Activity Evaluation:
Munda Emergency Alternate Status

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Version:	Final draft
Published Date:	April 2021
Activity Reference:	ACT-010351 (Phase 1)
	ACT-0A12330 (Phase 2)

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Executive Summary

Scope

This Evaluation examines two Activities undertaken to upgrade facilities at Munda airport in the Solomon Islands. These Activities enabled the airport to be certified as an approved 'emergency alternate' to Henderson International Airport in Honiara. This work was funded by the New Zealand Ministry of Foreign Affairs and Trade (MFAT), previously the New Zealand Aid Programme (NZ Aid) in collaboration with the Solomon Islands Government (SIG), with Activities delivered between 2011 and 2020. The total value of the upgrade work was NZ$17 million.

The Activity aligned with SIG objectives to grow the tourism industry as an alternative to resource extractive industries. However, growth prospects have been impacted by international and domestic travel restrictions arising from the COVID-19 pandemic.

Evaluand

The upgrade of Munda airfield involved two distinct Activities:

Activity 1 (or phase 1) extended and rehabilitated the airstrip at Munda, to improve the safety and service standards of domestic flights to and from Munda. This work enabled the runway to accommodate medium size jet aircraft such as the Airbus A320 and Boeing 737. This phase occurred between 2011 and 2015, and MFAT invested $8.7m in this Activity. The upgrade of Munda runway was accompanied by a related Activity to rehabilitate the road between the airfield and Noro, where there was a significant fish processing industry.

Activity 2 (or phase 2) provided Munda airfield with the equipment and facilities it needed to be certified as an 'emergency alternate' to the runway at Honiara. Phase 2 occurred between June 2016 and January 2019, and MFAT invested $8.25m in this Activity.

Evaluation Approach

A typical evaluation of MFAT Activities would require an independent evaluator to travel to the country in which the Activity was delivered, to view the Activity concerned and meet in-country stakeholders.

At the time this evaluation was planned, international travel was severely constrained as a result of the global COVID-19 pandemic. MFAT therefore developed a remote evaluation approach which used in-house resources supported by external evaluative oversight, with the method and findings validated by independent peer review.

Evaluation Findings

The evaluation team considered that this Activity was well planned and implemented, and has provided SIG with a high quality asset that it is capable of operating and maintaining. It provides operational efficiency and safety benefits for national and international air traffic, and a solid basis for economic growth in the Western Province. The Activity has also significantly improved public safety through the removal of substantial quantities of World War II unexploded ordnance (UXO). The runway integrates well into SIG's wider transport

network. However, both Activities did encounter substantial implementation challenges due to delayed preparatory work and significant cost increases that were attributed to the delays and cost escalation for aggregate.

The following summarises how this Activity performs against DAC criteria for development Activities:

Relevance	Good
Coherence	Good
Impact	Good
Effectiveness	Good
Efficiency	Poor
Sustainability	Satisfactory

The upgrade of Munda runway achieved all its objectives of providing the infrastructure required for Munda airfield to be certified as the emergency alternate to Henderson Airport in Honiara, a permanent fuel depot notwithstanding. It has also provided SIG with a second international airport as a gateway to the Western Province.

This was one of the largest infrastructure Activities funded by MFAT at the time, which was consistent with MFAT's growing emphasis on 'bigger, deeper, fewer, longer' Activities. There is no doubt that taking on Activities of this scale in a remote part of the Solomon Islands was a substantial challenge, but the design of the upgrade work was well executed. Activity proponents had a very optimistic view of how quickly the Activity could be delivered. This optimism may have been appropriate if all preparatory work had been completed in a timely way, but there were substantial challenges associated with the removal of UXO, and confirming legal access to an important quarry.

1 Purpose

The New Zealand Ministry of Foreign Affairs and Trade (MFAT) via it's Pacific and Development Group (PDG) administers public funds to deliver official development assistance (ODA) to developing countries. In doing so, it has a responsibility to balance its commitments to development partners against its statutory obligations under the Public Finances Act 2013 regarding efficient and effective use of public funds. MFAT routinely evaluates its Activities and programmes to ensure this balance is optimised via the design and delivery of its ODA Activities.

Evaluation Policy

MFAT policy is that individual Activities are to be evaluated if they exceed NZ$10 million in value. Other Activities may be considered for evaluation if doing so would benefit decision-making, learning, accountability, or if there is a particular need to do so. Evaluation findings help MFAT to assess whether it is making a difference, optimising resources, and using the most effective and efficient methods to support sustainable development outcomes.

Activity evaluations are conducted in accordance with MFAT Evaluation Policy, which defines evaluation as *'the systematic and objective assessment of an on-going or completed activity, programme or policy, its design, implementation and results'.*

Evaluations conducted for MFAT are also required to conform to its 'Evaluating an Activity Guideline'. This assesses Activities against the following criteria which mirror the OECD DAC Quality Standards for Activity Evaluation:

Relevance: the extent to which the intervention was consistent with the priorities and policies of the target group, partner and donor.

Coherence: The compatibility of the intervention with other interventions in a country, sector or institution.

Effectiveness: the extent to which the intervention achieved the desired results (outputs and outcomes).

Efficiency: the extent to which the cost of the intervention can be justified by its results, taking alternatives into account.

Sustainability: the extent to which benefits of the intervention can be sustained after its conclusion.

Impact: the change (positive and negative) arising from the intervention, whether it was direct, indirect, intended or unintended.

Rationale

While each phase of the Munda runway upgrade work was below NZ$10 million, the combined total investment was NZ$17 million, and so exceeded the policy threshold of NZ$10 million above which an Activity requires an evaluation.

These Activities were also significant in that it was one of MFAT's (formerly the New Zealand Aid Programme's) earliest investments in a significant construction Activity, and was conducted in a region where MFAT had limited operating experience.

2 Evaluation Design

Background

This Evaluation was conducted using a novel remote approach, which was developed to enable ongoing evaluation of MFAT's international development Activities despite travel constraints imposed as a result of the COVID-19 pandemic. It was conceived by MFAT's Infrastructure, Energy and Transport team in consultation with MFAT's in-house evaluation staff from the Insights, Monitoring & Evaluation team, to ensure that it met MFAT Evaluation Policy principles (effective, inclusive, resilient and sustained).

Assessment Criteria

MFAT Activity evaluations utilise the OECD's Development Assistance Committee (DAC) criteria and guiding principles for Activity-level evaluations, as revised in 2019 by its Network on Development Evaluation (EvalNet) and summarised in Figure 1 below.

Figure 1 – Revised OECD DAC Evaluation Criteria for Activity-Level Evaluations

Methodology

The Evaluation was conducted by a team of two evaluators comprising:

- An in-house evaluator from the Sustainable Development Sector and Thematic Division (DST) with experience in development Activities, infrastructure, environmental impact assessment. This evaluator focused on characterising the development activity, document review and initial interpretation of findings.
- An independent evaluator with experience in undertaking programme evaluations for MFAT. This evaluator focused on ensuring effective stakeholder engagement, triangulation of information and refinement of findings.

The evaluation team developed an approach that was formalised in a Review Plan which was peer reviewed by a senior external evaluator from Sapere, and approved by a Governance Group that was established to oversee the evaluation of multiple infrastructure Activity Evaluations.

The primary means of data collection was via review of existing MFAT files and publicly available documents, supplemented by engagement with MFAT staff, consultants and contractors involved in Activity planning and delivery (including some who were based in Fiji and Solomon Islands during the planning and delivery phases). The evaluation team also received support from the NZ High Commission in Honiara to gather input from in-country stakeholders, including SIG representatives, focusing on those Ministries and departments involved in the planning and delivery phases, and other organisations involved in the project.

The evaluation team collated its information and findings in a draft report which was considered by the independent peer reviewer. Peer review findings were used to refine the draft and a Governance Group approved the final version (this document) once it was satisfied that the peer reviewer's comments were adequately addressed.

The Solomon Islands Programme Manager was then invited to prepare a management response to the final report. This response typically addresses areas of agreement, disagreement, and proposed actions in response to Evaluation report findings.

Limitations

While MFAT is satisfied that the approach conforms sufficiently with the applicable Evaluation policy, it also acknowledges that there may be some limitations arising from the use of in-house personnel and the inability of the evaluator to visit the subject country. Table 1 outlines these limitations and how they were mitigated by the evaluation approach used.

Limitation	Mitigation Approach
The use of an in-house evaluator introduces a risk of bias.	An independent co-evaluator focused on evaluation design, stakeholder contact & validation of findings. An independent peer reviewer ensured that the evaluative design and approach met the standards required for an evaluation of this nature.
Travel restrictions meant that the evaluator cannot get a first-hand impression of current conditions or meet stakeholders face to face.	A MFAT representative in Solomon Islands organised stakeholder engagement required by the evaluation team.
Personnel involved in the Activity have moved into different roles.	Most personnel involved in Activity design and delivery (in MFAT, Solomon Islands and the contractors used) were available for interview.
There is likely to be insufficient data available to quantify or attribute impacts of the Activity.	Most development Activity evaluations conducted in the Pacific experience limited availability of quantitative data, so tend to be qualitative, but supplemented by quantitative assessment where data are available.
External stakeholders may be unavailable or unwilling to be interviewed by the evaluator.	Participation is voluntary, however, external stakeholders can be interviewed by the external independent interviewer if they do not wish to engage with the MFAT evaluator

Table 1 – Method Limitations & Mitigation Approaches

3 Context

Country Context

The Solomon Islands is a double chain archipelago of 992 heavily vegetated volcanic islands (not all of which are inhabited) covering 28,500 square kilometres in Melanesia. It was a British protectorate until becoming a self-governing republic in 1978. Its population of 584,000 is distributed across the archipelago, although around 85,000 live in the capital city of Honiara on Guadalcanal. The country ranks 157th out of 187 countries on the Human Development Index and is one of the poorest countries in the Pacific. Around 85% of the population live in rural areas with limited access to economic centres, markets and employment opportunities.

Munda is situated on New Georgia Island in the Western Province, which is the largest of nine provinces in the Solomon Islands, with a provincial capital of Gizo which has a population of around 3,000. The Western Province has been a focus for tourism sector development due to its tropical islands and excellent diving on coral reefs and wrecks, and prior to COVID-19 a fledgling tourism sector was beginning to form. The Western Province was significantly affected by an 8.1 magnitude earthquake and tsunami in 2007 which affected much of the Solomon Islands.

Munda is the largest settlement on New Georgia with a population of 3,500 people living in several villages (Lambete, Kindu, Kokegolo, Dunde, Ilangana and Kekehe). While the island of New Georgia is relatively mountainous, the topography of Munda is relatively flat and approximately 10 metres above sea level. It is located directly adjacent to the Roviana and Vonavona lagoons.

Historic Context

The country saw fierce fighting between forces from Japan and the United States during World War II from 1942 to 1943, during which several islands were heavily bombed. Japanese forces built a runway at Munda using compacted coral, which was heavily bombed by US forces during the battle at Munda Point. After the attack, the US gained possession of the Airfield and quickly reconstructed the heavily damaged pavement to create a strategic airbase which operated until the war ended. The airfield was extended eastward in the 1980s.

Between 1998 and 2003 the country experienced a period of civil unrest (referred to as the Tensions) which displaced up to 40,000 Malaitans from Guadalcanal, and led the Government to declare a State of Emergency. The Tensions severely affected tourism and trade, and the country was declared bankrupt in 2001.

Since 2000, the country has seen growth in exports of timber and fish, and development of a limited tourism sector. Despite recent development, human and economic development remain constrained by a challenging geography, public sector capacity, low electrification rates and a limited private sector. Transport challenges

affect much of the population, limiting access to essential services including schools and markets. The fisheries and tourism sectors present growth opportunities, but both are constrained by access challenges and lack of investment.

Aviation Sector Context

Solomon Islands has 34 airfields (24 are operational), but only Henderson airport at Honiara is equipped and certified to receive international and night flights. Henderson was the country's only paved airport prior to phase one this Activity, which imposed the following constraints on economic development:

- Carriers need to use Santo in Vanuatu as their nearest emergency alternate landing, should circumstances preclude their landing at Honiara;
- International tourists wishing to visit Western Province need to transit in Honiara; and
- Fish processing companies in Western Province are unable to export fresh fish.

The closest international airports to Honiara that satisfied Code 4C emergency alternate status were located between 900km to 1,500km from Honiara, in Vanuatu (Port Vila, Espiritu Santos, Luganville), Papua New Guinea (Port Moresby), New Caledonia (Noumea) and Australia (Cairns). As a result, international flights to Honiara typically carried around 7 tonnes of reserve fuel to enable them to divert to Vanuatu if required, which significantly reduced payload capacity of these flights. The availability of an alternate runway at Munda 328 km away (45 minutes flying time) would enable the fuel reserve to be reduced by a third to 4.5 tonnes, enabling flights to carry up to 2.5 tonnes more freight and/or passengers.

Prior to commencement of this Activity, Munda was the second busiest airport in the Solomon Island's after Honiara, and received domestic air traffic between Honiara, Gizo, Seghe, and other outlying airfields. As such, Munda was considered critically important for the continued economic development of the Western Region. The runway was 1,400 metres long and 15 metres wide, and was sufficient to support occasional arrivals by medium size jets (Boeing 737, Airbus A320). However, the surface was uneven and deteriorating and the airfield had only a rudimentary terminal building, and lacked most of the aviation safety features required for operation of an emergency alternate airport.

Solomon Airlines operated flights to and from Munda, using 40-seater DASH 8–100 and DHC 6 Twin Otter turbo prop aircraft. Larger jet aircraft operating in the region included the Boeing B737-400 and B737-800, Airbus A320, Embraer 190 and Fokker 100. These aircraft could carry up to 190 passengers, but could not use the Munda airfield due to its limited size, deteriorating condition and lack of aviation safety features. Solomon Airlines was not able to use Munda runway at night or in inclement conditions, resulting in flight cancellations and limited operations. The runway surface was also causing excessive wear and tear on its planes due to the uneven surface and loose material.

Humanitarian operations in the region typically used Lockheed Martin C-130 aircraft to deploy emergency supplies and personnel, but could not operate from the Munda airfield.

There had been a steady increase in international passengers visiting the Solomon Islands, and air traffic forecasts confirmed the need to service Munda using larger turbo-prop aircraft (with 50 to 70 seats).

MFAT Organisational Context

The Munda Activities (Phases 1 and 2) were planned and delivered between 2011 and 2020, during which time the New Zealand Agency for International Development (NZ Aid) underwent substantial changes in its strategic focus and delivery model.

NZ Aid was established by a Labour government in 2002 as a semi-autonomous body. From 2007[1] NZ Aid was focused on strengthening governance; broad based growth and improved livelihoods; improving health and education; and reducing vulnerability. It prioritised Melanesian countries that were struggling to meet Millennium Development Goal targets (Papua New Guinea, Solomon Islands and Vanuatu), bilateral partnerships (with the Cook Islands, Fiji, Kiribati, Samoa, Tonga and Tuvalu) and constitutional obligation to Realm countries (Cook Islands, Niue and Tokelau).

A critical review in 2008 by the Office of the Controller and Auditor General led the New Zealand Cabinet to mandate[2] that the Programme shift its emphasis to supporting sustainable economic development (including poverty reduction through infrastructure such as transport networks), with an increased focus on the Pacific, reducing Programme overheads, and interventions that had *'self-sustaining measurable impacts'*. This transition coincided with NZ Aid being integrated into the Ministry of Foreign Affairs and Trade (MFAT). In 2011 these changes were reflected in NZ Aid's policy settings, which focused on investing in economic development, promoting human development, improving disaster management, and building safe and secure communities. They were also echoed in the 2015 Strategic Plan[3], which also identified 10 investment priorities (renewable energy, agriculture, ICT, economic governance, law & justice, health, fisheries, tourism, trade & labour mobility, education, resilience and humanitarian response).

This period of transition corresponded with an organisational restructure under which NZ Aid became the Pacific Development Group (PDG), and substantial changes to business processes. Key changes included introduction of the 'Enquire' system for Activity management, which replaced pre-existing systems for contracting, document

[1] NZ Aid Strategy 2007-15: Te Ara Tupu – the pathway of growth. Tackling Poverty in our Region

[2] New Zealand Agency for International Development (NZAID): mandate and policy settings, Office of the Minister for Foreign Affairs, Wellington (2009)

[3] https://www.mfat.govt.nz/en/aid-and-development/our-approach-to-aid/our-priorities/#priorities

management and financial tracking. The 'better business case' model was also introduced, which replaced the previous Activity design model and approvals process for investment decision making. This transition in business systems presented a challenge to pre-existing Activities which were established under legacy systems, but completed under their replacement.

Bilateral Context

When this Activity was conceived, the Solomon Islands was a focus country for MFAT, and investment priorities for included economic development, tourism, fisheries, resilience building and disaster management.

In July 2011, the New Zealand Cabinet agreed to invest up to NZ$25 million, from within the bilateral aid allocation for Solomon Islands, to build priority transport infrastructure in Western Province (namely upgrades to the Munda runway, Nusatupe runway, and the Noro-Munda Road. In return, SIG committed to contribute SBD10m budget allocation to the Ministry of Communications and Aviation (MCA) to support implementation of these Activities. MCA took responsibility for securing quarry access and the clearance of any WWII unexploded ordnance (UXO) in advance of construction. However, both quarry access and unexploded ordnance removal proved to be more challenging that SIG anticipated, which led to significant delays and associated cost increases. As a result, the phase 1 upgrade work was limited to extension and improvement of the runway and associated pavement.

While the upgrade work at Munda made the runway more suitable for routine jet aircraft traffic, the airfield still lacked important navigation and safety features required for compliance with International Civil Aviation Authority (ICAO) requirements, and so could not secure certification from the Civil Aviation Authority of the Solomon Islands (CAASI) as an 'emergency alternate' for Henderson International Airport in Honiara.

In May 2016, New Zealand entered a second co-funding agreement with SIG, under which New Zealand would fund a second phase of construction work required to satisfy requirements for certification to emergency alternate status. In return, SIG committed to reform its aviation sector by establishing a state-owned enterprise (SOE) (Solomon Islands Airport Corporation Limited - SIACL) that would run the country's eight main airfields.

Donor Context

The primary development focus for donors over the period 2003-2017 was helping SIG to re-establish law and order following the Troubles. This focused upon a multi-partner collaboration to establish the Regional Assistance Mission to Solomon Islands (RAMSI) in 2003, which deployed police and troops to the Solomon Islands from Australia, New Zealand, and Pacific island countries. Stability was gradually restored over the following decade and by 2013 overseas military personnel were withdrawn as RAMSI transitioned into a policing mission focused on strengthening the capacity

of the Royal Solomon Islands Police Force. The RAMSI mission closed in June 2017 at a total cost of around NZ$3 billion to Australia and $150 million to New Zealand.

At the time the Munda runway upgrade Activity was conceived and designed, no other donors were involved in transport infrastructure construction or rehabilitation in the Solomon Islands, and support for the tourism sector was limited to private sector initiatives. A European Union funded project enabled the construction of a jetty in Munda which provides boat access to the area.

Stakeholders

Key Solomon Islands stakeholders involved in the Munda runway upgrade work included:

- Ministry of Infrastructure and Development (MID): responsible for the development and maintenance of aviation infrastructure.
- Ministry of Communications and Aviation (MCA): responsible for the development and maintenance of aviation infrastructure.
- Civil Aviation Authority Solomon Islands (CAASI): responsible for managing compliance with national and international aviation safety requirements.
- Solomon Airlines: This domestic carrier has daily flights to Munda airport.
- Residents in Kekehe community (adjacent to the airfield).

Fish processing industry in Noro: The fish processing industry currently relies upon shipping for export of its processed (canned) tuna. The possibility of Munda opening up international routes in the future could in the long-term create opportunities for more direct, and cheaper, air export of fresh fish. This would require a fuel depot at the Munda airfield. The Noro-Munda road is a key arterial road and connects Munda to Noro Port, the base for tuna processing and a planned growth centre for Solomon Islands. The 19km road was severely degraded and required significant reshaping and resealing. The average journey time by car from Noro to Munda was 1.5 hours. The newly reconstructed road has cut the journey time to 30 minutes.

Tourism industry in Western Province: There is a fledgling tourism industry in Western Province focused on snorkelling and diving opportunities. This Activity is likely to improve the air links with Honiara (more frequent, safer and potentially cheaper flights) and provide the possibility for Munda to re-open to international routes in the future.

4 Runway Upgrade (Phase 1)

This Phase of the Munda EAS Activities involved the resurfacing, widening and extension of the runway at Munda. Key details of this Activity are:

MFAT Descriptor:	Munda Emergency Alternate Status (Phase 1) ACT-010351
Design Start[4]:	8 August 2011
Construction Start[5]:	April 2012
Construction End[6]:	8 December 2014
MFAT contribution:	NZ$8.7 million
Modality:	Project
Contractual:	Design: AECOM New Zealand Limited Construction: Downer Engineer to Contract: AECOM New Zealand Limited

Concept

Phase 1 involved upgrade and extension of the pre-existing runway at Munda, to facilitate the operation of Solomon Airways DASH 8 aircraft and enable the runway to be available as an emergency alternative to Henderson International Airport for Code 3C and 4C aircraft (including Boing 737-800 and Airbus A320 jet aircraft). Regular operations by Code 3C / 4C aircraft were not envisaged at the time. These requirements set the design parameters for the runway upgrade at Munda.

This upgrade would enable international flights to and from Honiara to carry more passengers and/or freight, thereby improving the economics of air transport in the region. It was also acknowledged that an improved runway in Munda which could accept larger aircraft, could boost the region's economy by bringing in more tourists and facilitating the transport of high value fish exports from Noro.

The scope of work involved increasing the runway length by 29% (to 1,800 metres) and doubling its width to 30 metres; surface levelling and placement of new base course and chip seal; development of associated apron, taxiways, reserve safety areas and aircraft parking; surface water drainage and application of line markings. SIG conducted preparatory works to clear vegetation (providing a 150 metre wide

[4] The date that MFAT first commissioned design work on the Activity.
[5] The date that the grant funding arrangement was signed, formally initiating the Activity.
[6] The date of Practical Completion, when the asset was handed over to the partner (noting that the construction contract ran for a further year until expiry of the defects liability period, during which any outstanding quality issues were resolved).

clearing along the runway length), removed UXO and confirmed access to land for the airfield, and a quarry to provide the coral aggregate required.

Design Approach

The International Civil Aviation Authority (ICAO) regulates airport infrastructure and operations according to their anticipated use.

AECOM was commissioned by MFAT to develop a concept design which satisfied ICAO requirements for a Category 6/7 facility, which would enable certification as an emergency alternate by CAASI for aircraft such as the Boeing 737, Fokker F100 and Airbus 320. This work involved detailed site investigations to assess conditions and constraints, culminating in a cost:benefit analysis that considered five runway length options designed to accommodate domestic or international flights, and aircraft of different sizes. The preferred option was a 1,800 metre runway, which the analysis indicated would provide an 11.6% internal rate of return, with direct benefits including reduced aircraft operating cost and improved reliability, improved capacity and maintenance savings, while indirect benefits included local employment opportunities and market growth for fisheries products and tourism.

AECOM estimated the work would take 10 months to complete at a cost of NZ$9,950,000 (which included design, procurement, surveys, UXO safeguarding, construction support and asset management arrangements).

The concept design also identified the need for a range of facilities and instrumentation, including a weather station, ground radio, aeronautical navigation aids, instrument approaches, visual guidance system, airfield lighting, parking apron, equipment storage, fuel storage, perimeter fencing, and airport rescue and firefighting (ARFF) provision. It also identified risks associated with unexploded ordnance and a range of possible adverse social and environmental impacts, including visual impact of tree removal, relocation of occupants of the adjacent Kekehe community (who in the 1950s gifted land to the government); and interruption to established pedestrian routes to the hospital, settlements and beaches.

Several buildings on the airport perimeter were removed during the upgrade work, and people relocated in order for the airport to comply with regulations as an emergency alternate airport. These households were relocated to designated areas following a SIG-led consultation process and agreement by the affected communities.

Procurement & Contracting

MFAT and SIG agreed to contract AECOM to undertake the detailed design of the civil works projects, to assist SIG with the tender process, and act as Engineer to Contract for the construction stage.

AECOM prepared a tender package for the civil works upgrade, which was independently reviewed by Cardno prior to release. Six companies submitted tenders and Downer was selected as the successful bidder to deliver the construction contract.

MFAT established a grant funding arrangement with SIG which confirmed New Zealand's financial commitment and confirmed responsibilities of the parties. SIG was responsible for all preparatory work, which included community engagement, securing land and quarry access, clearance of encroaching jungle and removal of unexploded ordnance. This enabled SIG to contract Downer using a contract developed by AECOM.

The SIG Ministry of Infrastructure Development (MID) entered into contracts with the construction contractor (Downer) and the UXO clearance firm (Milsearch).

MFAT established a contract with AECOM for detailed design and Engineer to Contract services. MFAT also contracted CSG Demining Consultants Ltd to perform a quality assurance role to ensure the UXO clearance work progressed quickly and met required standards.

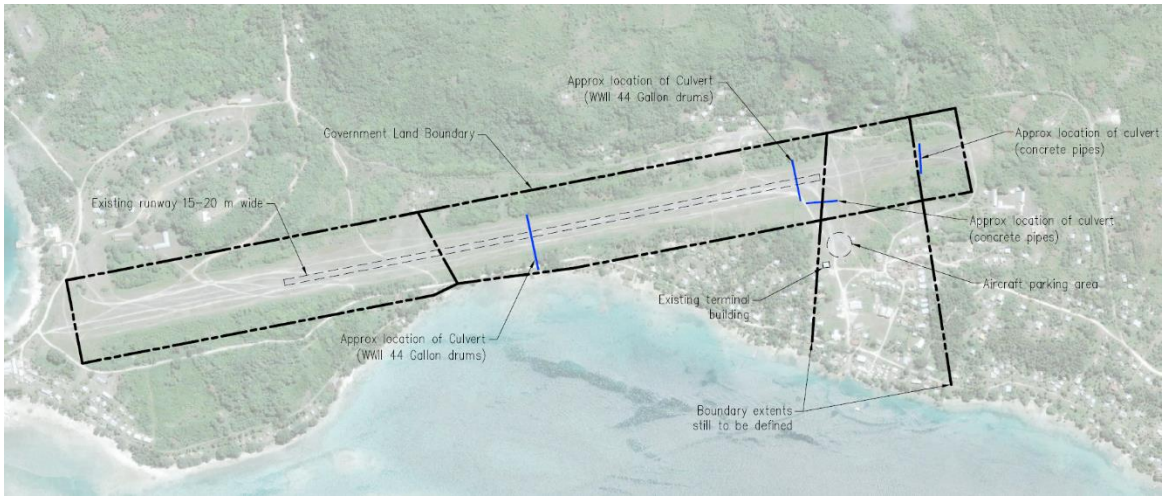


Figure 2 – Pre-Existing Airfield Layout (Source: AECOM Concept Design June 2011)

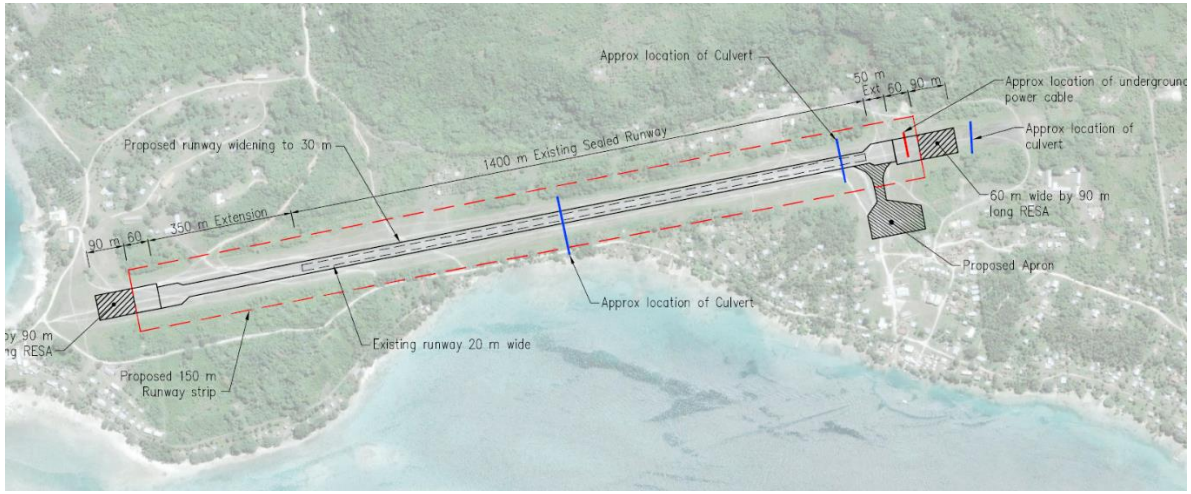


Figure 3 – Proposed 1,800m Runway Option (Source: AECOM Concept Design June 2011)

Figure 4 – Munda Airstrip circa 1946

Figure 5 – Munda Airstrip Prior to Upgrade Works

Figure 6 – Munda Airstrip following Phase 1 Upgrade Works

Governance

The primary mechanism for Activity governance was via the Project Group, where AECOM reported on progress to representatives from MFAT, MCA and MID. While the MFAT Activity Manger was based in Wellington, they were supported by a project management team at the New Zealand High Commission in Honiara, which managed routine interaction with the project.

Given the keen interest of senior government Ministers from both New Zealand and Solomon Islands, a high level Steering Group was also established within MFAT to ensure Ministers remained well informed of progress with the runway upgrade.

Implementation

The surveying, removal and disposal of UXO began during the detailed design and tendering period in an attempt to avoid delays during construction. However, the scale of UXO contamination was more significant than anticipated, with 10,771 individual items being encountered, including several large aerial bombs, hand grenades, mortar bombs, naval shells and smaller projectiles. This led to significant slippage and clearance was not completed until four months after Downer mobilised its site crews in April 2012.

Further serious delays occurred due to disputed ownership of the Vulea Quarry which was used to provide aggregate for the runway and Noro Road. Settlement was eventually reached with the two landowners 53 days later, but once work re-commenced, a third party disputed ownership rights for the quarry, which led to a further delay of 6 months. While Downer was able to re-assign some crews during these delays, the result was substantial delays for the Activity timeline, and a substantial increase in construction costs. The access

issue was eventually resolved when New Zealand's Minister of Foreign Affairs raised the matter with the Solomon Islands' Prime Minister, leading SIG to establish a memorandum of understanding with the recognised quarry owners. However, the royalty agreement reached for aggregate was substantially more expensive than those anticipated during the detailed design process.

Downer eventually gained access to the Vulea Quarry, which enabled construction work to restart. However, by that stage additional costs arising from delayed construction and increased aggregate costs came to NZ$6,400,000, meaning that there was insufficient funding to install the aviation safety facilities and instruments. The scope of the upgrade work was therefore limited to civil works, and practical completion was eventually achieved by March 2013.

New Zealand's Minister of Foreign Affairs opened the upgraded Munda runway and road between Munda and Noro on 15 August 2013.

Post-Activity Developments

MFAT maintained dialogue with SIG regarding the outstanding works required to achieve emergency alternate status. However, progress was slow due to the challenge of planning for aviation sector reform, compounded by serious flooding in Honiara in April 2014, which distracted and resources from preparing for Munda Phase 2.

A further grant funding arrangement was signed, under which MFAT committed to funding the outstanding works, contingent upon SIG initiating an aviation sector reform process. SIG formally committed to aviation sector reform which enabled the Phase 2 work to proceed.

SIG is also continuing to deal with unresolved land claims in and around Munda. Some landowners subsequently contested whether their land was covered by the 1950's 'deed of gift' which transferred the land into state ownership. Meanwhile, legal proceedings have been initiated to resolve contested land ownership of the quarry site, which if successful will release funds allocated for quarry royalties that MFAT transferred to SIG in June 2014.

5 Emergency Alternate Conformance (Phase 2)

This Phase of the Munda EAS Activities involved the installation of perimeter fencing, ground lighting, firefighting facilities and air navigation systems. Key details of this Activity are:

MFAT Descriptor:	Munda Emergency Alternate Status (ACT-0A12330)
Construction Start[7]:	June 2016
Construction End[8]:	January 2019
MFAT contribution:	NZ$8.25 million
Modality:	Project
Contractual:	Design: AECOM New Zealand Limited Construction: Various (5 separate contracts) Engineer to Contract: AECOM New Zealand Limited

Concept

Phase 2 involved the installation of support services to enable the upgraded runway to achieve CAASI certification as the 'emergency alternate' to Henderson International Airport in Honiara. The additional features provided by Phase 2 works included a perimeter security fence, airfield ground lighting, navigational aids, and firefighting infrastructure.

Design

AECOM prepared an Environmental Impact Assessment (EIA) for Phase 1 in 2012, which involved community consultation and guided the runway upgrade work. AECOM conducted a second Environmental and Social Impact Assessment (ESIA) in 2014 in preparation for Phase 2. This focused on possible impacts beyond the runway itself, and identified the mitigation measures that were implemented via a Construction and Environmental Management Plan. The ESIA confirmed that the erection of a perimeter security fence would interrupt pedestrian traffic between settlements to the north and south of the runway. This led to the installation of lockable gates in the security fence. The gates enabled continued pedestrian access except for times when aircraft movements made it unsafe.

In 2012, Munda Airport had an average of 168 aircraft movements per month (6 per day) which transported 4,338 passengers per month. DASH 8 aircraft carried most (70%) of these passengers, with the remainder carried by DHC6 Twin Otter (20%) and Britten Norman Islander (10%) planes.

[7] The date that the grant funding arrangement was signed, formally initiating the Activity.
[8] The date of practical completion, when the asset was handed over to the partner (noting that the construction contract ran for a further year until expiry of the defects liability period, during which any outstanding quality issues were resolved).

Community engagement conducted during 2012 revealed community support for the airport upgrade, and identified that the boundary road would transect church land. Other issues identified included concerns about construction noise, dust and the transmission of sexually transmitted disease, all of which could be adequately managed during implementation.

While much of the Phase 2 work was to be conducted within the airfield boundary established for Phase 1, significant additions were the perimeter security fence (which included two lockable gates to enable pedestrian traffic across the site when safe to do so) and the Airfield Rescue and Fire Fighting Facility (ARFF) (Figure 7).

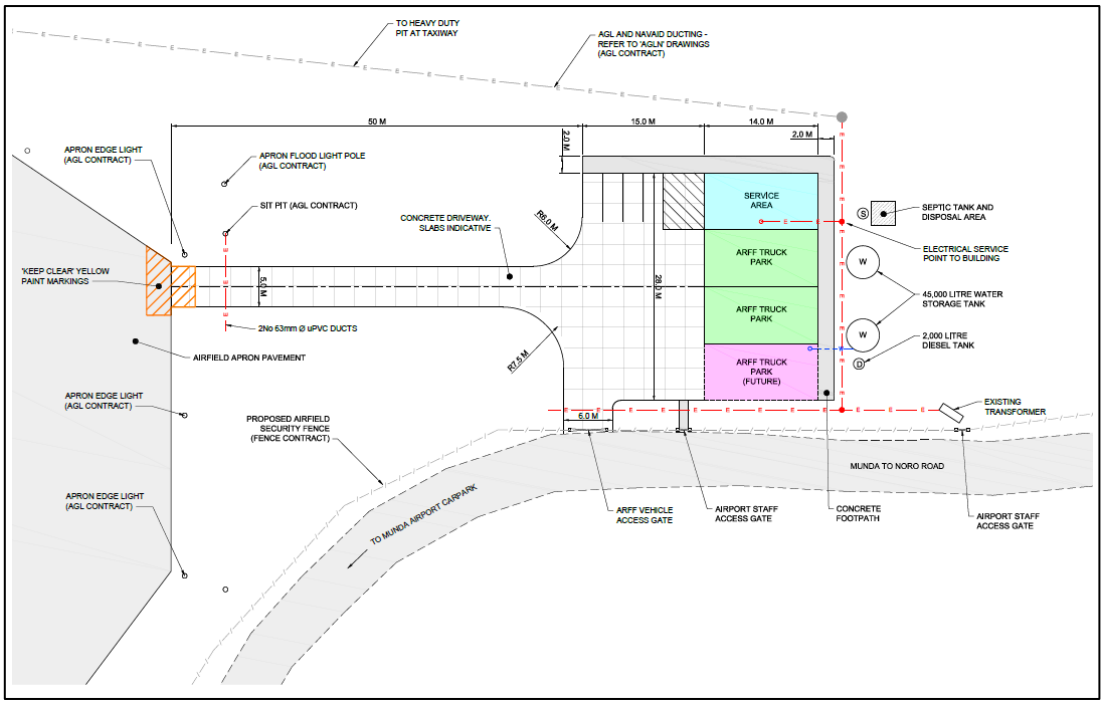


Figure 7 – ARFF Facility Site Layout

Procurement & Contracting

This Activity used a Joint Project (New Zealand facilitated) modality, under which MFAT managed the procurement and supplier contracts for design, supply, installation and project management services. MFAT worked closely with SIG stakeholders (MID, MCA and CAASI) throughout the Activity.

MFAT had a Grant Funding Arrangement with SIG that outlined the roles and responsibilities of the parties, including governance, local management/supervision and co-financing arrangements. MFAT also contracted AECOM to provide design, tendering, procurement and contract management support.

The diverse nature of works required for Phase 2 led to three work packages being put to competitive tender, and three individual contractors were secured to deliver different packages of work. MFAT managed the tendering, procurement and contracting process in collaboration with SIG. These were the Australian firm EB Fencing Pty Limited for the

perimeter security fence, GECI Española S.A. for the ground lighting and navigational aids, and Reeves Construction Services Pty Limited for the ARFF building.

Governance

The governance arrangements for Phase 1 were largely applied to Phase 2

Implementation

Site works were largely implemented without significant issues. The exception was slow progress on the ground lighting contract by the Spanish contractor. Phase 2 achieved practical completion in January 2019.

Munda airfield was accredited as an EAS to Honiara when it received its certificate of completion. But in practice only, as there is no fuel source or fuel depot in Munda. Although a plane can land in an emergency, it could be stranded there with no aviation fuel.

Prior to the COVID-19 lockdown in March 2020, Solomon Airways operated domestic flights to eight destinations from Munda, with a one-way ticket to Honiara with Solomon Airlines costing around NZ$300. While Solomon Airlines commenced a weekly international service between Munda and Brisbane in March 2019, all international flights were suspended a year later due to international travel restrictions imposed in the wake of the COVID-19 pandemic. These restrictions also curtailed domestic air services, and has caused financial difficulties for Solomon Airways.

Table 2 Domestic Air Freight Rates from Munda (SBD)[9]

2012 – 2018 trend data provided by Solomon Airways shows a strong increase (83%) of domestic cargo coming into Munda (mainly from Honiara). Freight going out from Munda (mainly to Honiara) also increased but only by 45%. Comparative figures with Gizo 2012-2018 shows that freight coming into Gizo saw a 27% increase, whereas Munda had 83% increase. Freight departing from Gizo for the same period had a 45% increase, the same for Munda (45%). In 2019, there was a small drop in freight coming into Gizo (-2.8%) but for Munda in 2019 it dropped by 28% in one year. For cargo leaving Munda in 2019 there was no real change (-2.5%) but for Gizo outward cargo dropped by 18%. In 2019, 209kg of cargo entered Munda from Brisbane. No other figures were available.

Some landowners are disputing that the 1950's 'deed of gift' on Munda runway (which transferred private land into state ownership) actually covered land that they claim to own. It is understood that this dispute is yet to be resolved.

New Zealand funds allocated for quarry royalties were transferred to SIG in June 2014. It is understood that they remain in a government bank account pending final determination of landownership of the quarry site.

[9] Solomon Airlines website: https://www.flysolomons.com/bookings/cargo/domestic-freight-rates

MFAT is currently maintaining its investments in the operation of SIACL and the upgrade of provincial airfields. The World Bank is also committing US$54 million to the Solomon Islands aviation sector via its Solomon Islands Roads and Aviation Project (SIRAP)[10] which aims to *'improve operational safety and oversight of air transport and associated infrastructure….'*. SIRAP will undertake further upgrades at Munda to ready the airfield for regular international service. Improvements include a new terminal building, air traffic control tower, additional navigation systems, weather station,standby generator and critically, runway pavement strengthening. The selection of chip seal under MFAT's Phase One Activity while appropriate for emergency Code 3C and 4C aircraft, has limited longevity if accommodating regular service for these larger aircraft.

[10] https://projects.worldbank.org/en/projects-operations/project-detail/P166622

5 Evaluation Findings

Evaluation of the Munda Emergency Alternate Status Activity comprised assessment of relevant documents and responses from stakeholders, and findings are presented in the following sections:

1. Outcomes and outputs specified in the Activity's Results Framework.
2. Evaluation questions designed to explore development relevance impact, effectiveness, efficiency, sustainability.

It should be noted that the primary objective of the Munda runway upgrade was to enable access for larger domestic aircraft and reduce airline operating costs, which would in turn increase capacity for passengers and freight. This Activity also enabled SIG to develop the upgraded runway into an international airport serving the Western Province.

The COVID-19 pandemic has had an enormous impact on the global aviation sector. As is the case with many other countries, the Solomon Islands imposed strict restrictions on domestic and international air services from March 2020 to control the transmission of COVID-19. As a result, it is not possible to quantify the impact of the Munda upgrade on the aviation sector. Evaluative judgements in this report are therefore mainly qualitative rather than quantitative; focus on outputs rather than outcomes, and consider opportunity than achievement.

Activity Results Framework

In July 2011, MFAT introduced a requirement to use a Results Framework as a basis for monitoring implementation progress and post-closure assessment. Phase 1 of the Munda runway upgrade was conceived and designed before MFAT business processes required a formal results framework. As such, the logical framework for Phase 1 is derived from the rationale for development and design specification in the Activity Design Document, which were subsequently reflected in construction contract requirements.

A detailed Results Framework was developed as part of the design process for Phase 2. This comprised a number of outputs (which corresponded with ICAO certification requirements to meet emergency alternate status) which contributed to short, medium and long-term outcomes. While it did not retrospectively incorporate Phase 1 outputs, the outcomes remain applicable to both Phase 1 and Phase 2. The evaluation team considered the Phase 1 Activity Design Document to identify relevant outputs that could be retrospectively applied in the assessment of Phase 1 (see Table 3 below).

Outputs & Outcomes

As the works required to achieve emergency alternate status were only completed in 2020, it is unrealistic to assess achievement of medium and long-term outcomes at this point. Consequently, assessment is focused upon outputs and short-term outcomes, although consideration is given to the likelihood of medium and long-term outcomes being achieved.

Outputs

Table 3 (below) illustrates that all specified outputs were achieved. In addition, major outputs delivered via SIG that were associated with this Activity (but would not otherwise

have been achieved) included clearance of vegetation around the airfield, and removal of a substantial quantity of UXO.

Outputs	Status
Phase 1	
Runway extension, widening & resurfacing	Achieved
Apron	Achieved
Taxiways	Achieved
Reserve safety areas	Achieved
Aircraft Parking	Achieved
Upgrade surface water drainage	Achieved
Surface markings	Achieved
Phase 2	
Perimeter security fence	Achieved
Airfield ground lighting (AGL) & navigation aids	Achieved
Aircraft rescue & firefighting (ARFF) facilities	Achieved
Operator training in AGL and navigation systems	Achieved
Operator training in AARF vehicle use/maintenance	Achieved
Asset management plan developed	Achieved
Aeronautical information publication updated	Achieved

Table 3 – Results Framework Outputs

It is clear from the above that the Activity achieved all specified outputs, and that they conformed to applicable engineering quality specifications.

It is not possible to quantify its development benefits or impact on the regional or national economy at this stage due to the downturn in the tourism sector internationally since March 2020 resulting from the COVID-19 pandemic. However, the runway upgrade has provided a solid basis for potential long-term regional economic development, including opportunities for the export of high value commodities to international export markets. It has also provided SIG with the opportunity to develop an international airport serving the Western Province. However, realisation of the benefits of this new asset is contingent on international tourism and trade returning to their pre-COVID development trajectories, and the effectiveness of its operation and maintenance. It will also rely on direct international flights for the export of fresh fish. This can only be achieved once there is a permanent fuel depot and other upgrades at Munda Airport.

Outcomes

Table 4 (below) illustrates that it is not possible to determine many of the medium and long-term outcomes, due to the severe interruption to service suffered by the global aviation sector as a result of the COVID-19 pandemic. However, it can be concluded that the Activity has been successful in that it provided an enabling environment for economic growth in the tourism and high value export sectors, by virtue of providing a runway

capable for use by larger aircraft which did result in establishment of scheduled international flights (weekly between Munda and Brisbane via Honiara).

The sustainability of this investment is supported by SIG's success in establishing SIACL. While an international service was established, it only operated for one year before the impact of the pandemic, so there is insufficient data for quantitative assessment of the long and medium-term outcomes. These include anticipated economic benefits for the region and the aviation sector (attributed to: aviation fuel savings; reduced aircraft maintenance costs; increased cargo capacity; and more tourists) and reduced ticket prices for passengers.

Medium term outcomes include increased passenger numbers and increased time-critical exports. Both objectives would be enabled by improved runway infrastructure, but are also significantly influenced by externalities that affect expansion of the tourism and fisheries sectors.

All short-term outcomes have been achieved, namely:

1. Comprehensive improvements to the runway and supporting infrastructure have significantly improved the air safety for all aircraft using the runway.
2. The airfield satisfies current requirements for certification as an all-weather alternate to Henderson Airport in Honiara.
3. The airfield has significantly improved the ability of humanitarian flights, which will improve the effectiveness of disaster response efforts to the Western Province and elsewhere.
4. It is envisaged that the establishment of SIACL will increase SIG's capacity to operate and maintain airport infrastructure.

Outcomes	Status
Long Term	
Increased employment from fisheries and tourism to the economy	Unable to determine*
Increased revenue from the aviation sector	Unable to determine*
Medium Term	
Opportunities to expand services to international flights	Achieved
Increased volume of time critical exports through Munda	Unable to determine*
Increased in tourism to Western Province	Unable to determine*
Increased disaster management capacity	Achieved
Increased passengers transported (based on lower airfares) to Solomon Islands	Unable to determine*
Increased freight transported through aviation sector	Unable to determine*
Short Term	

Increased safety for larger aircraft	Achieved
Accredited as an emergency alternative to Honiara airport	Enabled
Strengthened staff capacity to effectively use and maintain buildings and equipment	Achieved
Assets regularly & correctly maintained –continued operational safety	Achieved

* Due to impact of COVID-19 Pandemic on the national & international aviation sector

Table 4 – Results Framework Outcomes

Results Framework monitoring of Munda airport operations by the New Zealand High Commission identified a 20% increase in passenger numbers (2011 to 2015), a 16% improvement in flight timeliness (2011-2014) and 7.5% increase in air cargo volume (2011 to 2014). It also noted that routine maintenance was being conducted at Munda and all other airstrips in 2015.

Relevance

The assessment of relevance considered the following evaluation questions:

Did the Activity respond to internationally acknowledged development principles, and relevant objectives and priorities?

The Activity design aligned well with Busan Aid Effectiveness Principles, as the development partnership was led by SIG and consistent with its stated strategic interests. This partnership was formalised via establishment of a Joint Commitment for Development, which ensured accountability and transparency and demonstrated mutual trust.

While the Munda upgrade did not directly address poverty alleviation, the development rationale was that it would boost economic development in a region that showed opportunities for growth (in both tourism and high value exports), and that this growth

would boost SIG revenues and have a broader 'trickle down' into the Western Province economy, thus supporting broader based development.

Establishment of SIACL as a pre-condition for MFAT investment in Phase 2 aims to improve aviation sector governance and accountability arrangements, and boost technical specialist capability in aviation services and infrastructure asset management.

The establishment of Munda as an emergency alternate airport was not strongly aligned with the Millennium Development Goals 2000-2015, which focused on human development. However, the Activity was strongly aligned with several of the subsequent Sustainable Development Goals 2015-2030 (namely: goal 8 - Decent work and economic growth, goal 9 - Industry innovation & infrastructure, and goal 15 - Peace justice & strong institutions).

Relevant Objectives and Priorities

The Solomon Islands National Development Strategy (2011-2020) committed to improvements to both road and aviation infrastructure, while SIG's National Transport Plan specifically referenced the need for upgrades to Munda runway (desirable), Nusatupe runway (very high priority) and the Noro-Munda road (very high priority). The National Infrastructure Investment Plan also included a commitment to upgrade and maintain Munda airport. Consequently, bundling the three infrastructure upgrades into an integrated package was strongly aligned with SIG strategic priorities.

MFAT Stakeholders who were interviewed noted that although upgrading Munda runway was deemed desirable by SIG, the initiative was in part driven by New Zealand's focus at this time to support large infrastructure projects.

> *"The international airport was considered a luxury project by the Solomon Islands Ministry of Infrastructure …Rationale got tied into emergency status given that the Solomon Islands didn't have a backup airport at that stage…. Economic analysis was that if planes can carry less fuel, there will be more room for passengers and cargo and there will be fuel savings through less weight they have to bring in…. Western Province has more tourism than elsewhere in the Solomon Islands … Rationale less for an economic argument, more aimed at stimulating tourism market." (010)*

In-country partners noted that although the project was not their highest priority, it was part of government projects to support socioeconomic activities and provide infrastructure for tourism development into the future. They saw it aligning with the the Democratic Coalition Government for Advancement (DCGA) and also Western Province objectives and priorities for the tourism sector and connectivity. They also felt that the country needed a second international gateway besides Honiara.

> *"Infrastructure development or the lack thereof has been identified as one of the key constraints to economic development in the province and countrywide as well. The Munda EAS upgrade is therefore seen as a key project in terms of improving existing infrastructure to meet required standards as per international requirements. It meets the WPG Policy Objective. Tourism development was one of the main drivers that perhaps paved the way for the project with a view to targeting the Australian Market and the Brisbane route corridor. Whether that has actually met its objective or not remains to be seen but it may*

well be still too early to make that call….. while the output has been met, the outcomes of the project is yet to be fully maximized". (035)

Despite MFAT's changing strategic landscape between 2010 and 2020, support for infrastructure development was a consistent theme. It was evident in its Strategy 2007-15 (which included a focus on transport networks and considered the Solomon Islands as a priority for support); and its International Development Policy Statement in 2011 (in which key themes included investing in economic development and improving disaster resilience). MFAT's 2012-2015 Sector Priorities supported domestic airport upgrades to support tourism and/or meet safety requirements. MFAT's Statement of Intent 2013 emphasised sustainable economic development, and MFAT's Strategic Plan 2015-19 specified 12 investment priorities, which included tourism, fisheries, resilience and humanitarian response. Support for the Munda upgrade was therefore a strong and consistent alignment with the strategic direction of MFAT.

This coincidence of strategic priorities led to establishment of a Joint Commitment for Development between MFAT and SIG, which included a commitment to *"redevelopment of Munda runway to international emergency alternate status".*

Coherence

The assessment of coherence considered the following evaluation question:

How well did the Activity align with others being implemented in-country?

There were no other development partners supporting air infrastructure in Solomon Islands at the time the Munda upgrade Activity was conceived. The World Bank's Pacific Aviation Investment Programme (PAIP) covered similar activities in Kiribati, Tonga and Tuvalu. As such, the Munda upgrade Activity filled a significant gap that existed in the Solomon Islands transport sector.

It is also important to acknowledge that the upgrade of Munda runway was delivered in conjunction with a number of complementary Activities funded by MFAT. These included upgrading the Noro-Munda Road and Nusatape Runway, and subsequent establishment of SIACL and the upgrade of several provincial airfields. This sustained investment over a decade represents a broad based integrated investment in development of the Solomon Islands aviation sector, which aligns strongly with SIG's priority to develop its tourism sector as a basis for long term economic development.

Impact

The assessment of impact considered the following evaluation questions:

What were the positive impacts?

The primary positive impact has been the establishment of a fully functioning runway that accommodates both domestic and international flights and enables regional economic development in the tourism and fisheries sectors (presenting a viable alternative to extractive industries).

It was a hard and challenging project, but talking to SIG officials, pilots who use the airport, and tourist operators …, it was obvious that these beneficiaries were very happy with it." (006)

Associated benefits that can be attributed to this Activity include: a perimeter road around the security fence, which has improved vehicle access in the area; removal of a significant quantity of UXO which improves safety of airport operations and the general public in the area; establishment of an SOE which enables the sustainable operation and maintenance of airports in the Solomon Islands; and demonstration of a viable model for integrated transport infrastructure in the Solomon Islands, which has energised subsequent development activity by both MFAT and the World Bank.

Pre-2015 reporting from the ADB-led Transport Sector Development Project confirmed that the runway upgrade at Munda has led to more reliable flight schedules, fewer flight cancellations due to bad weather, and reduced wear and tear of Solomon Airlines aircraft. This is supported by formal reporting from the ADB-led Transport Sector Development Project, which revealed that 64% of flights into/out of Munda and Nusatupe (as of June 2014) were operating on time when compared to the 2011 baseline of 50%.

There have also been reports of increased traffic volumes on the Noro-Munda Road since this Activity, and increased business activity in the Noro-Munda area. However, it is not possible to determine to what extent this can be attributed to the runway upgrade as opposed to the road upgrade. Western Province tourism operators perceive an increase in incoming passengers, except for 2014 which was a challenging year due to the impact of the Guadalcanal floods.

Unfortunately, COVID-19 has resulted in the airport's closure to international flights, significantly, delaying achievement of this medium-term outcome. Achieving the full expected impacts of this Activity will only accrue when restrictions on national and international air transportation are lifted. However, it is anticipated that the Pacific aviation sector will experience a slow recovery, and there remains a risk that some Pacific airlines may not survive the challenges of the current operating environment.

In-country partners commented that prior to COVID-19, the project had the desired outcome, which was to promote safety, be a compliant EAS airfield to Honiara, and provide international connectivity. Although they acknowledge that any benefits with regard to improved access for tourism development and increased participation on socioeconomic developments are yet to be fully realised. As mentioned, this is due in part to COVID-19, but in-country stakeholders also noted that a realisation of having good infrastructure is just one aspect. Marketing, promotions and attractive tourist packages are other components. The continuation of broader tourism and economic development support by MFAT and others will be necessary to fully realise the long-term outcomes of this Activity.

What were the negative impacts?

The most significant negative impacts encountered during Phase 1 implementation were attributed to the elevated traffic activity and associated noise and dust, and reduced pedestrian access across the airfield during UXO removal. By comparison, Phase 2 involved significantly less civil works and traffic movement, although it did result in construction of the perimeter security fence, which represents the most obvious long-term negative impact

of Phase 2. This fence presents a substantial barrier to pre-existing pedestrian traffic routes. However, this impact has been moderated by the installation of lockable gates on either side of the runway, which enables free public passage at all times except for when it is unsafe due to aircraft movements. Community feedback received is that while this is not an ideal arrangement, there is widespread acceptance that the disbenefits of reduced access are ameliorated by the regional economic benefits associated with having an important infrastructure asset operating in the vicinity.

> *"The High Commision and AECOM were actively engaged in community consultation and awareness sessions, [they] did a lot of work to explain why they were putting up a fence, for their own safety. People now see big jets coming in and they realise what we were talking about. There's now also a good ring road. Gates in the fence were an interim agreement, but people now realise as the airport's gets busier, they will be closed more often. There's public awareness and appreciation, that in time the gates will transition to remain closed." (016)*

While the noise of airport operations is of course an issue, the local community appears to be much more accepting of occasional noise than their western equivalents. Overall there is broad support from the community for the upgrade, but there is still frustration that issues with compensation have still not been resolved.

Effectiveness

The assessment of effectiveness considered the following evaluation questions:

Was the design and implementation process fit for purpose?

The design of Munda runway upgrades was focused upon enabling its use as an emergency alternate to Henderson airport, which would not provide a direct benefit to the Western Province per se. However, the upgrade would also enable the runway to be used for international air traffic, and thus establish the basis for scheduled international air services from Munda, which would have direct economic benefit to the Western Province. It would also improve air access for humanitarian flights involved in disaster response work in the region.

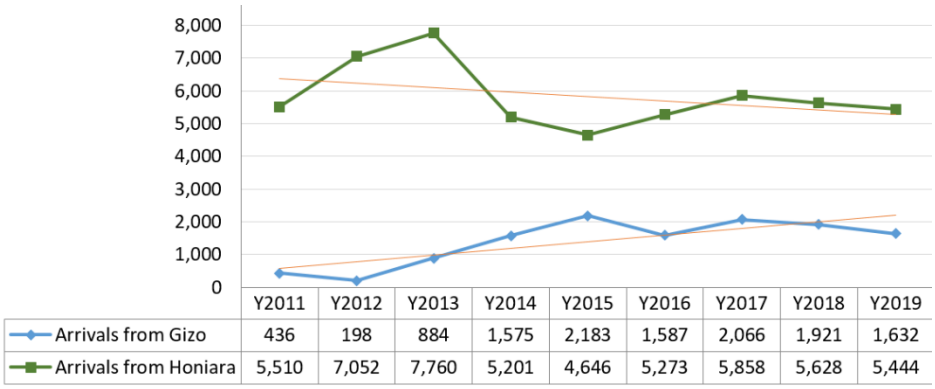
The technical aspects of the design were defined by ICAO requirements to achieve emergency alternate status. As such, implementing the upgrades would enable certification to emergency alternate status.

Were development outcomes achieved as intended?

Munda airport became fully operational on the conclusion of Phase 2, and prior to the COVID-19 pandemic and subsequent border closures, a weekly Airbus A320 international flight from Brisbane to Munda was operating. The outputs - installation of ground lighting, ARFF, security fencing, asset management planning, and an update of the aerodrome charts for Munda have all been successfully completed to a high quality standard, but with significant programme delays (largely due to land disputes, and a slow lighting contractor).

The period 2012-2013 saw elevated domestic flight arrivals to Munda, which are attributed to the runway upgrade work. If 2013 data is ignored, there is a growth of around 30% in

both arriving and departing passengers between 2011 and 2019. While flights between Munda and Honiara remained relatively stable, there was a three-fold growth in flights between Munda and Gizo (see Figure 8 below)

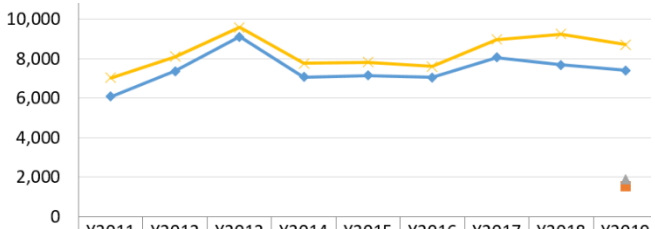


	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018	Y2019
Arrivals from Gizo	436	198	884	1,575	2,183	1,587	2,066	1,921	1,632
Arrivals from Honiara	5,510	7,052	7,760	5,201	4,646	5,273	5,858	5,628	5,444

Figure 8 - Domestic Arrivals to Munda (2011 to 2019)

Source: SIACL

In March 2019, Solomon Airlines started a weekly international flight service between Brisbane and Munda using an Airbus 320 (flight code IE715) and passenger numbers since that time were stable until travel restrictions were imposed as a result of COVID-19 pandemic on 21 March 2020 (see Figure 9). Departures averaged 22 passengers per flight, with arrivals averaging 32 passengers per flight. However, over the 12 month period from March 2019 to February 2020, there was a decline in passengers flying on the international route between Brisbane and Munda (see Figure 10).



	Y2011	Y2012	Y2013	Y2014	Y2015	Y2016	Y2017	Y2018	Y2019
Domestic arrivals	6,077	7,361	9,117	7,068	7,153	7,046	8,066	7,672	7,406
International arrivals to Munda									1,550
International arrivals to Honiara									1,887
Domestic departures	7,038	8,099	9,587	7,757	7,812	7,600	8,977	9,255	8,712

Figure 9 - Munda: Passenger Arrivals and Departures (2011-2019)

Source: SIACL

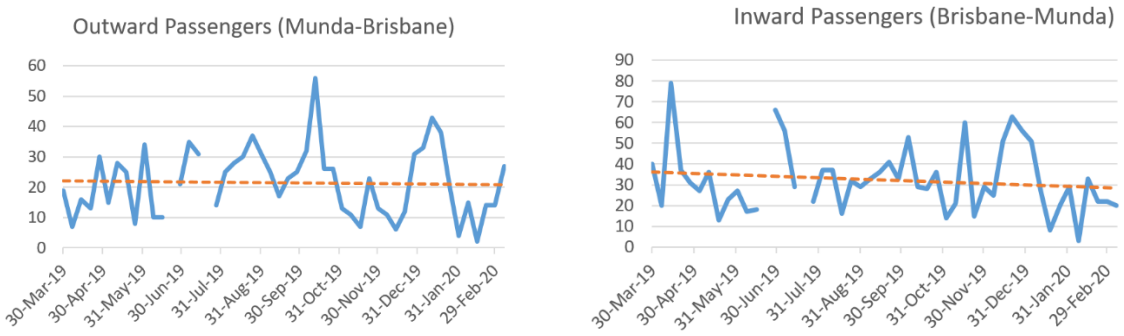


Figure 10 – Munda Arrivals & Departures

Source: SIACL

The assessment of conformance with the Results Framework (above) notes that the Activity delivered all outputs and short term outcomes, while it is not possible to measure performance against medium and long-term outcomes while the COVID-19 pandemic has virtually paralysed international air traffic, and severely disrupted domestic flights. The stakeholder's comments below provide an insight into recent issues with the Munda airstrip, such as the impact of COVID-19, fuel supply, and ongoing problems with landowners:

> *"No large aircraft have diverted to Munda due to bad weather in Honiara because until the end of January 2020 there was no fuel available for large aircraft. There was no point in using Munda as an alternate with no fuel available. Fuel was eventually provided by South Pacific Oil at the end of January 2020 but was withdrawn in March due to Solomon Airlines being forced to stop flying to Munda by the Government. The other problem with Munda is that until about February 2020, three missing obstruction lights prevented night flying. These were eventually installed, and the airport was certified for night flying. Unfortunately, these lights have now been removed by landowners because the Ministry of Communication and Aviation has not paid for certain trees which were in the flight path and had to be felled. The local landowners then removed the lights and left them at the door of the airport manager." (024)*

It is not possible to quantify its development benefits or impact on the regional or national economy at this stage due to the significant downturn in the tourism sector internationally since March 2020 resulting from the COVID-19 pandemic. However, the runway upgrade has provided a solid basis for regional economic development, and provided opportunities for the export of high value commodities to international export markets. It has also provided SIG with the opportunity to develop an international airport serving the Western Province. However, realisation of the benefits of this new asset is contingent on international tourism and trade returning to their pre-COVID development trajectories, and the effectiveness of its operation and maintenance.

Several stakeholders noted that there needed to have been better analysis of outputs and outcomes to assess whether the planned project would fulfil the desired objectives.

> *"I feel that in terms of tourism development, the impact of the Munda Airport project on visitor numbers was not properly gauged. So, in terms of value for money, I am not certain whether funds [could have been] utilised on more pressing tourism issues [that] would have a bigger impact." (035)*

Was the resulting asset of high quality?

Runway upgrade work on site was overseen by a site supervisor reporting to the Engineer to Contract, to ensure that the works met specifications defined in the construction contract, and satisfied the primary design objective of enabling certification to emergency alternate status. Shortfalls in workmanship were addressed via a formal defects inspection process, and resolved during the defects liability period. All defects were satisfactorily resolved by completion of the Activity, in effect confirming that specifications were satisfied and thus quality requirements were achieved.

> Despite implementation challenges, the Activity eventually delivered a high-quality infrastructure asset which met all specified outputs and delivered several of the anticipated outcomes.. *"Yes, process has challenging, but outcome is that Munda has a good quality infrastructure for the money spent." (016)*

Efficiency

The assessment of efficiency considered the following evaluation questions:

Did the Activity represent a cost-effective investment?

The construction and installation tasks for both Phase 1 and Phase 2 were largely delivered in a timely manner and to a satisfactory quality but at a cost significantly greater than originally anticipated. As MFAT's contribution was capped at $23 million, this meant that SIG was required to cover additional costs.

In Phase 1, the overall cost-effectiveness was seriously undermined by delays in preparatory works, which badly delayed Phase 1 construction work and led to significant costs to be incurred as site crews had mobilised but were unable to deliver the contracted works. This led to an additional cost of approximately NZ$6.4 million (SBD35 million) although MFAT costs also increased above initial expectations due to extended period of site supervision for construction work and UXO quality assurance. It also led MFAT to commit funds to Phase 2, which under the original grant funding arrangement was to be funded by SIG.

SIG was not able to complete essential preparatory work before crews were mobilised to the site for Phase 1. Delays in removing UXO and securing access to aggregate resulted in construction and supervisory personnel remaining idle on site for several months, which adversely impacted both timeframe and cost.

There was also a substantial delay in initiating Phase 2, which is attributed to the time taken to obtain committment to establish a state-owned enterprise (SOE) to manage the aviation sector. Commitment to a SOE was a prerequisite for New Zealand funding Phase 2. Despite implementation challenges, the Activity eventually delivered a high-quality

infrastructure asset which met all specified outputs and delivered several of the anticipated outcomes.

In Phase 2, the primary source of delay was attributed to slow resolution of minor defects by the lighting installation contractor. Resolution proved challenging as the company did not have a local presence in the region, and issues had to be resolved by consulting with the head office in Spain (with the compounding challenges of the different language and time zone).

A further challenge arose when a telecommunications company built a microwave transmitter within the flight path envelope. While this installation should not have been permitted, it appears that it arose due to a shortfall in SIG inter-agency communication. Once this issue was identified, SIG took responsibility to resolve the matter and the tower was removed.

Packaging Munda runway, Nusatupe runway and Noro-Munda Road into an integrated construction package with a single construction contractor did enable cost efficiencies, mainly attributed to savings on mobilisation costs. It also enabled two high priority projects (Nusatupe and Noro-Munda Road) to be completed efficiently.. This bundling produced a significant efficiency gain, particularly as if three individual construction contractors were mobilised for Phase 1, the costs associated with the delayed start of works would have been much greater. Unfortunately, this lesson was not applied to Phase 2, where the administrative burden associated with managing multiple contractors was significant.

Although from a MFAT perspective, the original purpose of this project was for Munda to gain EAS, for the Solomon Islands, the ultimate goal was that Munda would become the country's second international airport.

> *"Any advantages for Munda becoming an EAS to Honiara is not in line with the cost to upgrade the airfield. The value envisaged is if it is used as an international airport…. Long-term outcome is that it would stimulate tourism and the economy, which cannot be achieved if only an EAS airfield." (030)*

> *"The potential for Solomon Islands to have a second international airport is very vital not only to the tourist and travelling public, but also to the airlines' industry and…. further Government revenue from the aviation sector." (033).*

However, not all stakeholders were optimistic. Although there has been some increase in interest from Australian diving clubs, the airline was not getting the numbers that would make it economical for an airline to operate an international flight. While there is no fuel depot at Munda, there cannot be a direct flight from Munda to Brisbane as it would need to refuel at Honiara. This would impact on the ability to use the service for premium products such as the export of fresh fish.

Perhaps the most significant negative impact of this Activity is associated with opportunity cost. The significant delays of Phase 1 incurred major penalty costs under the construction contract, while the scale of UXO removal and the cost of access to aggregate were significantly greater than anticipated. As SIG was contractually

obliged to cover these costs, the result was a significant diversion of funds that could have been allocated to other needs, including funding Phase 2.

How appropriate were the modality, procurement and contracting arrangements?

The partner project modality for Phase One was considered to be appropriate for this Activity, and SIG has clearly assumed a good degree of responsibility for the Activity, and has grown its capacity and capability in construction planning and infrastructure asset management.

The main issue arising from implementation is that site crews were mobilised in advance of the site preparatory work (UXO removal) being completed, and access to aggregate being secured. Assurances that preparatory works were sufficiently advanced, were not tested byMFAT, the construction contractor or Engineer to Contract.

Under Phase Two, MFAT as Principal, was new to the NZ3910 contract. MFAT drew on its consultant to make it aware of its contractual obligations, and this went well overall. The company who was awarded the ARFF contract (Reeves International) had issues with the form of contract as they were delivering design build services, so did not consider it compatible. The consultant couldn't use NZS3916 as it wasn't approved by MFAT, which led to many requests for changes on payments schedules, and clarification on tax provisions. The ARFF was a modular construction built offshore and shipped to the Solomon Islands. The company requested advance payment and there were issues with performance bonds. These issues were exacerbated by MFAT's approval process.

How effective were governance arrangements?

New Zealand's Minister of Foreign Affairs had a keen interest in this Activity, which appears to have led to MFAT applying more comprehensive governance arrangements than for its comparable scale of Activities elsewhere. Under Phase 1 Activity Managers were motivated to speed implementation and contain costs, while at the same time they were working to resolve the challenges arising from incomplete site preparation that significantly delayed site work. This pressure appears to have focused those managing the Activity upon ministerial servicing, internal reporting, contract administration (which included 14 variations) and financial management tasks. A further consideration is the challenge of accessing reliable data required by the results framework. As a result, the results framework itself was not actively used to monitor progress beyond reference to the outputs.

In-country partner stakeholders commented that although the management and governance arrangements were adequate, land issues impacted on time and financial resources. Involvement of Western Provincial Government (WPG) officials in negotiations and discussions with landowners and other interest groups, and ensuring land matters were dealt with in a consultative manner, helped to resolve these issues. Involving WPG earlier may have resolved these land issues earlier.

Sustainability

The assessment of sustainability considered the following evaluation questions:

To what extent did the design take future proofing into consideration?

The original design for Munda runway upgrade acknowledged the natural hazard environment applicable to the site, and in particular the risk of sea-level rise and earthquake. These considerations were integrated into technical aspects of the design.

The cost-benefit analysis used to assess different development options considered sector growth forecasts and a range of future scenarios for the aviation sector. The selected option offered the best return on investment. While there was no consideration of the impact of a global pandemic on long term viability, it would not have been normal practice to do so at that time.

The Activity phases focused on establishing Emergency Alternate Status, but it is unclear what considerations were made towards future-proofing investments to accommodate operational changes. Under Phase One, The selection of chip seal was appropriate for emergency Code 3C and 4C aircraft, but is not suited for regular landings by these larger aircraft. Investment in strengthened runway sub-structure and surfacing could have accommodated regular international air traffic. Instead, the World Bank initiated plans for pavement upgrades, just five years later.

Is it being operated and maintained effectively?

Establishment of a SOE for operation and maintenance of national airports was a pre-condition for MFAT investment in Phase 2. The establishment of Solomon Islands Airports Corporation Limited (SIACL) satisfied this condition and enabled Phase 2 to proceed. Initial indications are that SIACL, is performing a satisfactory job of operating and maintaining Munda airfield (and others). This is particularly relevant given significant ongoing investment in infrastructure sectors by New Zealand, Japan, and the World Bank.

> *"SIACL is on its way to be the owner and operator of airfields in Solomon Islands. Pre-Covid it would have had a reasonable chance of recovering costs." (008)*

Maintenance contracts are in place for Munda runway with others currently being planned. MCA continues to negotiate with landowners affected by tree clearance at Munda. While all necessary clearance has been undertaken, regrowth will, overtime become problematic and SIACL, once it takes over from MCA, will need to continue to manage this issue

The Noro-Munda Road is integral to the viability of Munda airfield. SIG has established labour-based maintenance contracts for the road, which are currently focused on vegetation clearance and drain clearance. Machine-based maintenance contracts will be put in place by SIG in due course once pavement maintenance is required.

In-country stakeholders commented that there is always room for improvement. Safety inspections have pointed to deficiencies such as a need for continuous rolling to keep the chip seal intact and the need for repainting. Although most improvements have been undertaken, it took time for these to be implemented. The Government, through its development budget, has recently undertaken maintenance of the runway using a pneumatic roller to roll the whole runway. However, the painting contractor, due to COVID-19, has not been able to mobilise to Munda to repaint the lines.

Lessons Learned

To what extent were past lessons incorporated into the design and delivery of this Activity?

MFAT's own experience in delivering Activities in the Pacific revealed the following lessons about the design and implementation of infrastructure Activities:

1. The role of Engineer to Contract is vital to ensure effective project implementation and contract administration on construction contracts. Even with an Engineer to Contract, infrastructure Activities often require supplementary in-house personnel to administer construction projects, minimising delays, cost increases and inferior quality outcomes.

   Under both Phase One and Phase Two, AECOM was appointed at the Engineer to Contract. Activity management responsibilities however, fell to a succession of MFAT policy officers in Wellington and Post without sufficient time or background in managing construction projects.

2. Developing countries in the Pacific often lack the capacity, capability and resources for effective engagement in the planning, design and implementation of significant infrastructure assets; to manage substantial construction projects; or to provide the required ongoing services for operation, inspection and maintenance.

   The establishment of SIACL and ongoing aviation sector reform is contributing to improved capacity and capability.

3. There are significant practical and logistical challenges to the delivery of construction projects in remote Pacific locations.

   As one of MFAT's earliest large-scale construction projects, the challenges ane resource demands may have been underestimated.

4. Staff at Post provide a crucial role in helping the partner government to prepare for construction projects, and in briefing construction contractors and others on the local operating context (including local customs, environmental challenges, organisational arrangements and key contacts).

   Successive First Secretaries in Honiara played a critical role in liaising with SIG stakeholders, convening steering committee meetings and facilitating in-country issue resolution. The resource demands were significant.

MFAT commissioned MWH (now Stantec) to conduct a limited sector synthesis based on the evaluation of four infrastructure Activities, which led to the following substantive recommendations in 2015:

1. Harmonise impact assessment approaches applied by MFAT and development partners.

   Environmental and social impact assessments were conducted both at the beginning of Phase One and in preparation for Phase Two works. The extent that these approaches, conformed with SIG EIA processes was not examined under this Evaluation.

2. Affected stakeholders should be consulted from the outset.

Involvement of the Western Provincial Government from the outset may have improved outcomes relating to land access, quarry access and compensation.

3. Asset maintenance should be incorporated into the design.

   Asset maintenance resources were prepared under the Phase Two works to ensure familiarity with fencing, lighting and ARFF maintenance requirements. The availability of financial and personnel resources has been supported through the establishment of SIACL.

4. It is important to match infrastructure with in-country capability (and build capacity where appropriate).

   As above, the establishment of SIACL includes a focus on capacity building in both asset maintenance and airfield operations.

5. It is important to resolve land access issues at the outset, and allow adequate time for their resolution (note that this recommendation post-dated the initiation of Munda site works).

   While in-country partners will always be better positioned to negotiate the use of customary land, MFAT must allow sufficient time and resources to secure this fundamental element.

What new lessons were learned during the planning and implementation of this Activity?

Phase 1 lessons:

1. Significant infrastructure projects can be extremely challenging in Solomon Islands, due to uncertainty regarding land ownership, lack of standard rates for materials, and the extent of UXO contamination. Such issues should be resolved in advance of tendering for a construction contractor, to avoid the risk of costly delays once crews have mobilised to site.
2. Involving the Western Provincial Government earlier may have resolved land issues earlier.
3. SIG committed to support preparatory works which built capacity, and ultimately led to the establishment of a private UXO removal company in the Solomon Islands. However, the magnitude of work required was not well understood at the outset and eventually overwhelmed available resources. In particular, the Royal Solomon Islands Police Force Explosive Ordinance Division lacked capacity for large-scale UXO detection and clearance, and in retrospect it would have been more appropriate to contract the Phase One work out to specialist service providers. This lesson was applied to Phase two with MFAT's appointment of Milsearch Pty Limited to undertake further UXO survey and clearance activities.
4. Pressure on Activity Managers to deliver works quickly and cheaply risks undermining the quality of design and construction work. This in turn increases the risk of contract variations, delays and cost increases that could have been avoided by a more considered design phase.

5. Early involvement of relevant stakeholders is needed to reveal likely challenges and opportunities, which can then be incorporated into the design process. This approach increases the likelihood of local acceptance or ownership, which encourages ongoing asset operation and maintenance.
6. Consideration of the resourcing and training required to operate and maintain infrastructure needs to be undertaken at the design stage.
7. Under Phase One, Activity risk was reduced by 'bundling' the Noro-Munda road and runway for delivery by a single contractor, as mobilising a single contractor was cost effective, and provided scope for the contractor to re-assign resources between different Activities in response to demand. It also reduced the administrative burden associated with managing multiple contracts with different suppliers. That administrative burden was realised under Phase two where multiple contractors were engaged.
8. The Activity was initiated by high level political commitment to deliver a specific output (in this case, an upgraded runway) within a very optimistic schedule. This left little opportunity to modify delivery in response to the inevitable issues encountered in a very challenging operating environment, which put pressure on the timeline and cost.
9. It is difficult to balance political committments with practical delivery, particularly in remote developing countries. Infrastructure assets can be very challenging to plan and deliver where the site is remote, site information is insufficient, or in-country resources are limited. If timelines are not adequately informed by such practical constraints, the resulting pressure on those responsible for implementation increases the risk that the timeframe, cost or quality of implementation will be adversely affected.
10. Complex infrastructure projects require close and frequent attention from MFAT's Activity Manager and other relevant MFAT officers. This can be a drain on MFAT's human resources and needs to be considered in the resourcing plan.
11. When a donor provides infrastructure assets, it is essential that the recipient has the resources and capability to operate and maintain them sustainably. Otherwise they can either become a liability, or may be neglected. While sector reform can create an appropriate vehicle for ongoing operation and maintenance, it is preferable to have resources and capability installed beforehand, and for assets to be designed such that they can be appropriately operated and maintained.
12. The benefits of future-proofing assets can be considered by identifying the impacts of future operational decisions and undertaking a cost-benefit analysis.

<u>Phase 2 lessons:</u>

13. Installing fencing in a rural context can present a substantial barrier to pedestrian movement. However, negative impacts can be adequately mitigated by sympathetic design considerations.
14. There can be significant communication challenges that impair progress where international construction contractors do not maintain a local presence.
15. Pacific island countries can establish effective mechanisms for airport management where there is sufficient political commitment for such reforms.

6 Conclusions

Development Effectiveness

The evaluation team assessed this Activity against OECD DAC Activity-level evaluation criteria, and concluded it achieved the following conformance:

Relevance	Good
Coherence	Good
Impact	Good
Effectiveness	Good
Efficiency	Poor
Sustainability	Satisfactory

While these Activities clearly presented substantial implementation challenges for both MFAT and SIG, it has provided a high quality infrastructure asset that presents development opportunities for the local community, the Western Region and the Solomon Islands. It also has the potential significant collateral benefits including: reduced operating costs for airlines; reduced risk of serious injury for the local community from exposure to UXO; establishment of an SOE for the management of the country's aviation infrastructure; and leveraged a substantially larger national infrastructure programme focused on airport and road transport.

Implementing these Activities was very challenging for a variety of reasons, but dealing with these challenges has led to significantly improved capacity and capability in both SIG and MFAT. However, the more substantial challenges remain ahead, as the COVID-19 pandemic has had enormous consequences for the tourism and aviation sectors, and it may be many years until the economic benefits of the Munda upgrade Activity are realised.

7 Recommendations

1. Access to land needs to be formalised before tendering. The evaluation recommends that future infrastructure projects requiring access to local aggregate are not tendered for construction until land ownership is identified, and source of aggregate secured by the in-country partner.
2. Activities are driven by development partner priorities and the affected community.
3. High Commission staff are provided with technical (engineering) advice and project management support for large infrastructure projects. If there is a lack of capacity at Post, that MFAT explore obtaining supplemental project management expertise.

Appendix 1 – Evaluation Policy

MFAT manages public funds to deliver official development assistance (ODA) to developing countries. Our policy is that individual Activities are to be evaluated if they exceed NZ$10 million in value, although others may be considered for evaluation if doing so would benefit decision-making, learning, accountability, or if there is a particular need to do so. Evaluation findings help the Aid Programme to assess whether we are making a difference, optimising our resources and using the most effective and efficient methods to support sustainable development outcomes.

Activity evaluations are conducted in accordance with our Evaluation Policy, which defines evaluation as *'The systematic and objective assessment of an on-going or completed activity, programme or policy, its design, implementation and results'.*

Evaluations conducted for the Aid Programme are to be consistent with our Evaluating an Activity Guideline, which aligns with the DAC Quality Standards for Activity Evaluation, and assesses Activities against the following criteria:

> **Relevance:** the extent to which the intervention was consistent with the priorities and policies of the target group, partner and donor.
>
> **Coherence:** The compatibility of the intervention with other interventions in a country, sector or institution.
>
> **Effectiveness:** the extent to which the intervention achieved the desired results (outputs and outcomes).
>
> **Efficiency:** the extent to which the cost of the intervention can be justified by its results, taking alternatives into account.
>
> **Sustainability**: the extent to which benefits of the intervention can be sustained after its conclusion.
>
> **Impact:** the change (positive and negative) arising from the intervention, whether it was direct, indirect, intended or unintended.

An evaluation may also consider factors such as application of Busan development effectiveness principles (country ownership, results focus, inclusive partnerships, and transparency and accountability); donor harmonisation; integration of cross-cutting issues (gender equality and women's empowerment, human rights and the environment), and the treatment of environmental and social impacts.

The quality of evaluations is assured by the combination of an independent evaluator and a formal peer review process, while each evaluation is overseen by a Steering Group. MFAT may also prepare a formal management response describing our agreement or disagreement with the key findings, conclusions and recommendations, and our proposed response. Evaluation reports (and any corresponding management response) are published on the Ministry of Foreign Affairs and Trade (MFAT) website to maximise the availability of findings.

Appendix 2 – Information Sources

MWH. (2015). Infrastructure in the Pacific: Learnings from Completed Investments 2004-2013. Prepared for NZ Ministry of Foreign Affairs & Trade Aid Programme

NZ Ministry of Foreign Affairs & Trade. [2014]. Activity Design Document (ADD): Munda Airport Emergency Alternate Status

Solomon Islands Ministry of Communication and Aviation (2019). Inaugural Munda Flight Marks Start of Commercial Services. MCA website

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Appendix 3 – Stakeholder Engagement

Stakeholder	**Organisation**
Anterlyn Tuzakana	Solomon Islands Government
Brett Gebers	Solomons Air
Brian Halisanau	CAASI
Chris Tolley	Consultant (former AECOM)
Craig Ridgley	AECOM
Craig Sigimanu	Solomons Air
David Pearce	Solomons Air
Jane Coster	MFAT
Jeff Whitty	MFAT
Jonathan Fletcher	Former MFAT
Kirsty Burnett	Consultant
Luke Kiddle	Former MFAT
Moses Virivolomo	Solomon Islands Government, MCA
Patrick Toiraena	DPS, Western Province
Sean Mackesy-Buckley	MFAT
Steve Hamilton	MFAT
Trevor Veo	Solomon Islands Government, MCA
Zubin D'Sousa	NZ High Commission, Honiara

Appendix 5 – Results Framework (Phases 1 & 2)

Long Term Outcomes

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
Increased employment from fisheries and tourism to the economy	% employment (fisheries and tourism) rates in Western Province Sector added value fisheries and tourism to GDP	Baseline fisheries: 33% (2009 SIG study) Target: increasing trend Baseline tourism: 21.6% employed in tourism sector in Western province (SI Visitor's Bureau 14/15) Tourism $63.3 million Fisheries SBD24,407 (million) (2012 figure) Target: increasing trend	Information will be collected from SIG population and housing census in 2019; and the Central Bank of Solomon Islands (CBSI) Pacific Ocean Economy – www.berl.co.nz
Increased revenue from the aviation sector	% contribution of aviation sector to GDP # employed in the aviation sector	Baseline: 6.1% - note: this is for transport and communication but is being used as proxy to % contribution of aviation sector to GDP (2012 figure supplied by CBSI)) Target: increasing trend Baseline: TBC Target increasing trend	Information will be collected from CBSI, Ministry Infrastructure and Development (MID), Ministry of Communication and Aviation (MCA) or CAASI*

Medium Term Outcomes

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
Opportunities to expand services to international flights	Number of charter jets / international flight services to / from Munda	Baseline: 2 charter jet flight s and 1 international NZDF C130 flight at present (2014) Target: increasing trend	Information will be collected from MID, MCA or CAASI*
Increased volume of time critical exports through Munda	Number of enterprises using Munda Airport for export services Volume/tonnage of exports through Munda	Baseline: 0 at present (2015) Target: increasing trend Baseline: 0 at present (2015) Target: increasing trend	Information will be collected from MID, Ministry of Fisheries and Marine Resources, Ministry of Finance and Treasury or MCA*

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
Increased in tourism to Western Province	% arrivals and departures by non-residents % employed in tourism sector in Western Province Number of rooms in Western Province	Baseline 31% (non-resident) recreation visitors (2008) Target increasing trend Baseline: 21.6% employed in tourism sector in Western province (SI Visitor's Bureau 14/15) Target: increasing trend Baseline: 324 rooms (680 beds) WP (SIVB data (2014) Target: increasing trend	Information will be collected from MID, MCA or CAASI and / or Ministry of Finance and Treasury*
Increased disaster management capacity	Number of times Munda is utilised as part of a disaster management response	Baseline: 2 times, in 2007 Tsunami & 2010 Rendova earthquake/Tsunami Target: increasing trend	Information will be collected from MID and MFAT* and the Solomon Islands National Disaster Management Office (SI NDMO)
Increased passengers transported (based on lower airfares) to Solomon Islands	Cost comparison between current and future airfares Number of passengers transported	Baseline: variable depending on country of origin (2015) • Brisbane: SBD7,000.00 • Port Moresby: SBD9,653.00 • Port Vila: SBD6,210 • Nadi: SBD6,245.00 • Sydney: SBD 9,636.00 Target: decreasing trend Baseline: 4338 passengers – average monthly passenger traffic movement for Munda Airport (2009 SIG data) Target: increasing trend	Information will be collected from MID, MCA or CAASI* Airfares source GTS (economy fares)
Increased freight transported through aviation sector	Number of aircraft providing freight services from Munda Number of enterprises using Munda Airport for export services	Baseline: none(2014) Target: increasing trend	Information will be collected from MID, Ministry of Fisheries and Marine Resources, Ministry of Finance and Treasury, MCA or CAASI* Transport Sector Development Project (TSDP) Monitoring and Evaluation Framework

Short Term Outcomes

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
Upgraded Munda Airport provides increased safety for larger aircraft and is accredited as an emergency alternative to Honiara airport	Number of domestic and international charter flight services to/from Munda Munda Airport accredited with emergency alternative status by CAASI IDG 4. number of significant facilities upgraded or built Size of aircraft using the airport	Baseline: 2 charter international (2014) and an average of 6 domestic aircraft movements per day (2009) Target: increasing trend Target: facilities meet CAASI and international regulations for EAS by end of first quarter 2016 a) Security Fence Installed b) ARFF Facility Installed c) ARFF trucks Procured d) AGL and Nav Aids installed and Operational e) AGL / Nav Aids and ARFF training implemented f) Flight Procedures in place g) CAASI certification in place Baseline: 0 Target: 1 Baseline: DHC 6 (twin otter) and DHC 8 (Dash) Target: trend to increased usage of larger DHC 8 aircraft	Information to be obtained from CAASI and Ministry of Communication and Aviation
Strengthened staff capacity to effectively use and maintain buildings and equipment	% of staff that use and maintain buildings and equipment as intended – annual assessment	Baseline: assets not yet in place/Target 100%	Audit logs Maintenance records Engineer's QAQC Reports CAASI Inspection Reports
Assets regularly & correctly maintained –continued operational safety	Assets maintained in compliance with CAASI and international regulations	Baseline: no information, EAS works not constructed (2014) Target all Assets meet CAASI and international at annual inspections Target: Asset management plan in place by 1st Quarter 2016	Information to be obtained from CAASI or MCA*

Outputs

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
1. Security Perimeter Fencing Constructed	Security perimeter fencing built to specification, time and budget Security Fence compliant with CAASI and international regulations	Baseline: 0 (2014) Target: Security perimeter fencing installed by Dec 2015 Budget $2m Security fence meets CAASI and international regulations by end of 1st quarter 2016	Information to be obtained from project activity supervisor and QAQC lead (AECOM) Confirmation to be obtained from CAASI or MCA*
2a AGL & Navigation Aids installed	AGL & Navigation Aids built to specification, time and budget AGL & Navigation Aids compliant with CAASI and international regulations	Baseline: 0 (2014) Target: AGL & Navigation Aids Installed and operational by Feb 2016 Budget $5.3m AGL and navigation aids meet CAASI and international regulations by end of 1st quarter 2016	Information to be obtained from project activity supervisor and QAQC lead (AECOM) Confirmation to be obtained from CAASI or MCA*
2b Operators trained in use and maintenance of AGL and Navigation Aids	IDG 5. Number of People trained	Baseline: 0 at present (2014) Target: 6	Training provided under AGL & Nav Aids procurement program. Confirmation to be obtained from CAASI or MCA*
3a ARFF Building is constructed	ARFF Building constructed to specification, time and budget ARFF Building compliant with CAASI and international regulations	Baseline: 0 (2014) Target: Facilities and Trucks delivered by December 2016 Budget $1.27m Baseline: 0 (2014) Target: ARFF Building meet CAASI and international regulations by end of 1st quarter 2016	Information to be obtained from project activity supervisor and QAQC lead (AECOM) Confirmation to be obtained from CAASI or MCA*
3b ARFF vehicles are procured	ARFF vehicles are procured to specification and budget ARFF Vehicles compliant with CAASI and international regulations	Baseline: 0 (2014) Budget Target: ARFF vehicles meet CAASI and international regulations by end of 1st quarter 2016	Information to be obtained from project activity supervisor and QAQC lead (AECOM) Confirmation to be obtained from CAASI or MCA*

Results	Indicator(s)	Baseline Information and Targets	Methodology / Data Sources
3c Operators trained in use and maintenance of ARFF Vehicles, AGL and Navigational Aids	IDG 5. Number of People trained to agreed standards/policy Trainees agree the training was of good quality and useful to fulfil their roles	Baseline: 0 at present (2014) Target: 8 by end of 1st quarter 2016 Baseline: N/A 2. Target: 100%	Training provided under ARFF truck procurement program. Confirmation to be obtained from CAASI or MCA*
4 Asset maintenance plan developed	Asset maintenance plan in place and meeting MID and MCA requirements	Baseline: no plan available (2014) Target: plan in place by end of 1st Quarter 2016	Base plan to be agreed with MCA and MID. Information to be obtained from project activity supervisor and QAQC lead (AECOM)
5 Aeronautical Information Publication updated	Aeronautical Information Publication (AIP) is updated and published using current, correct and approved data.	Baseline: no update. Update published after a Flight Test and CAASI approval (sign-off). Approx. first quarter 2016	Data collected during the survey phase, analysed, approved (by CAASI) and then published by Airways Corporation NZ.