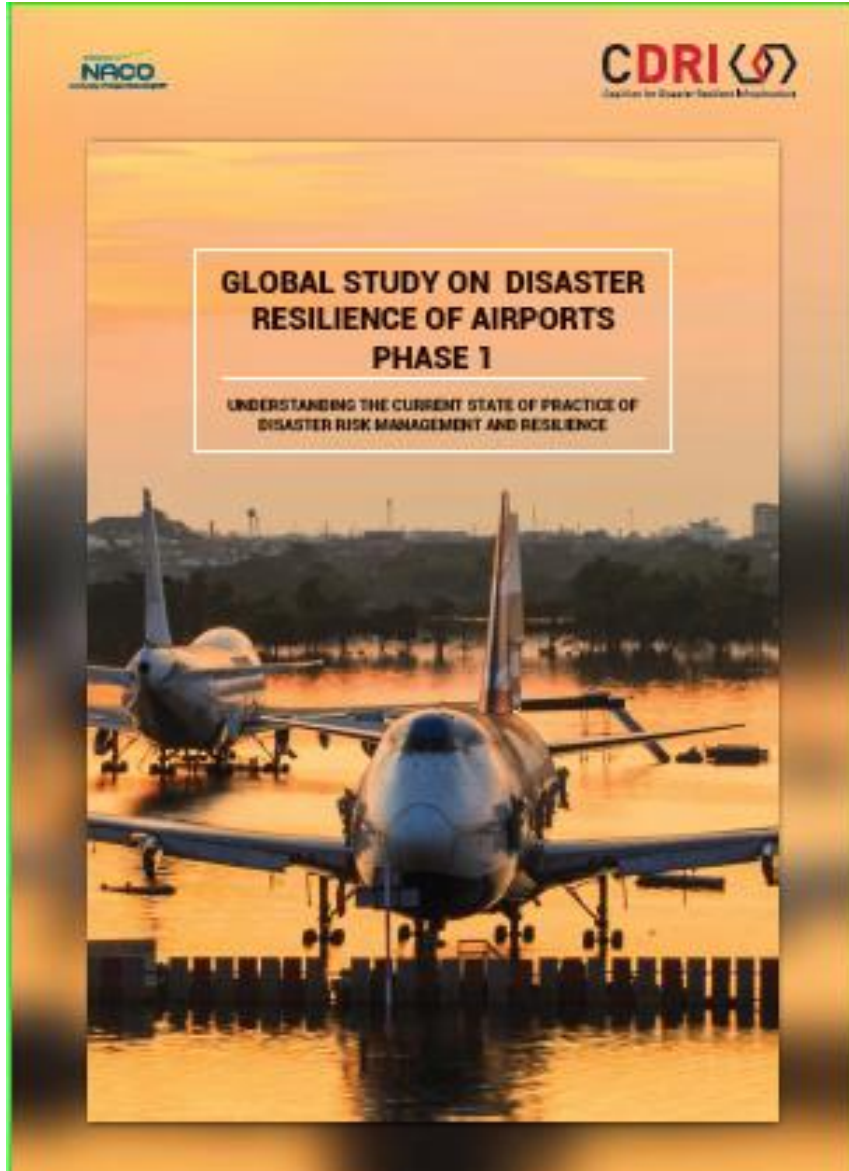


- Study aims to assess thematic and causal factors influencing disaster resilience.
- **ACI World** has convened a **Task Force on Climate Change Adaptation and Resilience** to support CDRI and GSDRA.
- Consultation with airports through Taskforce is in progress to identify and define the scope and objective of the study.

- Comprehensive in-depth study on
 - **DRM and resilience** of airport infrastructure
 - **Investment mechanism** towards risk and resilience financing.
- Provide understanding to aviation sector on
 - **Investment and non-investment bottlenecks**
 - **System interdependencies** Resilience measures on stressors and **business continuity plans**.

54 COUNTRIES | 111 AIRPORTS | 25 INDIAN AIRPORTS

11 COUNTRIES | 12 AIRPORTS | 02 INDIAN AIRPORTS



Global Study on Disaster Resilience of Airports

Phase-1



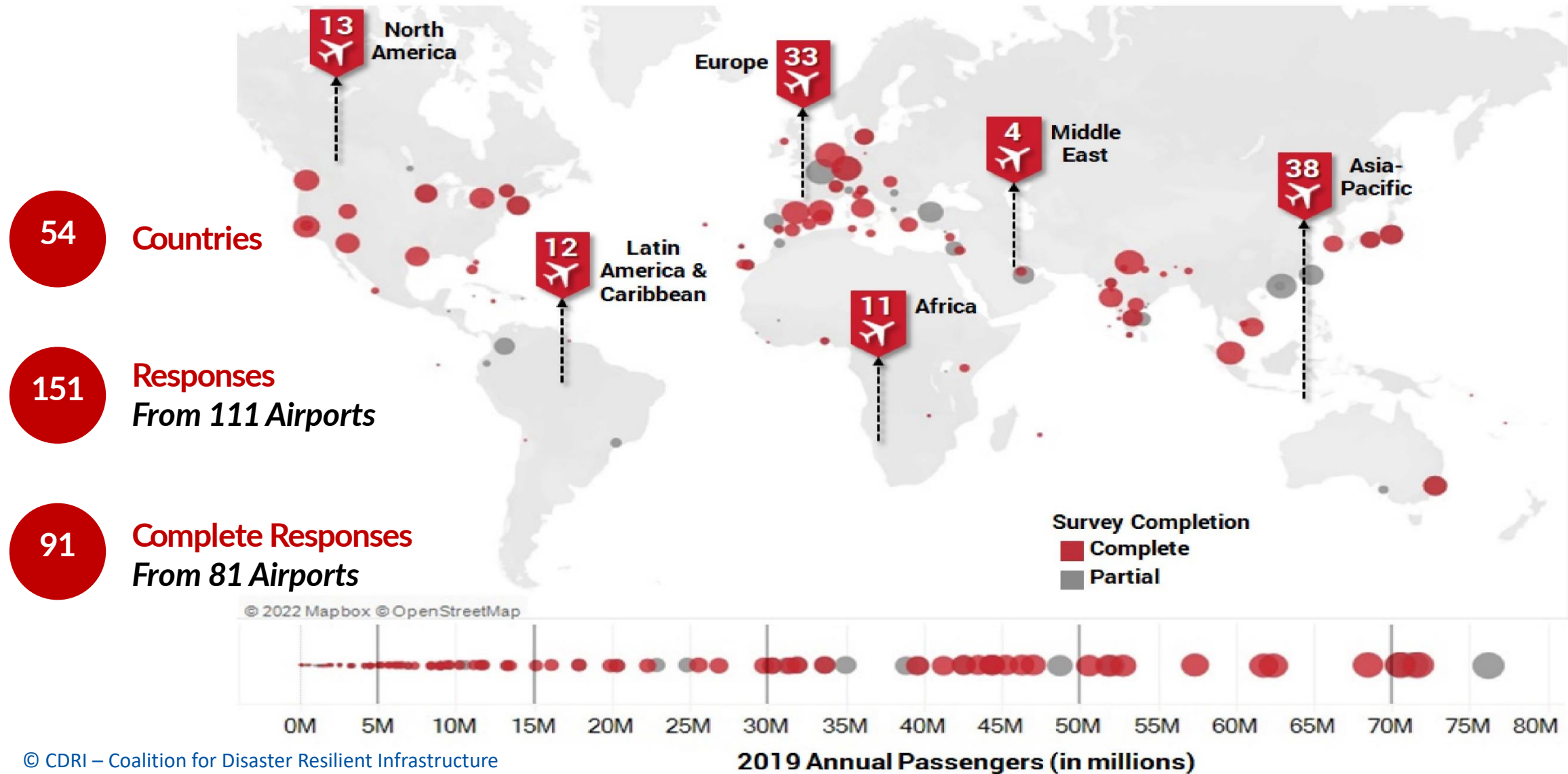
Global Study on Disaster Resilience of Airports

Phase-1: Understanding the Current State of Practice of Disaster Risk Management and Resilience

Online survey of airports and perception mapping of airports' managers on Disaster Risk Management and Resilience focused on **THREE** aspects



111 Airports participated in the survey



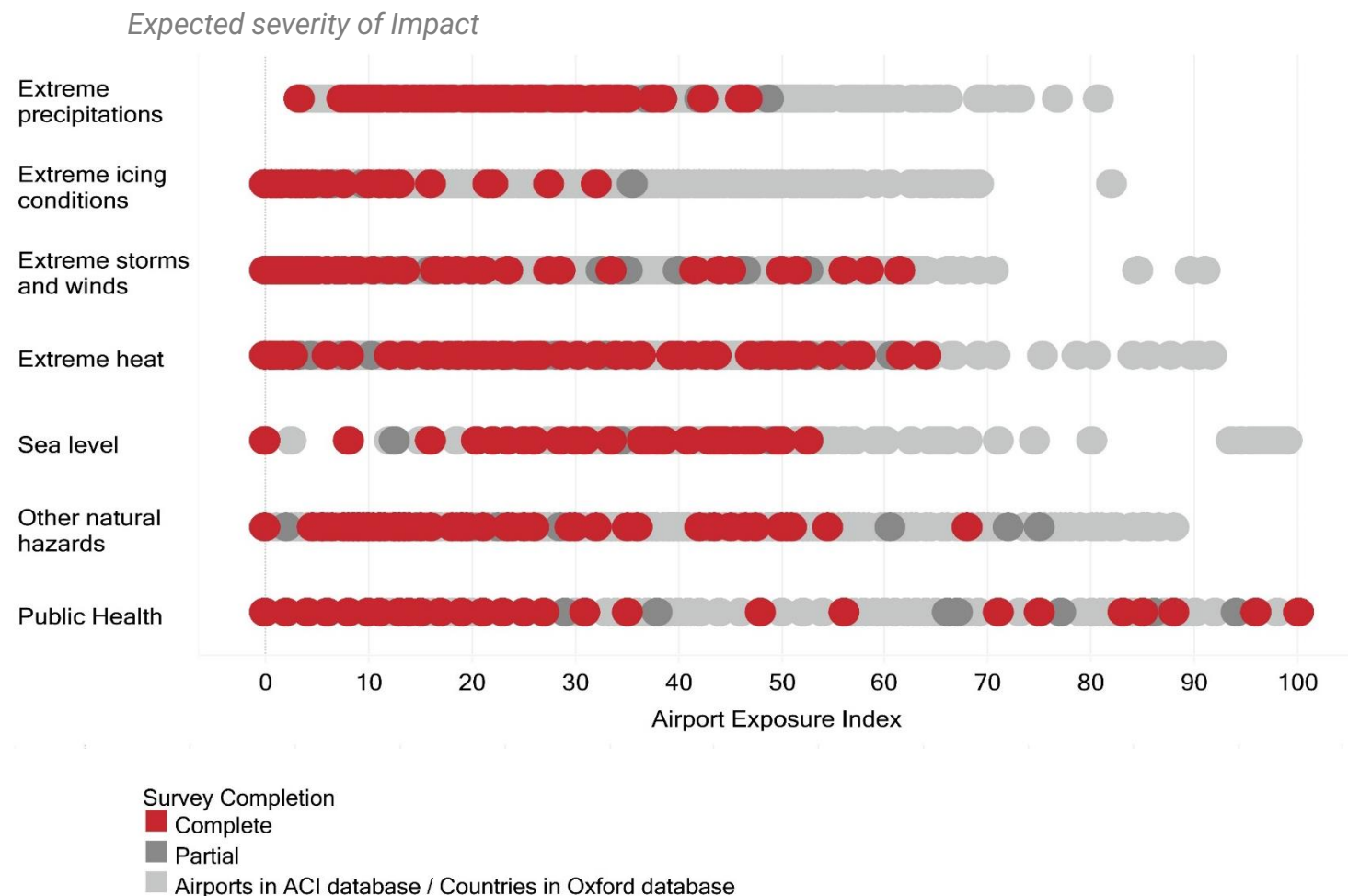
Airports anticipate risks to increase in the future

- Three key vectors highlighted by participating airports:

- Extreme precipitation
- Extreme storms and winds
- Extreme heat

These hazards are associated with:

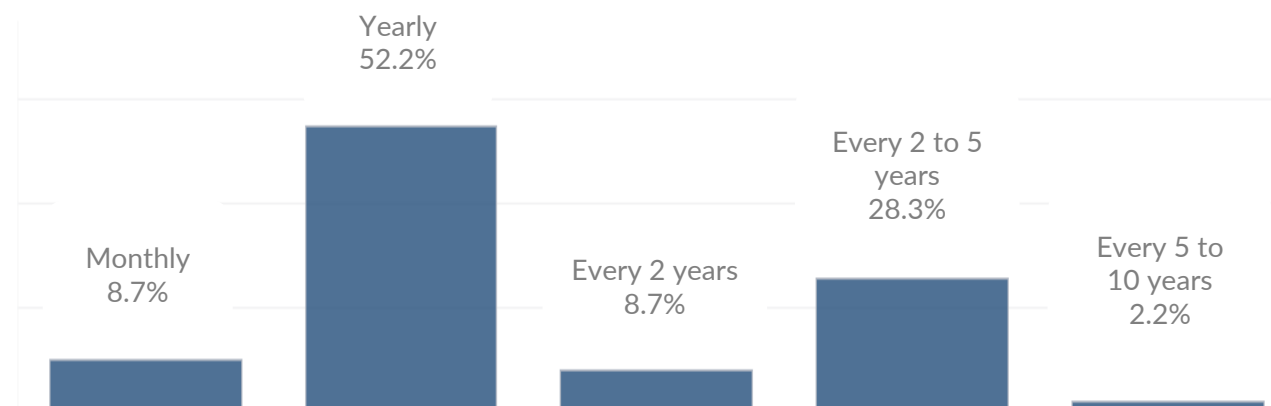
- Partial infrastructure restrictions
- Flight delays
- Indirect economic loss to airport partners.



Vulnerable Assessments: Key to Improving Resilience

- 58%** Airports conduct vulnerability Assessments periodically
- 13.6%** Airports have conducted a vulnerability assessment once
- 11.1%** Airports have not conducted a vulnerability assessment

Vulnerability Assessment Frequency

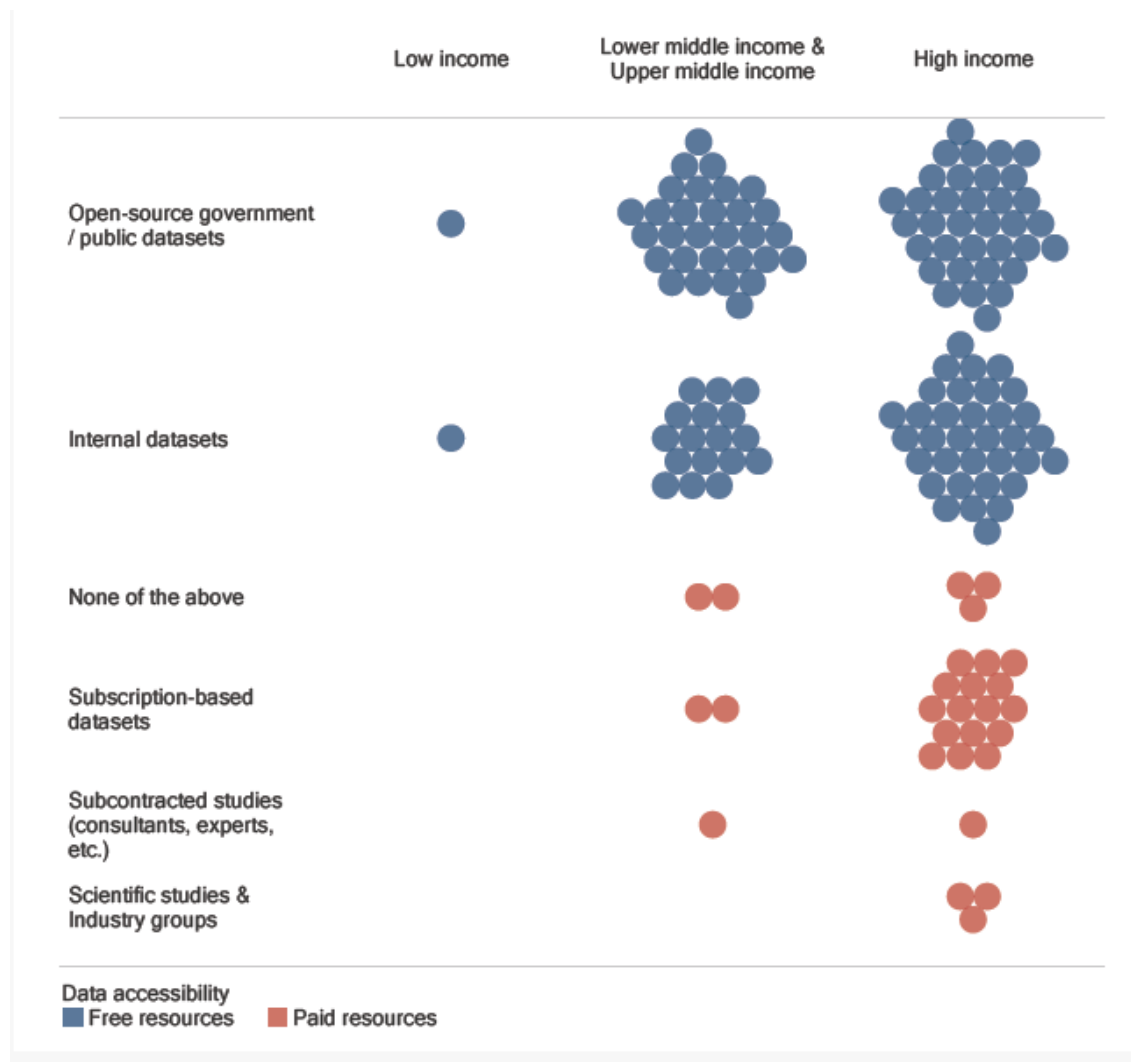


Airports which conduct periodic vulnerability assessments are anticipating lower impact on their organization as compared to airports without a periodic assessment practice.

*information for 17.3% airports is not available

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Dependency on Data for Resilience



- Airports rely predominantly on the following data sets to predict future hazards and improve adaptation:
 - Open-source government and public datasets
 - Internal datasets
- Larger income economies and larger airports are able to complement these data sources with scientific studies, industry groups data, and subcontracted studies.

Improving Adaptive Capacity

Increasing importance of resilience drivers →

	Region						
	Africa	Asia-Pacific	Europe	Latin America	Middle East	North America	Total
Results of a Risk Assessment	4th	3rd	1st	2nd	3rd	1st	1st
Executive board / Management	2nd	1st	2nd	3rd	1st	6th	2nd
Government policies	7th	2nd	3rd	1st	1st	2nd	3rd
Human safety	1st	4th	4th	4th	4th	3rd	4th
Inclusion as part of Masterplan	3rd	5th	9th	8th		4th	5th
Insurance of assets	5th	8th	5th			5th	6th
Shareholder interests	6th	7th	7th	5th	4th	6th	7th
Investors	7th	6th	6th	7th		8th	8th
Market trends		9th	8th	6th		9th	9th

Top three Resilience drivers

- Results of a Risk Assessment
- Executive Board/Management
- Government policies

Actionable recommendations to increase resilience



Research & Knowledge Sharing

- Conduct in-depth studies of risk and resilience practices at airports to understand differences in ability to resume operations and recover across regions. ●
- Establish a broader understanding of risk appetite of airports. ●
- Encourage cross-industry knowledge sharing and learnings from industries and environments with similar complexities, such as cities. ●



Regulations/Mandates

- Integrate the Task Force on Climate-related Financial Disclosures (TCFD) framework as standard practice to improve airport understanding of their current practices, including physical and transition risks. ●
- Airport and government bodies should continue to work together to build integrated disaster resilience. ●●●
- Mandate government authorities and institutions to conduct region-focused scientific studies and address the scarcity of scientific studies related to airport's natural and climate hazard exposure. ●
- Mandate quick scans to assess hazard exposure and resilience planning as part of all greenfield and brownfield developments. ●



Airport Practices

- Airports should engage local and regional stakeholders for increasing airport resilience practices and support the acceleration of resilience in the catchment area. ●●
- Airports should conduct periodic vulnerability assessments and develop a resilience strategy. ●●
- Airports should move towards a more proactive approach rather than reactive towards hazard management and resilience planning. ●
- Airports and insurers should collaborate to mitigate climate risk, this will be mutual beneficial. ●

Build Airport Risk and Resilience Profiles

Financial stability is key

Airports need to act proactive

Integration of resilience practices in planning & design

Collaboration strengthens Resilience

Note: Each dot represents the relevant actor per recommendation.

● Government/Politician ● Airports ● International Knowledge Institutions

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Identified Airports for Global Study on Disaster Resilience of Airports: Phase-2

Region	Country	Airport Name	City	Passenger Enplanement (pre-COVID, 2019)	Primary / Secondary Airport	Domestic / International	Size	Geography	Hazards
Asia	Bhutan	Paro Airport	Paro	431,300	Primary	International	Small	Mountainous	Winds
Asia	Japan	Kansai Airport	Greater Osaka	31,910,000	Primary	International	Large	Coastal	Earthquake / Typhoon
Africa	Mauritius	Sir Seewoosagur Ramgoolam International Airport	Port Louis	4,100,000	Primary	International	Medium	Island	Winds / Cyclone
EU	Germany	Munich International Airport	Munich	47,960,000	Primary	International	Large	Mountainous	Winds / Freeze
Africa	Madagascar	Nosy Be – Fascene International Airport	Nosy Be	500,000	Secondary	International	Small	Island	Cyclone / Flooding
EU	Italy	Fiumicino Leonardo da Vinci International Airport	Rome	11,663,000	Primary	International	Large	Coastal	Earthquake
North America	USA	San Francisco International Airport	San Francisco	57,600,000	Primary	International	Large	Coastal	Flooding
Latin America & the Caribbean	Peru	Alejandro Velasco Astete International Airport	Cusco	3,209,000	Primary	International	Medium	Fault Line / Mountainous	Earthquake / Volcanic Activity
Oceania and Pacific Island Countries	Australia	Darwin Airport	Darwin	2,000,000	Primary	International	Medium	Mountainous / Forest	Bushfires
Oceania and Pacific Island Countries	Fiji	Nadi International Airport	Viti Levu	1,985,000	Secondary	International	Medium	Island	Wind / Flooding
Asia	India	Biju Patnaik International Airport	Bhubneshwar	4,100,000	Primary	International	Medium	Coastal	Cyclone / Flooding
Asia	India	Kempegowda International Airport	Bengalur	33,300,000	Primary	International	Large	Inland	Seismic / Flood

An understanding into the incorporation of disaster risk in financing airport investments.

A set of recommendations for policymakers based on the lessons learnt from airports that have recently faced disasters.

Expected Outputs of Phase-2

An airport risk index for measuring the exposure, vulnerability, and adaptive capacity of airports in the face of natural and man-made hazards.

An inventory of natural and man-made hazards that airports are exposed to.

Way Forward

1

*Completion of
Phase-2 & 3*

2

*Recommend
Actions
covering
stakeholders of
airports*

3

*Advocate
integrating DRI
in Airports
and
stakeholders*

4

*Promote holistic
resilience
approach-
interdependency
at systemic level*

5

*Capacity
strengthening
activities to
support low
capacity*

6

*Collaborative
activities on
specific needs
of airports*





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