KIRIBATI'S ACTION PLAN ON CO_2 EMISSIONS REDUCTIONS FROM INTERNATIONAL AVIATION

September 2025

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EXECUTIVE SUMMARY

The second State Action Plan on Aviation CO2 Emissions Reduction sets out Kiribati's renewed commitment to advancing and managing the aviation industry's carbon footprint while enhancing safety and efficiency. Developed in accordance with the latest ICAO Document 9988 and informed IPCC methodology, the plan establishes an ambitious target to guide the next phase of decarbonisation in Kiribati's aviation sector.

Recognising the intensifying impacts of global warming on small island nations, Kiribati will implement an expanded suite of measures to further reduce the carbon footprint of air transportation. These include, scaling up sustainable aviation fuel (SAF) initiatives, subscription to ACT-SAF, expanding the eco-airport programme with greater integration of renewable energy and exploring options to minimize aircraft weight by installing lighter materials. Market based measures, including the continued participation in CORSIA, will be complemented by domestic innovations in operational efficiency.

As a living document, this plan will undergo continuous review and updating as recommended in ICAO Assembly Resolution A41-21: Consolidated statement of continuing ICAO policies and practices related to environmental protection - Climate change, ensuring Kiribati remains on course toward greener, more resilient aviation for the future.

1. INTRODUCTION

1.1 Background and Objective

This revised Action Plan sets out Kiribati's way forward to reduce CO2 emissions from its civil aviation sector, aligning national efforts with global climate commitments. It outlines targeted measures-focused on domestic operations, air traffic management, energy efficiency green aviation practices, and ICAO market-based mechanisms and projects the emissions reductions achievable with their implementation.

This plan demonstrates Kiribati's contribution to the 2022, 41st Session ICAO Assembly's aspirational goals: 2% annual fuel efficiency improvement through 2050, carbon neutral growth from 2020, and the long-term aim of net-zero carbon emissions by 2050.

As a voluntary submission under ICAO's State Action Plan Initiative, this document serves as both a roadmap for sustainable aviation development and a national call for collaboration, ensuring that Kiribati's aviation sector supports national resilience while advancing urgent global climate action.

1.2 Contact Information

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2. OVERVIEW OF CIVIL AVIATION IN KIRIBATI

The Republic of Kiribati is a Pacific Small Island Developing State situated in the heart of the Pacific with a total land area of 811 square kilometres consisting of 32 islands dispersed across 3.5 million square kilometres of the Pacific Ocean. Kiribati became a party to the Convention on International Civil Aviation on 14 April 1981 and has since been working towards complying with international standards. The State has one airline that conducts domestic operations only and one airport operator, both of which are State-owned entities.

International flights are conducted by foreign airlines with a frequency of 24 flights per month and passenger capacity at 80% to 100% per flight. The State recognizes, through experience, the importance of mitigating and supporting off-setting activities and collaborations. Kiribati joined ICAO CORSIA since its inception where it is now in Pilot phase and will continue to explore ways in which it will be able to contribute to the reduction of international carbon emissions.

1.3 Current situation and future trend

With the scattered islands, the State has one airline serving domestic operations across the nation with 2 DHC 6-300 series, 1 DHC 6-300HG and 1 DHC 6-400 series. Kiribati has plans to initiate measures to increase passenger density and reduce energy demands in its operations and in turn contribute to the international long-term goals to reduce carbon emissions at the national level.

1.3.1 Air Operators

Air Operators	ICAO	IATA	Type of Operations
Air Kiribati Limited	AKL	IK	Scheduled/non-scheduled passenger and cargo domestic flights

1.3.2 Airport Operators

The table below is aimed at detailing the data of the airport operators in Kiribati in order to frame the aviation work under the perspective of the airport operators' side.

Airport Operators	Airport Names and Cities	Domestic/International
Airport Kiribati Authority	Bonriki Airport – Tarawa Cassidy Airport - CXI	Domestic and International Airport

1.3.3 Air Navigation Service Providers

Air navigation services provided in Kiribati include Air Traffic Services, providing information to aircrafts flying below 10,000ft, providing MET information for domestic flights and communicating with aircrafts conducting domestic air service.

Air Navigation Service Providers	Type of Service
Airport Kiribati Authority Kiribati Meteorological Services	Air Traffic Service Meteorological Service

1.3.4 Passengers' Statistics

The table below shows the number of passengers (international) and air cargo (international) in 2022.

Year	Number of passenger (person)	Numbers of Air Cargo (kilograms)
	(Int)	(Int)
2022	32,856	71,840

3. BASELINE SCENARIO

3.1 Methodology and data

The baseline scenario describes the historical evolution of fuel consumption, CO_2 emissions, and traffic in Kiribati as well as the expected future evolution in the absence of measures. Given the availability of data (annual RTK and annual international fuel consumption from international flights) is very limited, the Environmental Benefit Tool (EBT) version v2.9. was used to assist in the process of defining a baseline scenario, estimating the quantifiable benefits resulting from the selected mitigation measures, and generating the estimated expected results.

In addition, the IPCC methodology was used to estimate the fuel consumption and RTK data, as Kiribati's national airlines does not operate international flights. As explained in ICAO Doc. 9988, IPCC methodology means that each State reports the CO2 emissions of international flights departing from all aerodromes located in the State or its territories (State of Origin).

Based on the available data, Method A was selected for the use of EBT. In addition, the following inputs are collected and used in the baseline:

- Baseline year: 2022
- International RTK: 6,602,973 tonnes-kilometres
- International fuel burn: 1961 Tonnes
- Number of aircraft used for international flights: three (3) aircrafts.
- Annual RTK growth rate (average for APAC region): 5.8 %

3.2 Baseline

The following table and chart provide an estimated baseline of fuel consumption and CO2 emissions for international flights for the years 2022 to 2050.

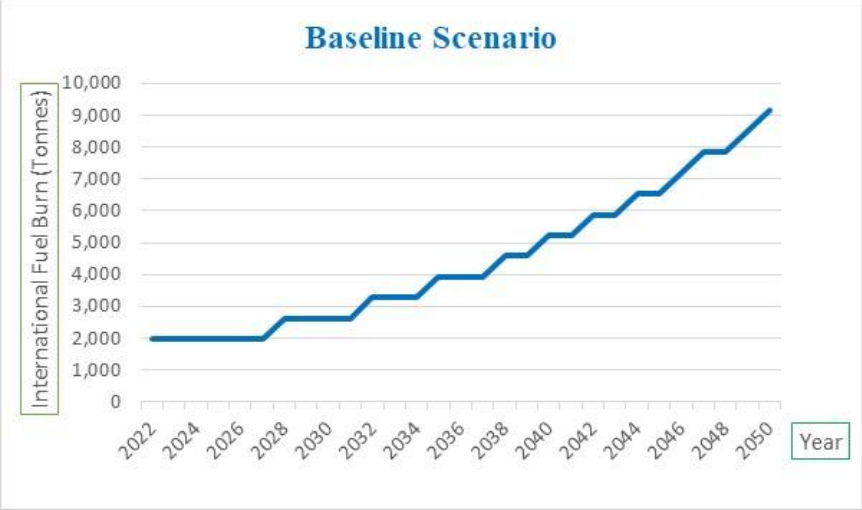
For the definition of "international flight" used in this document, reference is made to the IPCC methodology (all outbound international flights from Kiribati).

Table 1. Baseline Table

Year	International RTK ('000)	International Fuel Burn (Tonnes)	Efficiency (Fuel Burn/RTK)
2022	6,603	1,961	0.297
2023	6,603	1,961	0.297
2024	6,603	1,961	0.297
2025	6,603	1,961	0.297
2026	6,603	1,961	0.297
2027	6,603	1,961	0.297
2028	8,804	2,614.67	0.297
2029	8,804	2,614.67	0.297
2030	8,804	2,614.67	0.297
2031	8,804	2,614.67	0.297

2032	11,005	3,268.33	0.297
2033	11,005	3,268.33	0.297
2034	11,005	3,268.33	0.297
2035	13,206	3,922	0.297
2036	13,206	3,922	0.297
2037	13,206	3,922	0.297
2038	15,407	4,575.67	0.297
2039	15,407	4,575.67	0.297
2040	17,608	5,229.33	0.297
2041	17,608	5,229.33	0.297
2042	19,809	5,883	0.297
2043	19,809	5,883	0.297
2044	22,010	6,536.67	0.297
2045	22,010	6,536.67	0.297
2046	24,211	7,190.33	0.297
2047	26,412	7,844	0.297
2048	26,412	7,844	0.297
2049	28,613	8,497.67	0.297
2050	30,814	9,151.33	0.297

Figure 1. Baseline Graph.



As shown above, it was determined that fuel consumption will be around 2614.67 tonnes in 2030 and around 9151.33 tonnes in 2050, which represents an increase of 366.67 % compared to fuel consumption in 2022.

4. MITIGATION MEASURES

The ICAO basket of measures was taken into account when selecting Kiribati's mitigation measures to reduce CO2 emissions from aviation. These are the aircraft technology improvement, operational improvements, sustainable aviation fuels, and market-based measures, as follows:

#	*Category of the measure*	*Name of the measure(s) selected*	*Description of the measure*	*Implementation time horizon (start date of full implementation – end date of full implementation*	*Stake holders involved in implementing the measures*
4.1	Operations	Minimizing weight	Minimizing weight for all aircrafts conducting domestic operations in all the operational aircrafts. Kiribati will explore options by installing lighter materials that would significantly reduce the weight of the aircraft.	2023 – 2030	• Air Kiribati Limited • Ministry of Information, Communication and Transport.
4.2	Operational improvements	Air traffic management	Measures to improve the use of optimum routings which in return contributes to the reduction of carbon emissions in Kiribati,	2026 - 2040	• Air Kiribati Limited
4.3	SAF	Development of partnerships with stakeholders for SAF, LCAF and other aviation cleaner energies.	Integration of biofuels – Sustainable Aviation Fuel (SAF) into the domestic operational fuel mixture would significantly reduce CO2 emissions from domestic operations but would also mean that a transition from the conventional fuels used in Kiribati to SAF would mean outbound international flights will reduce CO2 emissions as well from the use of SAF	2023 - 2033	• Ministry of Infrastructure and Sustainable Energy. • Kiribati Oil Company Limited – Fuel supplier.
4.4	Other – Airport improvements	1. Airfield improvements 2. Reduced energy demand and preferred cleaner energy sources 3. Conversion of GSE to cleaner fuels.	• Trees and mangrove planting initiative. • Installation of LED lights • Installation of solar panels in Airport. • Internal procedure for minimizing energy consumption (human behaviour). These measures will help reduce carbon emissions through reduction of energy consumption and use of eco-friendly materials. • The use of electrically operated ground vehicles.	2023 – 2033 2026 - 2035	Airport Authority of Kiribati. Ministry of Environment, Lands and Agricultural Development.

4.5	ACT SAF	Subscription to ACT SAF program	• Broaden knowledge and further understanding by accessing SAF technical references and reports. • Seeking potential partnerships and cooperation on SAF initiatives coordinated by ICAO	2025 - 2050	
4.6	Market Based Measures	CORSIA	Kiribati has voluntarily participated in CORSIA since its pilot phase. Kiribati does not contribute to international carbon emission however participating in this market-based measure in support of ICAO global aspirational goal of carbon-neutral growth. Kiribati understands that CORSIA is a global scheme for the global international aviation industry. The more States join the CORSIA, the more emissions are covered by the offsetting requirements of the Scheme and the higher its environmental effectiveness becomes. Each participating State brings ICAO closer to meeting its global aspirational goal of carbon neutral growth. For a State that does not have an operator attributed to it (and therefore no compliance cost is incurred), its participation in the Scheme will add those routes operated by foreign operators between the State and other participating States, thus increasing the overall emissions coverage of CORSIA. For States with particular interest in eco-tourism, participation in CORSIA provides the additional benefit of greening air transport connections to the rest of the world.		

5. EXPECTED RESULTS

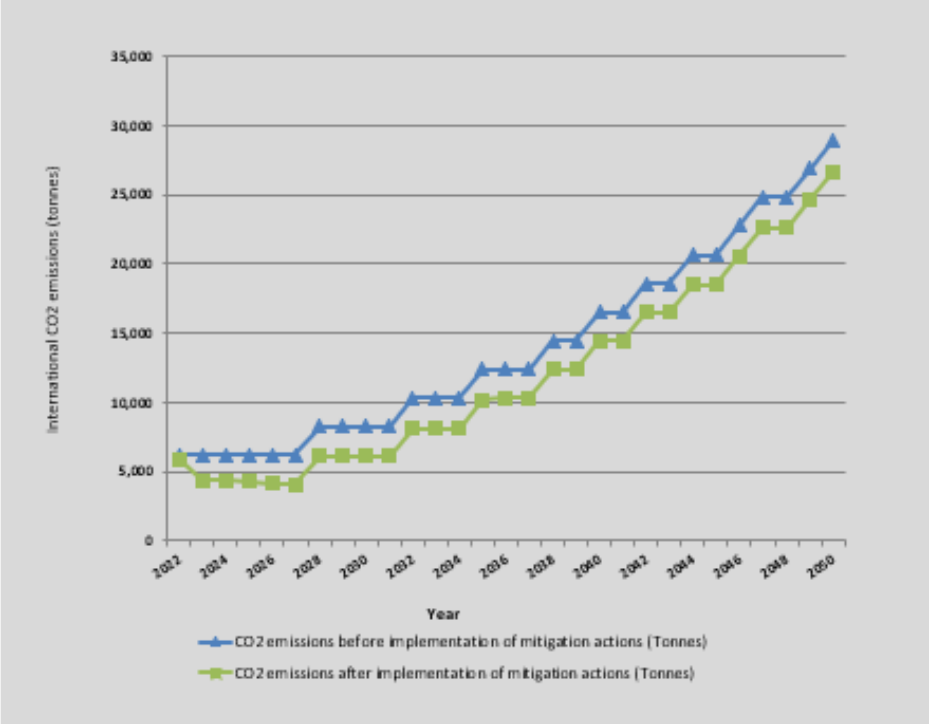
By implementing the mitigation measures outlined in Chapter 4 of this document, Operational Improvement Policy, Sustainable Aviation Fuel Integration Initiative, Airport & Airfield Infrastructure Improvement, and participation in CORSIA, it is estimated that the following fuel and CO2 savings to be achieved:

Table 2. Expected Results - CO2 Savings

EXPECTED RESULTS : CO_2 SAVINGS

Year	Annual CO_2 emissions before implementation of mitigation actions (Tonnes)	Annual CO2 emissions after implementation of mitigation actions (Tonnes)	Annual CO_2 savings (Tonnes)	Change CO_2 savings (%)
2022	6,196.76	5,880.76	316.00	-5.10
2023	6,196.76	4,324.46	1,872.30	-30.21
2024	6,196.76	4,324.46	1,872.30	-30.21
2025	6,196.76	4,284.46	1,912.30	-30.86
2026	6,196.76	4,098.02	2,098.74	-33.87
2027	6,196.76	4,036.05	2,160.71	-34.87
2028	8,262.35	6,080.98	2,181.36	-26.40
2029	8,262.35	6,080.98	2,181.36	-26.40
2030	8,262.35	6,080.98	2,181.36	-26.40
2031	8,262.35	6,080.98	2,181.36	-26.40
2032	10,327.93	8,125.91	2,202.02	-21.32
2033	10,327.93	8,125.91	2,202.02	-21.32
2034	10,327.93	8,125.91	2,202.02	-21.32
2035	12,393.52	10,170.84	2,222.68	-17.93
2036	12,393.52	10,328.84	2,064.68	-16.66
2037	12,393.52	10,328.84	2,064.68	-16.66
2038	14,459.11	12,373.78	2,085.33	-14.42
2039	14,459.11	12,373.78	2,085.33	-14.42
2040	16,524.69	14,418.71	2,105.99	-12.74
2041	16,524.69	14,418.71	2,105.99	-12.74
2042	18,590.28	16,463.64	2,126.64	-11.44
2043	18,590.28	16,463.64	2,126.64	-11.44
2044	20,655.87	18,508.57	2,147.30	-10.40
2045	20,655.87	18,508.57	2,147.30	-10.40
2046	22,721.45	20,553.50	2,167.95	-9.54
2047	24,787.04	22,598.43	2,188.61	-8.83
2048	24,787.04	22,598.43	2,188.61	-8.83
2049	26,852.63	24,643.36	2,209.27	-8.23
2050	28,918.21	26,688.29	2,229.92	-7.71

Figure 2. Expected Results - CO2 Savings Graph.



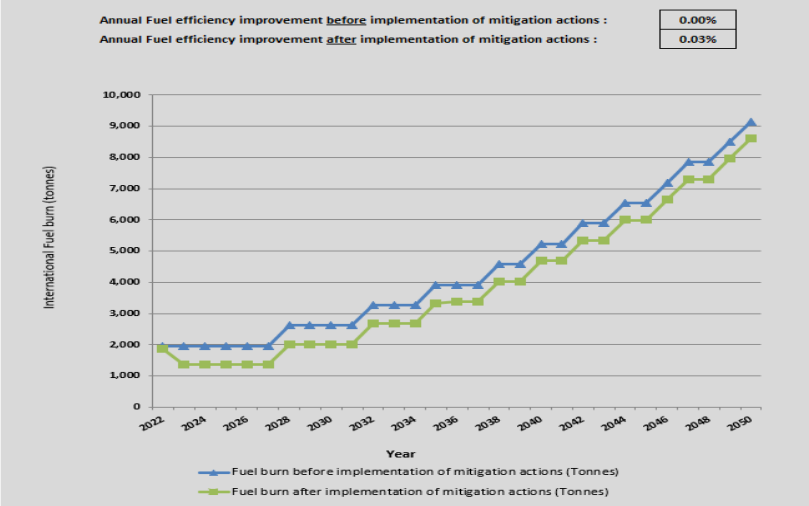
Description: The figure above provides a graphical representation of these results and confront them to CO_2 emissions before and after the measures are implemented. It was identified that the potential to reduce CO_2 emissions in 2050 will reach approximately 26,688.29 tonnes of CO2 emissions.

Table 3. Expected Results: Fuel Savings

EXPECTED RESULTS : FUEL SAVINGS

Year	Annual Fuel burn before implementation of mitigation actions (Tonnes)	Annual Fuel burn after implementation of mitigation actions (Tonnes)	Annual Fuel savings (Tonnes)	Change Fuel savings (%)
2022	1,961.00	1,861.00	100.00	-5.10
2023	1,961.00	1,368.50	592.50	-30.21
2024	1,961.00	1,368.50	592.50	-30.21
2025	1,961.00	1,368.50	592.50	-30.21
2026	1,961.00	1,309.50	651.50	-33.22
2027	1,961.00	1,309.50	651.50	-33.22
2028	2,614.67	1,963.17	651.50	-24.92
2029	2,614.67	1,963.17	651.50	-24.92
2030	2,614.67	1,963.17	651.50	-24.92
2031	2,614.67	1,963.17	651.50	-24.92
2032	3,268.33	2,616.83	651.50	-19.93
2033	3,268.33	2,616.83	651.50	-19.93
2034	3,268.33	2,616.83	651.50	-19.93
2035	3,922.00	3,270.50	651.50	-16.61
2036	3,922.00	3,320.50	601.50	-15.34
2037	3,922.00	3,320.50	601.50	-15.34
2038	4,575.67	3,974.17	601.50	-13.15
2039	4,575.67	3,974.17	601.50	-13.15
2040	5,229.33	4,627.83	601.50	-11.50
2041	5,229.33	4,627.83	601.50	-11.50
2042	5,883.00	5,281.50	601.50	-10.22
2043	5,883.00	5,281.50	601.50	-10.22
2044	6,536.67	5,935.17	601.50	-9.20
2045	6,536.67	5,935.17	601.50	-9.20
2046	7,190.33	6,588.83	601.50	-8.37
2047	7,844.00	7,242.50	601.50	-7.67
2048	7,844.00	7,242.50	601.50	-7.67
2049	8,497.67	7,896.17	601.50	-7.08
2050	9,151.33	8,549.83	601.50	-6.57

Figure 3. Expected Results - Fuel Savings Graph.



Description: The figure above provides a graphical representation of these results and confront them to fuel efficiency improvement before and after the measures are implemented. It was identified that the potential to reduce the annual fuel burn in 2050 will reach approximately 8549.83 tonnes.

6. ASSISTANCE NEEDS

Although Kiribati's aviation related CO2 emissions are relatively minimal, the nation still faces significant challenges in achieving its long-term climate goals. The aviation sector remains a critical area for improvement, requiring targeted assistance to maximize efforts in reducing carbon emissions while enhancing operational efficiency. Achieving this will depend on comprehensive capacity building, knowledge exchange, and the implementation of joint initiatives in both policy and infrastructure.

- Financial support for airport and airfield improvements

  Many of Kiribati's airports and airfields require substantial upgrades to accommodate larger aircraft and increased passenger capacity. These improvements would enable fewer flights to transport the same or greater number of passengers, thereby reducing fuel consumption and associated CO2 emissions.
  In addition, modernizing terminal facilities with environmentally friendly materials, renewable energy systems, and energy efficient designs will significantly reduce electricity use and operational costs while promoting sustainable development.

- Capacity development in eco-airport programme

  Incorporating solar powered lighting, eco-friendly landscaping and implementing the use of electrically powered ground vehicles will allow Kiribati to integrate environmental sustainability into its aviation sector. By building upon existing natural assets while meeting international standards, this program would enhance airport operations without compromising environmental integrity. Support in planning and training will ensure that eco-friendly technologies and practices are effectively embedded into daily operations.

- Capacity building and development of technical officers

  Strengthening the skills of technical officers is vital for the effective implementation of sustainable aviation projects. Training should focus on renewable energy integration, carbon reduction strategies, and environmentally responsible operational practices. With the right expertise, technical officers will be better equipped to design, manage, and monitor projects that contribute directly to emission reduction and climate resilience in the aviation sector.