CONDUCTING AN INVESTIGATION AS A REGULATOR

AO-2023-001 • Lulutai Airlines SAAB 340B, A3-PUA

Tonga’s Approach to Annex 13 Accident Investigation

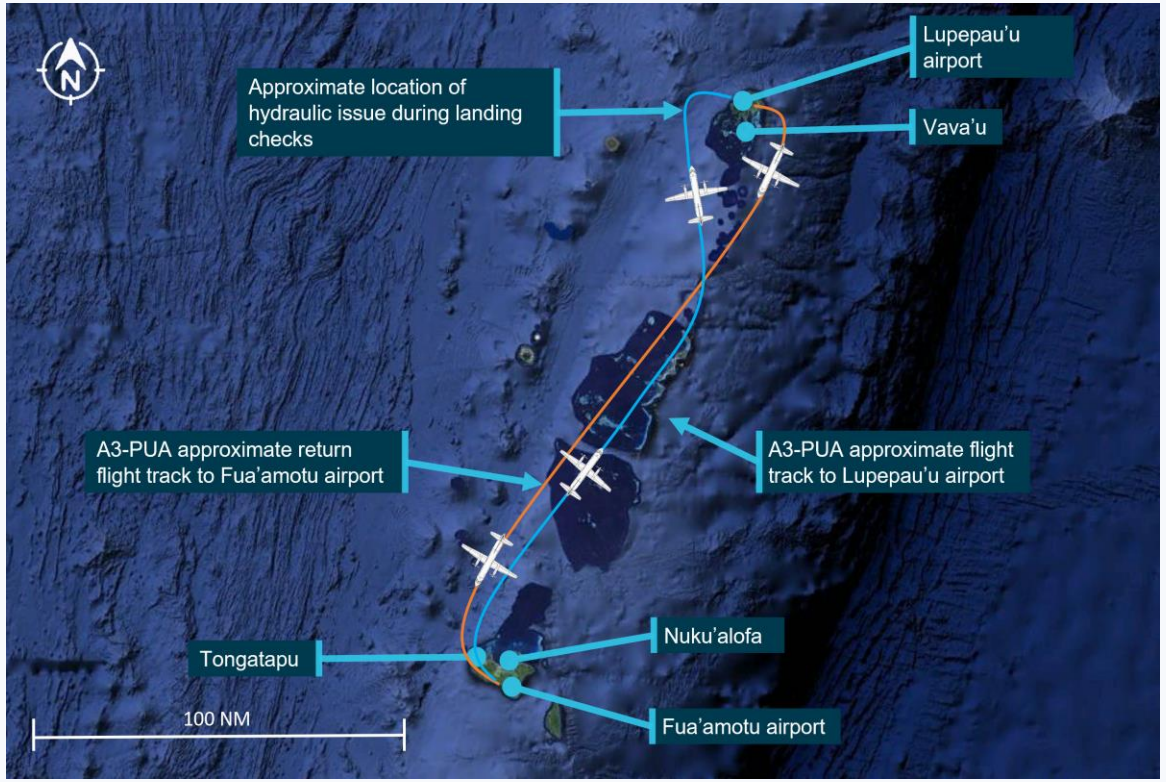
A completed Annex 13 investigation that became a first for Tonga and a platform for long-term investigation capability building in Tonga and the wider Pacific.

07 • OCTOBER • 2026 – THAILAND



What happened on 8 December 2023?

A scheduled domestic flight to Vava'u returned to Fua'amotu after a suspected hydraulic system problem.



01

HYDRAULIC INDICATION

During descent to Vava'u, the crew observed abnormal hydraulic quantity and pressure indications.

02

RETURN TO FUA'AMOTU

The crew elected to return and lowered the landing gear using the auxiliary hydraulic system.

03

LOSS OF CONTROL

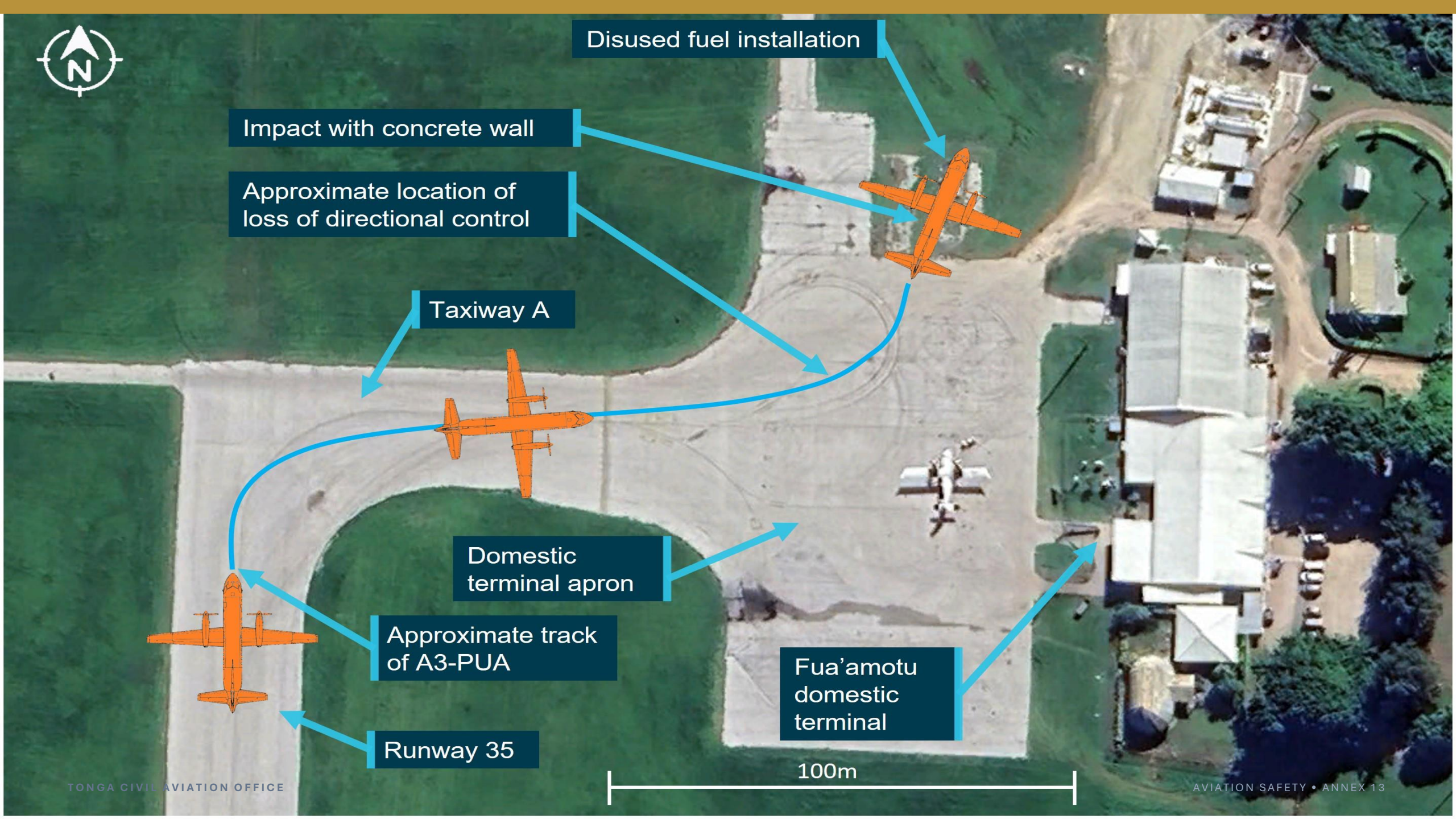
After landing, hydraulic pressure depleted during taxi, causing loss of braking and directional control.

04

GROUND COLLISION

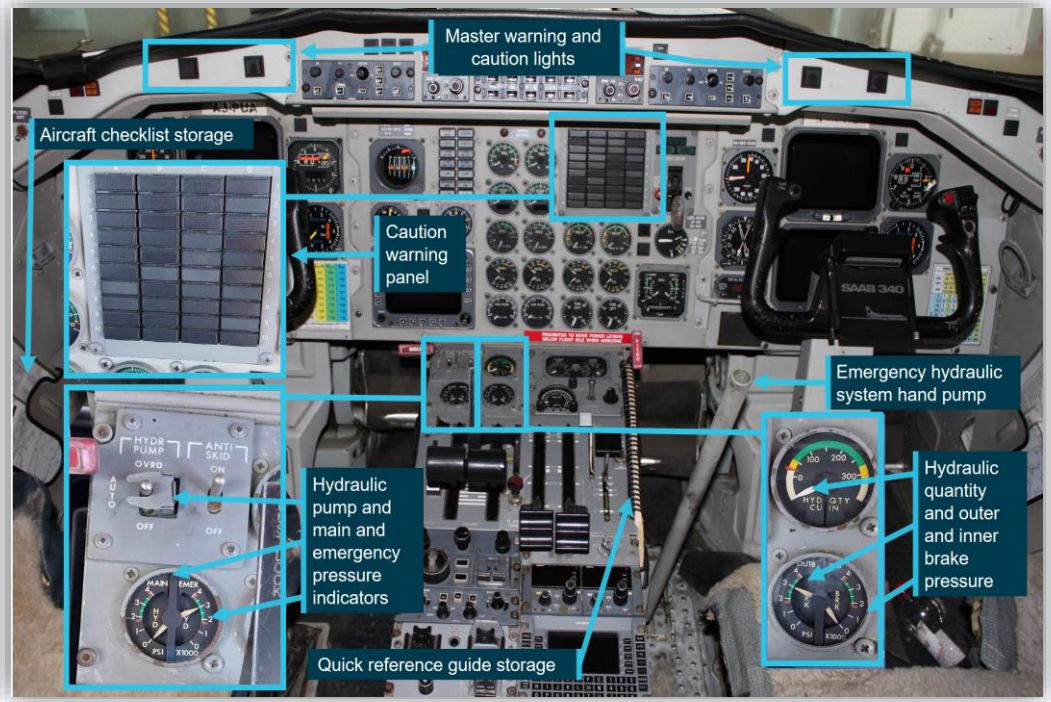
The aircraft left the taxiway and struck a disused refuelling bund; the right landing gear collapsed.

38 people on board • 35 passengers + 3 crew • No injuries


Disused fuel installation
Impact with concrete wall
Approximate location of loss of directional control
Taxiway A
Domestic terminal apron
Approximate track of A3-PUA
Runway 35
Fua'amotu domestic terminal
100m

The system was initially operating — the indications were misleading

The investigation traced the accident sequence from a tripped circuit breaker through crew diagnosis; checklist use and taxi decision-making.



1 TRIPPED CIRCUIT BREAKER

Power was removed from key hydraulic quantity and pressure indicators.

2 MISIDENTIFIED CONDITION

The crew interpreted the indication problem as a hydraulic fluid leak.

3 HYDRAULIC PUMP OFF

The abnormal checklist action removed automatic hydraulic pressure from the system.

4 CHECKLIST + SYSTEM KNOWLEDGE

Not all checklist items were read, and the crew had an incomplete appreciation of the hydraulic limitations.

KEY SAFETY MESSAGE

Positively identify the malfunction, use the checklist in full, and maintain accurate defect recording.


Nacelle creasing
Right undercarriage folded aft
Broken drag lin

Tonga’s Civil Aviation Act provides the Investigation Pathway

Civil Aviation Act, Cap. 23.02 (2020 Revised Edition) • Part VIII — Accident and Incident Investigation

SECTION 71 - 73

TRIGGER & APPOINTMENT

The Director advises; the Minister appoints a Chief Investigator where Convention obligations or significant safety circumstances warrant investigation.

SECTION 74

SAFETY PURPOSE

Determine the circumstances and causes to prevent recurrence — not to apportion blame.

SECTION 77

INDEPENDENT CONDUCT

The Chief Investigator is in charge. The Minister, Director and others require consent to participate in the investigation or examine accident material.

SECTION 78

SPECIALIST SUPPORT

Qualified investigators or assessors may be appointed where specialist expertise is required.

LEGAL DESIGN PRINCIPLE • Once referred, separate regulatory oversight from the Chief Investigator’s safety investigation.

The Framework supported the full Investigation Lifecycle from Appointment to Publication

AO-2023-001 moved from occurrence to independent investigation, specialist assistance and publication.



08 DEC 2023

OCCURRENCE

SAAB 340B taxiway excursion at Fua'amotu.

08 DEC 2023

APPOINTMENT

Chief Investigator appointed; Annex 13 investigation commenced.

15 DEC 2023

ATSB SUPPORT

Accredited Representative + two advisers appointed.

26 JUN 2025

PUBLICATION

Tonga's first completed independent Annex 13 report published.

Civil Aviation Act Section 74: Safety-focused investigation, Written Report and Publication. The completed case then became the platform for longer-term capability building.

Tonga led the investigation — ATSB provided specialist support

The cooperation completed AO-2023-001 while building practical Annex 13 capability through the investigation itself.



ATSB SUPPORT TO THE CHIEF INVESTIGATOR

- Interview planning and interviews
- Evidence collection and on-site examination
- Wreckage examination and recorder downloads
- Analysis, report development and legal advice
- Mentoring throughout the investigation

MILESTONE • Tonga’s first completed ICAO Annex 13 investigation


A3-PUA
CIVIL AVIATION TONGA
ATSB


ATSB


Two damaged blades

The Investigation moved from Occurrence to Published Safety Learning

The final report closed the formal investigation while operator safety action and regulatory follow-up continued.



08 DEC 2023

ACCIDENT

Chief Investigator appointed; ATSB assistance requested shortly after.

11 NOV 2024

REMEDIAL PLAN

Lulutai provided TCAO with a phased remedial action plan.

26 JUN 2025

FINAL REPORT

AO-2023-001 made public — Tonga's first completed Annex 13 investigation.

16 JUL 2025

INTERNATIONAL TRANSMISSION

Final report sent to ICAO and relevant States of Manufacture.

Lulutai Airlines conducted the following actions which included a fleet-wide inspection, preventive maintenance improvements, risk-register integration and ongoing audit follow-up.

What small States must overcome without a permanent AIA

The challenge is not only structure — it is sustaining independence, readiness and specialist capability with limited resources.

01 LIMITED SPECIALIST EXPERTISE

Specialist capability may not be available in-house across operations, engineering, human factors, recorders and other disciplines.

02 RESOURCE & FUNDING PRESSURE

An investigation can create immediate demands for travel, logistics, technical examination and specialist support.

03 ROLE CONFLICTS & PROTECTING INDEPENDENCE

Regulatory personnel may also be the most experienced aviation specialists, creating potential regulator–investigator role conflicts.

04 EXTERNAL / POLITICAL INFLUENCE

Clear legal authority, reporting lines and control of evidence are essential to protect the safety investigation from external influence. Tonga's political status.

05 MAINTAINING READINESS

Low occurrence frequency makes it difficult to sustain investigation skills, procedures and practical experience between events.

06 EXTERNAL DEPENDENCE

Regional assistance is valuable, but arrangements should exist before an occurrence and preserve State ownership of the investigation.

TONGA'S PRACTICAL RESPONSE

Establish the legal pathway first • protect the Chief Investigator's authority • pre-arrange regional support • use each investigation to build national capability.


CIVIL
AVIATION
TONGA


ATSB

External assistance translated into national capability

Tonga retained ownership while gaining practical investigation skills, systems and confidence.

01

LEGAL READINESS

Appointment, powers, independence and reporting mechanisms were already in law.

02

LEARNING BY DOING

ATSB advisers mentored the Chief Investigator through real investigation tasks.

03

SPECIALIST ACCESS

Regional cooperation supplied specialist expertise not held permanently in-house.

04

SUSTAINED CAPABILITY

Follow-on training converts one investigation into repeatable capability.

LEGAL FRAMEWORK → INDEPENDENT LEADERSHIP → EXTERNAL SUPPORT → NATIONAL CAPABILITY

A practical model for small aviation States

Tonga's experience shows that independence can be established through law, governance and conduct — even without a permanent AIA.

01 **LEGAL PATHWAY** Occurrence-specific appointment with statutory authority and powers.

02 **PROTECTED INDEPENDENCE** Section 77 places the Chief Investigator in charge and restricts participation without consent.

03 **SPECIALIST ACCESS** Qualified investigators, assessors and Annex 13 partners can fill capability gaps.

04 **PREPAREDNESS** Put legislation, appointment procedures, resourcing and cooperation arrangements in place before the next occurrence.

The partnership continued after the report was finished

The investigation became the starting point for a structured capability-building relationship between Tonga and the ATSB.

01

LETTERS OF COOPERATION

A formal basis for continued cooperation between the Tonga Civil Aviation Office and ATSB.

02

INVESTIGATOR TRAINING

Training commenced in May 2025 to strengthen Tonga's ability to conduct future Annex 13 investigations.

03

ADREP CAPABILITY

Support extends to accident/incident data reporting to ICAO, strengthening Tonga's international reporting capability.

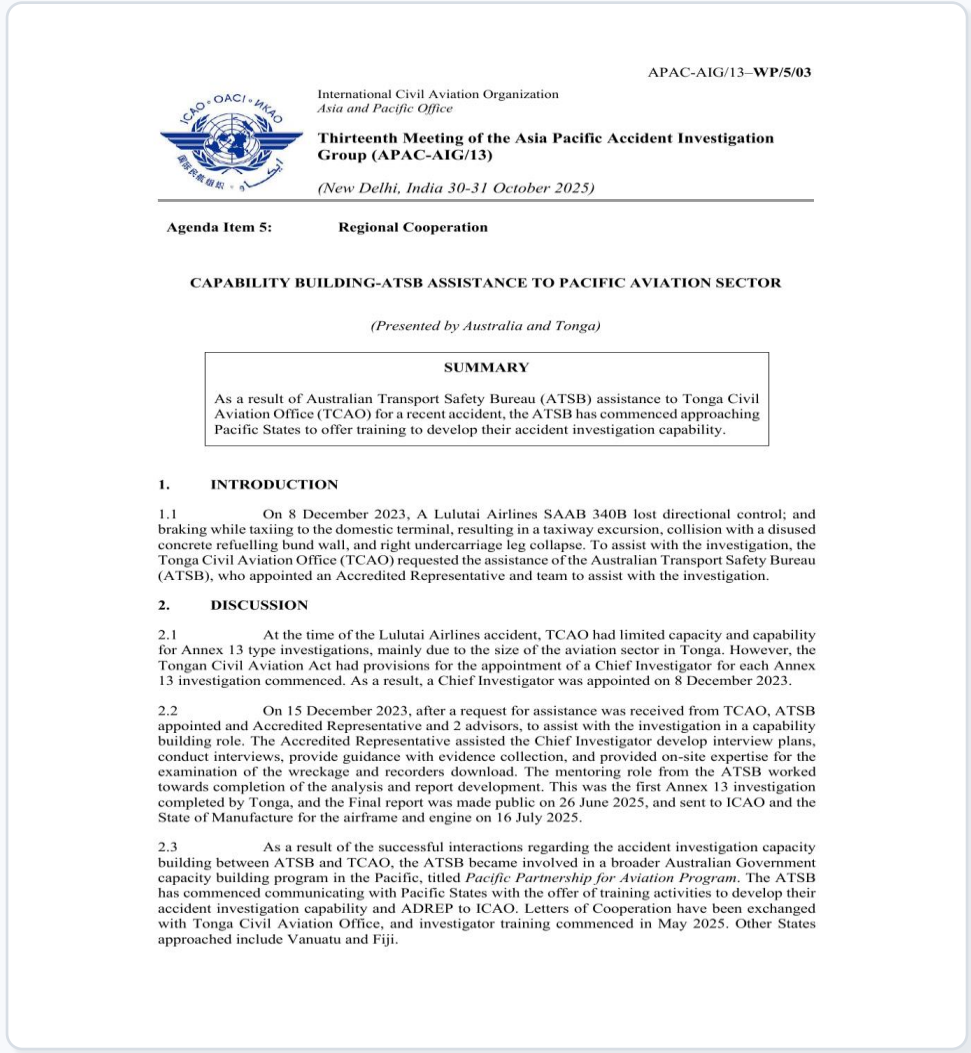
04

PRACTICAL MENTORING

The model builds capability through technical assistance, investigation practice and continued knowledge transfer.

FROM A SINGLE INVESTIGATION → TO CAPACITY & CAPABILITY UPSKILLING

From Investigation to Regional Capability Building



APAC-AIG/13–**WP/5/03**

International Civil Aviation Organization
Asia and Pacific Office

Thirteenth Meeting of the Asia Pacific Accident Investigation Group (APAC-AIG/13)

(New Delhi, India 30-31 October 2025)

Agenda Item 5: Regional Cooperation

CAPABILITY BUILDING-ATSB ASSISTANCE TO PACIFIC AVIATION SECTOR

(Presented by Australia and Tonga)

SUMMARY

As a result of Australian Transport Safety Bureau (ATSB) assistance to Tonga Civil Aviation Office (TCAO) for a recent accident, the ATSB has commenced approaching Pacific States to offer training to develop their accident investigation capability.

1. INTRODUCTION

1.1 On 8 December 2023, A Lulutai Airlines SAAB 340B lost directional control; and braking while taxiing to the domestic terminal, resulting in a taxiway excursion, collision with a disused concrete refuelling bund wall, and right undercarriage leg collapse. To assist with the investigation, the Tonga Civil Aviation Office (TCAO) requested the assistance of the Australian Transport Safety Bureau (ATSB), who appointed an Accredited Representative and team to assist with the investigation.

2. DISCUSSION

2.1 At the time of the Lulutai Airlines accident, TCAO had limited capacity and capability for Annex 13 type investigations, mainly due to the size of the aviation sector in Tonga. However, the Tongan Civil Aviation Act had provisions for the appointment of a Chief Investigator for each Annex 13 investigation commenced. As a result, a Chief Investigator was appointed on 8 December 2023.

2.2 On 15 December 2023, after a request for assistance was received from TCAO, ATSB appointed and Accredited Representative and 2 advisors, to assist with the investigation in a capability building role. The Accredited Representative assisted the Chief Investigator develop interview plans, conduct interviews, provide guidance with evidence collection, and provided on-site expertise for the examination of the wreckage and recorders download. The mentoring role from the ATSB worked towards completion of the analysis and report development. This was the first Annex 13 investigation completed by Tonga, and the Final report was made public on 26 June 2025, and sent to ICAO and the State of Manufacture for the airframe and engine on 16 July 2025.

2.3 As a result of the successful interactions regarding the accident investigation capacity building between ATSB and TCAO, the ATSB became involved in a broader Australian Government capacity building program in the Pacific, titled *Pacific Partnership for Aviation Program*. The ATSB has commenced communicating with Pacific States with the offer of training activities to develop their accident investigation capability and ADREP to ICAO. Letters of Cooperation have been exchanged with Tonga Civil Aviation Office, and investigator training commenced in May 2025. Other States approached include Vanuatu and Fiji.

WHY THIS PAPER MATTERS

It documents how Tonga's first completed Annex 13 investigation became a platform for longer-term investigation capability building across the Pacific.

01

Tonga completed its first Annex 13 investigation

ATSB supported the Chief Investigator with interview planning, evidence collection, wreckage examination, recorder download, analysis and report development.

02

Capability building continued beyond the accident

Following the successful collaboration, Letters of Cooperation were exchanged and investigator training for Tonga commenced in May 2025.

03

Tonga's experience contributed to a wider Pacific initiative

ATSB expanded its engagement through the Pacific Partnership for Aviation Program, offering investigation and ADREP capability development to Pacific States.

04

Regional cooperation is the long-term objective

The paper encourages States to strengthen investigation capability through technical assistance, training and regional cooperation.

KEY MESSAGE • External assistance → local capability → regional cooperation

Tonga’s experience is contributing to wider Pacific Capability

ATSB’s cooperation with Tonga fed into Australia’s Pacific Partnership for Aviation Program and outreach to other Pacific States.

TONGA

First completed Annex 13 investigation
+ practical capability building

PROOF OF CONCEPT

→

PACIFIC PARTNERSHIP FOR AVIATION

ATSB training and technical assistance offered to strengthen accident investigation capability and ICAO reporting.

REGIONAL CAPABILITY

→

WIDER PACIFIC

Vanuatu and Fiji were among the States approached for training and assistance.

COOPERATION • RESILIENCE • SAFETY

The APAC-AIG/13 meeting later applauded Tonga’s achievement and noted the value of the assistance framework for Pacific Small Island Developing States.




Chief Investigator
Final Investigatio
Report
SAAB 340B
Aircraft (A3 – PU
Investigation No
AO – 2023 - 001




KINGDOM OF
TONGA

THANK YOU

Questions & Discussion