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Report No: PAD5371

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$184 MILLION

TO THE

REPUBLIC OF MAURITIUS

FOR THE

RODRIGUES AIRPORT PROJECT

September 7, 2023

Transport Global Practice
Eastern And Southern Africa Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective July 31, 2023)

Currency Unit = Mauritian Rupee

MUR 46.18 = US\$1

**FISCAL YEAR
July 01 - June 30**

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ABBREVIATIONS AND ACRONYMS

ACA	Airport Carbon Accreditation
ACI	Airports Council International
ADS-B	Automatic Dependence Surveillance - Broadcast
AFD	Agence Française de Développement (French Development Agency)
AFS	Audited Financial Statements
AHL	Airport Holdings Limited
AWPB	Annual Work Plan and Budget
AM	Accountability Mechanism
AML	Airports of Mauritius Co Ltd
ARL	Airport of Rodrigues Limited
BASAs	Bilateral Air Service Agreements
BAU	Business As Usual
CERC	Contingent Emergency Response Component
COVID-19	Coronavirus disease
CPF	Country Partnership Framework
DA	Designated Account
ECD	External Communications Division
EIRR	Economic Internal Rate of Return
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMFs	Environmental and Social Management Frameworks
ESRC	Environmental and Social Risk Classification
ESS	Environmental and social standards
EU	European Union
FM	Financial Management
GDP	Gross Domestic Product
GHG	Green House Gas
GM	Grievance Mechanism
GoM	Government of the Republic of Mauritius
GRS	Grievance Redress Service
G2B	Government-to-business
IATA	International Air Transport Association
IBRD	International Bank for Reconstruction and Development
ICAO	International Civil Aviation Organization
ICT	Information and Communications Technology
IDA	International Development Association
IFRs	Interim Financial Reports
ILS	Instrument Landing System
IPF	Investment Project Financing
IRR	Internal Rate of Return
IWRMD	Integrated Water Resources Management and Development
MoFEPD	Ministry of Finance, Economic Planning and Development
MSCL	Mauritius Shipping Corporation Limited
MUR	Mauritian Rupee
NDC	Nationally Determined Contribution

NPV	Net Present Value
PDO	Project Development Objective
PIU	Project Implementing Unit
POM	Project Operations Manual
PPSD	Project Procurement Strategy for Development
PSC	Project Steering Committee
RPUC	Rodrigues Public Utilities Corporation
RRA	Rodrigues Regional Assembly
SAF	Sustainable Aviation Fuels
SDG	Sustainable Development Goals
SDP	Sustainable Development Plan
SEA/SH	Sexual Exploitation and Abuse and Sexual Harassment
MSMES	Micro, Small and Medium Enterprises
SIDPR	Sustainable Integrated Development Plan for Rodrigues
TA	Technical Assistance
ToC	Theory of Change
TDP	Tourism Development Plan

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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Mauritius	Rodrigues Airport Project	
Project ID	Financing Instrument	Environmental and Social Risk Classification
P180266	Investment Project Financing	High

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input checked="" type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
29-Sep-2023	30-Jun-2029

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The Project Development Objective (PDO) is to improve air transport access and enhance the climate resilience and productivity of the island of Rodrigues.

Components

Component Name	Cost (US\$, millions)



Infrastructure Development	170.00
Technical Assistance for Project Implementation and Sector Reforms	10.00
Support Rodrigues' Sustainable Integrated Development with a Particular Focus on Access to Water and Food Security	10.00
Supporting the Sustainable Development of the Tourism Sector in Rodrigues	10.00
Contingent Emergency Support	0.00

Organizations

Borrower:	Republic of Mauritius
Implementing Agency:	Airport of Rodrigues Limited (ARL) Airports of Mauritius Co. Ltd (AML)

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	200.00
Total Financing	200.00
of which IBRD/IDA	184.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	184.00
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Non-World Bank Group Financing

Other Sources	16.00
EC: European Development Fund (EDF)	16.00

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	10.00	40.00	40.00	40.00	30.00	20.00	4.00



Cumulative	10.00	50.00	90.00	130.00	160.00	180.00	184.00
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INSTITUTIONAL DATA

Practice Area (Lead)

Transport

Contributing Practice Areas

Agriculture and Food, Finance, Competitiveness and Innovation, Water

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Substantial
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Moderate
5. Institutional Capacity for Implementation and Sustainability	● Moderate
6. Fiduciary	● Substantial
7. Environment and Social	● High
8. Stakeholders	● Substantial
9. Other	● Low
10. Overall	● Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[] Yes [✓] No



Does the project require any waivers of Bank policies?

[] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

Schedule 2, Section I.A.1 of the LA: the Borrower shall cause AML to establish and thereafter maintain at all times during the implementation of the Project, an implementation unit ("Project Implementing Unit") located in Rodrigues Island with dedicated staff, mandate, composition and resources acceptable to the Bank and defined in the Project Operational Manual (POM), responsible for day-to-day management and implementation of the Project, including: (i) managing the implementation of the Project activities as assisted on the technical aspects by PTU I and PTU II, respectively; (ii) managing the safeguards and social aspects; (iii) managing the procurement, financial management and disbursements; (iv) coordinating the preparation, adjustments, and use of the Project management tools, including any updates to the POM, Annual Work Plan, Procurement Plan, and disbursement



projections; (iv) coordinating with key stakeholders on the technical aspects of the Project; (v) monitoring the progress of the PDO and intermediate indicators of the Results Framework; and (vi) preparing Project reports.

Sections and Description

Schedule 2, Section I.A.2 of the LA: The Borrower shall establish, not later than sixty (60) days after the Effective Date, and maintain, throughout the implementation of the Project, a steering committee (“Project Steering Committee” or “PSC”), with a composition, mandate, and resources satisfactory to the Bank and detailed in the POM. The PSC will meet at least twice a year and will hold extraordinary meetings when necessary and will comprise representatives of the Prime Minister’s Office (External Communications Division), Prime Minister’s Office (Rodrigues Division), Ministry of Finance, Economic Planning & Development, Airport Holding Limited, the Department of Civil Aviation, RRA and other relevant stakeholders, to ensure regular project oversight.

Sections and Description

Schedule 2, Section I.A.3 of the LA: The Borrower shall cause the AML to establish, not later than ninety (90) days after the Effective Date, and maintain, throughout the implementation of the Project, two technical units, one responsible for the technical aspects of Parts 1 and 2 of the Project (“Project Technical Unit I” or “PTU I”) and the other one for the technical aspects of Parts 3 and 4 of the Project (“Project Technical Unit II” or “PTU II”), within the PIU and overseen by the Project coordinator with a composition, mandate, and resources satisfactory to the Bank and detailed in the POM.

Sections and Description

Schedule 2, Section I.B.1: The Borrower shall cause AML, not later than sixty (60) days after the Effective Date, to prepare and thereafter carry out the Project in accordance with the Project Operational Manual (“POM”), acceptable to the Bank. The POM shall set out detailed guidelines, methods and procedures for the implementation of the Project, including: (i) the different roles and responsibilities in the implementation of the Project, including the various mechanisms for ensuring close coordination and collaboration between various Project stakeholders; (ii) budget and budgetary control, flow of funds, disbursement procedures and banking arrangements; (iii) financial, procurement and accounting procedures; (iv) monitoring and evaluation arrangements; (v) external audit; (vi) the Annual Work Plans and Budget for the first year of Project implementation; (vii) the modalities for handling Personal Data in accordance with applicable national law and good international practice; and (viii) such other arrangements and procedures as shall be required for the effective implementation of the Project.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	Article V, 5.01: The Additional Condition of Effectiveness consists of the following, namely that the Subsidiary Agreement between the Borrower and AML has been executed on behalf of the Borrower and AML, in accordance with terms and conditions satisfactory to the Bank.
Effectiveness	IBRD/IDA	Article V, 5.02: The Effectiveness Deadline is the date ninety (90) days after the Signature Date.



Type Disbursement	Financing source IBRD/IDA	Description <p>Schedule 2, Section III.B.1(a): No withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed USD 10,000,000 may be made for payments made up to 12 months prior to this date, for Eligible Expenditures [under Category (1)].</p>
Type Disbursement	Financing source IBRD/IDA	Description <p>Schedule 2, Section III.B.1(b): No withdrawal shall be made for payments under Category 3, unless and until the Bank is satisfied that the following condition has been met, namely that the MSMEs Grants Manual has been prepared and adopted, in form and substance acceptable to the Bank.</p>
Type Disbursement	Financing source IBRD/IDA	Description <p>Schedule 2, Section III.B.1(c): No withdrawal shall be made for Emergency Expenditures under Category (5), unless and until all of the following conditions have been met in respect of said expenditures: (i) the Borrower has determined that an Eligible Crisis or Emergency has occurred, and has furnished to the Bank a request to withdraw Financing amounts under Category (5); and the Bank has agreed with such determination, accepted said request and notified the Borrower thereof; and (ii) the Borrower has adopted the CERC Manual and Emergency Action Plan, in form and substance acceptable to the Bank.</p>



I. STRATEGIC CONTEXT

A. Country Context

Mauritius

1. **Mauritius is a small island developing state that has undergone significant economic transformation since gaining independence in 1968.** The country has shifted from a monocrop, inward-looking economy to an export-oriented and diversified one, leading to a Gross Domestic Product (GDP) per capita of US\$10,216 in 2022, the second highest in Sub-Saharan Africa. The COVID-19 pandemic had a severe impact on Mauritius, leading to a contraction of 14.6 percent in real GDP in 2020 and an increase in public debt as Government introduced several measures to support the population and businesses. The increase in international prices and higher freight costs have also led to an increase in the inflation rate to 10.8 percent in 2022.¹

2. **With the implementation of a successful vaccination campaign that allowed the reopening of borders and a resurgence in economic activities, the Mauritian economy recovered strongly in 2022 with a real GDP growth rate of 8.8 percent.** The economic recovery is expected to continue in 2023 with a growth rate of 5.3 percent. The recovery is being driven by a rebound in the tourism sector with the number of arrivals expected to be close to the pre-pandemic level in 2023. In addition, there has been a significant pick-up in investments in construction projects and exports. Moreover, the debt to GDP ratio has declined significantly. Inflation is also on a declining trend in line with the drop in international prices and the tightening of the monetary policy stance. Going forward, several measures have been taken in the 2023-2024 Budget to further diversify the economy, improve labor market conditions, enhance ease of doing business and support vulnerable groups.²

Rodrigues

3. **Rodrigues, located in the Indian Ocean, is a remote Autonomous Region of Mauritius, approximately 650km east of the main island.** It is isolated from the Mauritius main island and the broader African continent, which amplifies its vulnerability to natural disasters like cyclones, droughts, and flash floods, along with the impacts of climate change. Given this context, air transport is an indispensable means of long-distance travel for Rodriguans, serving as the lifeline that binds Rodrigues to the global community. Other options like ferries are solely dedicated to cargo logistics due to their extended travel duration of 36 to 48 hours, heavily influenced by weather conditions. This issue gains prominence in scenarios necessitating swift responses to social and climate-induced challenges, including medical emergencies, extreme weather events, and natural disasters. The value of air travel became even more apparent during the COVID-19 pandemic, as it facilitated the transport of essential medical supplies and daily necessities, functioning as a crucial lifeline for Rodriguans. Similarly, during severe tropical cyclones, aircraft played a pivotal role in delivering emergency communications and mobile power supply for emergency response for the post-disaster recovery, ensuring residents' medical requirements were met.

¹ <https://www.worldbank.org/en/country/mauritius/overview> - accessed August 29, 2023

² Data and information provided by and verified by GoM during negotiations.



4. **Rodrigues has a population of approximately 43,650 in 2022.³** Its economy is centered around fishing, farming, handicrafts, and a growing tourism sector. The island's sustainable development plan (SDP)⁴ updated by the Rodrigues Regional Assembly (RRA) in 2022 with support from the European Union (EU), is currently being considered by the Government of the Republic of Mauritius (GoM) for adoption and focuses on sustainable tourism, leveraging Rodrigues' unique qualities to become a top-rated destination. However, Rodrigues faces considerable vulnerability to natural hazards and climate change, including tropical cyclones, torrential rains, flash floods, sea-level rise, and water scarcity.

5. **The SDP seeks to increase the island's carrying capacity through sustainable development while preserving its natural ecosystem.** It proposes a sustainable energy policy and a target of 50 percent electricity production from renewables by 2030. The SDP also involves significant investments in the water sector and support from development partners such as the Agence Française de Développement (AFD), the EU, and the World Bank.

6. **The 2022 Tourism Development Plan (TDP)⁵, currently being considered by the GoM for adoption, aims to attract higher-spending international tourists and encourage longer stays, thus boosting local spending and decreasing government subsidies.** The plan focuses on sustainable, low-volume, high-yield tourism, catering to niche markets like eco-tourism, rural tourism, agri-tourism, and cultural events. The TDP for Rodrigues emphasizes the need for improved air connectivity, increased sustainable carrying capacity, higher tourism earnings, and quality tourism service training.

7. **Water scarcity remains a significant challenge for Rodrigues, especially for sustainable tourism.** The government will invest US\$22 million financed through the Mauritius Investment Corporation in the construction of five desalination plants to double potable water availability. A water observatory has been established to monitor water resources on the island and guide the development and implementation of the Rodrigues Water Resources Strategy.⁶ At the same time, Rodrigues is highly dependent on imports of key food products, including staples such as rice, flour, and dairy, that are not produced commercially on the island.

8. **Green economy initiatives are also underway, including a material recovery center, a wastewater treatment plant, desilting of riverbeds, and integrated waste management.** The RRA's 'One Tree, One Tourist, and One Child' project aims to engage tourists and locals in environmental conservation. Developing the airport as a green airport aligns with the Mauritius State Action Plan for CO2 Emissions Reduction for the Aviation Sector.

B. Sectoral and Institutional Context

Tourism Sector

9. **Tourist arrivals on Rodrigues Island have shown continuous growth over the past two decades, with a high in 2019 of around 78,000 visitors (domestic and international) out of approximately 100,000 passenger arrivals.** The tourism industry is robust, with 265 registered tourism establishments. Approximately 70 percent of tourists were Mauritian nationals and 25 percent from Reunion Island and France. Most arrivals are between October and May, peaking in December.⁷

³ Statistics Mauritius. (2022). 2022 Population Census – Main Results.

https://statsmauritius.govmu.org/Pages/Censuses%20and%20Surveys/Census/2022_Population_census_Main_results.aspx

⁴ FWC Consortium. (May 2023). Sustainable Integrated Development Plan for Rodrigues.

⁵ ACCIONA et al. (2022). Revised Tourism Development Plan for Rodrigues Island 2022

⁶ BRLi. (2021). Rodrigues Water Resources Strategy and Priority Action Plan

⁷ ACCIONA et al. (2022). Revised Tourism Development Plan for Rodrigues Island 2022



10. Following the reopening of borders in March 2022 after the COVID-19 pandemic, Rodrigues experienced a surge in demand for air travel, amplifying the need for improvements in its air infrastructure. The RRA and the GoM have contemplated expanding the capacity of the Rodrigues Plaine Corail Airport for over a decade. Tourism and air traffic to Rodrigues before the pandemic had already outpaced earlier estimates from a 2011 feasibility study⁸ for the new runway. According to TDP, the goal for 2030 is to accommodate 120,000 passengers, with growth focused on the international, high-end market, which will require upgrading the airport to allow larger jet aircrafts, thus reducing travel time, increasing cargo transport capacity, and attracting more direct flights.

11. The expansion of the airport will enable Rodrigues to amplify tourism's impact on the island's economy and society, while supporting a Green Certification agenda. The projections of 120,000 visitors by 2030 would bring approximately US\$26 million by 2030 to the Mauritian economy,⁹ and create around 2,600 to 3,000 direct jobs in the tourism sector by 2030.¹⁰ Additionally, another 4,000 jobs could be created in related industries (agri-business and fisheries), mostly filled by locals. To accommodate the projected visitors, authorities plan to increase hotel room capacity to around 1,500. This could generate over US\$45 million in revenues, excluding non-accommodation expenses. In addition, and as a first step of a broader certification process, the expansion will enable obtaining a Level 1 Airports Council International (ACI) Airport Carbon Accreditation (ACA)¹¹ in line with the goal of a greener airport.

12. Attracting higher-spending tourists will require new investments, reforms, and upgrades in the tourism sector. The current tourism industry primarily comprises of a small number of formal hotels and a range of guesthouse accommodations. Despite these limitations, Rodrigues had over 70,000 tourists in 2022. However, the need to improve service standards and tourist experience is evident. This involves upgrading hotels, guesthouses, and main tourist sites, and training personnel. Green certification programs could enhance Rodrigues' environmentally sustainable branding. Key reform measures include improving government-to-business (G2B) services, streamlining and digitizing licensing and permits related to tourism, air transport sector regulation improvements, and training staff. Direct flights to new markets will help Rodrigues build its tourism promotion strategy, targeting eco-conscious and higher-spending tourists.

Aviation Sector

13. The island's Plaine Corail Airport serves as the primary portal to the world but has limited capacity due to its short runway.¹² Currently, it accommodates only the Air Mauritius and Air Austral ATR-72 fleet,¹³ affecting the airlines' operating costs, ticket fares, growth, and cargo opportunities. The airport also plays a crucial role during emergencies (including medical) that necessitate evacuation to Mauritius. With daily flights to Mauritius and a few scheduled flights to Reunion Island during peak seasons, the airport's limited reach due to the short runway is a key impediment to development. To address these limitations a new runway is proposed at Plaine Corail. This will increase the airport's capacity, permitting larger aircraft with greater passenger and luggage capacity, facilitating more direct flights from

⁸ ECORYS (2011), Feasibility study new runway Sir Gaëtan Duval Airport, Rodrigues

⁹ Considering that a tourist usually spends about US\$55 per day in Rodrigues (average between internationals and Mauritians).

¹⁰ Deloitte (2019), Socio-Economic Study for Rodrigues on Construction of a New Runway at Plaine Corail Airport.

¹¹ Launched in 2009, ACA is a global voluntary program that is independently administered and based on international standards that have been developed specifically for airports and is the industry global reference standard for carbon management. The program aims to reduce carbon emissions from airport operations that are fully within their own control with the ultimate target to become carbon neutral. The ACA Level 1 represents the policy commitment to emissions reduction: public written evidence of commitment to GHG, carbon or energy reduction at the highest level in the form of a signed policy statement.

¹² The airport's current runway is a short asphalt runway measuring 1,287m by 30m.

¹³ The ATR-72 is a twin-engine turboprop, short-haul regional airliner developed and produced in France and Italy by aircraft manufacturer ATR. The number "72" in its name is derived from the aircraft's typical standard seating capacity of 72 passengers. It only allows the carriage of 64 passengers without cargo due to the limited length of runway in Rodrigues.



international locations. Currently, the short runway can only serve short-haul turboprop aircraft, leading to reduced baggage allowances¹⁴ and the absence of a Business Class, affecting the comfort of passengers and tourism growth. The new runway will also allow for direct flights to Rodrigues from countries beyond the reach of turboprop aircraft, reducing travel costs for tourists.

14. The new runway will enhance Rodrigues Island's resilience to climate change impacts. Given the island's vulnerability to tropical cyclones and climate impacts, the airport becomes a critical point in its transport network. The current capacity constraints hinder rapid evacuation and disaster response, especially during tropical cyclones. The new runway will accommodate larger aircrafts, improving the island's preparedness and response to disasters, and ensuring a regular supply of necessities. Larger aircrafts offer longer-distance connectivity that contributes to climate resilience by expanding the access to resources and supplies and options for residents and tourists' evacuations during natural disasters. There would be fewer restrictions to potential destinations, particularly in rough weather conditions, and especially with the provision of modern navigation systems. The construction of the new runway will also enable air cargo services, vital for the import and export of high-value perishable goods, supporting the development of high-yield tourism on the island. Currently, cargo is predominantly transported by ship, with limited capacity.¹⁵ The new runway will meet the tourism industry's needs, particularly for time-sensitive import requirements and fresh products. Air transport will also be beneficial for perishable products like fresh fish, fruits, flowers, and urgent goods like medical supplies, machinery, and spare parts.

15. The project will impact private financing in select airport services and the tourism industry in Rodrigues. Private suppliers in airports and airlines will benefit from the project and may need to increase their investments to meet the growing demand for their products and services. Private sector investment opportunities in airports include supporting aviation operations and taking advantage of increases in traffic. The project's improvement of the airport and increased capacity will enhance tourism and trigger further private sector investments in Rodrigues and Mauritius in tourism, hospitality, and eco-tourism related activities.

16. The Airport of Rodrigues Limited (ARL), a public company, operates the Rodrigues' Plaine Corail Airport and is owned by Airports of Mauritius Co. Ltd (AML), which in turn is owned by Airports Holdings Limited (AHL). The ownership structure in the aviation sector in Mauritius comprises various public companies, including AHL, AML and ARL, each with separate Boards of Directors and accounts. Civil aviation in Mauritius and Rodrigues is regulated by the Department of Civil Aviation, under the External Communications Division (ECD). Mauritius has pursued an increasingly progressive air transport policy since 2005 and has agreed 60 bilateral air service agreements (BASAs). BASA's agreed by Mauritius also cover Rodrigues, in that they specify access to any point in the territory of Mauritius, which includes Rodrigues. Updates to BASA's as may be needed from time to time are typically managed through intergovernmental diplomatic communiqués. The project can also help to address the gender gap in women's employment in the transport and aviation sectors. Women make up only 17 percent of the transport and storage sectors in Mauritius, with female pilots accounting for just 6-9 percent worldwide and 1 percent in Africa.¹⁶ ARL, in line with global trends, has only 25 percent female employees, none of whom work on activities related to aircraft maintenance.¹⁷ Overcoming barriers across the career cycle and incorporating more women into the aviation sector can contribute to reducing the gender wage gap and addressing the supply shortage in the aviation sector.

¹⁴ The fleet must restrict aircraft weight by limiting the free baggage allowance to 15 kg in Economy Class.

¹⁵ Shipments to the island currently arrive once every week to ten days.

¹⁶ Pilot Institute. (April 6, 2023). Women Pilot Statistics: Female Representation in Aviation. <https://pilotinstitute.com/women-aviation-statistics/>

¹⁷ Data provided by ARL (2023)



Agriculture and Fisheries

17. **Most households on Rodrigues are rural, dependent on tourism-related activities and subsistence agriculture livestock-rearing, small-scale fishing, and microenterprises for income and food.** Rodrigues island does not have the large-scale sugar cultivation industry of the main island and little to no export manufacturing. Agriculture is characterized by the predominance of the production of staple food such as maize, sweet potato, cassava, onion, and garlic. The major livestock reared are cattle, sheep, pigs, goats, and poultry. Total livestock production not only meets the subsistence requirements of the island but also generates a small surplus for export to Mauritius – 7000 head of cattle were exported to Mauritius annually before the COVID pandemic. Meanwhile, fishing for subsistence, commercial and recreational purposes is deeply rooted in the culture of Rodrigues. While the octopus is the star product of the island, a wide array of fish species are caught in the lagoon. Off-lagoon or deep-sea resources remain largely untapped and represent a significant opportunity to further develop the fisheries industry of the island.

18. **Water scarcity is a major challenge for sustainable tourism.** The current water production capacity only meets 49% of the demand estimated at 12,000 cubic meters per day for the islanders. The water production mix is composed of 45 percent from groundwater, 28 percent from surface water, and 27 percent from desalination. Effectively addressing water insecurity in Rodrigues will demand an integrated water management approach with interventions from source to tap, starting with the upstream protection of the recharge zones of aquifers from where the groundwater is being abstracted and the watersheds to preserve the quality of surface water sources. Downstream, it is critical to improve the quality and sustainability of services currently characterized by intermittent supply¹⁸ and low operational costs coverage as water is provided almost free of charge.¹⁹

C. Relevance to Higher Level Objectives

19. **The project is aligned with the forthcoming World Bank's Country Partnership Framework (CPF) for Mauritius (FY24-FY28), and the World Bank's twin goals.** The project supports CPF's Higher-Level Objectives of improving competitiveness and employment and enhancing climate change resilience. Rodrigues Island's growth, fueled by tourism, depends on infrastructural investment, notably in aviation. Rodrigues has below-average income levels, and the program directly enhances connectivity, creating both short and long-term employment through construction and the aviation sector, benefiting the isolated community for which air connectivity is vital and mitigating economic disparities between Rodrigues and Mauritius.

20. **The project also aligns with the World Bank's Africa Regional Strategy,** especially regarding job creation, connectivity, and addressing climate change. The project aligns with five of the strategy's six priorities (creating jobs and transforming economies; expanding the digital economy; making institutions more efficient and accountable; investing in people; and supporting climate change mitigation and adaptation), and will also help reduce greenhouse gas (GHG) emissions by facilitating more efficient aircraft use and improving connectivity with the main island, thus reducing economic disparities and risks of fragility.

¹⁸ A significative portion of households in Rodrigues have water tanks on their premises which are filled about once a week to even once every month or two.

¹⁹ Water is provided almost free of charge (annual fee of Rs 22 per year, about US\$ 0.5 per year), and there is no metering in place for consumers.



21. **The proposed project is consistent with the Mauritius's national and sector strategies on climate change.** While emissions from aviation were excluded from the Paris Agreement, the proposed operation is consistent with the objective of supporting green buildings and with the adaptation objectives of Mauritius's Nationally Determined Contribution (NDC)²⁰ and is likewise aligned with the National Climate Change Adaptation Policy Framework, the Mauritius Long-Term Energy Strategy 2009-2025, and with the Mauritius State Action Plan for CO2 Emissions Reduction for the Aviation Sector. While the aviation sector is not specifically mentioned in the NDC, commitments for GHG emissions reductions and climate resilience made under the International Civil Aviation Organization (ICAO) State Action Plan²¹ are relevant to the project. Globally, aviation is responsible for only 2 percent of carbon emissions.²² As a member of the International Air Transport Association (IATA), Air Mauritius has committed to the global consensus on positive measures for offsetting certain emission. The objectives include achieving a substantial 50 percent absolute reduction in carbon emissions by 2025. These goals align with the global objective outlined in the Paris Agreement. The project increases energy efficiency and reduces GHG emissions per passenger while promoting the “green” airport design and operations by ensuring that Plaine Corail Airport obtains a Level 1 ACA. Using LED lighting systems at the airport can reduce energy use, utility costs, and reduce GHG emissions. These activities are supportive of Mauritius' latest NDC and Mauritius State Action Plan for CO2 Emissions Reduction for the aviation sector, which both aim to reduce emissions' intensity from the aviation sector. The project is also aligned with climate adaptation actions outlined in the 2021 Updated National Climate Change Adaptation Policy Framework. The project supports adaptation, by building resilience to stormwater flooding, cyclones, and sea-level rise with an elevated runway, storm surge protection walls, enhanced drainage system, appropriate runway surfacing and extended strips on either side of the runway centerline and beyond both ends of the runway. The runway will enhance Rodrigues Island's connectivity and thus emergency response to extreme weather events.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

22. The Project Development Objective (PDO) is to improve air transport access and enhance the climate resilience and productivity of the island of Rodrigues.

PDO Level Indicators

23. Progress toward achievement of the PDOs would be measured through the following PDO indicators:

- a) Number of unique destinations served by direct flights from Rodrigues (number);
- b) Improved climate resilience and operational safety (Yes/No);
- c) Number of direct jobs created on Rodrigues Island (disaggregated by gender) (number).

B. Project Components

24. **The project supports the construction of a new runway and provides substantial assistance to advance aviation sector development and the enhancement of the sustainable tourism potential in Rodrigues.** While the project's main investment is the runway extension under component 1, the project includes substantial support towards advancing aviation sector development as well as strengthening the implementation capacity of key sector agencies such as AML

²⁰ Republic of Mauritius. (October 2021). Update of the Nationally Determined Contribution of the Republic of Mauritius

²¹ Republic of Mauritius. (February 2023). Mauritius State Action Plan for Co2 Emissions Reduction for the Aviation Sector

²² Global Carbon Project. (2019). Supplemental data of Global Carbon Budget 2019.



and ARL through component 2. The project also supports the implementation of Rodrigues' SDP through technical assistance (TA) and priority pilot investments (component 3), as well as seed investment and measures to enhance the tourism potential of Rodrigues (component 4). Project activities under components 3 and 4 will complement and build on ongoing efforts by the GoM and the donor community in support of the implementation of sustainable development on Rodrigues. A description of the four project components is included below.

Component 1: Infrastructure Development (US\$170 million)

25. **This component will fund the construction of a new airport runway and associated facilities on Rodrigues Island.** The primary element is the construction of a new 2,100m long by 45m wide runway, designed in accordance with ICAO standards. The runway will have a 140m clear strip on either side of the centerline and includes Runway End Safety Areas complying with ICAO standards at either end.

26. **Apart from the new runway, the project will finance the construction of new taxiways linking the existing runway to the new one, the strengthening of part of the existing runway to be used as a taxiway, and the construction of three new aircraft parking stands for jet aircraft.** The scheme also includes expanding the current apron. Presently, Plaine Corail Airport has two aircraft stands for ATR-72 or smaller aircraft. The new runway requires three stands for single-aisle (A321/B737) jet aircraft in addition to the current two ATR-72 stands. These will be constructed west of the existing apron, designed for 'nose-in' and push-back operations. The apron expansion will have ground power units.

27. **The project also funds the construction of stormwater drains, airfield ground lighting, control systems, floodlighting, and navigational aids.** Additional infrastructure includes a perimeter road, service road, fencing, a gate post, access roads, a car park, landscaping works, and new power and water supply systems. Building infrastructure includes a new control tower, a rescue and fire-fighting station, a boat house, sewerage ramp and jetty, a new meteo building, quarantine building, power center building, and cold storage and incinerator buildings. These facilities will aim to adhere to energy-efficient performance standards equivalent to Level 1 EDGE Certification²³, using renewable energy sources wherever practical. The design, operations, and maintenance of these facilities consider resilience features, particularly flooding.

Component 2: Technical Assistance for Project Implementation and Sector Reforms (US\$10 million)

Sub-component 2.1: Support to aviation sector development.

28. **This sub-component will provide TA to the government to support growth and resilience in the aviation sector.** It will support the government to identify options for the sector to sustain growth and competitiveness of the economy. It will also support assessment of the potential climate change impact on Plaine Corail airport infrastructure and operations. Additionally, it will finance capacity building to enhance safety oversight, bolster expertise, and ensure Mauritius's compliance with the Chicago Convention and its annexes for effective aviation safety²⁴. Training initiatives will focus on climate change, resilience, promoting women in aviation, and aviation safety for ARL, AML, and relevant GoM staff.

²³ EDGE is a green building certification system focused on making buildings more resource efficient. An innovation of IFC, a member of the World Bank Group, EDGE empowers emerging markets to scale up resource-efficient buildings in a fast, easy, and affordable way. Projects meeting the EDGE Standard with at least 20% predicted savings in energy use, water use, and embodied energy in materials as benchmarked against a standard local building are recognized as Level 1 EDGE Certified.

²⁴ ICAO. Convention on International Civil Aviation - Doc 7300. <https://www.icao.int/publications/pages/doc7300.aspx>



Sub-component 2.2: Support to project implementation.

29. This subcomponent will include the financing of necessary consultancy services, studies, equipment, and TA for the direct management of the project, such as the recruitment of a Project Implementation Unit (PIU), the PIU's Project Technical Units, environmental and social studies and audits, trainings, analysis of barriers and facilitators for women to participate in the aviation sector and development of a Gender Action Plan, among others.

Component 3: Support Rodrigues' Sustainable Integrated Development with a Particular Focus on Access to Water and Food Security (US\$10 million)

30. The main objective of this component will be to support local governments, rural communities, and the private sector on the island of Rodrigues to carry out small key investments and implement a sustainable territorial development strategy for Rodrigues. This component will finance TA and some small key investments aimed at enhancing Rodrigues' agri-food system (agriculture and fisheries) as well as water resources sustainability. Investments will be designed with significant participation by women in fisheries and agriculture.

Sub-component 3.1: Strengthening of the local food systems.

31. This sub-component aims to enhance food security, value addition, and reduction in food waste through TA and capacity building for local authorities in areas like extension services, fisheries management, post-harvest efficiency, food safety, and climate-smart technologies. It seeks collaboration with local institutions and the private sector to secure reliable food access and, where possible, increase exports from Rodrigues. Activities also include fostering farmers organizations and Micro, Small and Medium Enterprises (MSMEs), assessing key value chains, identifying potential new markets, and explore the potential for climate-friendly cold chains. These activities will shape post-harvest investment strategies, including through financing mechanisms to attract private investors. Technical support will align with the Sustainable and Profitable Fisheries Strategy 2023-2032 for Rodrigues, including a focus on the potential to develop untapped off-lagoon potential. Value chain analyses and interventions will consider gender perspectives to address barriers for women in agriculture and fisheries.

Sub-component 3.2: Supporting improved water management and development.

32. This sub-component will finance TA as well as small investments to support the strengthening of Integrated Water Resources Management and Development (IWRMD) in Rodrigues Island. It includes: (i) small works for the protection and rehabilitation of existing water sources including desalination plants and for improving the quality of supplied water, assessing the potential of groundwater, identification and designing of a new reservoir(s) to reduce the demand-supply gap; (ii) development of sanitation improvement plans for safe treatment and disposal of wastewater and fecal sludge; (iii) institutional development support for Rodrigues Public Utilities Corporation (RPUC) including on tariff setting to improve the financial sustainability of water supply operations as well as capacity building for staff; and (iv) TA to support the development of regulation and technical standards for desalination plants.

Component 4: Supporting the Sustainable Development of the Tourism Sector in Rodrigues (US\$10 million)

Sub-component 4.1: Supporting tourism promotion and attraction of investments.

33. Initiatives include a review of the Tourism Commission's (and other relevant agencies) institutional capacity followed by a tailored strengthening program focusing on structure, strategic alignment, resourcing, and service delivery. Support will also be provided for the green certification of the island.²⁵ An international branding consultancy

²⁵ Green tourism certifications schemes exist to help destinations benchmark their policies, practices and results to help them achieve increasing levels of environmental sustainability and resilience. They are also important to show potential tourists the commitment of



will be hired to develop a distinctive brand for Rodrigues, currently lacking visibility, and identity in the tourism markets. This involves creating a brand manual, training programs, brand signage, digital marketing strategies and promotional products, and upgrading local handicraft producers with a strong emphasis on women. This process will be coordinated with the Tourism Commission and private sector stakeholders. The sub-component will also support improvement of G2B services, including digitization of registration, licensing, and permitting procedures in the tourism sector to enhance attraction of investments.

Sub-component 4.2: Skills development to support the tourism sector.

34. **This sub-component will finance a comprehensive skills development program in Rodrigues' tourism sector.** Implemented by a specialized hospitality training entity, the program will offer targeted courses for a range of tourism-related roles including hotel management, service staff, maintenance personnel, tour guides, taxi drivers, artisans, and public officials. The trainings aim to uplift service standards, introduce professionalism, and promote career potential to the youth of the island. At least half of the participants will be female, with provisions made to alleviate transport and childcare constraints and to encourage women's participation in traditionally male-dominated professions. Trainings will also cover green sustainability practices. A preliminary assessment will be conducted to ascertain specific training and certification needs, ensuring that the program aligns with the demands of the tourism sector.

Sub-component 4.3: Supporting sustainable tourism among MSMEs.

35. **This sub-component will provide MSME grants to small businesses for sustainable upgrades and retrofits aligning with Rodrigues' brand standards.** This may include green upgrades, interior remodelling, compliance with safety standards, and promotional materials. The grant approval process will prioritize women-led or owned businesses and emphasize sustainability. Upgrades must comply with top energy efficiency standards, similar to the US Energy Star or the EU's A level standard. The facility will offer grants up to US\$50,000. These initiatives, coupled with targeted training and certification, will promote business formalization, women's empowerment, and environmental sustainability in Rodrigues' tourism sector.

Sub-component 4.4: Strengthening sustainable tourism infrastructure.

36. **This sub-component will invest in enhancing tourism product offerings in Rodrigues, focusing on infrastructure, signage, trails, and site development.** It will inventory key sites like caves, scenic overlooks, and turtle sanctuaries and invest in their improvement, including signage and grooming of trails. Existing trails may be upgraded and walking, hiking routes around the island enhanced. Landscape enhancements in village locations will be carried out. All initiatives will integrate harmoniously with the natural landscape, promoting conservation and sustainability. These efforts aim to enrich the ecological and natural experience of the island, supporting Rodrigues' brand attributes and promoting environmental responsibility.

Component 5 Contingent Emergency Support (CERC) (US\$0 million).

37. **This Component will facilitate access to rapid financing by allowing for the reallocation of uncommitted project funds in the event of a natural disaster,** either by a formal declaration of a national emergency or upon a formal request from the government. Following an eligible crisis or emergency, the government may request that the World Bank reallocate project funds to support emergency response and reconstruction. This component would draw upon uncommitted resources from other project components to cover emergency response. A CERC Manual and an Emergency Action Plan, acceptable to the World Bank, will be prepared and constitute a disbursement condition for this component.

business and institutions to a sustainable development of tourism in a given destination.

**Retroactive financing**

38. Retroactive financing will be made available to finance eligible expenditure paid prior to the signing of the loan agreement up to an amount not exceeding US\$10 million. These expenditures will finance goods, works, services, training, consulting services and operating costs under Components 1 and 2 of the project.

C. Project Beneficiaries

39. The primary beneficiaries of this project include Rodrigues' 43,650 residents, who will enjoy increased economic activity, investment, employment, and training opportunities, leading to enhanced opportunity, income, and quality of life. The project expects a decrease in noise and visual emissions from aircraft due to the new runway's location and its accommodation of larger planes. Air travelers to Rodrigues Island, including approximately 120,000 projected tourists, public and business travelers, seasonal workers, and recipients of medical services, will benefit from safer, less weather-dependent flights and potentially increased air service. A longer runway equipped with modern safety features will significantly improve flight safety.

40. Both Mauritian and Rodrigues businesses will benefit from increased trade opportunities and reduced costs due to improved accessibility and tourism growth. Job creation during construction and increased airport services will provide more opportunities for workers on both islands. The project will also directly benefit passenger and freight air service providers, perishable goods exporters, spare parts importers, and the tourism industry. Airlines will profit from increased passenger transport, reduced travel times, and lower operating costs. Other beneficiaries include the GoM, its ministries, and agencies responsible for air transport infrastructure and services. They will gain from new facilities, equipment, targeted training, and capacity building. Obtaining the ACI ACA Level 1 will bolster the project's environmental sustainability efforts, making Mauritius more competitive in the aviation sector. Achieving a greener airport certification aligns with global market trends, potentially transforming Mauritius' and Rodrigues' economy. Additionally, the RRA will benefit from support towards its development plan implementation. The project also aims to address gender imbalances in aviation, providing increased employment opportunities for women.

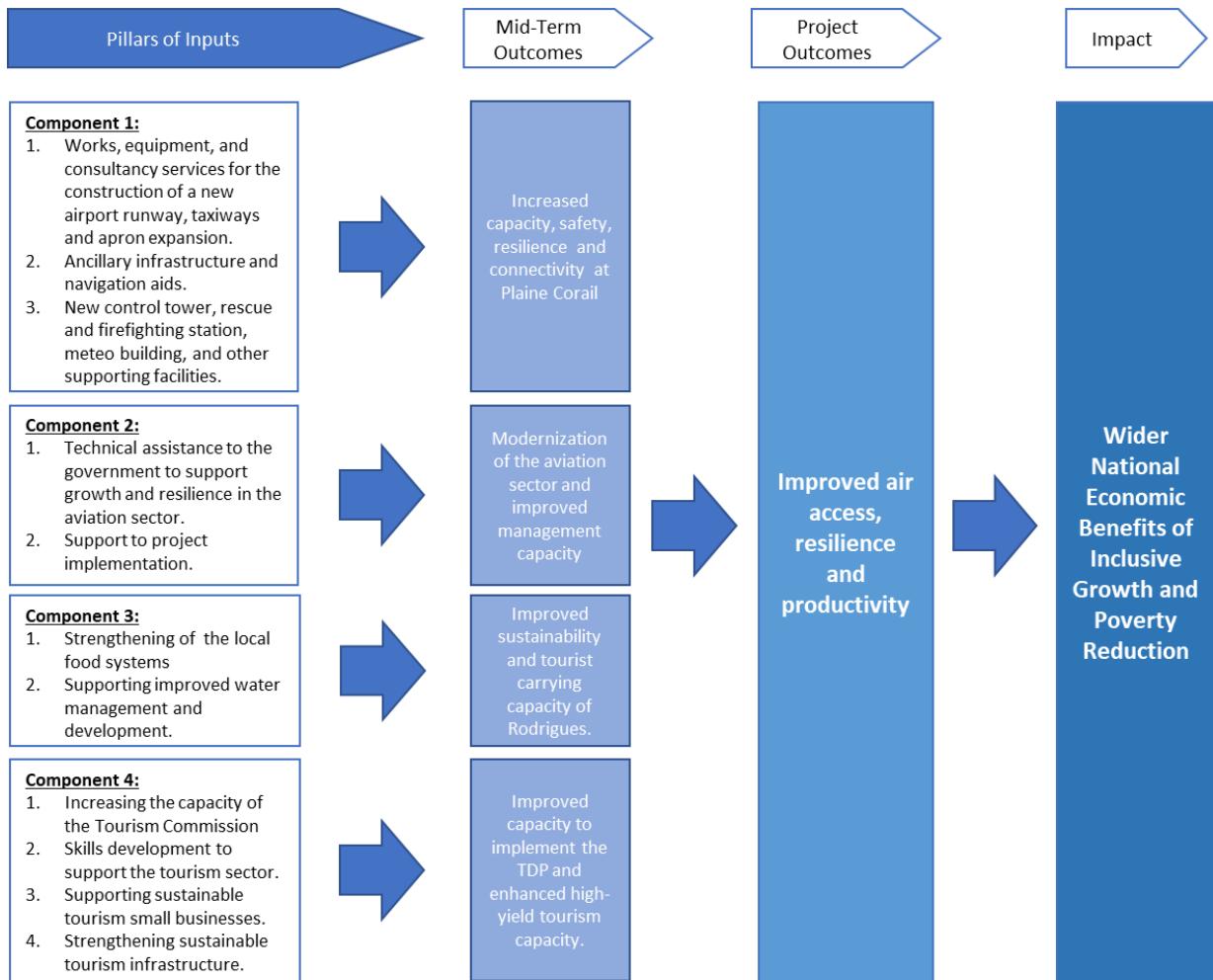
D. Results Chain

41. This theory of change (ToC) demonstrates how the project links infrastructure development and sustainable tourism support to unlock Rodrigues' potential. The new runway and associated facilities will allow larger aircraft to land, increasing airport capacity, and improving resilience and safety. Complementary components prepare Rodrigues to leverage expected growth areas identified in the sustainable development and tourism development plans. This comprehensive set of efforts aim to enhance Rodrigues' connectivity and overall development.

42. The ToC assumes that increased airport connectivity, safety, and efficiency will stimulate sustainable, high-yield tourism, boosting the local economy, creating jobs, reducing poverty, and empowering women. Crucial co-requisites include strong political commitment to reforms and Rodrigues development plans; effective cross-sectoral collaboration, ensuring prompt execution of the Environmental and Social Management Plan, Resettlement Completion Audit, and resettlement plans; availability of parallel and other financing for implementation of Rodrigues' sustainable development and tourism development plans; timely contractor deployment; and high-quality civil works for infrastructure support.



Figure 1: Theory of Change for the project



E. Rationale for Bank Involvement and Role of Partners

43. **The project's investments, while presenting limited commercial potential due to Rodrigues' low current and projected traffic volumes, are crucial for connectivity, socio-economic benefits, and poverty alleviation.** Public sector financing is essential, as the project's commercial value is low, making securing private financing challenging. With a long-term growth focus, the project aims to enhance the tourism industry, job creation, emergency supply delivery, and emergency evacuation routes. Given Rodrigues' physical constraints and biodiversity, few alternatives exist to the proposed runway development.

44. **The project will indirectly mobilize private financing for select airport services and the tourism industry.** It offers opportunities for private sector investment in aviation operations and ancillary services due to increased traffic. Although terminal improvements aren't included, future phases will offer opportunities like property development and retail. Investment in aircraft maintenance services and cargo operations will also rise. Moreover, improved airport capacity will stimulate tourism, triggering further private sector investments in Rodrigues and Mauritius, notably in eco-tourism.



45. This project supports Rodrigues' plans for sustainable development and the development of its tourism industry, unlocking several government and partner investments. It will catalyze broader support for Rodrigues' development, with numerous partners encouraged by the World Bank's engagement.

46. Drawing on its experience in similar island connectivity projects globally, the World Bank is well-positioned to assist the government in developing strategies for connectivity issues, emergency response systems, and economic development. World Bank's financing and implementation support capacity can help mobilize additional financing from partners like the EU, which will provide an approximate €16 million grant to co-finance this project focusing on Components 1 and 2.

47. As the World Bank's first financial support to Mauritius in a decade, the project will strengthen the partnership with the GoM and enhance the government's capacity in implementing projects funded by the World Bank and other partners. The World Bank's involvement ensures adherence to its Environmental and Social Framework (ESF) and fiduciary standards, enhancing project sustainability and opening up possibilities for additional financing.

F. Lessons Learned and Reflected in the Project Design

48. The proposed project scope is founded on World Bank's lessons learned and principles for project design and preparation:

- The project has a simple design and takes into account the limited local institutional capacity of Rodrigues Island, which is less than that of main island institutions. The project centers on building a new runway and related facilities, providing substantial technical aid for future activities. ARL will receive support from the more resourced AML due to ARL's limited capacity. A project-funded implementation unit in Rodrigues will support the project and facilitate skills transfer.
- The project integrates infrastructure development with broader economic development plans. It aligns with the need for new runway and tourism infrastructure highlighted in Rodrigues' sustainable development and tourism development plans. It enjoys wide-ranging support from Rodrigues and Mauritius governments, and civil society, promoting quick implementation. Its focus is on the island's developmental priority: tourism growth, while addressing sustainability issues, particularly gender equity and climate resilience.
- The project supports strengthening of the policy environment to maximize infrastructure investment benefits. It promotes further liberalization of Mauritius' aviation sector, enhances compliance with ICAO safety standards, and boosts Rodrigues' attractiveness to international carriers. The project aids the ECD in modernizing the Mauritian aviation sector and enhancing its resilience against external shocks.
- The project ensures airport infrastructure interventions holistically address operational and safety systems modernization for long-term sustainability. It includes investments in improved navigation and communication systems, a new control tower, and improved fire safety facilities. The introduction of modern systems can encourage regional standardization of equipment, potentially resulting in economies of scale in purchasing, installation, and maintenance, thus supporting sustainable investments.
- Climate and disaster resilience are integral parts of infrastructure design and construction. The project addresses this through hard and soft interventions, including improved airport resilience to climate events, improved drainage of the new runway and taxiways, and capacity building in the aviation sector on climate-related issues.
- The project adopts a flexible design with adapted implementation mechanisms to respond to emergencies, particularly important for disaster-prone countries. In addition to a CERC for rapid response in emergencies, the project includes alternative delivery mechanisms and tailored implementation arrangements, with direct support from AML, inputs from ARL, and a multi-stakeholder technical steering committee.



- The project aims to build a green, resilient airport reducing carbon footprint and enhancing climate change adaptation. The project is designed around a "green airport" concept to ensure sustainable operation and resilience to climate change. Constructing Rodrigues Airport as a green airport sets a precedent for environmentally responsible and climate-resilient infrastructure in the region, contributing to the protection of unique tourism offerings and providing an example for other destinations looking to create a sustainable and climate-resilient system, while supporting socio-economic development.
- The project incorporates a holistic approach towards achieving the development objectives by incorporating interventions that go beyond the airport infrastructure, including water and food security, agriculture and fisheries and tourism development, to support the sustainability and economic development of the island directly.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

49. **The project will be executed by Airport of Mauritius Co. Ltd. (AML) with a dedicated PIU based on Rodrigues Island.** The Ministry of Finance, Economic Planning and Development (MoFEPD), representing GoM, will be the borrower for this sovereign loan. A subsidiary agreement will govern the transfer of the funds to AML, defining AML's roles in project implementation, including technical, procurement, financial management, monitoring and evaluation, and ESF aspects. The RRA will closely work with the PIU, specifically on construction planning, coordination, safety oversight and for the execution of activities in Components 3 and 4.

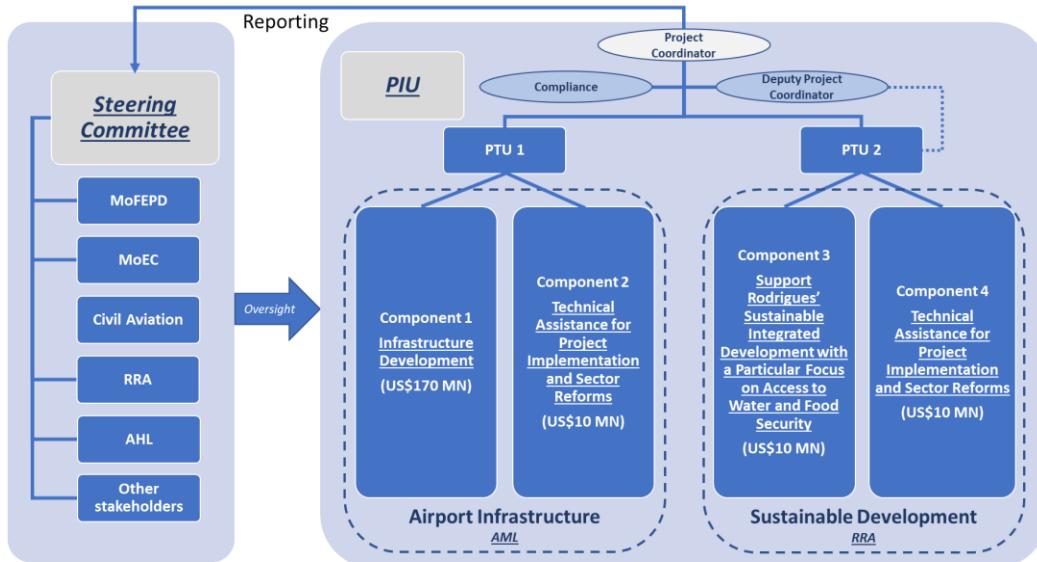
50. **The PIU will be located on Rodrigues and housed within ARL offices for seamless collaboration.** AML is already a well-resourced and capacitated agency. Technical staff including civil engineer, airfield pavement engineers and aeronautical engineers are already available within AML and can be seconded to the PIU should they choose, while specialist PIU staff will be sourced from the deep pool of skills available in Mauritius, including a dedicated project coordinator, procurement specialist, financial management (FM) specialist, accountant, social specialist, environmental specialist and health and safety specialist. Two technical units, one responsible for the technical aspects of Components 1 and 2 of the Project and overseen by the Project Coordinator ("Project Technical Unit I" or "PTU I") and the other one for the technical aspects of Components 3 and 4 of the Project and overseen by a Deputy Project Coordinator ("Project Technical Unit II" or "PTU II") will be established in the PIU. Additional consultants (agriculture/fisheries/tourism) will be recruited as needed for PTU II.

51. **A Project Steering Committee (PSC) will provide regular project oversight, comprising representatives from AHL, Prime Minister's Office (External Communications Division), Prime Minister's Office (Rodrigues Division), Department of Civil Aviation, RRA, and the MoFEPD.** AML will work closely with all relevant agencies and sectoral institutions. For civil aviation-related activities, the PIU will collaborate with the Department of Civil Aviation. To ensure alignment with Rodrigues' sustainable development plans, the RRA will provide technical input to the Steering Committee, comprising representatives from key sectors nominated by the RRA and Rodrigues private sector. Private sector consultations will be held to guide tourism-related activities. Figure 2 illustrates the envisaged arrangements.

52. **The project will follow the Project Operations Manual (POM), which will detail implementation arrangements, rules, guidelines, standard documents, and procedures, and a MSMEs Grants Manual as an annex.** The POM's preparation, initiated with World Bank support, is expected to be completed within two months after effectiveness. Any revisions to the POM will require World Bank review and approval.



Figure 2: Implementation arrangements for the project



* The E&S, Financial Management, Procurement under the PIU compliance unit will have a cross cutting function.

B. Results Monitoring and Evaluation Arrangements

53. **Framework for monitoring outcomes and results.** The monitoring of outcomes and results will be based on the agreed Results Framework and Monitoring arrangements that are described in detail in section VII below.

54. **The AML will be responsible for results monitoring and evaluation.** Joint supervision missions by the GoM and the World Bank will monitor the status of project outcomes, Environmental and Social (E&S) standards, and compliance with legal covenants. In addition to PDO-level results indicators and intermediate outcome indicators, the AML would prepare the semiannual implementation progress reports that will include information on disbursements, FM, procurement, and social and environmental policies and guidelines, as well as an updated annual plan of works and activities. A Mid-term Review would be conducted no later than three years after the first disbursement. A final evaluation would also be conducted at the end of project implementation to assess the project's overall achievement.

C. Sustainability

(i) Climate Change

55. **The project aims to enhance Rodrigues Island's climate resilience by improving airport capacity and adhering to climate resilience standards for constructing new runway and related infrastructure.** Given the island's vulnerability to tropical cyclones and climate change impacts, upgrading the airport is crucial for disaster preparedness and rapid response. The project will increase the airport's capacity to handle larger aircraft, enabling rapid evacuation and steady supply of necessities, enhancing the island's ongoing climate resilience. The project also focuses on improving water resources management to reduce vulnerability to water scarcity due to declining rainfall caused by climate change.

56. **The project is aligned with Mauritius's commitments to reduce GHG emissions by 40 percent by 2030 and produce 50 percent of its electricity from green sources by 2030, as outlined in the NDC for the aviation sector.** The project aims to secure Level 1 ACA accreditation through ACI Europe. This voluntary program is geared towards reducing



carbon emissions from airport operations fully under the airport management's control, with a goal of making the airport carbon neutral. A policy statement provides the opportunity to demonstrate executive-level commitment, raise the importance of emission reductions and energy efficiency, and develop the framework for meeting the program's requirements.

57. **The project integrates climate resilience and mitigation measures throughout its components:**

- **Component 1** involves constructing a new runway with modern climate-resilient designs and materials. This includes a longer and wider, elevated runway, storm surge protection walls, and an enhanced drainage system. A modern traffic control tower and rescue/fire-fighting station will be constructed, along with a rainwater collection system due to Rodrigues Island's drought issues. This component will also improve energy efficiency at the airport with measures like LED lights, solar-powered lights, and high-efficiency ventilation systems. The airport aims at producing on-site renewable energy wherever practical. These measures are expected to reduce CO₂ emissions by up to 12.38 percent in 2050 compared to the baseline scenario.²⁶
- **Component 2** will provide TA and studies for developing national air and maritime transport strategies that incorporate climate change impact reduction provisions. This includes the introduction of Sustainable Aviation Fuels (SAF),²⁷ enhancing air traffic management efficiency, and training on disaster risk management. The potential impact of climate change on the airport will be assessed, and an emergency response plan will be developed.
- **Component 3** focuses on strengthening water sustainability and food security threatened by climate change. It involves protecting and rehabilitating existing water sources including desalination plants, and improving the quality of supplied water, designing a new water reservoir(s), and developing sanitation improvement plans. Institutional development for RPUC is also planned, along with regulation and technical standards for desalination plants. Increased fisheries sustainability will both mitigate climate change through reduced emissions and strengthen the sector's adaptation capacity. Investments in agriculture will be aimed at strengthening institutional capacity through TA to public institutions, enhancing farm productivity, value addition, and sustainable access to competitive local and export markets by enhancing quality, better farm and post-harvest management practices and options that take into consideration improved practices of "green agriculture".
- **Component 4** supports MSMEs with an emphasis on women-owned enterprises in climate resilience and mitigation initiatives, with a focus on green and eco-tourism measures. Training will be provided on energy efficiency and climate resilience in tourism. Investments will be made in sustainable tourism infrastructure such as pedestrian and cycling pathways.
- Lastly, **Component 5** facilitates access to rapid financing in case of an emergency due to a natural disaster event.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis (if applicable)

(i) Technical Appraisal

58. **The project activities, such as the use of established technologies and design standards defined by international air transport organizations, are technically straightforward.** A consultancy firm (GIBB) is finalizing the designs, under a

²⁶ Mauritius State Action Plan for CO₂ Emissions Reduction for the Aviation Sector. February 06, 2023. Issue 2 Rev 0. The impact of improved aircraft technology standards and operational improvement measures indicates an overall 8.71% and 3.67% reduction of fuel consumption and CO₂ emissions in 2050, compared to the baseline scenario.

²⁷ SAF are renewable or waste-derived aviation fuels that meet a set of international criteria, including GHG emission reduction. World Bank (2022) "The Role of Sustainable Aviation Fuels in Decarbonizing Air Transport, <http://hdl.handle.net/10986/38171>.



contract supervised by ARL & AML and funded by AHL. The project does not include terminal improvements since the terminal building was extended in 2018 and operates under-capacity, however, the GoM is considering future extensions based on the potential rise in tourist traffic.

59. **New runway construction works will be planned to minimize disruptions.** As Plaine Corail Airport has only one runway, its closure effectively shuts down air transport. Hence, construction phasing will be agreed upon with ARL to maintain minimal disruption. Clearing, cleaning, and inspecting the runway area each morning will ensure safety. The runway, designed to last 20 years, may need rehabilitation around year 15, primarily an asphalt overlay. Given the limited traffic, runway maintenance and rehabilitation are expected to be small in scope and cost.

60. **The project's primary cost is the runway construction, particularly earthworks to level the hilly terrain.** Technical designs consider geotechnical investigations to assess material quality, cut and fill requirements, and potential foundation strengthening needs. The design ensures that material volumes balance and haulage distances are minimized to control costs and environmental impacts.

61. **Radio navigation and surveillance equipment installation under Component 1 will use proven technologies such as Instrument Landing System (ILS), Non-Directional Beacon, Area Navigation (Global Navigation Satellite System), and Automatic Dependence Surveillance - Broadcast (ADS-B).** ILS has been a standard for precision runway approach, while ADS-B is a cost-effective solution for enhancing aircraft monitoring and surveillance capabilities. The project will employ Communication Navigation Surveillance experts to ensure that the updating of Plaine Corail Airport's aeronautical charts complies with ICAO requirements.

62. **To address water insecurity in Rodrigues, the project will adopt a holistic approach.** Dedicated TAs will assist in preparing plans for protecting and mobilizing water sources, developing sanitation services, and developing water utility using the Utilities of the Future framework. The TA will identify cost-effective investments to improve integrated water management and reduce Rodrigues' water insecurity. This focus will complement investments from other development partners, such as AFD, in improving the water supply. Climate proofing of existing water infrastructure and services will also be assessed to improve resilience in the face of climate change impacts.

63. **The support to the sustainable development of the tourism sector in Rodrigues will be informed by and guided by the goal to achieve green destination certification for the island.** Sustainability more broadly will permeate all project interventions in the tourism sector, and synergies have been identified with the food security and water interventions. These will include efforts to link local food providers to tourism MSMEs (hotels and restaurants), as well as supporting MSMEs to increase their resilience to water scarcity by helping them to build water catchment systems.

64. **Fisheries-related activities are all focused on increased sustainability and improvements in the value as well as volume of captures (in the case of off-lagoon fisheries).** This sub-component will also emphasize value addition in Rodrigues proper before captures are exported, either to Mauritius or abroad. Investments in agriculture will be aimed at strengthening institutional capacity through TA to public institutions, enhancing farm productivity, value addition, and sustainable access to competitive local and export markets by enhancing quality, better farm and post-harvest management practices and options that take into consideration improved practices of "green agriculture".

(ii) Economic Appraisal

65. **The project is economically viable.** Despite challenges in quantifying all benefits, the project will bring significant economic and social value to Rodrigues, a small island reliant on air transport for domestic and international economic,



social, and cultural connections. The new runway will boost passenger and cargo air services, currently hampered by the existing infrastructure. Insufficient seating for emergency medical treatments and the economic cost of flight cancellation profoundly affects the economy and social development of Mauritius, and particularly Rodrigues. Inadequate airline services also impact tourism flow, import-export costs, remittance flow, labor mobility and cost, goods and services cost, knowledge flow, and investment viability across Rodrigues. The project will strengthen the crucial role of air services in providing medical evacuation, disaster relief, and other humanitarian services, which are only partly served by sea transport.

66. **A cost-benefit analysis confirmed the project's economic viability under the base scenario.** This analysis compared the project scenario (new runway) with the business-as-usual (BAU) scenario (existing runway). The project's costs include capital, operational, and maintenance expenses for the new facilities, while the benefits include reduced travel time and increased tourism expenditure due to more international tourists with higher spending and longer stays. It's important to note that the analysis was conservative, excluding potential benefits like reduced airline operating costs, increased cargo volumes, and broader connectivity benefits. Furthermore, the project can help combat poverty on the island by addressing issues like remoteness and lack of economies of scale. The economic analysis reveals a positive economic internal rate of return (EIRR) of 9.25 percent and a Net Present Value (NPV) of US\$75.3 million. Sensitivity analysis shows the project's slight robustness to a 20 percent investment cost increase or a 20 percent economic benefit decrease. Nevertheless, the project's overall economic benefits, including those unaccounted for in the analysis, should offset potential economic benefit decreases or cost increases significantly.

(iii) GHG emissions.

67. **Although the World Bank lacks an approved methodology to evaluate airport projects' impact on GHG emissions, the net change in emissions from this project is expected to remain low.** Factors like aircraft type, distances, flight patterns, and cruise elevations make it challenging to assess aviation emissions. The project's feasibility study suggests its relatively carbon-neutral for the main travel sector (Mauritius to Rodrigues) as a higher capacity yet higher emission jet plane is replacing a lower emission turboprop. The A321's fuel efficiency is roughly 2.19 L/100 km per passenger seat versus 2.53 L/100 km for the ATR-72. Extra GHG savings will arise from the same plane's cargo carrying capacity. While the project aims to increase direct flights from further locations, potentially increasing emissions, it also diverts traffic from other destinations, making the net emissions hard to quantify. As the projected traffic volumes will remain relatively low, the likely increase in GHG emissions is expected to be low, posing a low mitigation risk. Measures are also being included in the project design to reduce net GHG emissions through on-site renewable energy use and energy efficiency of buildings or on-site renewable energy production.

(iv) Paris Alignment

68. **The project aligns with the Paris Agreement, national climate policies, and sector policies by incorporating climate resilience measures to mitigate physical climate risks, ensuring the intended project outcomes.** The activities under components 2, 3 and 4 are at low level of risk. Also, the project supports Mauritius's national climate change strategies and aligns with the country's NDC. It applies the Avoid-Shift-Improve + Resilience framework²⁸ to enhance the climate resilience of Rodrigues Airport and sustainability measures regarding food security, water scarcity, and green tourism.

69. **The project incorporates adaptation measures to mitigate the airport's vulnerability to severe weather events, sea level rise, floods, and extreme heat.** For example, structural, nature-based, and soft solutions will be implemented,

²⁸ Avoid-Shift-Improve (A-S-I) is an approach to environmental sustainability that seeks to increase efficiency by modifying the behavior of consumers rather than producers to make consumer choices more environmentally sustainable.



along with capacity building and institutional strengthening activities. A new meteorological station will be constructed for improved meteorological and climate forecasts. The project also aims to increase the airport's resilience by accommodating larger aircraft, capable of enduring turbulent weather. Climate resilient design standards will be used in constructing the airport runway. The runway will be elevated, and marine walls built to protect against storm surges and sea level rise. A durable drainage system will also be established to prevent flooding during heavy rainfall.

70. **From a mitigation perspective, the project recognizes Rodrigues' unique circumstances as an island state and sees the expansion of the airport as vital for economic growth and connectivity.** The runway expansion will accommodate larger jets and facilitate more efficient transportation of time-sensitive cargo. The project also includes cold storage facilities at the airport to support exporting higher-value-added local products. Carbon lock-in risk is considered moderate as the airport investment does not significantly affect traffic on existing lower-carbon transport modes, deter future investments in cleaner transport alternatives, or impede future use of SAF. Transition risks are not significant as demand for the airport will remain for time-sensitive cargo and local mobility needs. To reduce mitigation risks, the project will incorporate measures to lower CO₂ emissions and enhance energy efficiency. The airport facilities aim to meet "green airport" certification standards, with the buildings being energy-efficient and powered through renewable sources, in part electricity generated from solar panels. The project also includes TA to support sustainable infrastructure and tourism sector development.

71. **The project will conduct a feasibility study on SAF and stakeholder engagement on piloting this medium-term GHG emissions reduction measure.** The project's commitment to a seamless transition towards a sustainable and resilient airport shows its alignment with a sustainable and low-carbon pathway. Proactive measures have been taken to minimize transition risks, such as long-term aviation demand and market trend planning, and adapting to emerging technologies. Despite residual risks from increased tourism, overall risks are reduced to a low level with the proposed mitigation measures. The project ensures that all activities financed by the CERC are Paris Aligned. Immediate emergency preparedness and response activities that are temporary and time-bound are considered low risk and therefore Paris Aligned. Similarly, post-disaster reconstruction is Paris Aligned from a mitigation perspective.

(v) Financial Appraisal

72. **The financial analysis for this project is primarily aimed at ensuring the financial sustainability of ARL for the operation and maintenance of the project.** The goal is not to recover the capital investment cost, but to ensure that ARL's revenues from the new facilities can cover the increased maintenance and operating costs. ARL has been charging below cost recovery Passenger Service Charges on domestic flights for the past 12 years, subsidized by the GoM through grants. However, for long-term financial independence, ARL must charge appropriate Passenger Service Charges, which could increase domestic ticket prices by 5 percent to 10 percent. If desired, the GoM and RRA can subsidize the fare increase rather than ARL's operating budget.

73. **The financial analysis reveals that while future ARL revenues will not be sufficient to recover the capital investment, they will exceed projected operational and maintenance expenses, ensuring ARL's financial health and sustainability.** The project, expected to be operational from 2028 for 30 years, has an approximate NPV of US\$30 million, including all maintenance, rehabilitation, and operating costs. If construction costs of around US\$170 million are added to the total project cost, the project shows a financial loss of approximately US\$113 million. However, project operating financials are robust to increased costs and decreased revenues, as per the sensitivity analysis, indicating a solid financial footing if Passenger Service Charge policy changes are introduced. Details are in Annex 2.

B. Fiduciary

**(i) Financial Management**

74. **FM arrangements for the proposed Rodrigues Airport Project meet the Bank's minimum requirements and are assessed as adequate, with the residual risk deemed moderate.** The FM assessment was undertaken at the AML level, which has developed a robust internal control system over the years, indicated by clear FM policies and a strong financial reporting system. However, the financial audit for the fiscal years ending June 2021 and June 2022 haven't been completed due to delays in recruiting the auditor for the group. Nevertheless, the audit reports are expected to be available in September 2023. This project marks AML's first experience managing a World Bank-funded initiative. The risk is mainly attributed to AML's limited experience in managing World Bank-financing projects and large work contracts as well as delayed audit reports for FY21 and FY22.

75. **To enhance the project's FM arrangements and reduce residual FM risk, AML will establish a PIU with qualified FM specialists within three months of the project effectiveness date.** AML will also develop a project operation manual including FM procedures within 60 days from project effectiveness. Finally, AML will make the audit reports available for the World Bank prior to the project's effectiveness, and the World Bank will review AML's Audited Financial Statements for FY21 and FY22.

76. **Proposed project FM arrangements include the PIU relying on qualified FM staff and using existing accounting software within AML for recording project's financial transactions.** The PIU will adhere to procedures stated in the POM, developed for the project, including a robust contract management system and specific procedures for MSME grants. An internal auditor will be recruited to oversee the project's internal control system and conduct reviews on a quarterly basis. The AML-PIU will open two Designated Accounts (DA) at the State Bank of Mauritius or an acceptable bank to receive the proceeds of the financing funds. The funds will flow from the Bank to the Consolidated Treasury Account (USD) before further transfers to DAs. DA-A will be dedicated for Components 1 and 2 and will receive funds from IBRD and EU; while DA-B will be exclusively used for components 3 and 4. An initial advance of up to the ceiling of each DA, will be transferred after loan effectiveness and subsequent disbursements will be made monthly against statement of expenditures (SOEs) or other documents as specified in the Disbursement and Financial Information Letter (DFIL). The following disbursement methods will be made available to the PIU to address the needs of the project: reimbursement; advance; direct payment; and special commitments. The DFIL will provide detailed terms of the disbursement. The project financial statements will be audited annually by a private auditor, with the audit report submitted to the Bank within six months of each fiscal year's end. The AML will also provide the Bank with audited financial statements (AFS) of the company for each fiscal year from FY2021 onwards. The AML AFS for FY2021 and FY2022 should be transmitted to the Bank by the effectiveness date. The project will undergo supervision at least twice a year, in addition to regular desk-based reviews and FM meetings.

(ii) Procurement

77. **Procurement Risks, Arrangements and Capacity.** Procurement risk is assessed as substantial. The Implementation of the project will be entrusted to AML, which does not have prior experience or exposure to World Bank financing and procedures, nor personnel conversant with World Bank procurement procedures and requirements. The assessment of AML indicates that TA will be instrumental in ensuring adequate project implementation, with efficiency and economy, in addition to adequate training for AML procurement personnel. The PIU will include a procurement specialist dedicated to the project.

78. **The World Bank Procurement Regulations for IPF Borrowers (dated November 2020 and amended from time to time) (Procurement Regulations) and the provisions of the Financing Agreement will apply.** Furthermore, the



Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants (dated October 15, 2006, and revised in January 2011 and July 2016) will apply. Procurement procedures will be reflected in the procurement section of the POM.

79. **Project Procurement Strategy for Development (PPSD).** A PPSD was prepared by AML. The PPSD reviewed the market for the proposed project activities and summarized the key contracts to be financed by the project for the initial 18 months and recommend the most suitable, fit-for-purpose procurement approaches, with the aim of achieving value for money and efficiency, while maximizing the market participation.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

80. **The World Bank's Environmental and Social Directive rates the Environmental and Social Risk Classification (ESRC) of the project as High.** The project's primary aim is to boost socio-economic development on Rodrigues Island through tourism and potential agricultural exports to Mauritius. It involves upgrading the runway and increasing passenger inflow, leading to potential environmental and social impacts. A final draft Environmental and Social Impact Assessment (ESIA) has been disclosed in-country by ARL²⁹ and by the Bank (June 26, 2023), highlighting anticipated impacts and proposed mitigation. The ESIA will be finalized and re-disclosed, based on the final designs no later than one month from project effective date and prior to commencing with construction. Similarly, the Environmental and Social Commitment Plan (ESCP), draft Resettlement Audit (RA) and Stakeholder Engagement Plan (SEP) were disclosed in-country by ARL and by the Bank (July 26, 2023, and August 1, 2023, respectively). Several stakeholders' consultations took place during the preparation of the project prior to the engagement of the Bank (2018/2019) and during the preparation of the updated ESIA and RA in 2023 as outlined in the SEP.

81. **The environmental risk, largely due to construction of the runway and resultant increase in air traffic and tourists, is rated high.** Anticipated risks include impact on endangered tree and marine species, health and safety risks, generation of waste, potential pollution, air emissions, impacts on scarce freshwater resources and associated cumulative impacts. Mitigation measures have been proposed, but the full scope of potential impacts is not yet known.

82. **Social risk, largely due to potential physical or economic dislocation caused by the project, is rated as Substantial.** Other social risks include labor management issues, Gender Based Violence, sexual exploitation and abuse and sexual harassment (SEA/SH) risks due to labor use and possibly influx, spread of infectious diseases, health and safety of local communities, social conflict, and marginalization of vulnerable groups. Social risks can be managed through the implementation of risk management measures instruments. The SEA/SH risk is moderate. AML will prepare, adopt and implement a SEA/SH Action Plan to assess and manage the risks of SEA and SH. Among the actions considered, the PIU should provide training to PIU, staff from implementing entities, MSMEs and contractors on SEA/SH, and contractors will be required to include a code of conducts in their contracts. Finally, the grievance mechanism will be equipped to receive, register, and facilitate the resolution of SEA/SH complaints, including through the referral of survivors to relevant gender-

²⁹ ARL website: <http://www.arl.aero/index.php?nv=news&nID=&page=1>



based violence service providers, all in a safe, confidential, and survivor-centered manner. Despite these risks, efforts are being made to ensure affected stakeholders, including vulnerable groups, are not excluded from the benefits provided by the project and related economic opportunities.

83. The ESIA assessed potential impacts on terrestrial and marine biodiversity and detailed strategies for conservation and reproduction of affected trees and species. Despite some uncertainties regarding the success of reproducing some of the endangered tree species to be relocated, the overall negative impacts on biodiversity are anticipated to be manageable. The project will require the reclamation of approximately three hectares of land, which could impact marine habitats and potential sensitive species. Mitigation measures are proposed, including developing of biodiversity management plans during construction.

84. Geological investigations revealed the presence of carbonate karstic formations prone to sinkholes, potentially increasing groundwater pollution risk. The construction will require extensive earthworks, and the sourcing of construction materials may lead to additional environmental impacts. **Water scarcity is a significant concern on Rodrigues Island.** A desalination plant is proposed to meet construction water demands. Additionally, the limited electricity supply and waste management infrastructure necessitate the installation of a power supply facility and incinerator (if deemed necessary). A separate environmental and social assessment (ESA) will be prepared for the desalination plant once the design details are known. The ESA will be prepared and submitted to the World Bank for clearance within the timeframe stipulated in the Environmental and Social Commitment Plan.

85. Components 3 and 4 involve preparing technical studies, capacity building, and physical interventions. As the scope of the subprojects under the components is not fully defined, Environmental and Social Management Frameworks (ESMFs) will be prepared for screening proposed activities during implementation. AML, the operator, has experience in implementing large airport construction projects. The PIU will manage environmental and social aspects of the project. However, capacity building and the establishment of robust environmental and social management systems for Rodrigues Airport will be necessary.

(ii) Gender

86. Mauritius has taken relevant steps towards gender equality; however, work still needs to be done to achieve gender equality, including access and quality of employment opportunities. In Mauritius, 83.3 percent of legal frameworks that promote, enforce, and monitor gender equality under the Sustainable Development Goals (SDG) indicator, with a focus on violence against women, are in place.³⁰ According to data from 2020,³¹ the rate of female enrollment in tertiary education is 52.6 percent compared to 36.1 percent of men. However, this high achievement in education enrollment has not translated into more and better economic opportunities for women. In Mauritius, the labor force participation rate among women was 43 percent, and among males is 69.2 percent for 2022.³² Employment disparities exist in the transport and communications sector in Mauritius where women make up only 17% of the workforce, and this gender gap is also found in the aviation sector. For instance, only 25% of ARL employees are women, with none of them working in technical roles such as aircraft maintenance. In the private sector, a Mauritian woman makes only US\$0.72 cents to the dollar made by men.³³ Gender gaps in employment can be explained by different

³⁰ The SDG gender equality indicator counts with different targets measures for all countries to *Achieve gender equality and empower all women and girls*. See: UN Women. (2023). Mauritius Gender Tracking: <https://data.unwomen.org/country/mauritius>

³¹ <https://data.worldbank.org/indicator/SE.TER.ENRR.MA?locations=MU>

³² World Bank. (2021). Gender Data Portal. Mauritius:

<https://genderdata.worldbank.org/countries/mauritius/#:~:text=In%20Mauritius%2C%20the%20labor%20force,labor%20force%20participation%20has%20increased>.

³³ <https://blogs.worldbank.org/africacan/more-educated-less-paid-whats-behind-the-gender-gap-in-mauritius>



elements including but not limited to educational attainment, marital status, and the presence of children, and sector employment is relevant for the case of wage gaps.³⁴ Gender gaps can also be explained by social gender norms as more than 7 in 10 Mauritians report that it is better for a family if a woman has the main responsibility for home and children care.³⁵

87. **To contribute to close identified gender gaps in the aviation sector, the project will put into place several activities to promote women's participation in different skill level jobs.** The project will support the increase of women's participation in the aviation sector through: (i) mapping the technical jobs related to the aviation sector and identifying the skillset requirements and skill gaps for women, (ii) carrying out an analysis of the recruitment, retention, and promotion barriers for women in the aviation sector in Mauritius, development and implementation of a Gender Action Plan under Component 2 on TA; (iii) providing training for female professionals in the air transport sector and recruitment of a percentage of trainees; and (iv) developing a nondiscrimination and equal opportunity policy under the Human Resources Department of ARL.

88. **To this end, the project will support the full training requirements of new female recruits, including all costs associated with sending them to specialized and accredited training programs.** The project will also seek partnerships with Technical Vocational Education and Training and relevant training institutions in the sector. As a result, the project expects to increase the percentage of women working in the aviation sector, mainly in medium-skilled jobs, including air traffic controllers, supervisors, public safety, and security screening staff, among other suitable jobs identified. Additionally, the project will support AML to comply with the recommendations of IATA under the platform 25 by 25 - a global initiative aiming to improve female representation to 25 percent by the year 2025 in both technical and managerial levels in the industry- with the possibility of contributing to a new generation of female pilots. Gender gaps in employment in the aviation sector in Mauritius will be measured as the people employed for medium-skilled jobs in the Rodrigues Airport, of which a percentage are women. The employment of women will be long term, as ARL will continue to operate the airport for 30 years, and women will have gained enough skills and experience to find future jobs in the sector. In addition, the project will promote women's employment in agriculture, fisheries, and tourism sector, with a strong emphasis on supporting women-owned enterprises.

(vi) Citizen Engagement

89. **The project will ensure that citizens on Rodrigues are centrally engaged in the implementation of all components.** Local business and Rodriguans were consulted in the design of the project, particularly in the design of Components 3 and 4. Workshops were held during project preparation and during appraisal to ensure that all stakeholders are fully informed of the project design, and implementation arrangements, and grievance mechanisms, and to get feedback on key issues. The RRA, representing Rodriguans, is represented on the Project Steering Committee (PSC) and will lead the implementation of Components 3 and 4, while also ensuring regular communications with local stakeholders through established channels, including through implementation of the SEP.

90. **Grievance Mechanism (GM):** A Grievance Mechanism was developed and described in the SEP, it will be adopted, disclosed and implemented by the PIU no later than one month after the Project's Effective Date. The GM is designed to receive and facilitate resolution of concerns and grievances in relation to the Project, promptly and effectively, in a transparent manner that is culturally appropriate and readily accessible to all Project-affected parties, at no cost and without retribution, including concerns and grievances filed anonymously, in a manner consistent with ESS10. The GM also will receive, register, and facilitate the resolution of SEA/SH complaints, including through the referral of survivors

³⁴ Loc. Cit.

³⁵ Afrobarometer: <https://www.afrobarometer.org/countries/mauritius/>



to relevant gender-based violence (GBV) service providers, all in a safe, confidential, and survivor-centered manner.

V. GRIEVANCE REDRESS SERVICES

91. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit <https://accountability.worldbank.org>.

VI. KEY RISKS

92. **The overall risk for the project is substantial.** While several key risk categories (Political and Governance; Sector Strategies and Policies; Technical Design and Institutional Capacity) have been assessed as either moderate or low, the substantial risks for macroeconomic, fiduciary and stakeholder risks along with high E&S risks, results in an overall substantial risk rating for the project.

93. **Macroeconomic risks are substantial:** Mauritius' debt-to-GDP in 2020 increased substantially to 92 percent by June 2021 due to the strong fiscal measures to contain the impact of COVID-19 pandemic on people's livelihood and the economy. The government has scaled back COVID-19 support measures and increased tax revenues as economic activities recover. Fiscal deficit declined from 18 percent of GDP in FY20/21 to 5.8 percent of GDP in FY22/23 with a lower debt-to GDP ratio of approximately 80 percent. In the long run, the project is expected to bring additional tax revenues and higher economic activities in Rodrigues and Mauritius overall. However, the projection is subject to elevated external risks from higher global financial conditions, slower global economic growth, and geopolitical shocks creating volatility in energy and fuel prices. To mitigate this risk, close collaboration between the MoFEPD and the World Bank will be required to ensure that appropriate and timely action is taken should macroeconomic circumstances change during project implementation. The residual risk remains substantial.

94. **Fiduciary risks are substantial:** A thorough review of fiduciary risks has been undertaken, including the systems, structure and composition of the implementing agency and the proposed PIU. Although financial management risks are moderate, the procurement risks are seen as substantial, especially considering the limited experience of the implementing agency with World Bank procurement processes. To mitigate this risk, the Bank will require that the PIU recruits a procurement specialist with experience in implementing World Bank financed projects, and that appropriate training is provided to key members of the PIU and PTU's on World Bank procurement processes. The residual risk remains substantial.

95. **Environmental and Social risks are rated high,** particularly regarding biodiversity management and relocation of endangered trees. To mitigate these risks, various management plans will be prepared, captured in an ESCP. An



independent audit of the Resettlement Action Plan implementation has been conducted to meet ESS5 requirements. Despite these measures, the risk remains high.

96. **Stakeholder risks are substantial:** While the project's key stakeholders are well defined and clearly aligned on the project implementation arrangements, components and objectives, the nature of the project itself means that there remains a wide range of affected parties, particularly on Rodrigues, including the residents, business communities and special interest groups. Despite the project's benefits to Rodriguans, given Mauritius's vibrant civil society and strong democracy, there remains the possibility of political contestation impacting the implementation of the project. Consultations during project preparation have not raised any specific concerns, but in mitigation, these will be continued during implementation to incorporate constructive feedback. However, given the project profile on the island the residual risk remains substantial.



VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY: Mauritius
Rodrigues Airport Project

Project Development Objectives(s)

The Project Development Objective (PDO) is to improve air transport access and enhance the climate resilience and productivity of the island of Rodrigues.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	Intermediate Targets			End Target
			1	2	3	
Increased productivity						
Number of direct jobs created on Rodrigues Island (disaggregated by gender) (Number)		0.00	1,000.00	2,000.00	3,000.00	3,250.00
Improved air access						
Number of unique destinations served by direct flights from Rodrigues (Number)		2.00	2.00	2.00	2.00	4.00
Enhanced climate resilience						
Improved climate resilience and operational safety. (Yes/No)		No	No	No	No	Yes



Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets			End Target
			1	2	3	
Component 1: Infrastructure Development						
New climate resilient runway at Plaine Corail Airport. (Percentage)		0.00	20.00	40.00	80.00	100.00
Safe and resilient operations (Yes/No)		No	No	No	Yes	Yes
ATC tower and communications equipment installed to improve operational safety and emergency communication network (Yes/No)		No	No	No	Yes	Yes
Airfield ground lighting installed (Yes/No)		No	No	No	Yes	Yes
Automatic Weather Observatory Station (AWOS) installed (Yes/No)		No	No	No	Yes	Yes
ICAO ARFF Certification for CAT6 achieved (Yes/No)		No	No	No	No	Yes
ACI Green Airport Certification for Rodrigues (Yes/No)		No	No	No	Yes	Yes
Component 2: Technical Assistance for Project Implementation and Sector Reforms						
Percentage of beneficiaries satisfied with the participatory process and level of engagement in the project (%) (Percentage)		0.00	80.00	80.00	80.00	80.00
Women employed in technical or management positions within ARL (Percentage)		25.00	30.00	40.00	45.00	50.00



Indicator Name	PBC	Baseline	Intermediate Targets			End Target
			1	2	3	
Percentage of ARL staff trained on climate/disaster resilience (Percentage) (Percentage)	0.00	20.00	30.00	50.00	50.00	
Component 3: Support Rodrigues' Sustainable Integrated Development with a Particular Focus on Access						
Developement of an Integrated Water Resources Management and Development (IWRMD) strategy (Yes/No)	No	No	No	Yes	Yes	
Development of a strategy for postharvest investments (Yes/No)	No	No	No	Yes	Yes	
Component 4: Supporting the Sustainable Development of the Tourism Sector in Rodrigues						
Skills development to support the tourism sector (Number)	0.00	25.00	75.00	125.00	200.00	
Supporting sustainable tourism small businesses (Number)	0.00	5.00	20.00	30.00	40.00	

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Number of direct jobs created on Rodrigues Island (disaggregated by gender)	The indicator tracks the number of direct new jobs created in the construction, tourism, agriculture and agro-processing sectors on Rodrigues Island.	Biannually	Statistics Mauritius collects data on employment annually. The	Statistics Mauritius annual reporting	PIU



			information will be tracked from the statistical releases.		
Number of unique destinations served by direct flights from Rodrigues	The indicator tracks the number of unique destinations served by direct flights to and from Rodrigues airport.	Once	Airports Rodrigues Limited	Annual reports	PIU
Improved climate resilience and operational safety.	The indicator tracks whether improved navigational aids have been installed at Rodrigues Airport.	Annually	Airports Rodrigues Limited	Annual reporting	PIU

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
New climate resilient runway at Plaine Corail Airport.	The indicator tracks the percentage completion of the new runway and taxiways at Plaine Corail airport.	Biannually	Project progress reports	Project progress reports	PIU
Safe and resilient operations	The indicator tracks through the completion of a series of sub-indicators whether safe and climate resilient airport operations has been	Annually	Project progress reports	Project progress reports	PIU



	achieved.				
ATC tower and communications equipment installed to improve operational safety and emergency communication network	The indicators tracks whether the air traffic control tower has been constructed and the communications equipment has been installed to improve operational safety and the emergency communications network.	Annually	PIU reporting	PIU reporting	PIU
Airfield ground lighting installed	The indicator tracks whether the airfield ground lighting has been installed to improve visibility and allow for 24/7 operations.	Annually	PIU reporting	PIU reporting	PIU
Automatic Weather Observatory Station (AWOS) installed	This indicator tracks whether an Automated Weather Observation Station has been installed.	Annually	PIU Reporting	PIU Reporting	PIU
ICAO ARFF Certification for CAT6 achieved	This indicator tracks whether Plaine Corail airport has met the requirements for ICAO CAT6 ARFF certification.	Annually	PIU Reporting	PIU Reporting	PIU
ACI Green Airport Certification for Rodrigues	The indicator measures whether or not the Plaine Corail airport has reached Level 1 of the Airport Carbon Accreditation (ACA) program run by the Airports Council International (ACI).	Annually	PIU, Airports Council International	The Airports Council International will be invited to certify the airports climate performance.	PIU



Percentage of beneficiaries satisfied with the participatory process and level of engagement in the project (%)	Regular stakeholders meeting/consultations will be organized to collect feedback and better respond to citizens needs. More consultations are expected during the first year and prior to the procurement of equipment and civil works	Biannually	Project Implementation Report	Consultation organized by PIU with collaboration from ARL and Department of Civil Aviation	PIU
Women employed in technical or management positions within ARL	Percentage of women employed in technical or management positions within ARL.	Biannually	Airports Rodrigues Limited	Annual reporting	PIU
Percentage of ARL staff trained on climate/disaster resilience (Percentage)	Percentage of relevant ARL staff receiving training in best practices for incorporating climate/disaster resilience into the planning, design and operations of airport.	Biannually	Implementation progress report	Identification of relevant staff (involved in airport planning, airport regulation, airport management and civil aviation regulation) will be done by the PIU during the first year.	PIU
Development of an Integrated Water Resources Management and Development (IWRMD) strategy	The strategy will highlight key interventions required to improve water sustainability in Rodrigues	Annually	AML/RRA	Reports	AML & RRA
Development of a strategy for postharvest investments	A rapid assessment and then a strategy will be developed for postharvest investments , including a	Annually	RRA/AML	Reports	AML & RRA



	financing mechanism to attract local private investors and resource mobilization.				
Skills development to support the tourism sector	Number of individuals in the tourism sector that benefit from training provided by the project.	Annually	AML & RRA	Annual Reports	AML & RRA
Supporting sustainable tourism small businesses	Number of tourism related MSMEs receiving small grants from the project	Annually	AML, RRA, and Tourism Commission	Annual Reports	AML, RRA, and Toursim Commission

**ANNEX 1: Implementation Arrangements and Support Plan****COUNTRY: Mauritius****Rodrigues Airport Project**

1. **The project will be implemented by AML, a 100 percent owned subsidiary of AHL, which will establish a dedicated PIU to be based on Rodrigues Island.** A Subsidiary Agreement will be signed between the Recipient (represented by the MoFEPD) and AML, to transfer the funds and set out the roles and responsibilities of AML regarding project implementation. AML will be responsible for implementation of all the project activities, including technical, procurement, FM, monitoring and evaluation (M&E), and environment and social safeguard aspects (including citizen engagement). ARL will work closely with this PIU, which will preferably be housed within ARL's offices to facilitate close coordination and day-to-day engagement, as well as to support capacity building and skills transfer. ARL will support AML, particularly on issues of construction planning, coordination, and safety oversight, given that they will still be responsible overall for the operation of the airport – which will remain functional during the implementation period.
2. **AML will ensure that the PIU has sufficient capacity to manage the project and to ensure compliance with the World Bank's latest procurement, FM, and environmental and social standards (ESS) procedures.** The PIU will be staffed with a project manager and specialists covering procurement, FM, E&S standards (including citizen engagement), technical matters, and M&E. PTU II, staffed by technical specialists and overseen by the PIU, will be established within the RRA to support various project activities under Components 3 and 4 and to provide capacity building. The relevant representatives of the Department of Civil Aviation and ARL will provide technical inputs to the PIU. The MoFEPD will be the representative of the Recipient, Mauritius.
3. **A PSC will be established comprising representatives of the Department of Civil Aviation, the RRA and the MoFEPD, the Prime Minister's Office (External Communications Division), Prime Minister's Office (Rodrigues Division), AHL, to ensure direct and continuous oversight and technical guidance.** The PSC will have important responsibilities, such as: the review and validation of the Annual Work Plan, budget, and activities to be undertaken by the PIU; the technical contribution and review of several important documents and TORs such as for the various construction and detail design projects and the technical specification of TA components.
4. **AML will closely work with the relevant agencies of the project. For civil aviation-related activities, the PIU will closely collaborate with the Department of Civil Aviation, in particular, for activities related to civil aviation oversight and safety during construction.** In addition, AML will work closely with ARL and the RRA on issues related to construction management and ESS procedures, since the airport will remain operational throughout the project.
5. **The project will be implemented in accordance with the POM,** which will include the detailed description, costing, implementation arrangements, as well as the rules, guidelines, standard documents, and procedures for the carrying out of the project. The POM can be updated as necessary during project implementation, however all revisions and amendments to the POM will require the approval of the World Bank.
6. **Overall, the Financial Management (FM) arrangements that are to be applied in managing the project will meet the World Bank's minimum requirements under Bank Policy and Directive for the implementation of the proposed Rodrigues Airport Project, and financial management residual risk is assessed as Moderate.** To further improve the

Financial Management

6. **Overall, the Financial Management (FM) arrangements that are to be applied in managing the project will meet the World Bank's minimum requirements under Bank Policy and Directive for the implementation of the proposed Rodrigues Airport Project, and financial management residual risk is assessed as Moderate.** To further improve the



project's FM arrangements and to further reduce the residual FM risk, the following action plan is recommended and should be agreed at appraisal stage. AML will (i) establish a PIU with qualified FM specialist to be recruited no later than three months after the project effectiveness date. The recruitment will be initiated once the project agreement is signed, the AML staff will ensure the FM tasks until this recruitment; (ii) recruit the internal auditor within six months following the effectiveness date; (iii) develop a project operation manual including FM procedures during implementation. (iv) The AML will also provide the World Bank with the Audited Financial statements of the company for the FY 2021 and FY 2022 before the effectiveness date. An FM training is expected to take place once this additional staff is incorporated to reinforce knowledge of the World Bank's policies and procedures.

7. **Budgeting Arrangements.** The project would be financed in part through IBRD loan funds and the proceeds from an EU grant, without government counterpart funding. AML-PIU would be responsible for planning project activities and preparing the annual work plan and budget (AWPB). The AWPB for the subsequent year should be approved by the PSC and submitted to the World Bank for approval before the end of the fiscal year. The AWPB will be monitored periodically through the overall and fiduciary supervision and project progress and financial reports (biannual interim unaudited financial reports and annual audits). The budget process is detailed in the POM. The annual operational plan and budget will be prepared specifying activities by project components and subcomponents, and will also include detailed information on operational costs, which will also be reviewed and approved by the World Bank.

8. **Accounting System.** The accounting system will be maintained on a modified accruals cash basis with disclosure of commitments and will comply with the International Accounting Standards IAS/IFRS. The PIU will rely on qualified FM staff (one Finance Officer and one Accountant) to be recruited and will use the existing accounting software within the AML to record project's financial transactions. The accounting software will enable the PIU to record projects financial transactions, monitor the budget execution, prepare the financial reporting, register and manage assets, issue SOEs required for disbursement purpose. The accounting records will reflect adequately the project's structure in terms of components and sub-components and the source of funds. The PIU would need to ensure that relevant users are trained to keep track of and report the proposed project's expenditures.

9. **Financial Reporting.** The PIU will prepare quarterly un-audited interim financial report (IFRs) for the project. The IFR format to be used will be agreed with the Bank at appraisal stage. These IFRs will be submitted to the Bank within 45 days after the end of the quarter to which they relate. The annual financial statements will be prepared using international accounting standards. At the end of each fiscal year, the project will prepare annual financial statements which will be subjected to an external audit.

10. **Internal Control.** The POM includes financial management procedures governing the budgeting, accounting, reporting, auditing, contract management, asset management as well as the flow of funds applicable to the project. The contracts management related to works financed by the project will be clearly defined in the POM. The POM will specify the applicable procedures for small grants under sub-component 4.3, from the selection of beneficiaries, the grants disbursement, to the reporting and auditing arrangements. The POM will also define the authorization process for payments as well as the subsequent controls to be undertaken. Procurement procedures applied by this project will be in line with the World Bank procurement regulations.



11. **Internal Audit.** A qualified Internal auditor will be recruited to continuously review the governance, risk management and control over the project's activities. During the project implementation, the Internal Auditor will be required to conduct quarterly review to confirm adequacy and adherence of internal controls and submit the reports to the project management, the steering committee, and provide a copy to the World Bank.

12. **External Audit.** The project accounts will be audited annually. The audit report, the audited financial statements and the management letter will be submitted to the World Bank no later than six months after the end of each fiscal year. The project will be audited by a private audit firm acceptable to the World Bank. The project will comply with the World Bank disclosure policy on audit reports. In addition, the AML will provide the World Bank with the audited financial statements (AFS) report of the entity no later than six months after the end of each fiscal year. As of August 2023, the AFS of the AML for FY 2021 and FY 2022 were not yet available; it is agreed such reports will be provided to the Bank prior to the effectiveness date.

13. **FM Supervision.** Based on the current overall FM risk, the project will be supervised at least twice a year. The FM team will use an enhanced supervision approach and shall supervise the project on an ongoing basis through virtual means and site visits, when possible. The FM team shall review the SOEs, expenditure, reports, supporting documents, internal and external audit reports, internal controls and the use of assets procured under the project. The Bank team will provide required training to the PIU staff on the Bank FM and disbursement procedures to make them familiar with these procedures and to ensure that the funds are used for the project purposes.

Procurement

14. **The procurement activities for the project will be managed by AML.** The agency does not have exposure or experience in the implementation of World Bank-funded operations. During project preparation the Bank assessed the procurement capacity of AML to implement the new project and it was found that capacity require strengthening for procurement process and contract management, under World Bank procedures. AML will be supported by an Owners Engineer for the processing and management of the key contract under the project, however, support will be required from a TA consultant with experience with World Bank procedures for the other activities identified in the Procurement Plan. While initially one procurement consultant is deemed critical, additional resources may be required to support the increase in volume of activities under Components 3 and 4, which could be selected or recruited by the PIU to enhance its capacity. The POM will detail the applicable procedures for procurement processing.

15. **World Bank support and additional implementation arrangements.** The World Bank, as part of the implementation support, will carefully monitor the implementation of the project and provide support and guidance throughout, as required. The procurement manual details the applicable procurement arrangements for the project and will help AML and the project stakeholders to carry out procurement in accordance with the World Bank Procurement Regulations, in addition to providing a clear division of roles throughout the procurement processing and management. The World Bank will continue to offer support to ensure adequate and timely implementation of agreed activities.

16. **Procedures for the selection of consultants.** Quality- and Cost-Based Selection will be the main method for the selection of consulting firms if new activities for the selection of consultants are identified during implementation and justify the use of the method. Consulting services may be procured through Selection Based on the Consultants'



Qualification and Least-Cost Selection procedures, whenever the complexity and cost of the assignments justify the adoption of such methods in accordance with the PPSD, such as for the selection of the project's auditors, sanitation improvement plans, TA to support the development of regulations and technical standards for desalination plants, Identification and design of land rehabilitation works, TA for the Improvement of the lime sector, among others. Individual Consultants Selection procedures will be used to secure the services of TA consultants, including in Financial Management, as well as in procurement and contract Management, among others.

17. **Procedures for goods and non-consulting services.** Goods and non-consulting services will be procured as recommended by the PPSD, with Request for Bids as the main method, including for the procurement of Air Navigation Systems, fire-fighting equipment, Telemetry system, among others.

18. **Procedures for works.** Works under the project are included in the contract for the "Construction of the Runway, Taxiway, Apron, Air Traffic Control Tower/building, buildings, fencing, site rainwater drainage network, water supply network, sewerage network, and maritime rock revetment", a single responsibility contract for the project. The contract will be procured according to the procedures recommended by the PPSD, the Request for Bids, single stage with no pre-qualification. Other contracts may include the construction of check dam, construction of a reservoir, slow bed filtration, among others.

19. **Procurement Plan.** As an outcome of the PPSD, AML has developed a Procurement Plan covering at least the first 18 months of the project implementation, and it has been agreed between AML and the World Bank. Furthermore, the Procurement Plan will be updated from time to time to guide implementation of the procurable components of the project. The processing of these activities will be done in real time through the World Bank's tracking system—STEP.

20. **Review by the World Bank of procurement decisions.** Table 1-1 indicates the initial values for prior review by the World Bank. All activities estimated to cost below these amounts shall be treated as post review and will be reviewed by the World Bank during the implementation support missions under a post procurement review exercise. Direct Contracting/Single-Source Selection will be subject to prior review only for contracts estimated to cost equal to, or more than, the amounts indicated in the table. The World Bank may, from time to time, review the amounts, based on the performance of the implementing agencies.

Table 1-1: Value Thresholds for Prior Review

Procurement Type	Prior Review (US\$) Thresholds
Works	10,000,000
Goods and non-consulting services	2,000,000
Consulting services (firms)	1,000,000
Individual consultants	300,000

21. **Assessment of national procedures.** The Mauritius Public Procurement Act was enacted in 2006 and the Government has implemented a public procurement framework comprising of regulations, standard bidding documents, guidelines for bids evaluations, and has a Procurement Policy Office in the MoFEPD overseeing the public procurement framework. The Central Procurement Board handles the high value procurement cases for the Government and certain public bodies. The Independent Review Panel exists which reviews applications from aggrieved bidders. The Procurement



Act has been assessed, as required under the World Bank's Procurement Framework. The assessment indicated that the country's Act is generally consistent with international best practices for the following reasons: (a) there is adequate advertising in national media; (b) the procurement is generally open to eligible firms from any country; (c) contract documents have an appropriate allocation of responsibilities, risks, and liabilities; (d) there is publication of contract award information; (e) the national regulations do not preclude the World Bank from its rights to review procurement documentation and activities under the financing; (f) there is an acceptable complaints mechanism; and (g) there is maintenance of records of the procurement process.

22. **Bidding process.** The Request for Bids/Request for Proposals document shall require that bidders/proposers present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including, without limitation, the World Bank's right to sanction and the World Bank's inspection and audit rights.

23. **Project risks affecting procurement.** With the limited experience in World Bank-funded operations and limited capacity to implement the proposed project, there are risks that may affect implementation of the project and these are summarized below, including the proposed mitigation measures.

Table 1-2: Procurement Risk Assessment and Mitigation Measures

Risk Description	Risk Rating	Description of Mitigation	Residual Risk
Availability of qualified personnel to support procurement implementation	High	AML to ensure that qualified personnel, under terms satisfactory to the World Bank, are retained to support the procurement function. This arrangement should be retained throughout the life of the project. The World Bank procurement team will work closely with AML to enhance the available capacity, through hands-on support, as required.	Substantial
Lengthy internal procurement reviewing process that may cause project implementation delays.	High	The POM to detail the roles and responsibilities of all involved in procurement and establish standards of review/response.	Substantial

**ANNEX 2: Economic Analysis and Financial Analysis**

1. **The proposed new runway at Rodrigues Airport transcends basic financial and economic benefits, becoming a cornerstone for stable and prosperous social development.** This initiative serves as a catalyst, attracting the younger generation by offering opportunities for skilled employment and promising prospects. The advantages encompass the sustainable preservation of natural resources linked to high-value fishing and agri-food industries, along with the creation of skilled employment opportunities. These aspects hold immense significance in retaining the island's youth, contributing significantly to its enduring growth and development.

2. **Given that many of the social and economic benefits are challenging to quantify or indirect in nature, our economic analysis remains cautious.** It encompasses only the direct and measurable benefits from the tourism sector, built upon historical data and solid, conservative projections derived from government statistic reports and Rodrigues data. This analysis also considers the airport's operational revenue and the Value of Time for passengers from international and domestic destinations – all of which yield direct benefits. Importantly, indirect benefits arising from job creation and profits within high-value agri-product and fishery sectors, have not been incorporated. Similarly, the intangible benefits tied to the sustainable development of the younger generation and social development have not been factored in. Moreover, the benefits arising from environmental aspects, such as water conservation, ecosystem preservation, and reduced noise impacting natural habitats, residents, and tourists, have also not been considered. Furthermore, the projected growth within the tourism sector is grounded in conservative historical data, while the baseline for tourist numbers considers a figure of 60 percent of the pre-COVID levels. Overall, the assumptions, projections, and methodology used for the economic analysis of the proposed project maintains a distinctly conservative stance in the analysis scenarios, while a sensitivity analysis was used to test the outcomes of unforeseen impacts on project costs and benefits.

3. **The primary result is that given the base case assumptions, the project is economically justified with an overall EIRR of 9.25 percent and a NPV of US\$75.3 million at a 6 percent discount rate.** However, the sensitivity analysis shows that the project is also robust to a 20 percent increase in costs (EIRR 7.21 percent and NPV of US\$31.6).

4. **The financial analysis shows, that while the ARL revenues alone will not recover the capital investment in the public asset, they are projected to nonetheless exceed operational expenses, ensuring a healthy financial situation and sustainability for ARL.**

I. Economic Analysis

5. **The following assumptions were applied to the economic analysis³⁶:**

- A discount rate of 6 percent, and an evaluation period of 30 years from 2028 to 2057 was used. The estimated construction period for the Plaine Corail Airport is 5 years, from 2023 to 2028, and hence the period recommended for accruing benefits is 30 years after the completion of construction.
- Annual runway maintenance costs as well as a onetime rehabilitation cost of US\$7 million at year 15 in 2042 (a 15 cm asphalt overlay) were included in the analysis.

³⁶ The assumptions and methodologies are referred to the World Bank air transport projects.

<https://documents1.worldbank.org/curated/en/099614406122338723/pdf/IDU07cdd3e27044ec0491f089250038d36dc0460.pdf>



- Based on the initial estimates made by the ARL, the overall capital cost of the Rodrigues Airport Project is US\$170 million (the currency exchange rate for the economic and financial analysis is US\$1 = MUR 45).
- The Flight Occupancy rate applied is 84 percent. It was assumed that for the first 8 years to 2036, a fleet mix of 70 percent short haul turboprop (ATR-72 aircraft are considered) and 30 percent single-aisle jet aircraft (Airbus A321) are operated. In future years only single-aisle jet aircraft are used as the turboprop fleet is retired out.
- It was assumed that the PSC will increase by 5 percent every five years. PSC's were differentiated between domestic and international passengers. An Airport Development fee charge of MUR 1,000 per passenger was applied. The PSC and Airport Development charges were provided by ARL based on their ongoing discussions with the government for the expected charges.
- A passenger mix of 20 percent international passengers and 80 percent of domestic passenger was assumed under the base scenario. Among the domestic passengers, the composition consists of 70 percent tourists from the main island of Mauritius and 30 percent residents of Rodrigues who do not contribute economically to the tourism sector.
- The aircraft arrival growth rate applied was 3 percent per year under the BAU scenario. The assumed tourist arrivals for 2022 is 72,000 and a growth rate of 3 percent per year was applied for future years.
- After the completion of the runway, there will be an initial ramp up (over 3 years) for the traffic volume of both international and domestic passengers from the current low base of 10 percent growth per year. Thereafter, domestic traffic will increase at 2 percent per year (both the tourists and the residents), while international traffic grows at 4 percent per year.
- It was assumed that the VIP Lounge Access fee and Service Fee would be increased every 4 to 5 years.
- The inflation rate used in the analysis was 3.6 percent.
- It was assumed that rental income, advertising, and publicity revenues increased by 5 percent every two years.
- The value of time for domestic passengers was set at MUR 211 per hour, based on an average monthly income of MUR 33,773 per month in 2021 for local passengers, with a salary growth rate of 3.6 percent (equivalent to the inflation rate). The value of time for international passengers was set at MUR 1,431 per hour based on an average hourly labor cost of 29.1 Euros in the EU in 2021, with a salary growth rate of 1 percent.
- It was assumed that a domestic tourist spends MUR 2,000 per day and stays in Rodrigues for 2 days. An international tourist spends MUR 5,000 per day and stays in Rodrigues for 5.5 days³⁷.
- For the sensitivity analysis, the upside scenario also initially sets growth at 10 percent for the first 3 years. Subsequently, domestic traffic is projected to grow by 2 percent annually for both tourists and residents, while international traffic is anticipated to grow by 5 percent annually (1 percent more than the base case). The outcomes from this sensitivity analysis underscores the potential of the tourism sector as an enabler.

6. **Economic costs include project investments as well as ARL operating and maintenance costs, while project benefits include primarily economic benefits from increased tourism and savings in travel time.** The project will directly contribute to **(a) value of time (VoT) savings for passengers; and (b) increased tourist spending in Rodrigues.** The analysis did not consider the following economic benefits due to the difficulty of reliably quantifying their value: **(c) reduced airline operating costs** due to lower fuel consumption and crew costs associated with a reduction in operation hours on a daily basis; **(d) reduced GHG and carbon emissions** per passenger (if the passenger numbers are consistent); **(e) reduced risk of flight cancellations** due to climate events; **(f) increased cargo flight value; and (g) potentially reduced risk of aircraft accidents / incidents and the associated loss of life due to the new air navigation system.**

³⁷ Refereed to the SIDPR, and the historical statistic data by the government.



7. Two analysis scenarios were evaluated:

- a. **Business As Usual (BAU) / Without the project** - The existing facilities can cater for a limited increase in the number of trips using short haul turboprop aircraft. In this case, the current fleet of ATR-72 aircraft continue to exclusively serve the increased passenger traffic in the future years. The maximum future traffic is capped at 185,000 passengers for the existing runway.
- b. **With the Project** – In this scenario a new runway is constructed, and the existing facilities are upgraded to accommodate larger aircraft (Airbus A321/ were used in the analysis). Besides the airport operation revenue, (a) VoT benefits for passengers between Mauritius and Rodrigues and (b) direct tourism benefits from increase international travel and tourists, with higher spending power and longer stay on the island, would be generated and were quantified. Even though an estimate of the potential increased cargo flight value could be made, since there are currently no concrete plans for the cargo flights to Rodrigues, the potential economic benefits were not included in the analysis.

8. **The Project is economically viable under the base scenario.** Under the assumptions above, comparing the Project scenario to the BAU scenario results in a NPV of US\$75.3 million and an EIRR of 9.25 percent (6 percent discount rate). In the downside sensitivity analysis, introducing a 20 percent reduction in economic benefits leads to a decrease in the EIRR to 5.30 percent, and a negative NPV of US\$15.1 million. However, it's worth highlighting that this scenario carries a minimal likelihood, given that the Passenger Service Charges and other related charges are either fixed or set to increase due to demand and market inflation. Importantly, it should be noted that the calculations for this scenario also do not encompass the indirect and difficult-to-quantify economic benefits.

9. Remarkably, **under the upside scenarios of optimistic projection**, with a 10 percent reduction in project expenses, the EIRR increases to 19.96 percent. Additionally, a small additional increment of 1 percent additional growth over the base case in international tourist numbers of growth acts as a pivotal driver for economic growth – the project EIRR reaches 17.96 percent, due to their substantial spending within Rodrigues. The economic benefits of the project stem from the mutually catalytic relationship between airport infrastructure construction and the tourism industry.

10. **A sensitivity analysis was conducted and showed that the project is not economically justified with a 20 percent increase in investment costs, or to 20 percent reduction in project benefits.** However, and since the economic analysis was very conservative in estimating the benefits, focusing only on value of time and tourism benefits, the actual and unaccounted for direct and economic benefits (employment generation, freight transport, agri-business production, etc.) are likely to largely exceed and offset a 20 percent reduction in the direct economic benefits estimated in the economic analysis.

Table 2-1: Economic Sensitivity Analysis

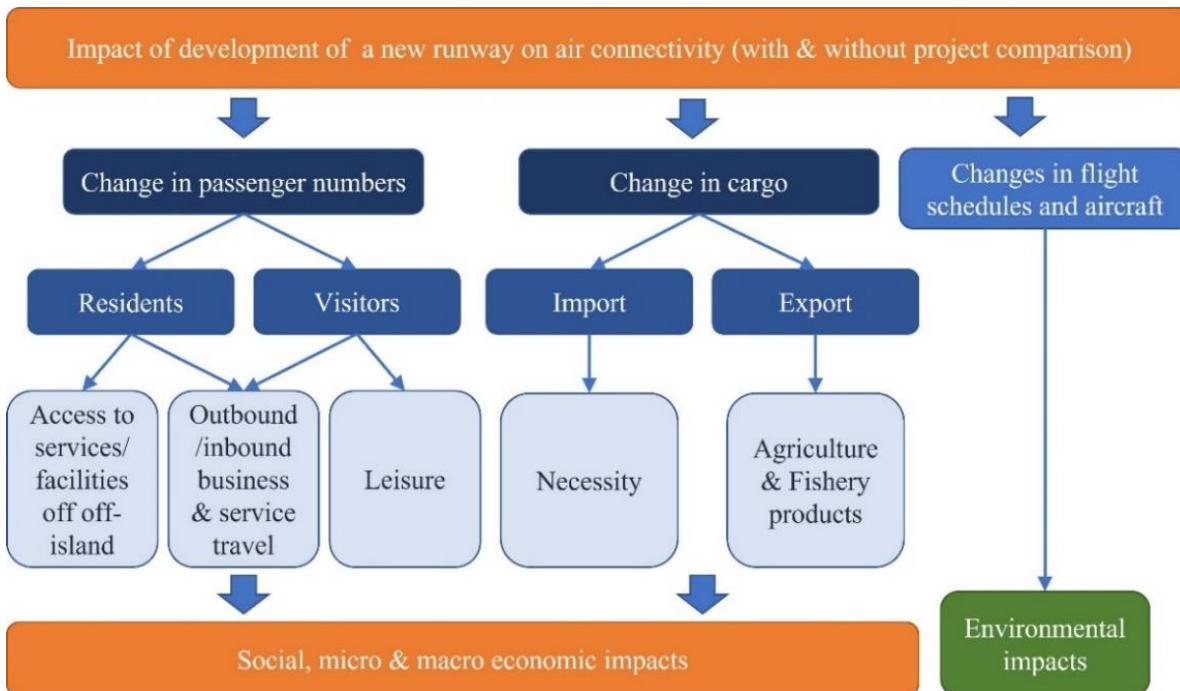
The construction cost is US\$170 mn		EIRR (%)	NPV (US\$)
Base	Baseline scenario	9.25	75,331,272
Downside	20 percent increased cost	7.21	31,622,231
	20 percent decreased economic benefits	5.30	(15,132,796)
	20 percent increased cost and 20 percent decreased economic benefits	3.54	(58,841,837)
	10 percent reduced cost	19.96	255,629,658



Upside	5 percent increase international tourist from the 4th year (compared to 4 percent)	17.96	269,280,181
	10 percent reduced cost and 5 percent increase international tourist from the 4th year	20.45	291,134,702

11. The wider economic benefits including local industries development, job creation, improved access to education, etc., are difficult to quantify in monetary terms. Figure 2-1 provides an overview of the potential wider economic benefits generated by the project.

Figure 2-1: Wide economic benefits of the project



Financial Analysis

Table 2-2: Direct Income and Expense

Sources of income from airport operations	Expense categories for airport operations	
Passenger Service Charge	Staff salaries and wages	Printing and Stationery
Rental Income	Repairs and Maintenance	Telephone / Fax
Advertising and Publicity	Electricity / Water	Uniforms and protective equipment
Landing fees	Insurance	Training
VIP lounge Access	Cleaning	Advertising and Publicity
Service Fee/Grant	Directors Fees	Sundry Expenses
	Motor Vehicle Running Expenses	Professional Fees
	Aerodrome Fees	Freight and bank charges
	Official Missions	Operating Costs - Others

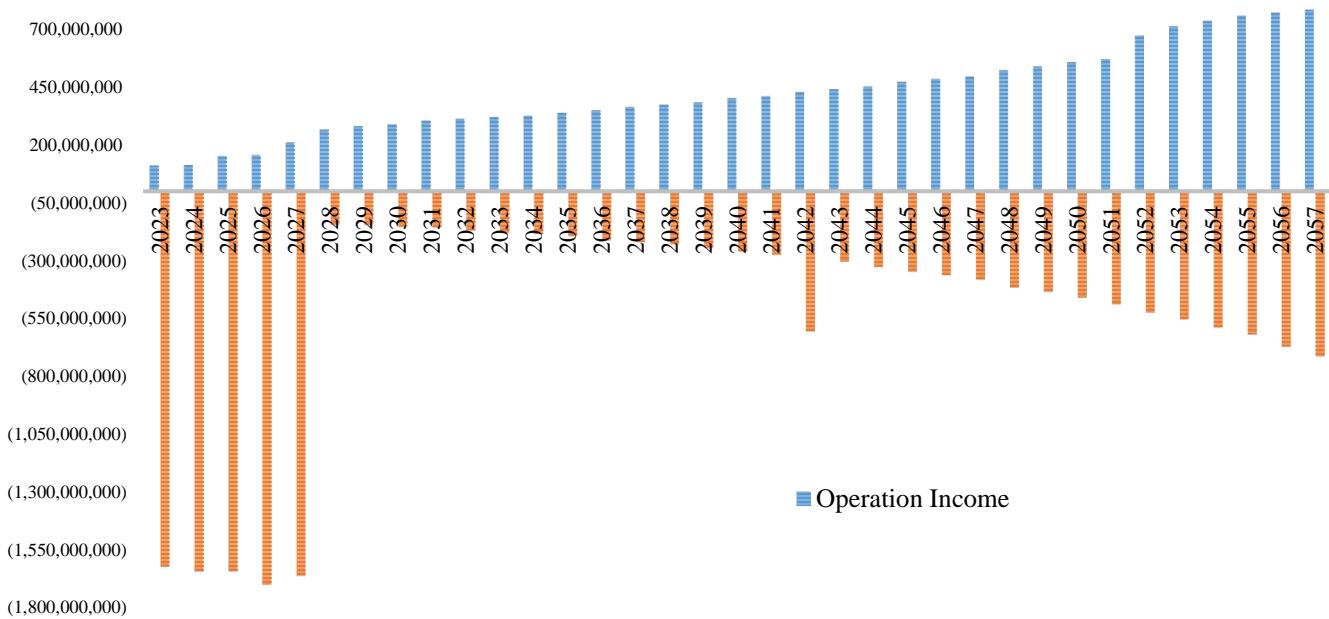
12. The financial analysis shows that, if the capital investment is passed on to ARL as a grant, the project has a



positive cash flow from the start of operations. However, operating income is not sufficient to cover the cost of principal repayments (assuming a 30-year tenor) from 2028 to 2057. When the capital costs of the new runway are factored into the analysis, the project has a negative NPV of approximately US\$112.5 million as a financial loss. Nevertheless, and without accounting for the capital investments passed on as a grant, the project has stable and positive revenues almost all years of operations, with an NPV of about US\$30 million. The project operational revenues overall exceed operational costs and are generally robust to increased costs and decreased revenues as per the sensitivity analysis.

Figure 2-2: ARL Financial Income and Cost Projections of the Project from 2023 to 2057 (MUR)

INCOME AND EXPENSE OF THE PROJECT 2023-2057, MUR



13. **ARL will be responsible for ensuring the operations of the airport and runway, and the financial analysis shows that the project will strengthen ARL financial situation.** As such, the analysis demonstrates that ARL will through its own financing (mainly from the airport revenue) be able to cover operating and maintenance costs including those associated with the infrastructure and equipment financed by the project. Plaine Corail airport is expected to see increased traffic volumes as a result of the projects interventions, while the larger aircraft it will be able to serve will also attract an increase in fee revenue due to increased traffic, especially international traffic, which will help increase the airports overall financial sustainability (see the net income estimation in **Figure 2-3**). It is therefore important to review Passenger Service Charge and other airport charges, in line with those recommended by ARL and used for this analysis, in order to ensure sustainable financing of operations.



Figure 2-3: ARL Financial Revenues Projections of the Project from 2023 to 2057 (MUR)

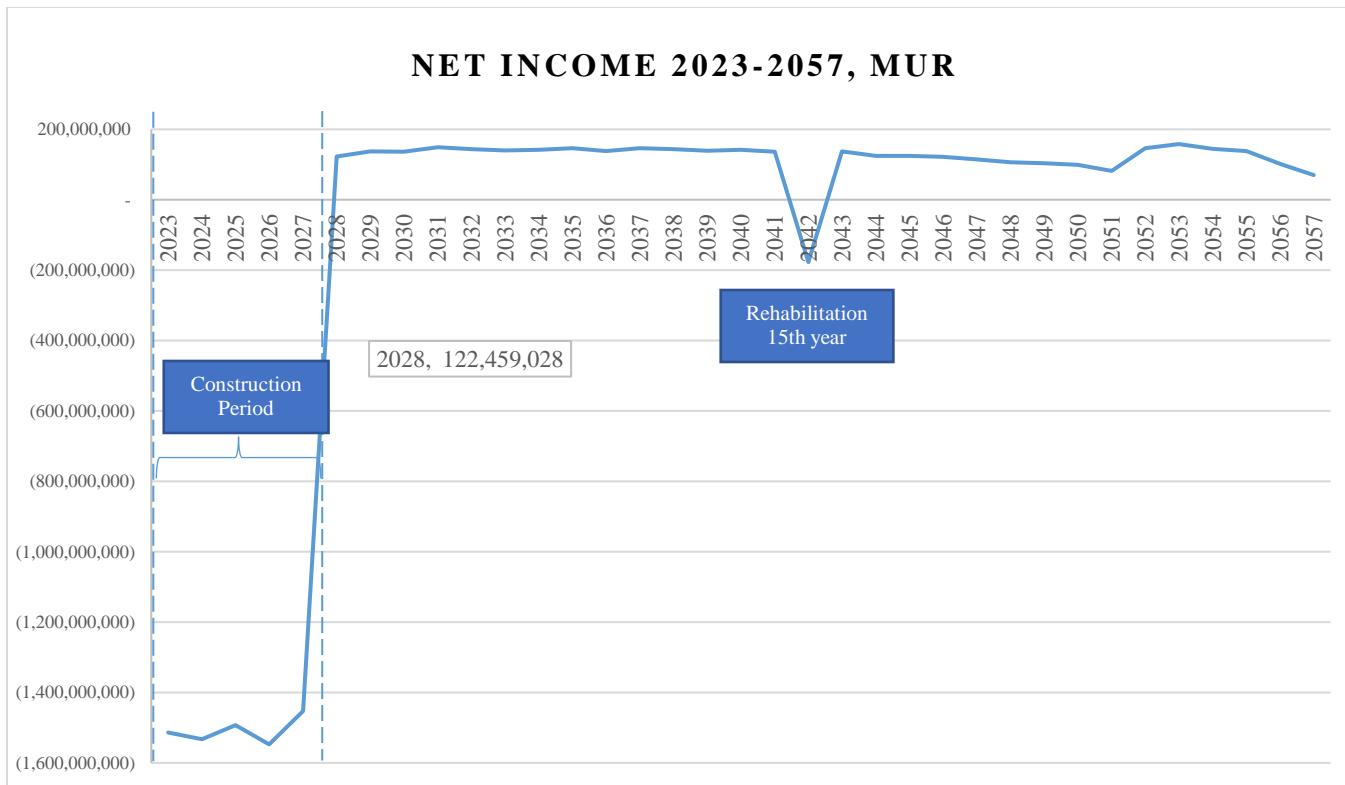
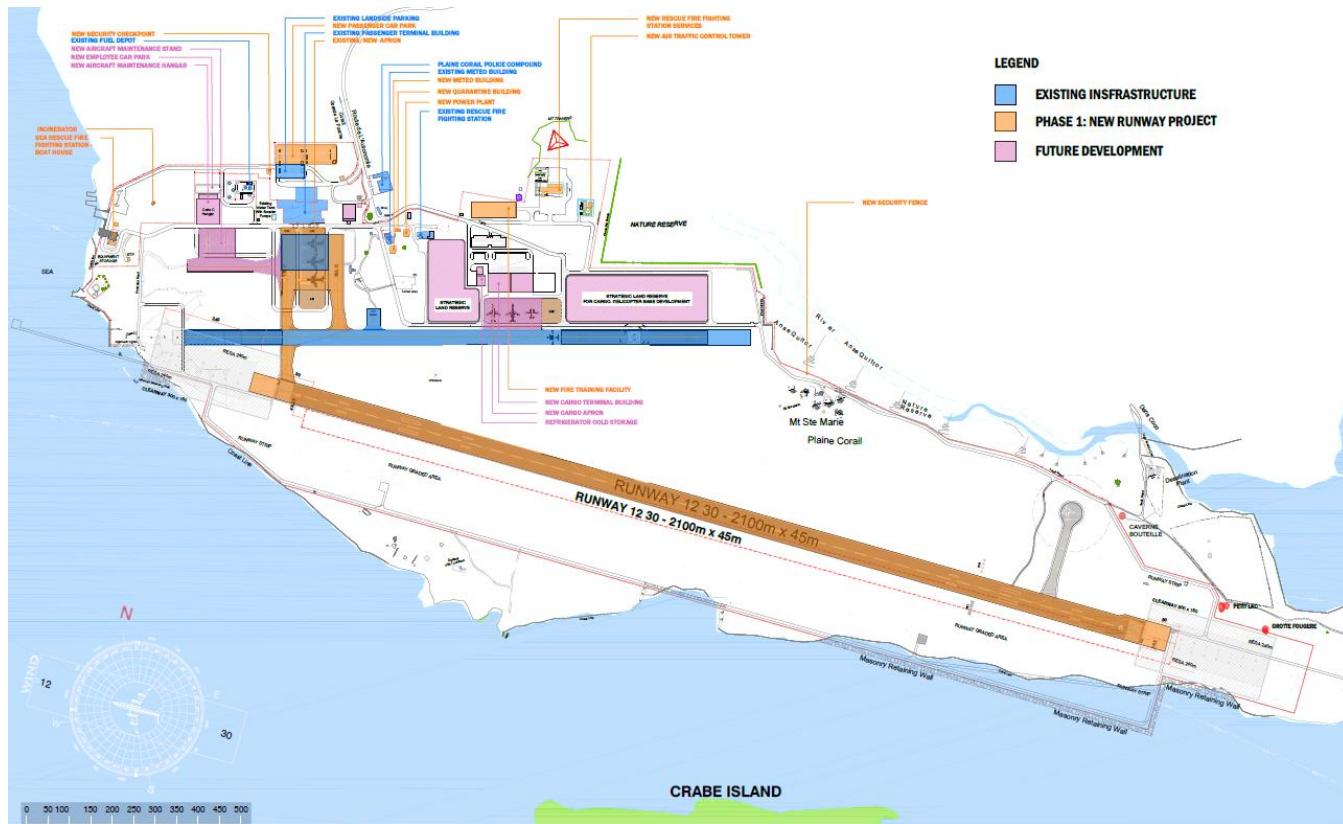


Table 2-3: Financial Sensitivity Analysis (capital cost excluded)

Scenarios	Base	20 percent increase in investment	20 percent decrease in operating income	20 percent increase in investment & 20 percent decrease in operating income
NPV at 6 percent	US\$30.3 mn	US\$9.1 mn	US\$15.2 mn	US\$-(5.9) mn

14. The economic and financial analyses will be continuously monitored and updated, as necessary, in response to data updates and additional information inputs throughout the project implementation.

ANNEX 3: Plaine Corail Airport Development Plan





ANNEX 4: Map of Rodrigues Island

