

CASE STUDY

Princess Juliana International Airport Reconstruction



Overview

This case study documents the seven-year journey to reconstruct the passenger terminal of Princess Juliana International Airport (PJIA) in Sint Maarten after catastrophic damage from Hurricanes Irma and Maria in September 2017. The airport, a vital economic engine contributing 45 percent of the country's GDP through tourism, faced unprecedented challenges in restoring its operations and infrastructure. The purpose of the report is to analyze the recovery process, highlight key findings, and distill lessons learned for disaster recovery and resilient infrastructure development, particularly in vulnerable small island states. This report is intended for airport owners, operators, regulators, policymakers, and development practitioners involved in disaster recovery and resilient infrastructure development, especially in small island states and regions vulnerable to climate risks.

Recovery Timeline and Challenges

The 2017 hurricanes exposed the acute vulnerability of small island states dependent on single critical infrastructure assets. Hurricane Irma's winds destroyed the terminal's roof and entrance doors, leading to extensive water and mold damage. Hurricane Maria compounded the devastation, rendering the terminal uninhabitable and forcing its closure. The economic impact was severe, with a 12 percent contraction in GDP over two years and a collapse in tourism revenues.

The recovery spanned seven years, shaped by a complex interplay of financial distress, leadership gaps, insurance disputes, and political uncertainty. Initial emergency response restored limited operations using

temporary facilities, but passenger capacity remained far below pre-hurricane levels for years. Securing financing for reconstruction was particularly challenging, delayed by a vacant CEO position, legal battles over insurance payouts, and intense parliamentary debates over public versus private financing. The breakthrough came in December 2019 with a \$149 million financing package blending resources from the World Bank-managed Sint Maarten Reconstruction, Recovery, and Resilience Trust Fund (SXM TRF), the European Investment Bank (EIB), and PJIAE’s own funds.

The COVID-19 pandemic further complicated recovery, causing another collapse in air traffic and revenues, and introducing new logistical and procurement challenges. Reconstruction had to proceed while maintaining airport operations, requiring careful sequencing and often limiting work to nighttime hours. Additional delays arose from technical challenges such as deteriorated intumescent paint, mold remediation, and the decision to unbundle equipment packages for greater control over specifications.

“Build Back Better” Approach

The reconstruction exemplified the “Build Back Better” principle, going beyond restoration to create a more resilient, sustainable, and customer-friendly facility. Key innovations included:

<p style="text-align: center;">Enhanced hurricane resistance</p> <p>Upgraded roof and entrance doors, reinforced passenger boarding bridges, and improved building interfaces.</p>	<p style="text-align: center;">Environmental sustainability</p> <p>Installation of LED lighting, intelligent building management, high-efficiency HVAC, and energy-efficient baggage handling systems.</p>	<p style="text-align: center;">Operational improvements</p> <p>Self-service baggage drops, expanded concessions, improved passenger flow, and upgraded digital signage.</p>
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These upgrades have positioned PJIA as a model for climate-adaptive infrastructure, capable of withstanding Category 5 hurricanes and supporting future growth in passenger traffic.

Implementation Excellence and Partnerships

Success was achieved through diligent project management and strategic partnerships. A dedicated Project Management Unit (PMU) was established, staffed through international and local recruiting to ensure high implementation capacity. Collaboration with the National Recovery Program Bureau (NRPB), Royal Schiphol Group, and World Bank oversight provided critical expertise and technical support. The use of a rated criteria procurement approach, weighing quality, innovation, and sustainability alongside cost, set new benchmarks for responsible reconstruction.

Environmental and social management adhered to the World Bank’s rigorous standards, resulting in exemplary safety performance and innovative waste management solutions. Stakeholder engagement was prioritized, with transparent communication and public outreach initiatives fostering trust and support.

Key Findings

1. **Prolonged Recovery:** The seven-year timeline was driven by financial, institutional, and operational complexities, compounded by external shocks like COVID-19.
2. **Resilience and Sustainability:** The project restored and enhanced the airport’s capacity, integrating disaster-resilient design and sustainable technologies.

3. **Critical Partnerships:** International cooperation and strong leadership were essential to overcoming resource constraints and technical challenges.
4. **Phased Restoration:** A staged approach to reopening passenger processing capacity allowed for steady recovery and risk mitigation.
5. **Economic and Social Impact:** The reconstructed terminal has revitalized Sint Maarten’s tourism sector, restored jobs, and strengthened institutional capacity.

Lessons Learned

Disaster Preparedness

- *Institutional resilience:* Robust corporate governance insulated from political interference is vital. Business continuity plans and mutual aid agreements should be established before disasters strike.
- *Financial management:* Diversified insurance coverage, accurate asset valuations, and prudent debt management are essential to avoid financial distress.
- *Revenue diversification:* Airports should develop non-aeronautical revenue streams to reduce dependency on passenger traffic.

Infrastructure and Operations

- *Resilient design:* Upgrading roof strength, entrance doors, and passenger boarding bridges is critical. Use humidity-resistant materials and conduct regular vulnerability audits.
- *Operational flexibility:* Temporary facilities and phased restoration can mitigate disruption during reconstruction.
- *Skilled labor:* Flexible immigration policies and comprehensive worker support programs are necessary to address labor shortages.

Project Implementation

- *Capacity building:* Experienced leadership and dedicated implementation teams are crucial. International partnerships can fill capacity gaps.
- *Procurement excellence:* Rated criteria approaches balance cost and quality. Unbundling contract elements requires higher management capacity.
- *Stakeholder engagement:* Transparent communication and early engagement build trust and manage expectations.

“Build Back Better” Principle

- *Resilience upgrades:* Address vulnerabilities exposed by disasters and integrate climate-adaptive features.
- *Sustainability measures:* Incorporate energy-efficient technologies and operational *improvements*.
- *Customer experience:* Enhance passenger amenities and operational efficiency.

The reconstruction of PJIA is a testament to Sint Maarten’s resilience, vision, and capacity for innovation. Lessons learned offer a blueprint for small island states and other vulnerable communities seeking to transform disaster into opportunity and build a more resilient future.

This summary was produced with the assistance of an AI language model based on the original report. The full report is available at sintmaartenrecovery.org/analytical-studies