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KIRIBATI

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ADB ASIAN DEVELOPMENT BANK AIIB ASIAN INFRASTRUCTURE INVESTMENT BANK THE WORLD BANK

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Abbreviations

2/3W	Two/ Three-Wheeler
2G, 3G, 4G	Generation of wireless data communication for mobile carriers
ACT-SAF	Assistance, Capacity-building and Training for Sustainable Aviation Fuels
ADB	Asian Development Bank
AI	Rural Access Index
AKA	Airport Kiribati Authority
ASYCUDA	Automated System for Customs Data
ATO	Asian Transport Observatory
BAU	Business-As-Usual
BC	Black Carbon
CAAK	Civil Aviation Authority of Kiribati
CFE-DMHA	Center for Excellence in Disaster Management & Humanitarian Assistance
CIESIN	Center for Integrated Earth System Information
CNG	Compressed Natural Gas
CO2	Carbon Dioxide
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
EDGAR	Emissions Database for Global Atmospheric Research
EMBER	Ember (global energy think tank)
EV	Electric Vehicle
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GRSF	Global Road Safety Facility
GSE	Ground Support Equipment
GVA	Gross Value Added
HIES	Household Income and Expenditure Survey
HDV	Heavy Duty Vehicle
IATA	International Air Transport Association
IB	Islands Business
ICAO	International Civil Aviation Organization
ICE	Internal Combustion Engine
ICT	Information and Communication Technology
IMO	International Maritime Organization
IMF	International Monetary Fund
IRAP	Infrastructure Rating and Assessment Program
IRENA	International Renewable Energy Agency
JICA	Japan International Cooperation Agency
KLTA	Kiribati Land Transport Authority
KMS	Kiribati Meteorological Service
KNSL	Kiribati National Shipping Line
KNSO	Kiribati National Statistics Office
KOIL	Kiribati Oil Company Limited
KPA	Kiribati Ports Authority
KPI	Key Performance Indicator
kt	kiloton
KV20	Kiribati Vision 20
kWh	kilowatt-hour
L	liters
LDC	Least Developed Countries
LDV	Light Duty Vehicle
LEDS	Low Emissions Development Strategy
LPI	Logistics Performance Index
LSCI	Liner Shipping Connectivity Index
MISE	Ministry of Infrastructure and Sustainable Energy
MICT	Ministry of Information, Communication and Transport
MICTTD	Ministry of Information, Communications, Transport and Tourism Development
MID	Ministry of Infrastructure Development
MJ/USD	Megajoules per US Dollar
NAPA	National Adaptation Programme of Action
NDC	Nationally Determined Contribution
NOx	Nitrogen Oxides
NRVI	National Road Vulnerability Index
NSO	National Statistics Office
NTP	National Transport Plan
OBMs	outboard motors
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OITIIP	Outer Islands Transport Infrastructure Investment Project

OSM	Open Street Map
PID	Project Information Document
PM2.5	Particulate Matter (<2.5 micrometers)
PPP	Public-Private Partnership / Purchasing Power Parity
PRIF	Pacific Region Infrastructure Facility
RTK	Revenue Ton-Kilometers
SAF	Sustainable Aviation Fuels
SDG	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
SEDAC	Socioeconomic Data and Applications Center
SFT	Sustainable Freight Transport
SNDi	Street-Network Disconnectedness Index
SOx	Sulfur Oxides
SPC	Pacific Community
TEU	Twenty-foot Equivalent Unit
TJ	Terajoule
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UN-DESA	UN Department of Economic and Social Affairs
UNEP	United Nations Environment Programme
USD	US Dollars
USD (PPP)	USD (Purchasing Power Parity)
USP	University of the South Pacific
VAT	Value-Added Tax
WB	World Bank
WHO	World Health Organization

Executive Summary

Kiribati's transport system operates under conditions of extreme geographic dispersion, acute climate vulnerability, and constrained capacities. As a nation of low-lying atolls spread across a vast ocean, transport is not only a service sector but also a foundational enabler of economic activity, social inclusion, and national resilience. The assessment finds that while important strategies and investments are underway, structural challenges continue to limit the performance, safety, and sustainability of the transport system.

Access to transport services remains uneven, with pronounced disparities between South Tarawa and the outer islands. While national indicators suggest relatively high rural access to all-weather roads, many communities—particularly on outer islands—continue to face unreliable year-round connectivity due to damaged causeways, unsealed roads, and the absence of basic maritime infrastructure. Maritime "last mile" access remains a critical bottleneck, constraining access to healthcare, markets, education, and essential services, and posing safety risks for passengers and freight.

National connectivity and freight movement are heavily shaped by geography. Inter-island mobility depends almost entirely on maritime and aviation services, both of which operate under capacity, infrastructure, and resilience constraints. Maritime transport underpins domestic freight movement but is characterized by low liner shipping connectivity, high costs, and aging port infrastructure. Aviation provides vital national and international links but remains limited by a small number of airports, low flight frequencies, and deteriorating runway conditions on outer islands.

Urban mobility pressures are most evident in South Tarawa, where rapid population growth and rising vehicle ownership are outpacing infrastructure capacity. Motorization continues to increase, while access to formal public transport remains limited. The resulting dependence on private vehicles is occurring in a spatially constrained urban environment with limited scope for road expansion, raising concerns about congestion, safety, and long-term sustainability.

Transport safety remains a persistent public health concern. Road crash fatality rates have increased over time, with pedestrians accounting for a growing share of fatalities. While recent investments indicate a shift toward safer road design and traffic calming measures, progress is constrained by data gaps, uneven enforcement, and incomplete network coverage.

The transport sector is a major contributor to Kiribati's energy use and greenhouse gas emissions, accounting for roughly one-third of total national consumption and emissions. The sector remains fully dependent on imported fossil fuels, exposing the economy to external price and supply shocks. Although emissions growth has slowed in recent years, transport emissions continue to rise faster than the regional average. Given that most transport assets are located in low-lying coastal areas, climate resilience and decarbonization are inseparable priorities.

Policy frameworks increasingly emphasize climate-resilient infrastructure, improved asset management, digitalization, and the gradual introduction of electric mobility. However, implementation remains at an early stage. Electric and hybrid vehicles represent only a marginal share of imports, and the climate benefits of electrification are constrained by the carbon intensity of electricity generation, despite recent progress in solar deployment. Institutional and technical capacity limitations continue to slow the translation of plans into operational outcomes.

Across all modes, limited institutional capacity and financing constraints remain binding. Maintenance systems are under-resourced, responsibilities are fragmented across agencies, and large-scale investments continue to rely heavily on external development finance. While national strategies clearly articulate priorities related to access, safety, resilience, and decarbonization, implementation will depend on sustained international support, stronger inter-agency coordination, and continued improvements in data, planning, and asset management systems.

Introduction

The Republic of Kiribati defies conventional geography. It comprises 33 low-lying atolls scattered over an ocean area of 3.5 million km²—a maritime expanse roughly the size of India, yet holding a total landmass of only 726 km² (Tong, n.d.). Distance here is not just a metric; it is a significant constraint on development. For the nation's about 120,000 citizens (KNSO and SPC 2025a) (119,438 in 2020), 51 percent of whom are crowded onto South Tarawa (World Bank 2020a) while the rest inhabit remote outer islands, connectivity is the prerequisite for economic survival.

Kiribati comprises five administrative jurisdictions: South-Tarawa, the Northern, Central, and Southern groups, and the Line and Phoenix archipelagos. Urban functions cluster exclusively in South-Tarawa and Kiritimati Island. This spatial arrangement is complex. Isolated, low-lying atolls support high-density population centers, creating a profile of extreme physical exposure. Kiribati ranks among the world's most vulnerable states (CFE-DMHA, n.d.). Most of the landmass is less than 2 m above sea level (Government of Kiribati 2023b). Much of the country is expected to be underwater by 2050 with current climate scenarios. It has been estimated that rising sea levels and storm surges could submerge half of Bikenibeu, South Tarawa, a settlement in Kiribati with 6,500 residents (Government of Kiribati 2023b). Geography dictates the initial risk; limited socio-economic capacity multiplies the impact.

It is categorized as a lower-middle-income nation and is still on the UN's Least Developed Countries (LDC) list, although it aspires to graduate from its status (UN 2022). The Kiribati Vision 20 (KV20) (Government of Kiribati 2016) outlines a bold plan to transform this fragmented archipelago into a "wealthier, healthier, and more peaceful nation" by 2036 (Government of Kiribati 2025a), based on sustainable use of fisheries and tourism. The goals are ambitious. Policymakers intend to increase the value of domestic trade from a modest 2.7 metric tons in 2017 to 81 metric tons by 2036, while also aiming to boost exports by 30 percent. However, economic challenges are clear. With real GDP growth expected to slow to 3.9 percent in 2025 (IMF 2025a), mainly driven by public spending and infrastructure projects, and inflation forecasted to rise to 7.8 percent due to higher energy costs, the country faces a critical juncture. Thus, the transport sector must evolve from a logistical bottleneck into the backbone of resilience, bridging the distance between the eastern and westernmost islands to deliver on the promise of inclusive growth.

The transport strategy must balance conflicting priorities. Economic growth calls for increased mobility, but environmental concerns and climate risks call for caution. Social equity encourages universal access, while limited budgets favor focusing investments on key corridors. These opposing forces shape every budget choice. Making informed decisions requires accurate data, making the baseline critical.

As the United Nations Decade of Sustainable Transport begins (UN 2025), Kiribati needs a strong and dependable baseline to measure future progress. This assessment provides that. It compares Kiribati transport performance to regional and global standards, using seven interconnected diagnostic lenses: ensuring access to sustainable transport for everyone; improving sustainable connectivity and freight; promoting transport safety and security; developing people-centered urban mobility; implementing low-carbon, resilient, and environmentally friendly transport systems; and using science, technology, and innovation for sustainable transport progress. Cross-cutting analysis explores the sector's economic impact, employment patterns, and gender gaps. (Figure 1).

The transport strategy must balance conflicting priorities. Opposing forces shape every budget choice.

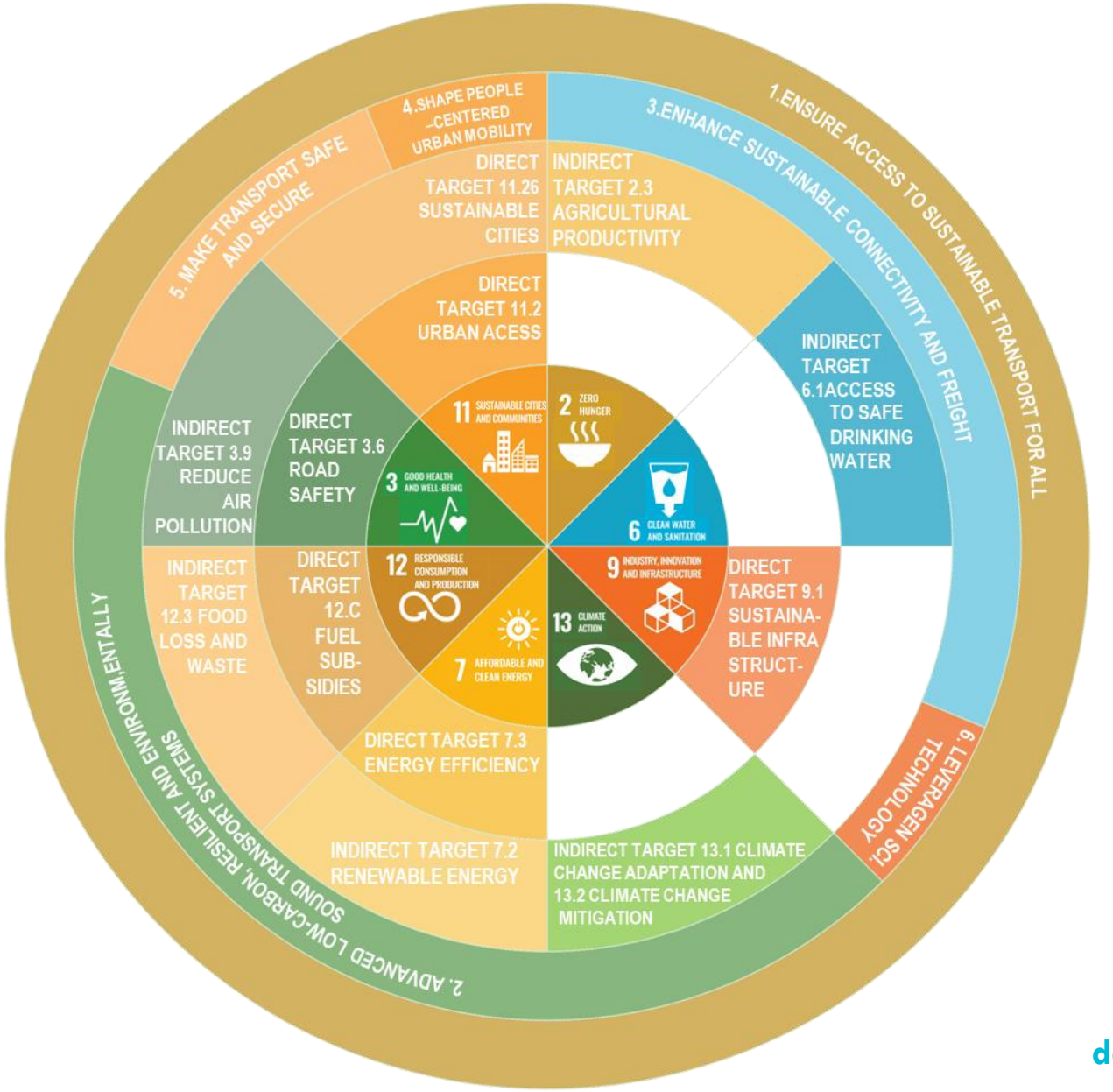

Figure 1. Sustainable Transport Assessment Framework
Source: (ATO 2025a)

The picture that emerges is cautiously pessimistic. Kiribati's transport sector remains highly dependent on imported fossil fuels, while its road network is both limited and highly vulnerable to sea-level rise and coastal erosion. Access and connectivity constraints persist, particularly across dispersed islands. At the same time, there is a growing—though still early-stage—recognition of the need to transition toward electromobility in order to align the sector with the country's Nationally Determined Contributions (NDCs). This combination of structural vulnerability and emerging ambition defines the context confronting policymakers as the UN Decade unfolds.

Kiribati's transport sector remains highly dependent on imported fossil fuels, while its road network is both limited and highly vulnerable to sea-level rise and coastal erosion.

Enhance Sustainable Connectivity and Freight

Enhance Sustainable Connectivity and Freight

Quality infrastructure is the foundation of economic and social progress. It directly supports Sustainable Development Goal 9 and impacts the entire 2030 Agenda.

Road Sector

Kiribati's road network is limited and scattered, mirroring the country's geography across 33 atolls. The network consists of roughly 546 km of main roads and 262 km of minor roads (Government of Kiribati 2023b). Of these, 119.4 km (22%) of main roads and 13.8 km (5%) of minor roads are sealed. The primary sealed roads are on South Tarawa and Kiritimati, measuring 41.6 km and 84 km respectively, while unsealed roads are spread across 20 islands. Kiritimati's lightly used roads are in pretty good shape, and the more heavily traveled sealed roads on South Tarawa have received substantial investments over the past decade.

Kiribati has about 6 km of road infrastructure per thousand people, compared to some other Pacific SIDS: the Cook Islands at 28 km, Palau at 23 km, and Fiji at 13 km (Figure 2).

The outer islands in the Gilberts have an estimated total road network length of about 392 km, averaging roughly 22 km per island. Typically, each island features a single main road extending its length, with very short feeder roads (<100 m) connecting to villages. Nirandjan et al. (2022) estimates that only 5% of the total road network in Kiribati are primary roads. The road network data[1] from Open Street Map (2025) for Tarawa, and Gilbert Islands, overlaid with the estimated population distribution from (2025) in provided in Figure 3 and Figure 4.

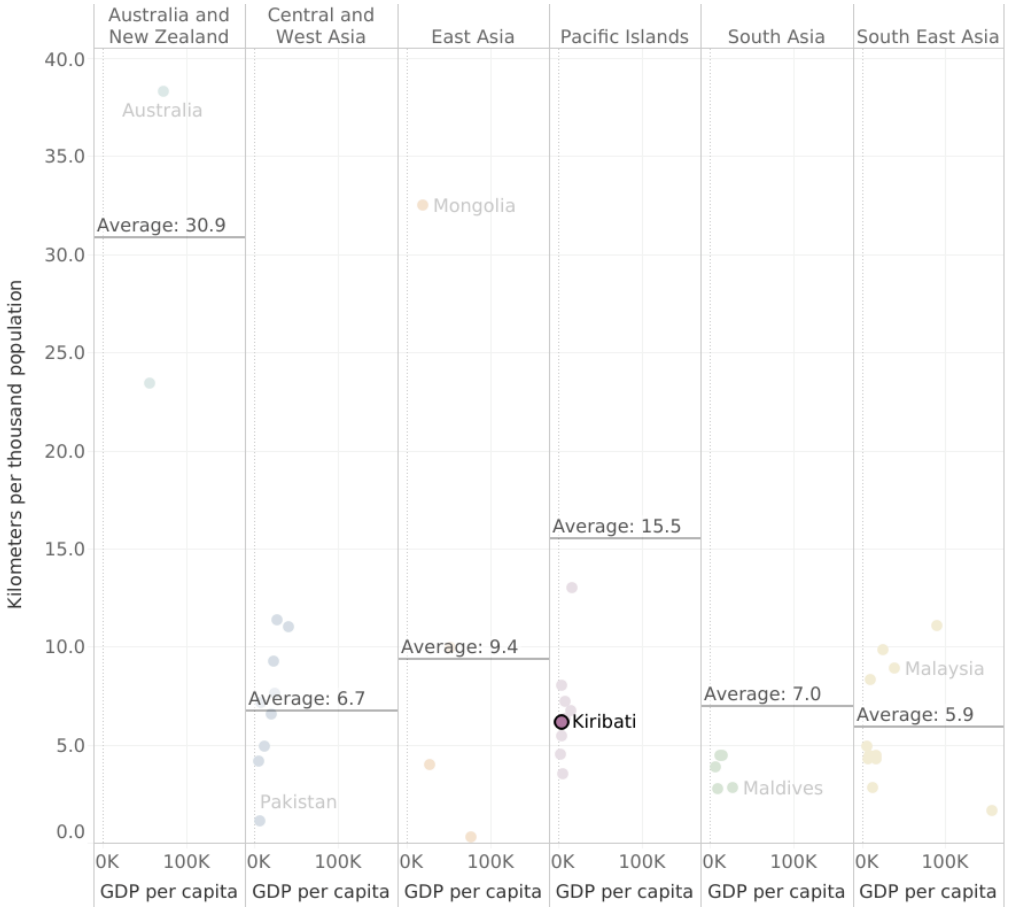

Figure 2: Road Infrastructure - Kilometers per Thousand Population), 2024
Source: ATO analysis and visualization based on: (ATO 2025b)

[1] The data extraction included motorways, primary, secondary and tertiary road. Retrievals only included primary and tertiary roads.

Figure 3. Population Distribution and Strategic Road Network – Tarawa
Source: ATO analysis and visualization based on OpenStreetMap Contributors (2025), WorldPop (2025)

Figure 4. Population Estimates and Strategic Road Network – Gilbert Islands
Source: ATO analysis and visualization based on OpenStreetMap Contributors (2025), WorldPop (2025)

A study by the World Bank indicates that most islands have fewer than 10 motor vehicles, such as trucks and cars, and fewer than 200 when bicycles and motorcycles are included. Specifically, Beru is estimated to have 415 vehicles (including cars, motorcycles, and trucks), Nonouti 410, Abaiang 913, and Tabiteuea South 184 (World Bank 2024).

Kiribati's road network is limited and scattered, mirroring the country's geography across 33 atolls.

Based on the 2019-2020 Household Income and Expenditure Survey (HIES), 58% of households in Kiribati owned a vehicle (KNSO 2021). The HIES estimated that there were about 18 thousand vehicles in total in Kiribati, with 44% of these vehicles being bicycles. Out of the motorized road transport vehicles (8,400 cars, pickups, motorcycles, carts), over 70% of these are motorcycles. There are roughly 70 motorized road transport vehicles per 1,000 people. South Tarawa houses the highest number of motorized road vehicles, but the Central region has the highest motorization levels at 117 vehicles/thousand people (KNSO 2021) (Figure 5).

The road infrastructure is particularly susceptible to rain and dust during the dry season. Major issues for the road network include pothole formation, dust control, and coastal erosion. High capital costs have discouraged investments in bridges and causeways, leading to broken connectivity. On most outer islands, roads are built with causeways and bridges, but many are damaged or missing, leading to crossings conducted by boat, foot, or bicycle (World Bank 2024).

Not much disaggregated data is available on the quality of roads and their maintenance. Pacific Region Infrastructure Facility (PRIF) reports that the paved road network as a share of the total network is only 17% (PRIF, n.d.). Figure 6 provides the total paved road lengths across Pacific Island countries.

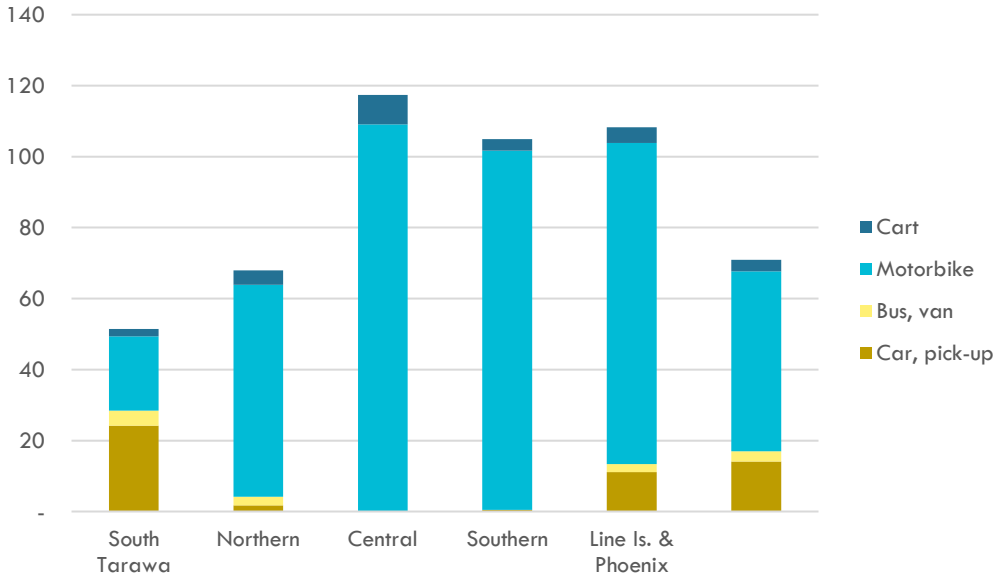

Figure 5. Vehicles per Thousand Population
Source: Calculated based on KNSO (2021)

Figure 6: Paved Road Length (Kilometers)
Source: ATO analysis and visualization based on: (PRIF, n.d.)

The consensus is that the current budgets for repairs, preventive maintenance, and rehabilitation are insufficient (Government of Kiribati 2023b). Maintenance systems are considered "inappropriate" because they often lack proper operational records or parts management (JICA 2025).

The Ministry of Infrastructure and Sustainable Energy performs basic repairs using direct labor, with minimal private outsourcing, and relies heavily on donor-funded technical assistance to manage complex assets. Preventive maintenance gaps are often filled through large-scale capital projects, such as road and bridge reconstructions, typically carried out by international contractors and financed through overseas aid or reallocated government funds. For instance, the $60.4 million road improvement initiative from 2010 to 2016, the most significant economic infrastructure investment since World War II, primarily reconstructed 32 km of main roads, 6 km of feeder roads, and drainage systems on South Tarawa.

The responsibilities for funding and maintaining the minor roads are also unclear. The infrastructure-related stakeholders include the Ministry of Information, Communication and Transport, Kiribati Highways Authority, Ministry of Infrastructure and Sustainable Energy, Te Atinimarawa Co Ltd, and Urban and Island Councils.

The Kiribati road transport policies have developed over time. Their infrastructure strategy is shifting from basic connectivity to a strong focus on climate resilience and asset sustainability, driven by the urgent need to protect coastal lifelines. The national goal is clearly outlined in the KV20 Vision (Government of Kiribati 2016): to develop 9 tar-sealed roads by 2019 and expand to 19 by 2036 in the outer islands. This expansion relies on a new engineering approach outlined in the Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management, which emphasizes retrofitting coastal infrastructure—such as roads, causeways, and jetties—to mitigate disaster risks better. To support this, the Transport Investment PID (World Bank 2020b) proposes a technical upgrade for causeway rehabilitation, adopting "durable wearing courses" such as interlocking blocks or concrete geocells, with improved drainage and erosion control. This infrastructure strengthening is accompanied by an essential institutional change: enhancing regulatory functions within the Ministry of Information, Communications, Transport, and Tourism Development and the Ministry of Infrastructure and Sustainable Energy to embed asset management and ensure the long-term viability of investments.

Road asset management priorities involve enhancing the capacity for effective monitoring and maintenance, especially for the Nippon Causeway's pavement. Additionally, it focuses on procuring high-quality construction materials which are not produced locally (JICA 2025). Additionally, the maintenance approach is being rethought not just as a technical task but as a way to promote social inclusion.

The Transport Investment PID (World Bank 2020b) introduces a pilot project for an "all-female routine maintenance team" for causeways and maritime facilities, actively encouraging women's participation through training and technical assistance. The Kiribati NDC Investment Plan (Government of Kiribati 2021a) also proposes a spatial reorganization of the road network to support decarbonization, including the intentional addition of green spaces and protected infrastructure for non-motorized transport along 370 km of roads, shifting carriageway space priorities to favor cyclists and pedestrians over motor vehicle traffic.

Maintenance systems are considered "inappropriate" because they often lack proper operational records or parts management.

Aviation

Kiribati is the sixth most remote country in the world (IMF 2025b). Isolation defines the aviation sector. The data reveals a significant disconnect. UNCTAD assigns Kiribati a score of 72 out of 100 for its remoteness from economic markets, where 100 denotes the greatest remoteness. It performs better than Fiji, which scores 83, but trails behind Papua New Guinea (45) and Palau (53), both of which are closer to Insular Southeast Asia and Australasia. Additionally, UNCTAD assesses transport disconnectedness through liner shipping connectivity, flights per capita, and land borders. In this aspect, Kiribati scores 97 out of 100, while the average score for the Pacific Islands is 84.

Aviation infrastructure is minimal and comprises 17 small airports and 4 medium-sized airports, covering just 1 sq km of aerodrome area in 2022, i.e. 7 square km per million population (see Figure 7 and Figure 8). Kiribati has only two international airports: one in South Tarawa (Bonriki) and another in Kiritimati Island (Cassidy).

There are no direct flights between Tarawa and Kiritimati; travelers must transit through Fiji (Government of Kiribati 2023b). Besides these main gateways, the country has 19 airports on its outer islands used for domestic flights. Most of these airports are constructed from reef mud and need upgrades and maintenance to improve their worsening runway conditions.

International flights are operated by foreign airlines, with a total of 24 flights per month and a passenger capacity ranging from 80% to full capacity per flight (Government of Kiribati 2023b). There are 7 inbound and 7 outbound direct flights to and from Kiribati to Fiji, Marshall Islands, Nauru, and the United States of America (Mahfuj 2025) (Figure 9). In comparison, Fiji has around 65 and 69 inbound and outbound flights, from 14 and to 15 countries, respectively.

Figure 7. Airports in Kiribati
Source: ATO analysis and visualization based on OpenStreetMap Contributors (2025)

Isolation defines the aviation sector. The data reveals a significant disconnect.

Figure 9. International Flight Routes - Kiribati
Source: ATO analysis and visualization based on data from Mahfuj (2025)

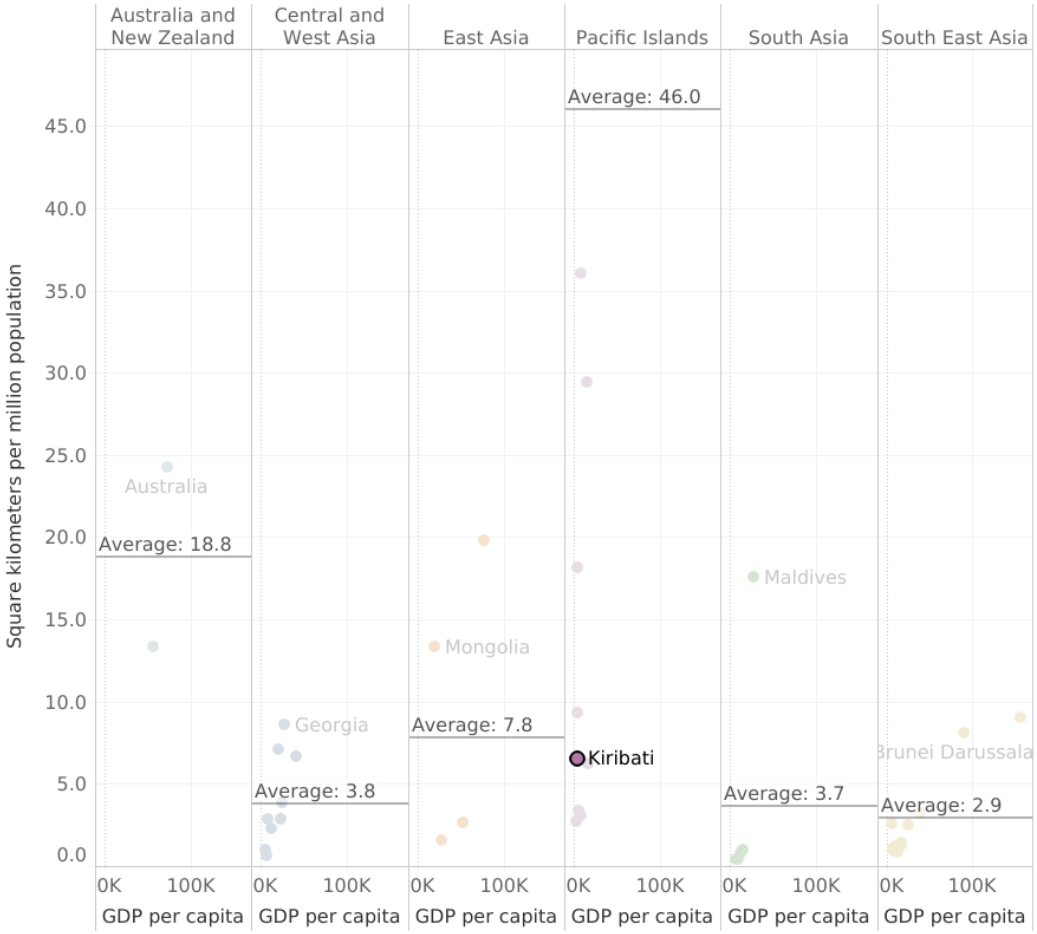

Figure 8: Aerodrome Area per Capita, 2024
Source: ATO analysis and visualization based on: (Nirandjan et al. 2022)

Aviation activity collapsed during the pandemic period. Departures fell from 4,400 in 2019 to 3,300 in 2021, i.e., reducing from 35 to 25 registered carrier departures per thousand population (Figure 10). This demand shock severed the tourism lifeline. This is reflected in the significant decline in tourism arrivals, from 12 thousand in 2019 to less than 100 in 2021. In terms of international aviation traffic, in 2022, the Airport Kiribati Authority recorded about 32856 passengers and 71840 kg of freight (Government of Kiribati 2023b).

Contrary to expectations, behavioral trends show slow growth after the pandemic. The average trips per person slightly rose from 0.27 in 2019 to 0.31 in 2024, still well below the Pacific Islands' average of 0.59. Projections suggest only modest growth, with per capita trip rates expected to reach 0.41 by 2044 (Airbus 2025).

Forecasts for 2050 predict a 367 percent increase in aviation activity in Revenue Ton-Kilometers. Without structural changes to aviation infrastructure, the sector could become a bottleneck.

The Airport Kiribati Authority, mandated by the Airport Act of 2019 (Government of Kiribati 2019a), holds jurisdiction over the national aerodrome network. Its operational scope includes air traffic management, security protocols, and infrastructure maintenance across the archipelago. The Authority directly administers the two international gateways—Bonriki in South Tarawa and Cassidy on Kiritimati Island—while overseeing 19 outer island facilities. Many of these secondary airfields rely on reef mud runways that require substantial rehabilitation to ensure operational continuity and reduce carrier maintenance burdens.

To address critical deficiencies, the Kiribati Aviation Investment Programme (World Bank 2016) was executed between 2013 and 2019. Funded through World Bank financing, this initiative aimed to ensure compliance with International Civil Aviation Organization (ICAO) standards. Interventions focused on upgrading runways, terminal facilities, and navigation aids at the primary international hubs (Government of Kiribati 2023b).

Nonetheless, Bonriki faces capacity constraints, infrastructure deterioration due to material issues, and the impacts of climate change. At the same time, Cassidy plays a crucial role in supporting the country's growing tourism sector. The Ministry Strategic Plan highlights plans to "develop a Masterplan for Bonriki [and] Cassidy airports" and to "improve outer island runway conditions" through runway resurfacing, lighting, and communication system upgrades (Government of Kiribati 2023b).

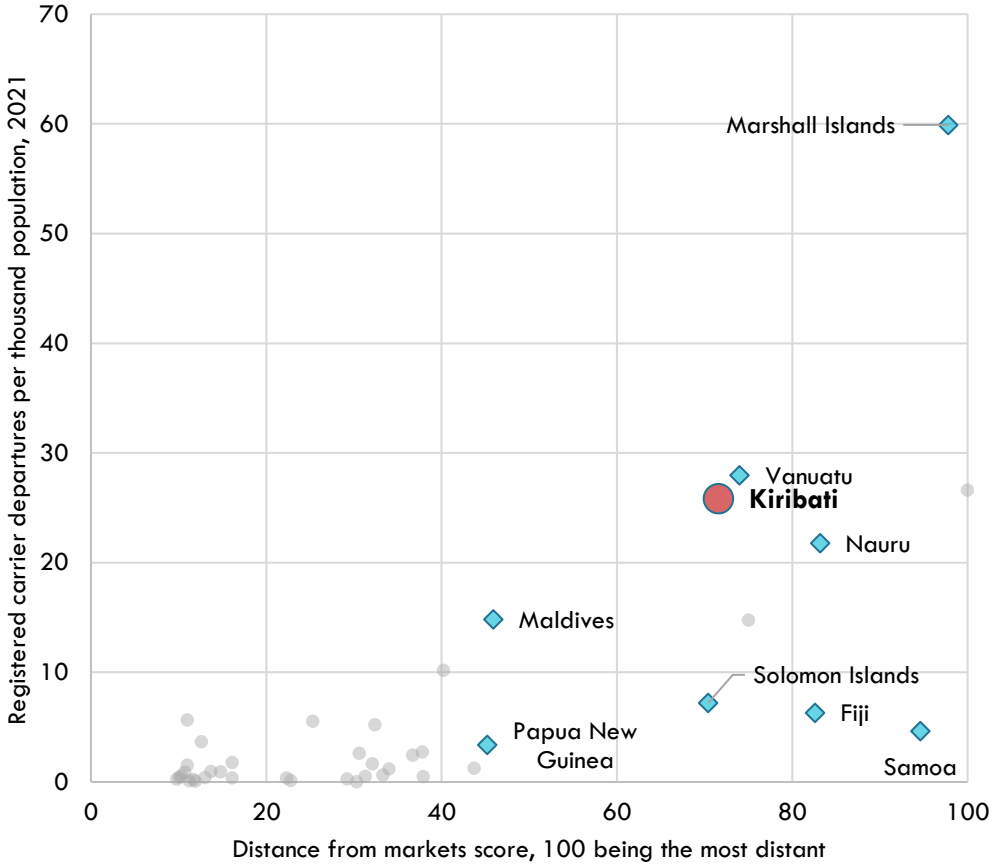

Figure 10: Registered carrier departures per thousand population, 2021
Source: ATO analysis and visualization based on: (UNCTAD 2021; World Bank 2021a)

Kiribati's aviation policies contend with the challenges of a scattered atoll nation. The KV20 Vision (Government of Kiribati 2016) mandates an increase in service intensity—targeting 50 flight schedules per month by 2036—which necessitates procuring larger-capacity aircraft, such as the Dash 8 and Airbus, to bridge international and domestic gaps.

The Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management outlines a path for resilient air infrastructure, requiring runway seawalls and end safety areas to protect against erosion and rising waters, while adjusting navigational aids across all international and domestic airfields. The Ministry Strategic Plan MICTTD 2021-2024 (Government of Kiribati 2021b) emphasizes the importance of infrastructure development, calling for terminal facilities and safety oversight to ensure that every runway is monitored. Public awareness campaigns integrated into the Ministry's Strategic Plan aim to educate citizens on aviation requirements, promoting vigilance that transforms scattered facts into safe skies.

Kiribati's aviation sector operates within a clear institutional framework that separates operational and regulatory roles. Air Kiribati Limited, fully owned by the government, provides scheduled domestic flights and essential medical evacuation and search-and-rescue services crucial for island connectivity. The Airport Kiribati Authority (AKA), created under the Airport Authority Act 2018, manages all airports nationwide, overseeing runway and terminal maintenance and coordinating meteorological services to meet international standards.

The Civil Aviation Authority of Kiribati (CAAK), created as a separate body from airport operations, functions as the primary regulator under the Civil Aviation Act 2004. It oversees air navigation, the licensing of aviation personnel and aircraft, and accident investigations. The Kiribati Meteorological Service (KMS) supplies essential weather and ocean data to support aviation and disaster response efforts. The Ministry of Information, Communication and Transport (MICT) provides overarching policy guidance and governance, regulating through CAAK and supervising Air Kiribati, a government enterprise. The Ministry of Infrastructure and Sustainable Energy (MISE) coordinates policies related to energy and infrastructure affecting airports, with the Energy Planning Unit managing petroleum licenses in line with sustainability objectives. Kiribati Oil Company Limited (KOIL), founded in 1986 as the sole authorized fuel supplier, holds a monopoly on petroleum imports and distribution. For aviation, KOIL is the exclusive provider of Jet A1 and Aviation Turbine Fuel. The aviation institutional framework continues to develop amidst increasing opportunities and challenges.

Maritime Transport

Maritime transport in Kiribati is the country's economic lifeline, yet it operates at the edge of safety, resilience, and fiscal feasibility. The nation relies entirely on interisland transfers for domestic trade. Approximately 3,200 kilometers separate the eastern and westernmost islands. Within this expanse, the acute deficit in maritime infrastructure and connectivity is evident. It has only two ports capable of handling international shipping, one in Betio, which serves the Gilbert Islands, and the other in Kiritimati, which supplies the Line Islands and Phoenix Islands (Erika 2024). But some sources list three international ports (PRIF, n.d.).

Reports indicate that more than 56 registered vessels provide domestic services between the islands (Government of Kiribati 2023b). The small independent shipping companies and the government-owned Kiribati National Shipping Line (KNSL) provide inter-island domestic shipping services. Typically, private sector shipping dominates mainly on profitable routes, while KNSL plays a crucial role as a government arm, ensuring shipping services on less profitable routes. However, KNSL's services are insufficient to meet all shipping demands (Government of Kiribati 2023b).

In 2024, Kiribati had about 0.0268 km2 of total port area nationwide (Figure 11). By 2035, modelled estimates indicate that a much larger area will be required to accommodate increased activity and cargo space. The needed area could be about 0.039 km2 (Hanson and Nicholls 2020).

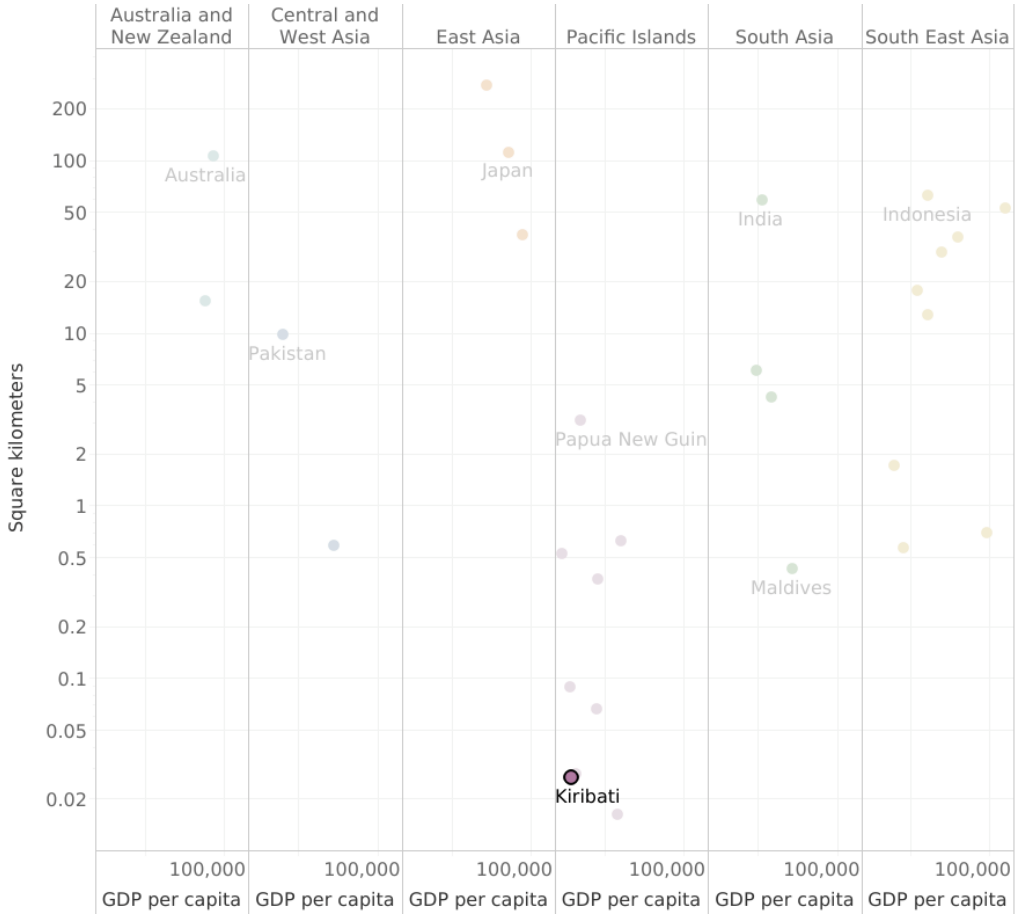

Figure 11: Port area in 2024 (x-axis is GDP per capita in USD)
Source: ATO analysis and visualization based on: (ATO 2025b)

Data show that the Liner Shipping Connectivity Index (LSCI) (UNCTAD 2025) for Kiribati is about 16 in 2024 (Figure 12). This measure analyzes the core aspects of global integration through six physical elements: scheduled ship calls, annual deployed capacity, and the count of regular services. It assesses the diversity among shipping companies, the average vessel size, and the number of direct national connections. A low score indicates structural issues with weaker integration into global shipping networks, implying fewer direct routes, smaller ships, less competition, and reduced container capacity. This situation makes trade more difficult and costly, as it relies more on indirect routes, such as transshipment, to access global markets.

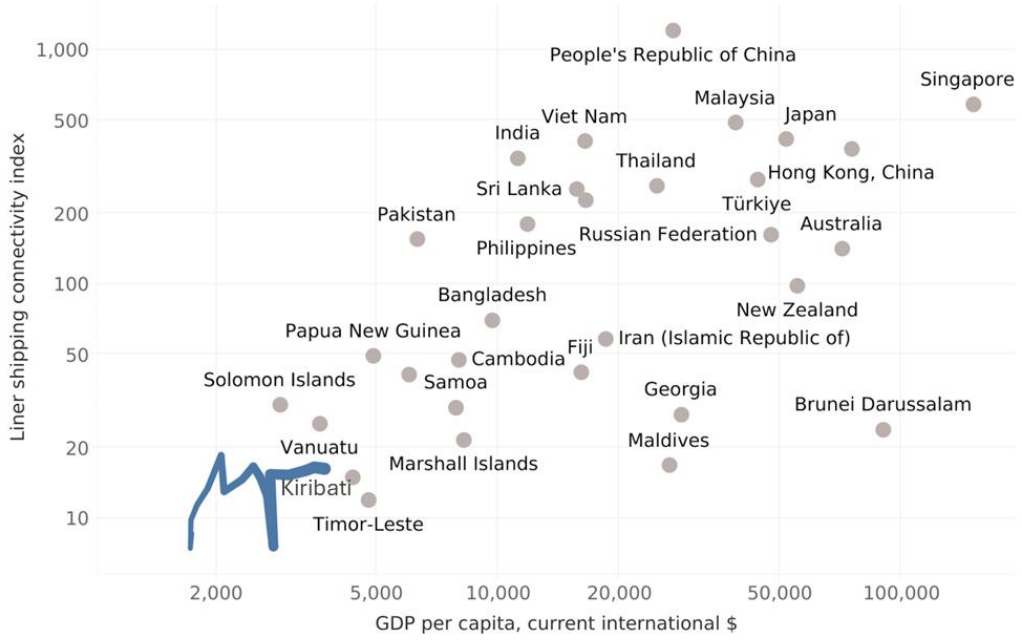

Figure 12: Liner Shipping Connectivity Index, 2006-2024
Source: ATO analysis and visualization based on: (UNCTAD 2024)

The World Bank's Outer Islands Transport Infrastructure Investment Project (OITIIP) reveals the sector's institutional fragility. Capacity is limited. Although the Marine Division, part of the Ministry of Information, Communications, Transport, and Tourism Development, is responsible for maritime governance, its operational capacity is heavily restricted by resource shortages. The Division manages a broad regulatory scope, including navigation aids, search-and-rescue operations, seafarer licensing, and marine pollution control. However, it lacks sufficient staff, funding, and basic infrastructure to fulfill its strategic goals. There is no permanent regulatory presence on the outer islands; instead, operations depend on irregular coordination with Island Councils rather than direct oversight.

The strain is clearly evident at the dockside. The Kiribati Ports Authority (KPA), which oversees gateways at Betio and Kiritimati, relies on aging infrastructure. The reliance on costly, outdated equipment jeopardizes smooth operations. Therefore, the KPA's current capital plan—focused on acquiring heavy machinery, expanding Betio, and rehabilitating the Bairiki wharf—is driven by necessity rather than opportunity. It aims to prevent disruptions in cargo flow within a market characterized by high costs and low volumes.

The KV20 Vision (Government of Kiribati 2016) articulates a shift. It seeks to transform Kiribati into a "wealthy, healthy and peaceful nation" by leveraging fisheries and tourism. Maritime transport is the backbone of this ambition. The "Ministry Strategic Plan MICTTD 2021-2024" (Government of Kiribati 2021b) advocates for safe, cost-effective shipping to all islands, including reviewing vessel designs, licensing domestic fleets, and expanding ports with new wharves, jetties, and facilities ramps.

The "Transport Investment PID" (World Bank 2020b) supports hydrographic surveys using airborne laser bathymetry and multi-beam echo sounders across target islands. This improves navigation safety while funding projects such as jetties, passenger terminals, and concrete ramps on Abaiang, as well as multipurpose facilities on Nonouti and Tabiteuea South. Seawalls strengthen Beru, and dredging operations clear Tebikerike and North Beru. These efforts are integrated into climate-resilient designs that include space for maintenance, and even pilot all-female teams for causeways and maritime maintenance.

The KPA is pivoting toward digital resilience to enhance port competitiveness, although specific details on the extent of implementation remain nascent in the reporting (Erika 2024).

Maritime transport in Kiribati is the country's economic lifeline, yet it operates at the edge of safety, resilience, and fiscal feasibility. The nation relies entirely on interisland transfers for domestic trade.

Ensure Access to Sustainable Transport for All

Ensure Access to Sustainable Transport for All

High rates of urbanization and limited economic opportunity have translated into high rates of poverty in South Tarawa, with almost a quarter of urban residents living below the poverty line (ADB 2013). South Tarawa has approximately 1,202 hectares of land. Its population is expected to grow from 63,000 (2020) to 116,000 (2040) (World Bank 2021b). This increase, along with uncontrolled urban expansion, has led to overcrowding, stressing public infrastructure and the natural environment. The road network is under pressure; the main sealed roads, totaling 41.6 km, have received significant investment but require ongoing maintenance to remain in good condition. Heavily trafficked routes between Bairiki and Betio show signs of wear, with deep fissures. In central Bairiki, daily traffic reaches around 5,000 vehicles, growing annually at 4%. The rising number of second-hand imports also increases vehicle numbers, causing congestion on narrow streets (Government of Kiribati 2023b).

South Tarawa, which is home to 59% of the population of Kiribati (SPC 2022), is witnessing a motorization rate that aggressively outpaces infrastructure capacity. Data from the Kiribati Land Transport Authority (KLTA) reveals a sharp deviation in annual fleet dynamics: registered internal combustion engine vehicles increased from 924 in 2020 to 2,170 in 2024 (UNEP 2025b). This growth is asymmetrical, driven overwhelmingly by private saloon cars, which quadrupled from 310 to 1,208 units over the same four-year period. The motorcycle annual registration increased from 200 in 2020 to 400 in 2024 (Government of Kiribati 2025b).

However, it is essential to recognize that official statistics on motorization in South Tarawa are inconsistent. Comparing KLTA registration data with the National Statistics Office (NSO) figures from the 2020 Census reveals a significant discrepancy in the number of household vehicles. For example, in 2020, the NSO recorded 2,080 private saloon cars in South Tarawa, whereas KLTA registered just 300 such vehicles (UNEP 2025b). KLTA does not track cumulative data on total vehicles; it only reports the number of vehicles registered in a specific period year.

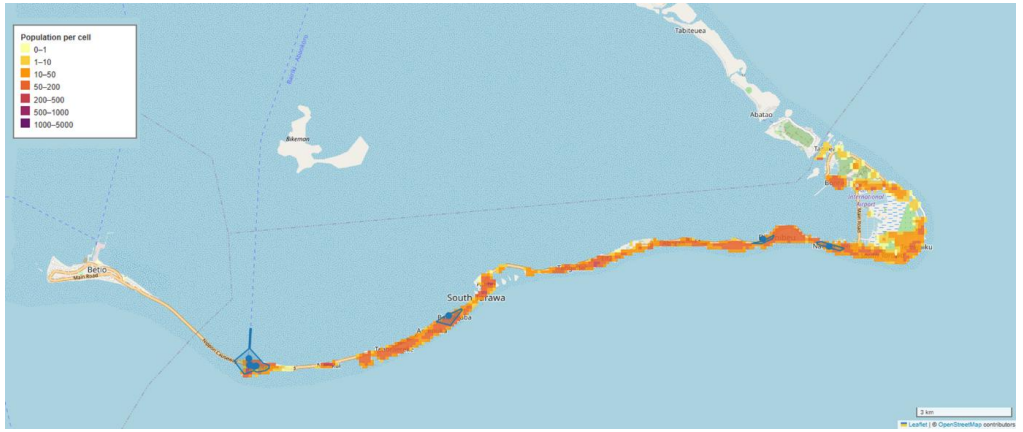

Figure 15. Access to Public Transport Stations – 5 mins Walking in South Tarawa
Source: ATO analysis and visualization based on OpenStreetMap Contributors (2025), WorldPop (2025)

Further, the spatial implications are acute. South Tarawa is a linear urban form extending 30 kilometers, with a negligible level of redundancy in its road network. Consequently, the estimated fleet of 6,000 vehicles (USP, n.d.)—comprising cars, small trucks, and motorbikes—is operating within a fixed, high-friction corridor. The rapid injection of private vehicles into this constrained geometry is accelerating congestion, signaling a structural shift from low-density traffic to gridlock in a market where road space is a finite, limited-expandable asset.

High rates of urbanization and limited economic opportunity have translated into high rates of poverty in South Tarawa, with almost a quarter of urban residents living below the poverty line

Access to public transport stations is also a key indicator that reveals important dynamics of transportation. SDG Target 11.2 aims for safe, affordable, and sustainable transport by 2030, with a focus on vulnerable populations. Measurement relies on Indicator 11.2.1, which measures the share of the population with easy access to public transport. Using open sources such as Open Street Map and WorldPop for conducting an isochrone analysis—estimating the coverage based on modal characteristics and the available information on the infrastructure network—reveals that in South Tarawa—reveals the incompleteness of the Open data on the network and destinations, in this case, the public transport stops and stations (8 facilities for the area) (Figure 15).[3]

South Tarawa has a decentralized public transport system. Privately run minibuses operate without fixed schedules. In Kiritimati and the outer islands, formal public transport services are absent.

Increasing Street Sprawl

Urban accessibility largely relies on the type of road network. "Street sprawl "which involves road extensions with dead ends and lengthy stretches between intersections—reduces connectivity. The Street-Network Disconnectedness Index (SNDi) assesses this across cities by examining factors like nodal degree, dead ends, circuity, and sinuosity (Barrington-Leigh and Millard-Ball 2025). A higher SNDi signifies greater sprawl and less connectivity.

Globally, the decline in street disconnection began in the early 2010s, with an average annual decrease of 3.3%. In the Asia-Pacific region, however, this change is slower, at -1.5% annually. Alarmingly, cities in low-income Asian economies are diverging from this trend, with a 5% annual increase in dysconnectivity. Kiribati exemplifies these regional issues; its SNDi score was 5.7 in 2020, unchanged since 1990, and ranking it among the countries with high sprawl within the Asia Pacific. Kiribati reflects a road network with extensive urban sprawl, low street connectivity, and sparse intersections (Figure 16).

[3] Note that the public transport stations are limited to those that have been mapped by the contributors to OSM.

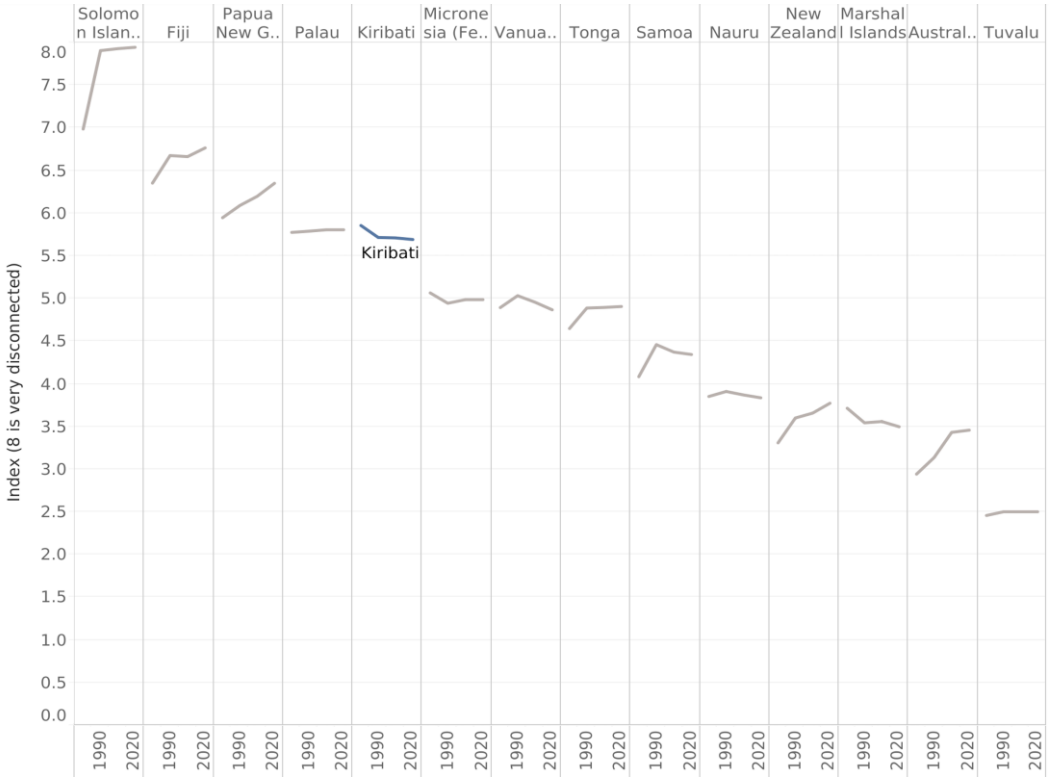

Figure 16: Street network disconnectedness index

Source: ATO analysis and visualization based on: (Barrington-Leigh and Millard-Ball 2025)

Kiribati reflects a road network with extensive urban sprawl, low street connectivity, and sparse intersections.

Make Transport Safe And Secure

Make Transport Safe And Secure

Road Crashes: A Persistent Public Safety Challenge

Road safety in Kiribati is a complex challenge that demands a comprehensive strategy to address rising fatalities and injuries. The estimated road crash fatality rate is 6.2 per 100,000 people (WHO 2023), amounting to eight fatalities (Figure 17). This rate has increased from 4.4 per 100,000 in 2016. The WHO's 2023 country profile summarizes progress made during the Decade of Action for Road Safety 2011–2020 and highlights ongoing monitoring since 2009. However, post-2020 fatality data are still scarce in public datasets.

From 2000 to 2021, the percentage of female fatalities in road crashes decreased slightly from 18% to 17%. Pedestrians saw a significant increase in their share of road crash fatalities, rising from 6% in 2007 to 40% in 2021. In contrast, the proportion of fatalities involving two-wheelers decreased from 44% in 2007 to 20% in 2021. The proportion of car occupants involved in fatal crashes also slightly declined, from 51% in 2007 to 40% in 2021 (WHO 2018).

In terms of economic value, the GRSF Road Crash Cost Analysis Tool quantified economic impact of road crashes in Kiribati to be about 4 million US$ or 1.19% of the GDP in 2021 (GRSF 2025).

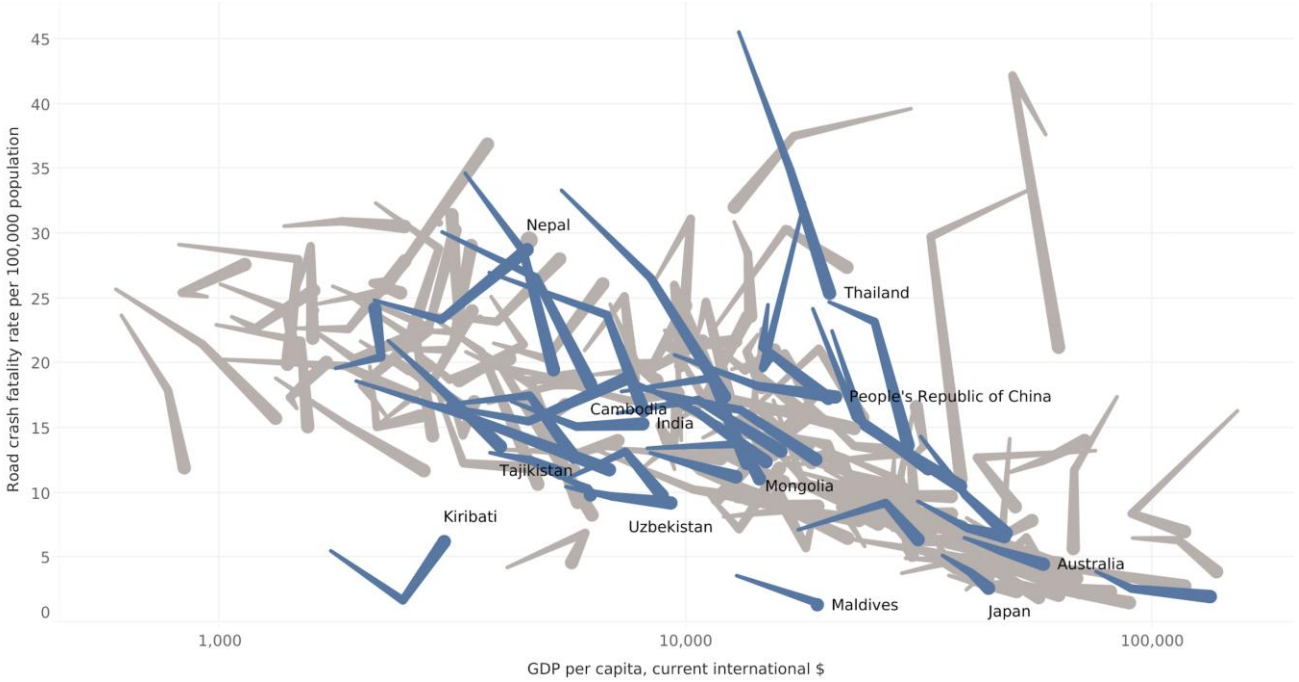

Figure 17: Road Crash Fatality Rate in Kiribati (2021)
Source: ATO analysis and visualization based on: (WHO 2023)

The estimated road crash fatality rate is 6.2 per 100,000 people, amounting to eight fatalities.

While the country has made some strides in policy development and institutional strengthening, significant gaps remain in data collection, targeted interventions, and comprehensive implementation. The Government of Kiribati and the World Bank have completed an iRAP road safety assessment on Kiritimati Island in the Pacific. This assessment is part of the preparations for the proposed Kiribati Kiritimati Infrastructure Project. Initial baseline assessments reveal that only 19% of the roads are rated 4-star or higher for vehicle occupants. Ratings for motorcyclists are even lower at 4%, while 22% of roads are suitable for bicyclists, and 37% for other pedestrians (Green 2024).

Policy ambition is shifting toward systemic intervention. The Ministry Strategic Plan 2021-2024 (Government of Kiribati 2021b) moves beyond general administrative oversight to position road safety as a cross-sectoral mandate. It anchors progress in institutional reform: upgrading the driver licensing regime, enhanced training standards, and—crucially—interlinking public awareness with the educational curriculum through stakeholder collaboration. The goal is a cohesive National Road Safety Strategy that treats safety not as an accident of behavior, but as a product of design.

This strategic shift is increasingly visible in capital projects. Recent multilateral investment, specifically the Kiribati Kiritimati Infrastructure Project (Green 2024), is re-engineering the risk profile of the 27-kilometer artery connecting Cassidy International Airport to the London settlement. The engineering objective is rigorous: to elevate the infrastructure to a 4-star safety rating or higher. The proposed designs could secure ratings for 100% of vehicle occupants and cyclists, and 98% of motorcyclists. For pedestrians, coverage reaches 75%. The primary mechanism is physical traffic calming. "Gateway treatments" are deployed to demarcate village entrances, utilizing road narrowing and speed humps to enforce immediate deceleration. Within urban zones, the friction between vehicles and vulnerable users is managed through raised crossings and dedicated, wide sidewalks. Furthermore, social equity is built into the hard infrastructure; bus bays now integrate lighting and weather shelters, specifically mitigating security risks for female commuters and children.

Social equity is built into the hard infrastructure; bus bays now integrate lighting and weather shelters, specifically mitigating security risks for female commuters and children.

Advance low-carbon, resilient, and environmentally sound transport systems

Advance low-carbon, resilient, and environmentally sound transport systems

Transport Energy and Carbon Emissions

Kiribati's transport energy use grew rapidly from 1990 to 2005, with an average annual increase of 6.3%. It rose from 174 terajoules in 1990 to 432 terajoules in 2005 (United Nations Statistics Division, 2024). From 2005 to 2010, energy consumption declined at an annual rate of 8.2%. Since then, it has increased again, with a yearly growth rate of 4.3%. The road sector accounts for about 78% of transport energy consumption, while domestic shipping and aviation account for 14% and 8%, respectively (Figure 18).

In 2022, transport accounted for one-third of Kiribati's total energy consumption, underscoring its vital economic role. That year, all transport energy was derived from oil products, indicating complete dependence on imported fossil fuels. Subsequently, the economy's reliance on imported fuel exposes it to severe exogenous shocks.

A critical incident in July 2023 revealed the fragility of this supply chain. A "severe fuel shortage" (IB 2023) paralyzed South Tarawa, disrupting services and forcing residents to queue for days. This crisis highlighted the inadequate storage and procurement buffers to handle supply chain disruptions, especially given the logistical challenges of serving a population density in South Tarawa comparable to that of major global cities.

Since the transport sector makes up about one-third of total energy consumption, there is a pressing need to improve energy efficiency. Fiscal policy heavily subsidizes imported fossil fuel consumption. The government maintains a high recurrent spending-to-GDP ratio (64% average over 2019-23) (IMF, n.d.), with substantial allocations for subsidies, including for copra and transport logistics, insulating consumers from the actual cost of mobility but burdening the national balance sheet.

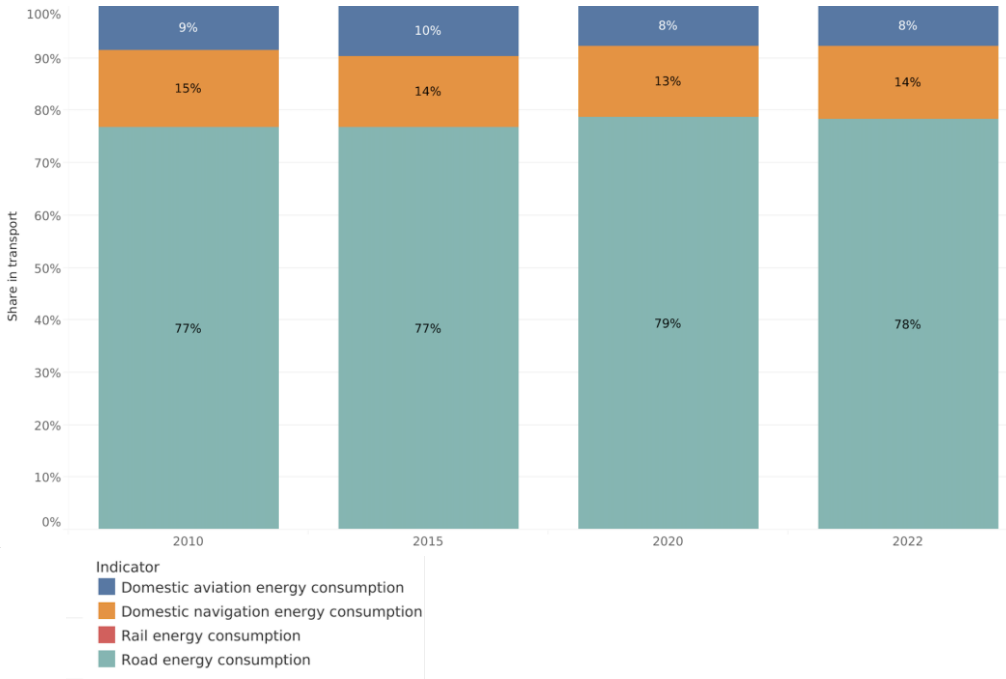

Figure 18: Kiribati - Share of Modes in Transport Energy Consumption
Source: ATO analysis and visualization based on: (United Nations Statistics Division 2024)

Transport greenhouse gas emissions share are comparable to those from energy use in transport, accounting for about one-third of total emissions (Figure 19). These emissions are increasing more slowly both globally and regionally. The yearly growth rate of transport-related GHGs declined from 1.9 percent during 2000-2015 to 0.7 percent after the Paris Agreement. In Asia, growth slowed from 4 percent to 1.7 percent, while in Kiribati it fell from 5.1 % to 3.9 %. Despite this slowdown, Kiribati's emissions are rising at twice the regional average.

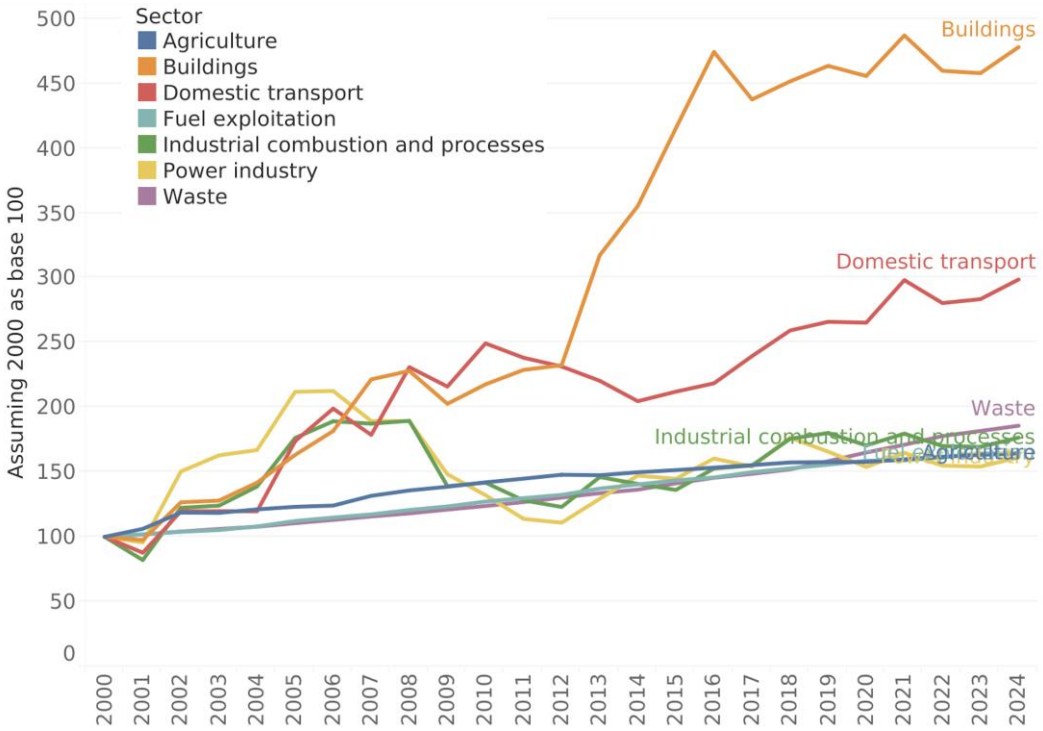

Figure 19. Kiribati GHG Emissions by Sector (2000 = 100)
Source: ATO visualization based on EDGAR (2025)

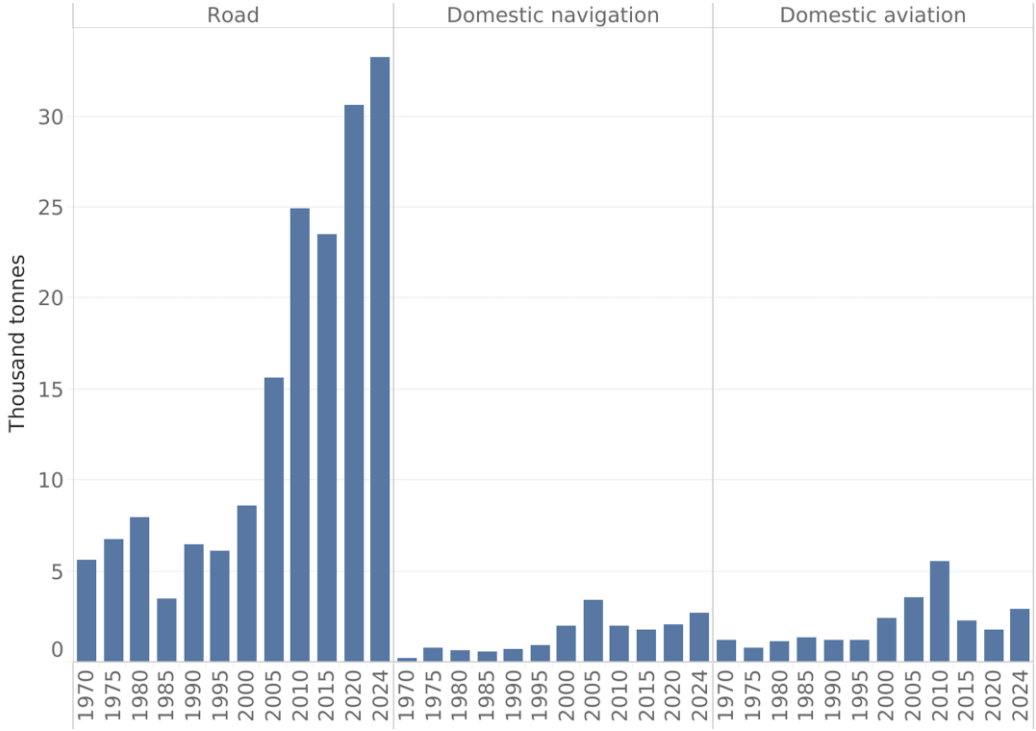

Figure 20: Kiribati - Domestic Transport GHG emissions (Thousand Tons)
Source: ATO visualization based on EDGAR (2025)

Decomposition reveals that road-sector emissions grew 3.9 percent annually, while domestic aviation and shipping increased 2.9 percent and 5.8 percent annually (Figure 20).

In terms of transport GHG emissions intensity (emissions per GDP), Kiribati stands at 78 gCO2 per USD, whereas Fiji and PNG are estimated to emit 48 and 41 gCO2 per USD, respectively (Figure 21).

In 2022, transport accounted for one-third of Kiribati's total energy consumption, underscoring its vital economic role.

In the context of the energy transition and decarbonization, demand for electric mobility is gradually emerging. However, the uptake of electric and plug-in hybrid vehicles in Kiribati remains extremely limited, accounting for only about 0.5 percent of total vehicle import value in 2024 (Figure 22).

Demand for electric mobility is gradually emerging.

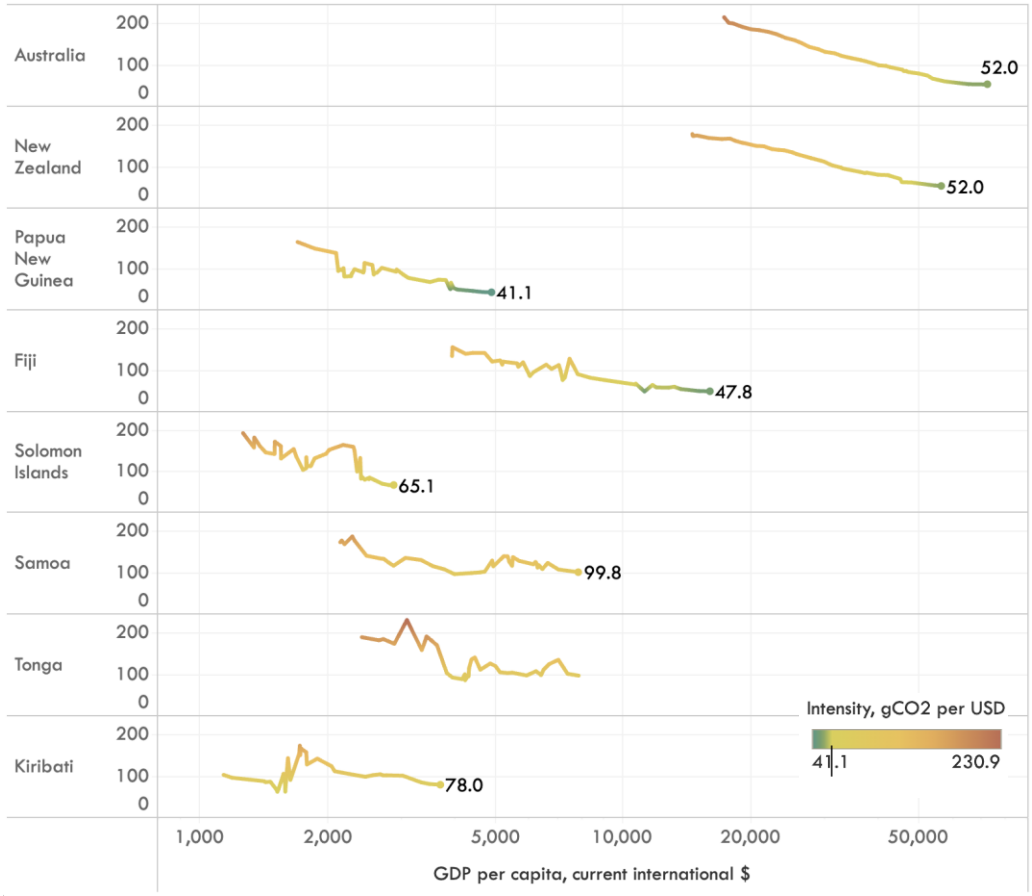

Figure 21: Transport GHG emissions intensity with GDP
Source: ATO analysis and visualization based on: (EDGAR 2025; World Bank 2023)

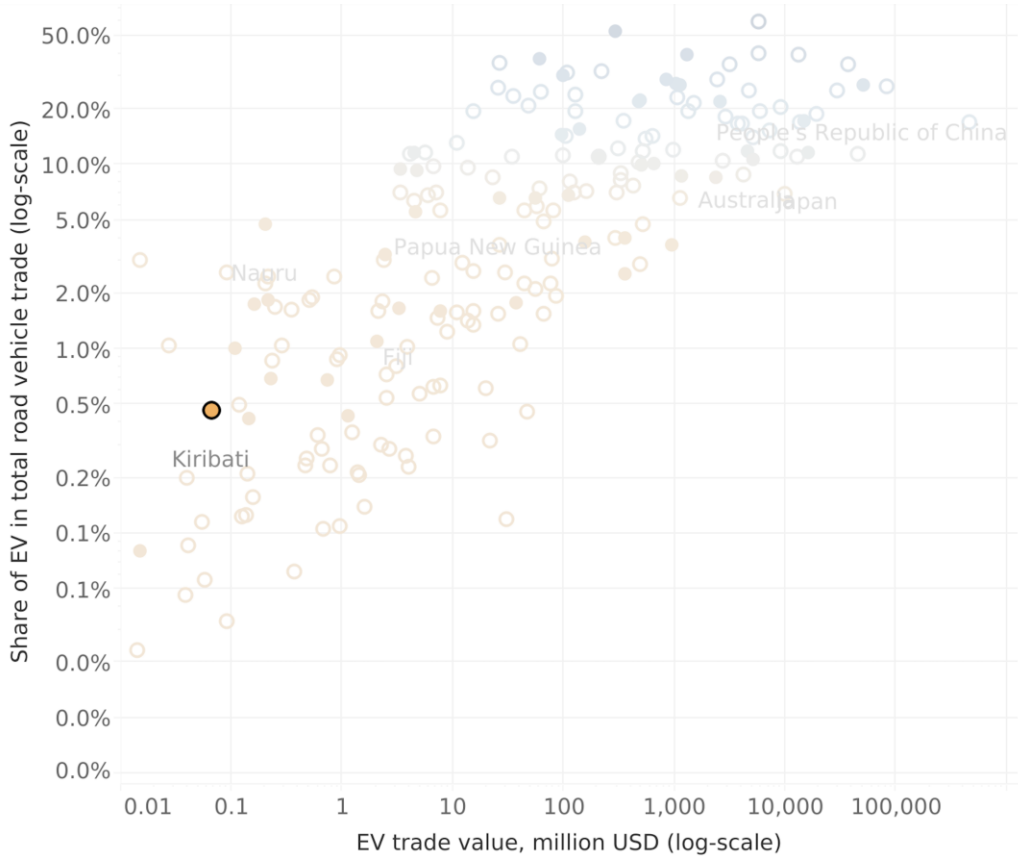

Figure 22. Share of EV in total road vehicle trade across Asia-Pacific and the world (2024)
Source: ATO analysis and visualization based on: (Trademap 2025)

Electric vehicles themselves do not emit tailpipe air pollutants. However, their environmental benefits largely depend on the electricity grid's carbon footprint. In Asia, where coal and other fossil fuels predominantly generate electricity, grid emissions remain among the highest globally. Since 2000, the region's electricity grids have shown minimal change, with a slight decrease from 635 gCO2/kWh in 2015 to 581 gCO2/kWh in 2022. In Kiribati, grid emissions decreased from 666 gCO2/kWh in 2015 to 500 gCO2/kWh in 2023, indicating some progress. Kiribati has increased the percentage share of solar photovoltaic sources in its overall electricity generation to up to 20% in 2023 (IRENA 2025). Overall, these figures suggest that efforts to decarbonize the electricity used for EVs have resulted in slow progress, which significantly influences their overall climate impact.

Kiribati is committed to address its transport emissions challenge head-on, embedding low-carbon strategies within a web of national plans amid existential climate pressures. The policy landscape, anchored by the Kiribati Enhanced NDC (Government of Kiribati 2023a) and the Kiribati NDC Investment Plan (Government of Kiribati 2021a), moves beyond aspirational targets to define granular interventions in land, maritime, and aviation sectors. The government has committed to an unconditional reduction in business-as-usual GHG emissions by 13.7% by 2025 and 12.8% by 2030, with the potential to exceed 60% conditional on international support.

The Kiribati NDC Investment Plan charts a calibrated shift toward non-motorized transport, mandating infrastructure upgrades along 370 km of roadways—separating vehicle lanes with green buffers and shielded paths for cycling and walking—to reduce GHG emissions through everyday active mobility. Further reducing the reliance on private cars, the "Multi-modal Transit Initiative" seeks to deploy motorized transit services, such as buses, to increase passenger capacity per vehicle. This includes establishing "Public Private Partnerships (PPPs) to operate up to 132 buses," fundamentally altering the transit mix between communities.

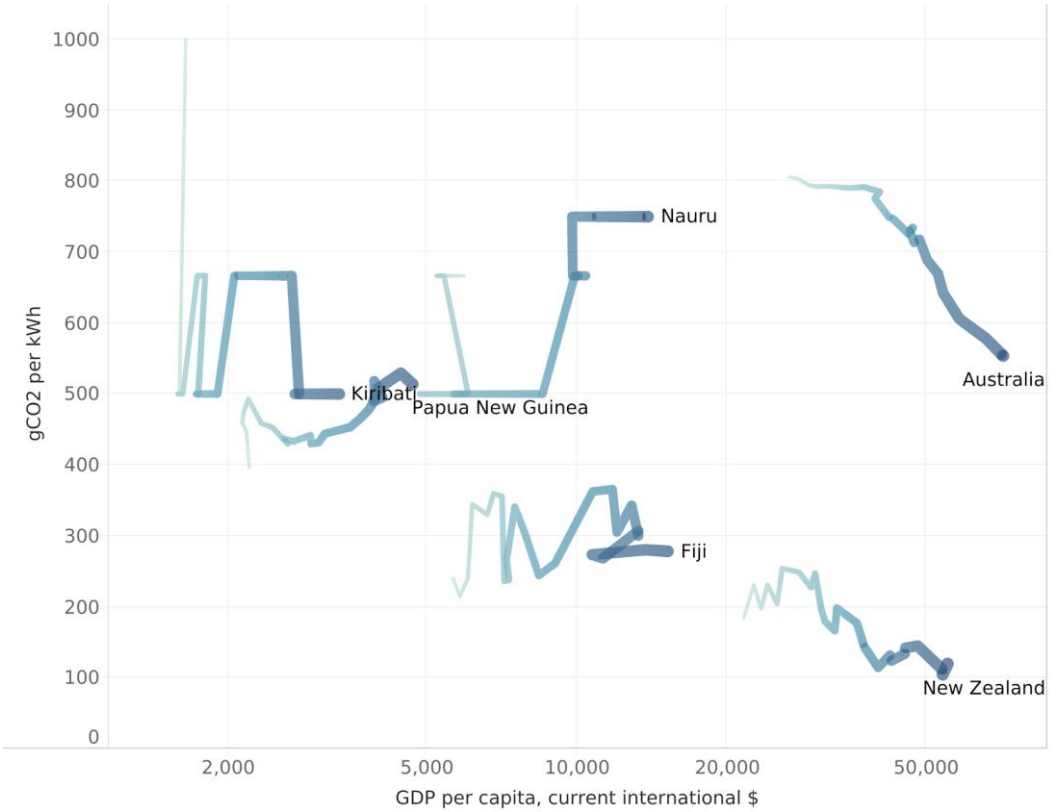

Figure 23: Grid emission factor in the Pacific 2000-2024
Source: ATO analysis and visualization based on: (EMBER n.d.)

Parallel efforts within the same plan accelerate electric vehicle adoption, targeting 2,800 EVs supported by Level 2 charging networks across public and private sites. At the same time, a Bicycle/E-Bike Financing Initiative unlocks access for communities that have long relied on fossil-fueled imports.

The GEF-supported e-mobility project in Kiribati (Pmanifold, n.d.) aims to introduce four solar-charged electric buses in South Tarawa, while promoting policy reforms, capacity development, and grid integration for sustainable transport in the long run. Serving as a pilot for a broader 2030 target of over 100 vehicles, the project leverages a Public-Private Partnership (PPP) model to establish a scalable framework for sustainable transport. Beyond infrastructure, the initiative prioritizes institutional strengthening, specifically enhancing the Public Vehicle Unit's capacity to manage complex e-bus operations, finance, and grid integration. An evidence-based funding concept note is currently under development to mobilize the technical and financial partnerships necessary to drive this initial deployment into full-scale expansion. The project concept determines that the e-Bus with Net Meter Solar Power is the lowest cost option at 0.57 USD/km, beating the conventional ICE Bus (0.65 USD/km).

Maritime decarbonization is targeted unevenly yet purposefully. The National Action Plan for Decarbonizing Maritime Transport, as outlined in the Kiribati NDC Investment Plan (Government of Kiribati 2021a), coordinates IMO-aligned measures, from low-carbon mini-container ships (80 TEU capacity) to small freighters and zero-impact cruise liners for Phoenix Islands routes. Biofuel mandates draw from the Kiribati Integrated Energy Roadmap 2017-2025 (Government of Kiribati 2017), fostering coconut oil-based blends for land and sea diesel, complete with production chains and fueling stations to displace conventional imports without disrupting vital inter-island links.

Resource constraints temper aviation policies. Fleet renewal and Sustainable Aviation Fuel integration in the Kiribati NDC Investment Plan target operational efficiencies. Parallel to these flight operation measures, the "Eco-Airport Program" mandates terrestrial energy shifts, including the "installation of solar panels for power generation at the airport" and "installation of LED lights".

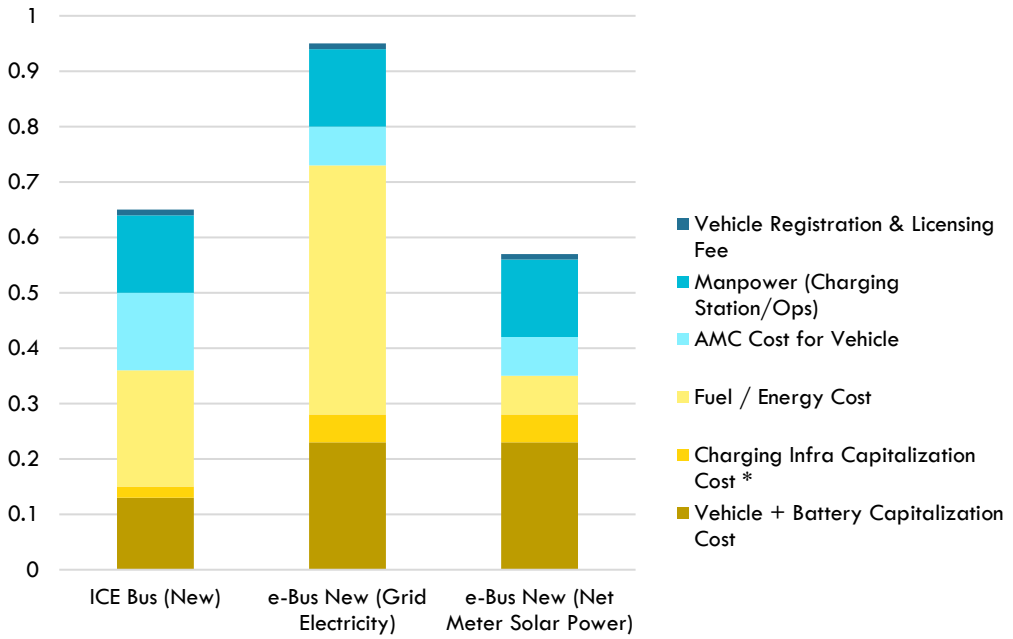

Figure 24. Total Cost of Ownership Comparison - Bus Technologies
Source: Pmanifold (n.d.)

Institutionally, several stakeholders need to coordinate to implement these plans. For example, for electric mobility, stakeholders to be involved are the Office of Beretitenti, Ministry of Finance and Economic Development, Ministry of Infrastructure and Sustainable Energy, Ministry of Information Communication Transport Development, Ministry of Environment, Ministry of Culture and Internal Affairs, Plant Vehicle Unit, Kiribati Green Energy Solution, Kiribati Land Transport Authority, Kiribati Institute of Technology, etc.

Kiribati is committed to address its transport emissions challenge head-on, embedding low-carbon strategies within a web of national plans amid existential climate pressures.

Transport GHG Decarbonization Outlook

Kiribati is one of the most vulnerable nations to the effects of climate change. Yet, it remains heavily reliant on imported fossil fuels, which account for the majority of its GHG emissions. The NDC Implementation Roadmap illuminates the scale of this challenge: under a business-as-usual (BAU) scenario, national emissions are projected to climb to approximately 73.5 ktCO2e in 2025, reaching 78.3 ktCO2e by 2030.

To decouple transport from carbon, the Revised NDC Investment Plan 2021 (Government of Kiribati 2021a) charts a temporal pathway for transformational change. The objective is precise—achieving an unconditional reduction of 12.8% against the BAU baseline, while aiming for a conditional reduction of 49% by 2030, given international support.

The mitigation strategy, slated for implementation between 2026 and 2030, relies heavily on a modal shift and efficiency gains. The roadmap identifies a total abatement potential of 18,200 tCO2 annually by 2030, representing a 23% deviation from the BAU trajectory. This effort is disaggregated into specific, actionable interventions:

- Land Transport: Three targeted actions account for the majority of reductions (11,500 tCO2/year).
- Maritime Transport: Five actions contribute 6,300 tCO2/year, addressing the critical inter-island connectivity network.
- Aviation: A single action contributes a modest 400 tCO2/year.

Realizing this transition requires substantial capital mobilization. The estimated investment requirement for transport mitigation is US$ 151.5 million, supplemented by US$ 11.5 million for capacity building and technical assistance. When viewed alongside energy efficiency measures (11.28 ktCO2e), the transport sector (18.06 ktCO2e) emerges as the primary lever in Kiribati's decarbonization portfolio.

Table 1. Investment Plan for Mitigating Transport GHG Emissions (2020-2030)

Transport Measure	Sub-Sector	Potential Mitigation in 2030 (tCO_2/yr)	Capital Investment (US$ Million)	Capacity Building & TA (US$ Million)	Cost Effectiveness (US$/$tCO_2$)
National Action Plan for Maritime Transport	Maritime	0	0	0.3	N/A
Outboard Motor Transition	Maritime	3700	20.8	0.8	1100
Zero Impact Cruise Liner	Maritime	800	7	1.5	2700
Low-Carbon Mini-Container Ship	Maritime	1400	5	1	700
Small-Cargo/Passenger Freighter	Maritime	400	2	1	1100
Bicycle/E-Bike Financing Initiative	Land	1400	20.3	0.8	2700
Multi-modal Transit Initiative	Land	7000	89.4	3.9	1800
Biofuel Blends	Land	3100	7	1.2	400
Aviation Operational Training Programme	Aviation	400	0	1.2	400
TOTAL	All	18200	151.5	11.7*	-

Source: Government of Kiribati (2021a)

Kiribati's Action Plan on CO2 Emissions Reductions from International Aviation (ICAO 2025) is founded on a renewed commitment to ICAO's global aspirational goals, aiming for carbon-neutral growth and net-zero emissions by 2050 through a "basket of measures". Baseline projections, derived via ICAO's Environmental Benefit Tool (ICAO, n.d.) from 2022 data—1,961 tons fuel burn, 6,603 thousand RTK at 0.297 efficiency—foresee fuel consumption increasing by 366% to 9,151 tons by 2050 under business-as-usual, with RTK climbing to 30,814 thousand.

The plan targets several key areas: aircraft technology, operational improvements, sustainable aviation fuels (SAF), market-based measures, and infrastructure upgrades. The aircraft and operational initiatives focus on minimizing aircraft weight by using lighter materials and optimizing air traffic management for more efficient routing, with full implementation targeted for 2023 to 2040. A central pillar of the strategy is the "Eco-airport" programme, which mandates installing solar panels and LED lighting, converting ground support equipment (GSE) to electric power, and carbon sequestration through mangrove planting. Simultaneously, Kiribati is pursuing the integration of SAF into domestic fuel mixtures and has subscribed to the ACT-SAF programme to build technical capacity. While the country continues its voluntary participation in CORSIA to support global carbon offsetting, the plan acknowledges that achieving its projected annual savings of approximately 2,229 tons of CO2 by 2050 is contingent upon receiving international financial support for infrastructure upgrades and technical capacity-building.

These initiatives yield robust gains: 2,223 tons annual CO2 savings by 2050 (down to 26,688 tons from 28,918), averaging 7.71% reduction; fuel drops to 8,550 tons, bolstering ICAO's 2% efficiency, carbon-neutral growth from 2020, and net-zero 2050 goals—though financial aid for airfield modernizations, eco-capacity building, and technical training remains critical to surmount infrastructural hurdles (Figure 25).

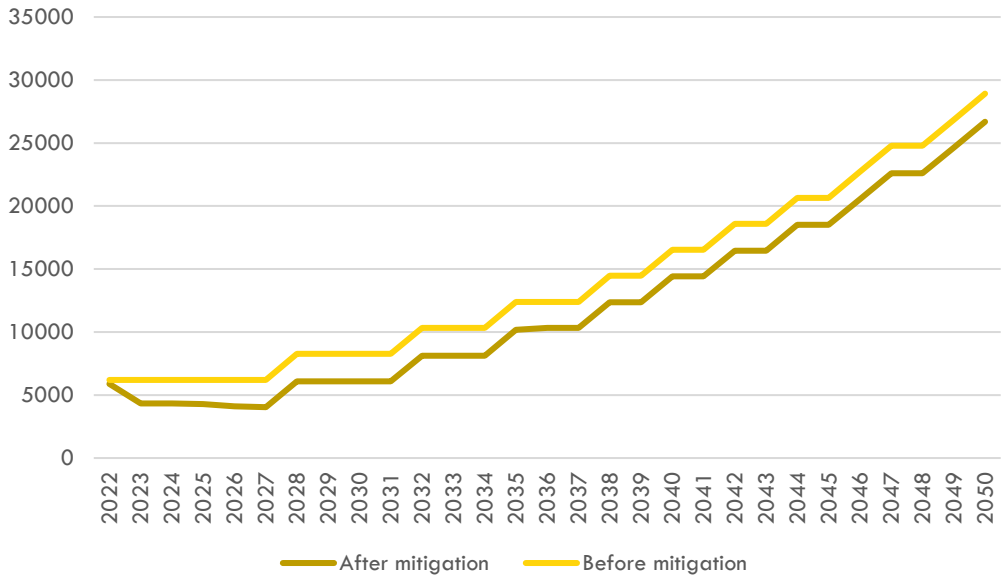

Figure 25: Annual CO2 emissions Before and After Implementation of the Action Plan on CO2 Emissions Reductions from International Aviation
Source: ATO analysis and visualization based on (ICAO 2025)

Climate resilience and disaster preparedness in transport

The archipelago's widespread distribution complicates rapid disaster relief efforts, as the distances themselves become a hazard. On densely populated atolls, this physical vulnerability enhances public health risks by accelerating the spread of vector-borne diseases. Kiribati relies heavily on imports for food, goods, and services due to limited local production, making it more vulnerable to external shocks. Its high exposure to ocean conditions makes it susceptible to storm surges and, increasingly, to flooding from sea-level rise. Drought and sea-level rise have been reported affecting the highest percentage of households in terms of basic services. Heavy rains and king tide affected transport services most significantly (KNSO and SPC 2025b).

Climate change thus stands as a significant barrier to Kiribati's development, risking a disconnect between economic growth and social stability across sectors. About 95% of the population is living in areas where the elevation is below 5m (UN, n.d.). The financial challenges are immense: adaptation costs far exceed the country's GDP, exerting ongoing pressure on national finances. The investment needed to protect the shoreline against rising seas vastly surpasses the national economy's capacity. Estimates vary, adaptation costs range from about US$3 billion under moderate sea-level rise (+0.5 m) to US$45 billion for more severe scenarios (+1.5 m and higher)—roughly ten to one hundred fifty times Kiribati's current GDP (IMF 2025b). Costs will be spread over the century, but the annual burden will remain substantial.

Kiribati's transport infrastructure exhibits a linear "ribbon" development pattern constrained by severe geographic limitations, leaving little room for error. The majority of residents and essential services are located along a narrow water-adjacent corridor. Most of these roads are unpaved, making it difficult to traverse during heavy rains.

Kiribati's road networks are highly vulnerable to various disruptions. Even small shocks can quickly undermine network function, severely limiting travel within the country and reducing regional connectivity. There are a few alternative routes if the main links fail. In small economies like this, minor physical damage can cause major system failures, illustrating how disasters can affect the entire national economy. Due to this structural weakness, (Koks et al. 2023) rank Kiribati's road system 208th worldwide in terms of robustness, making it one of the most fragile road networks globally (Figure 26).

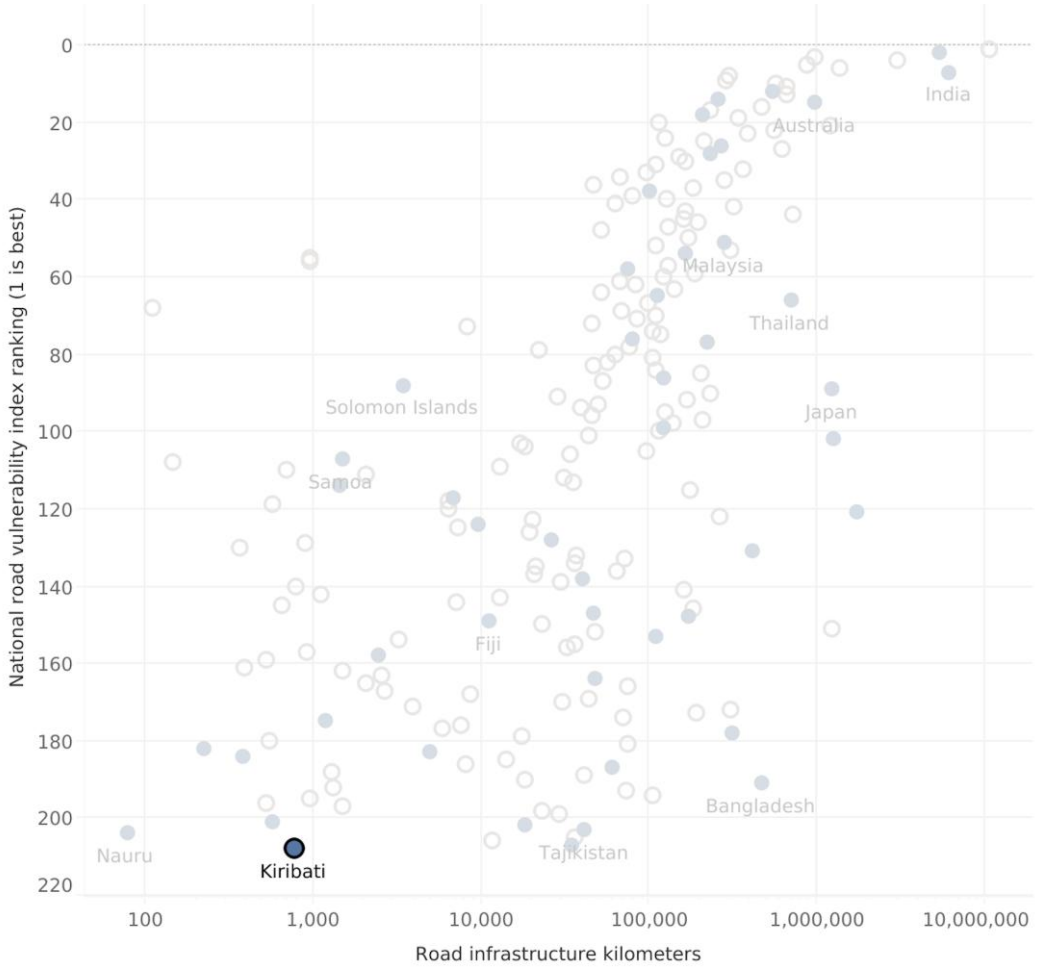

Figure 26. National Road Vulnerability Index
Source: ATO visualization based on Koks et al. (2023)

No comprehensive estimates are available for multi-hazard expected annual damage to transport infrastructure. Vershuur et al. (2023) estimated that the amount of freight going through the port every year in value terms was about 263 million USD. The annual port-specific risk as the sum of physical damages to port infrastructure, physical damages to critical infrastructure surrounding the port (electricity, road, rail, power plants) within 1 km radius, and the additional logistics losses to port operators, carriers and shippers as a result of downtime and the amount of trade that is expected to be disrupted by natural hazards and maritime extremes on an annual basis was estimated to be around 115,000 USD (Figure 27).

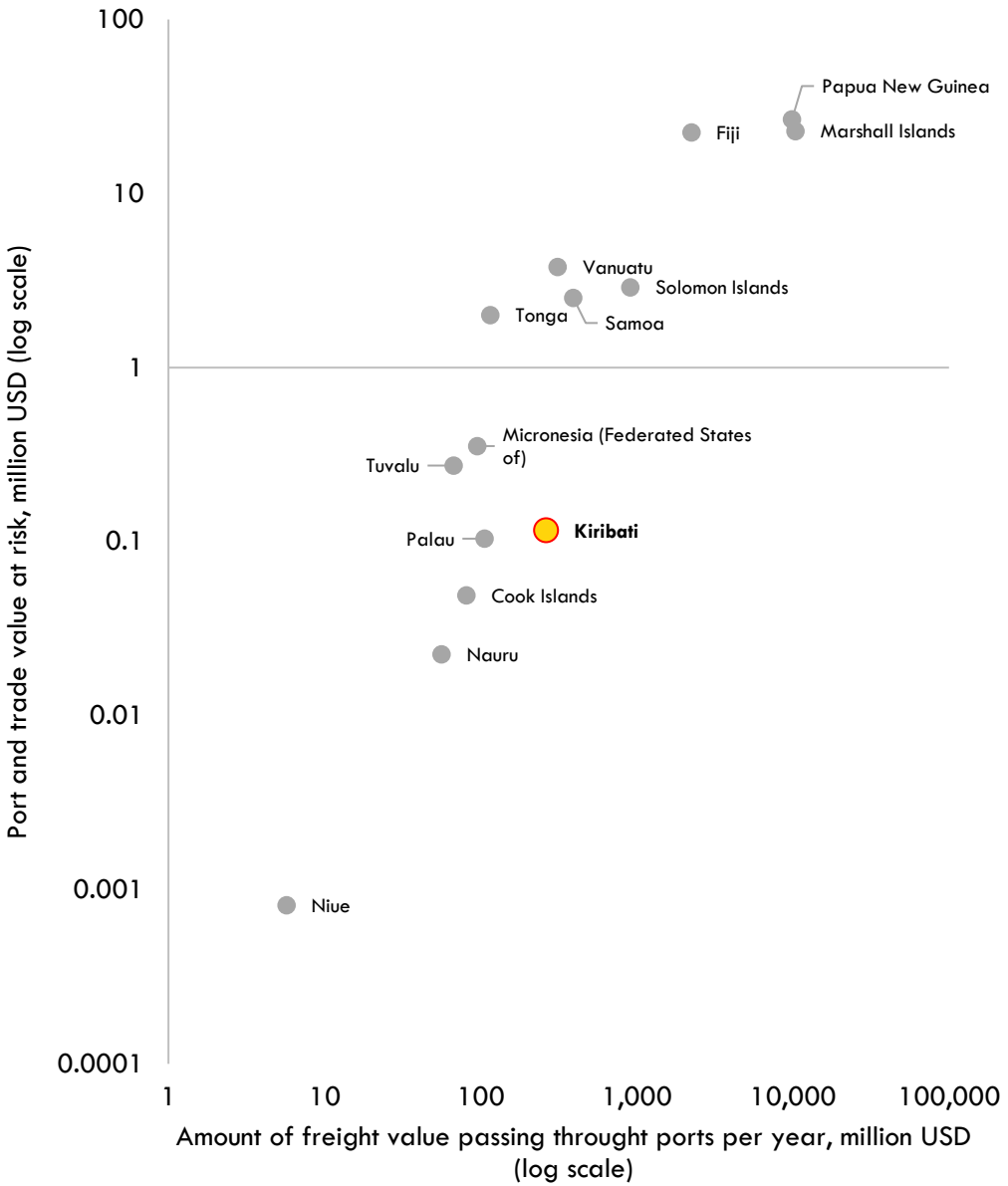

Figure 27: Annual Risk (USD) to Ports and Trade
Source: ATO analysis and visualization based on: (Verschuur, Koks, Sihan, et al. 2023)

Kiribati's infrastructure policy no longer treats climate resilience as an optional add-on; it considers a shift in engineering standards and asset management.

Drawing from the Joint Implementation Plan for Climate Change and Disaster Risk Management (Government of Kiribati 2019b), these efforts mandate retrofitting coastal roads, causeways, and jetties—embedding risk-reduction in rehabilitation of Kiritimati Port and enhancing small-scale wharves for food security and tourism—while the Transport Investment PID (World Bank 2020b) specifies climate-resilient causeway upgrades on outer islands, incorporating interlocking blocks or concrete geocells for durable surfacing, superior drainage, and erosion controls. The National Adaptation Programmes of Action (Government of Kiribati 2007) reinforce this infrastructure approach, requiring that the design and construction of seawalls and causeways be explicitly improved to protect physical assets from the sea.

The government recognizes that capital investment alone is insufficient without operational discipline. Therefore, the Transport Investment PID (World Bank 2020b) emphasizes strengthening the Ministry of Infrastructure and Sustainable Energy to establish systematic asset management, shifting the sector away from reactive repairs. This maintenance approach also promotes social innovation; the investment plan includes piloting an all-female routine maintenance team for causeway and maritime facilities. This initiative aims to ensure the technical sustainability of the transport network through inclusive labor force participation. Additionally, some measures target aviation, such as runway seawalls and safety areas designed to protect against flooding, as detailed in the same Joint Implementation Plan (Government of Kiribati 2019b).

The government recognizes that capital investment alone is insufficient without operational discipline.

Transport Air Pollution

The transport sector can be a major contributor to air pollution , which remains a silent killer. Key sources of air pollution include transport, residential fuel burning, energy production, industrial processes, agriculture, windblown dust, waste incineration, and construction. The impact of these sources on ambient PM2.5 levels varies globally.

In Kiribati, transport's contribution to air pollution (i.e. PM2.5) has been relatively low. In 2021, transport accounted for approximately 2.5 percent of PM2.5 pollution in the country(State of Global Air 2024) (Figure 28). Most of the air pollution in Kiribati was not due to transport sector. In the transport sector, international shipping accounted for about 80% of PM2.5 pollution.

In 2021, air pollution caused 8.1 million deaths worldwide (State of Global Air, 2024), ranking as the second leading risk factor for mortality, especially among children under five. About 90 percent of these deaths are linked to noncommunicable diseases such as heart disease, stroke, diabetes, lung cancer, and COPD—all rooted in poor air quality. The transport sector plays a significant role in serious health issues such as respiratory and cardiovascular diseases, cancer, and adverse birth outcomes.

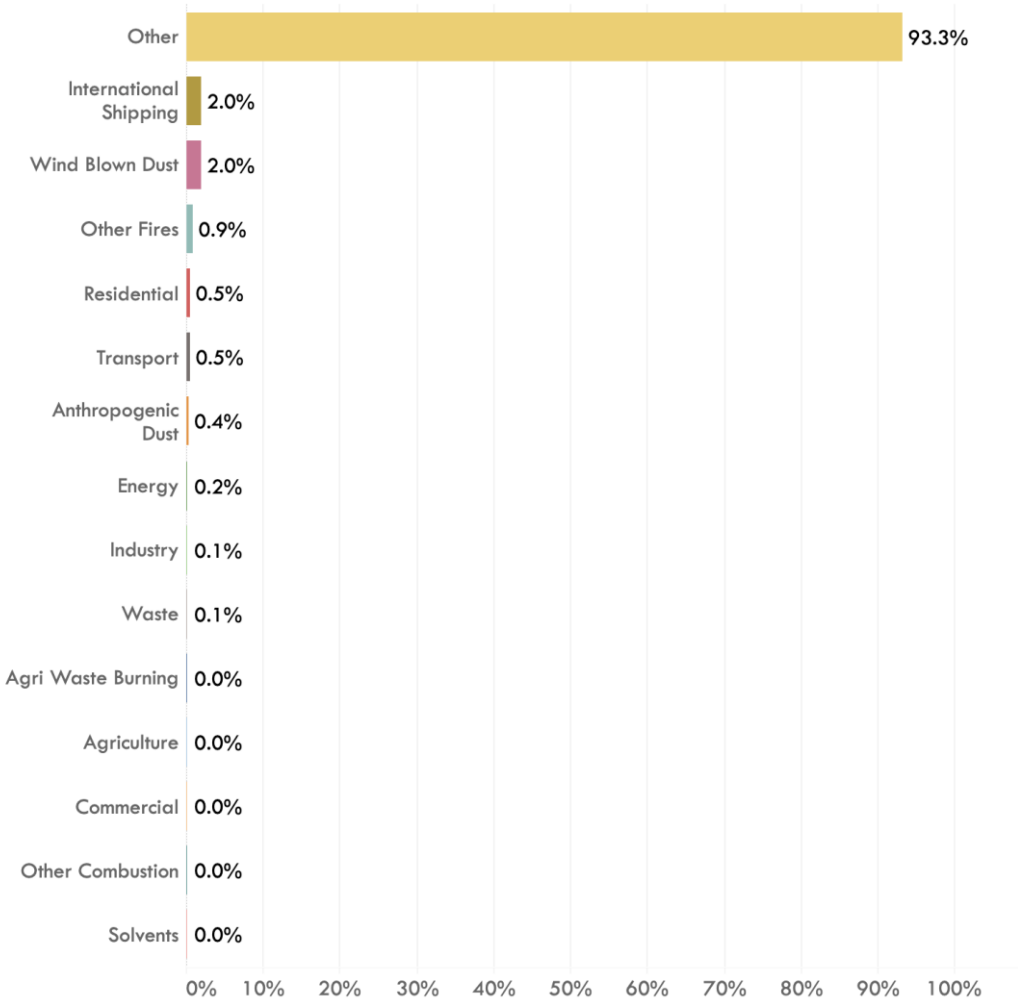

Figure 28: Ambient PM2.5 in Kiribati, Contribution by Source
Source: ATO analysis and visualization based on: (State of Global Air 2024)

The transport sector can be a major contributor to air pollution , which remains a silent killer.

The portion of excess deaths from exposure to ambient PM2.5 attributable to land transport and shipping ranges from 0.4% to 0.8%. Estimates of premature mortality and morbidity caused by PM2.5 air pollution can be expressed in monetary terms. The costs are derived from the statistical value of life for early deaths and for years lived with disability due to related health issues. The World Bank approximated the economic impact of ambient air pollution at about 3 million USD, and household air pollution at approximately 22 million USD (Figure 29). The monetary cost is about 9% of GDP, which is significantly below Asian average of 11% of GDP (World Bank 2022a).

Pollutant loading estimates suggests higher prominence of different transportation modes. In 2022, transport accounted for 50 percent of total PM2.5 emissions, with the maritime sector playing a key role; domestic shipping alone accounted for 80 percent of these emissions. Over time, there have been significant declines: from 2000 to 2022, road transport PM2.5 emissions decreased by 11 percent, and domestic aviation by 46%. However, domestic shipping saw a 25% increase, leading to a 15% increase in transport PM2.5 emissions (European Commission 2024).

Nitrogen oxides are primarily terrestrial, with transport responsible for 35 percent of total NOx emissions in 2022. Unlike particulates, the NOx distribution differs: 62 percent of transport NOx came from roads, and 34 percent from domestic shipping. Transport emissions have been increasing overall, rising by 13 percent from 2000 to 2022.

In contrast, Sulphur oxides are mainly from shipping. Transport accounted for 9 percent of total SOx emissions in 2022; domestic navigation accounted for 98 percent of this figure. Policy measures have had diverse effects: total transport emissions from the road sector nearly eliminated (93 percent reduction), while domestic shipping emissions increased by 17 percent (Figure 30).

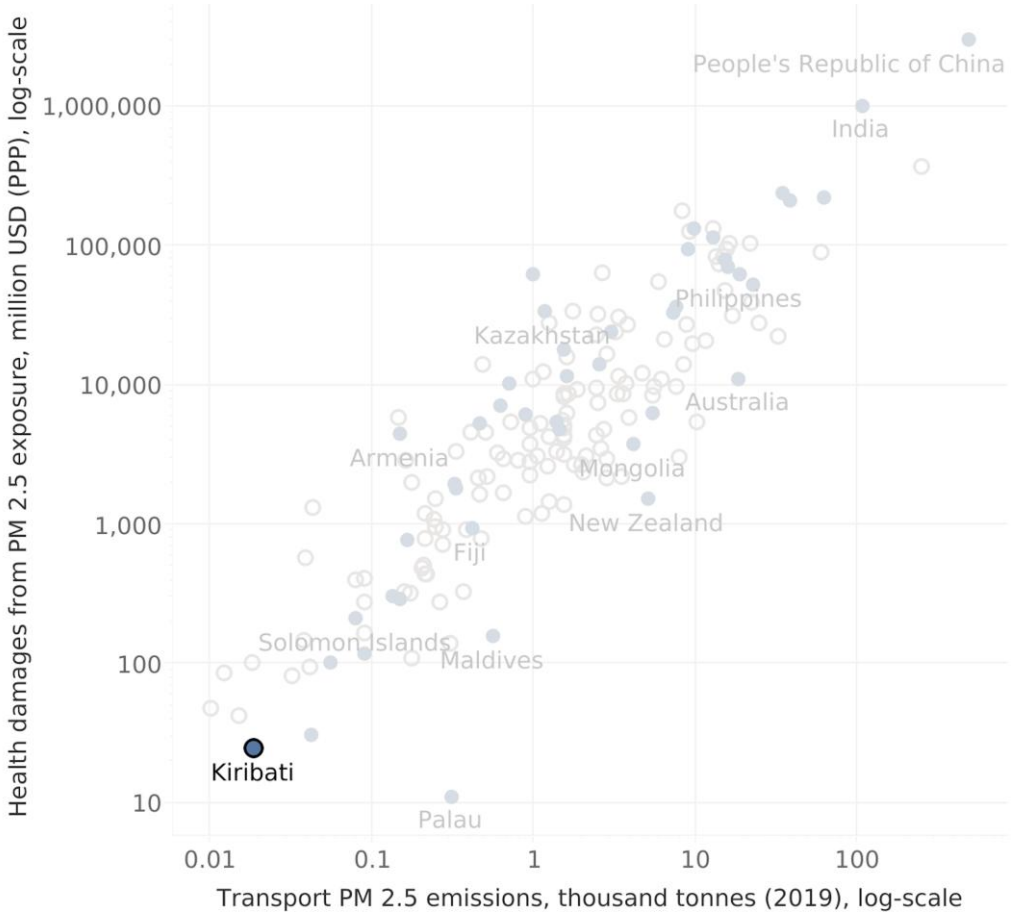

Figure 29. Health Damages from PM 2.5 Exposure (2019)
Source: ATO analysis and visualization based on: (World Bank 2022b)

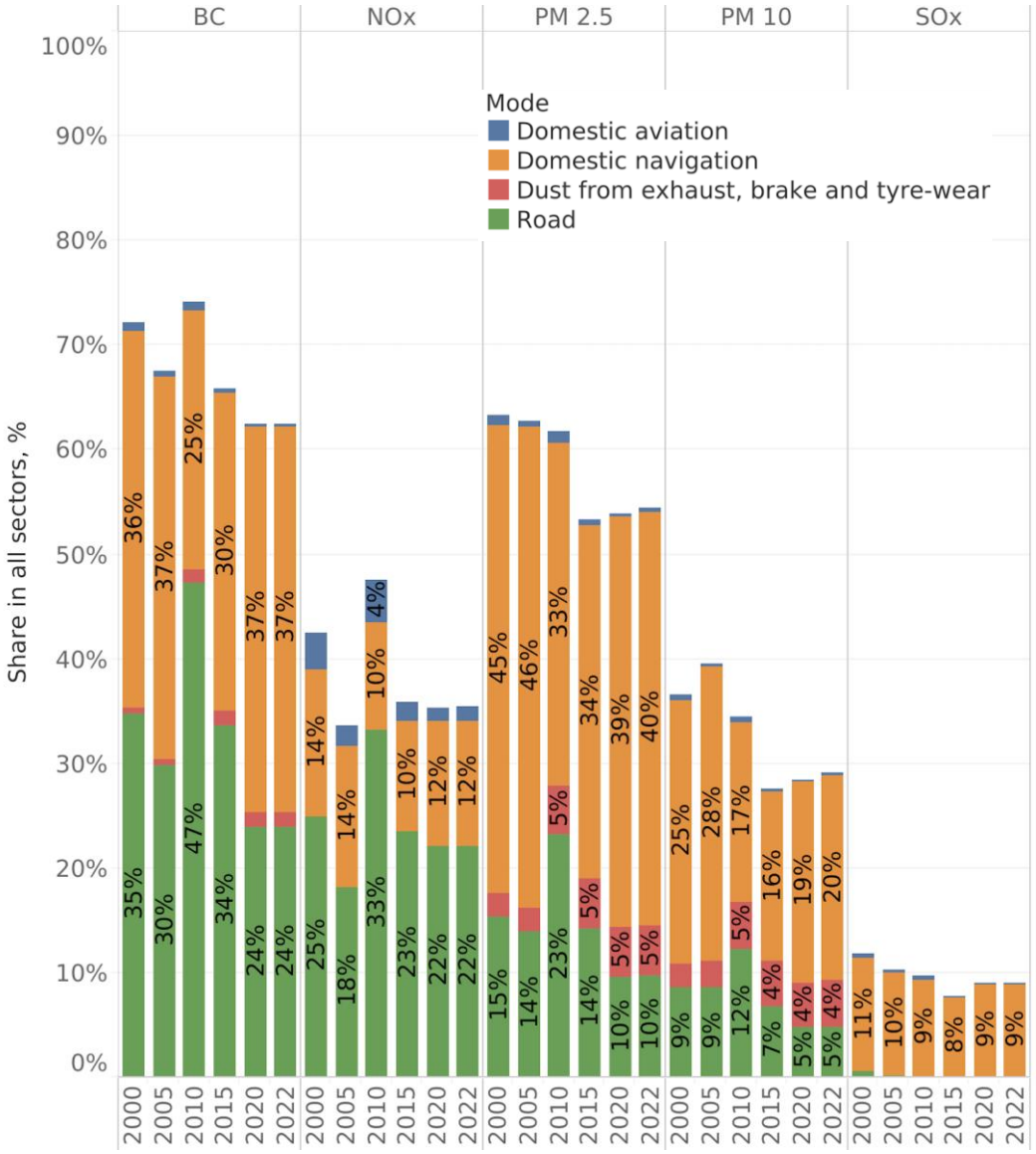

Figure 30: Share of Domestic Transport in Total Economy-Wide Emissions, by Mode and Substance

Source: ATO analysis and visualization based on: (European Commission 2024)

Kiribati has not yet adopted Euro 4/IV emission standards or the 50 ppm sulfur standard. Reports indicate that legislation is being drafted to set 50 ppm as the maximum sulfur content in fuels (UNEP 2025a). Due to the dominance of second-hand vehicles, most are imported near the end of their lifespan, and vehicle disposal is not currently managed in Kiribati. There are approximately 10,000 abandoned vehicles nationwide (Government of Kiribati 2025b), as no system exists for disassembling, recycling, or exporting scrap cars—an earlier scrap program ended years ago. These abandoned end-of-life vehicles are frequently seen around Tarawa. There is a significant opportunity for government action to regulate the import of used vehicles. Additionally, both government and private-sector players could benefit from technical assistance and investments to develop public-private partnerships or licensing arrangements for collecting and exporting scrap materials from old vehicles. Such efforts could generate economic growth, create jobs, and help address the environmental issues caused by abandoned vehicles.

There is a significant opportunity for government action to regulate the import of used vehicles.

Leverage Science, Technology, and Innovation for Sustainable Transport

Leverage Science, Technology, and Innovation for Sustainable Transport

The sharp rise in the proportion of the population using the internet—from almost zero in the late 1990s to nearly 90% by 2023 (Figure 31)—signals a structural shift in how mobility, services, activities are conducted in Kiribati. In 2020, Dingel and Neiman (2020) estimated that at least 21% of jobs in Kiribati could be done remotely at home.

Against this backdrop, the National ICT Policy 2019 sets out how information and communications technologies (ICTs) will support national development and service delivery, including areas that directly intersect with transport (MICTTD 2019).

A central objective of the policy is to achieve universal, reliable, and affordable ICT access across all islands of Kiribati. It explicitly recognizes telecommunications as essential infrastructure for economic and social development in a country characterized by vast ocean distances and widely dispersed atolls. By strengthening connectivity, ICTs are positioned as a means to overcome geographic isolation and reduce dependence on costly and infrequent physical travel.

The policy also has direct relevance for transport safety and operations. Notably, it includes Safety of Life at Sea within the scope of ICT development strategies, underscoring the role of communications systems in maritime safety, emergency response, and navigation—critical concerns for an island nation where sea transport is fundamental.

In addition, the policy promotes the expansion of e-Government services, creating a foundation for digital platforms that can support transport administration, such as vehicle and vessel registration, licensing, permits, and public information services. It further links ICT development to trade and e-commerce, including the use of digital systems to simplify customs and administrative procedures, which directly intersect with transport and logistics.

While the National ICT Policy is not a transport policy in itself, its implementation has important enabling implications for the transport sector. By improving connectivity, safety communications, administrative efficiency, and digital integration, the policy supports more resilient, efficient, and accessible transport systems across Kiribati's dispersed island geography.

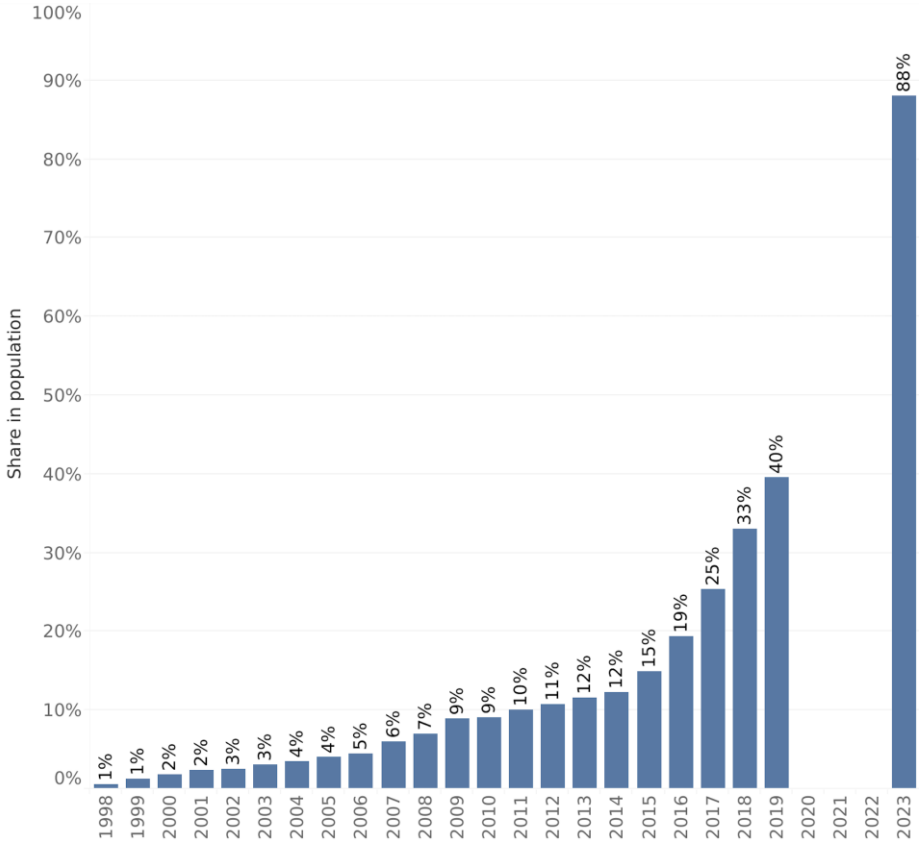

Figure 31: Proportion of Population using the Internet
Source: ATO analysis and visualization based on: (ITU 2025)

Crosscutting

Gender and Inclusion in the Transport Sector: Addressing Disparities

Kiribati has a dedicated National Policy on Gender Equality and Women's Development which emphasizes gender mainstreaming across all government policies, programs and activities so that women and men both benefit equally. The policy connects gender mainstreaming to infrastructure through the encouragement of participation of men and women in "infrastructure maintenance." The policy also specifies working towards enhancing inter-island trade through improved transportation networks and reduced freight costs as a key action.

Based on the Kiribati Disability Monograph published in 2020, around 5.6% of the population in Kiribati reported at least one disability. Almost a fifth of the population aged 50 and up reported that they have at least one disability. Transportation and postal services employs around 5% (over 1,000 people) of the labor force in Kiribati, and at least a third of those working in the sector are disabled (Pacific Community 2025).

Transport Investments - ODA

The official development assistance (ODA) data for transport in Kiribati between 2002 and 2022 shows a clear modal pattern shaped by geography and connectivity needs (Figure 32) (OECD 2025). Water transport has been the most consistently supported subsector, reflecting Kiribati's reliance on maritime links to connect dispersed atolls. Funding for water transport appears regularly across the period, with notable peaks in the early 2010s and again around 2013–2014, underscoring donor focus on inter-island shipping, port facilities, and maritime safety. ODA for aviation is more episodic but includes several large spikes, particularly in the mid-2010s, consistent with periodic investments in airport infrastructure, safety upgrades, and regional air connectivity rather than continuous funding. Road transport assistance is comparatively irregular—though gained the largest amount across all modes within the 20-year period— with sharp increases only in selected years, largely aligned with upgrades in South Tarawa where road density and traffic pressures are highest (ADB 2019).

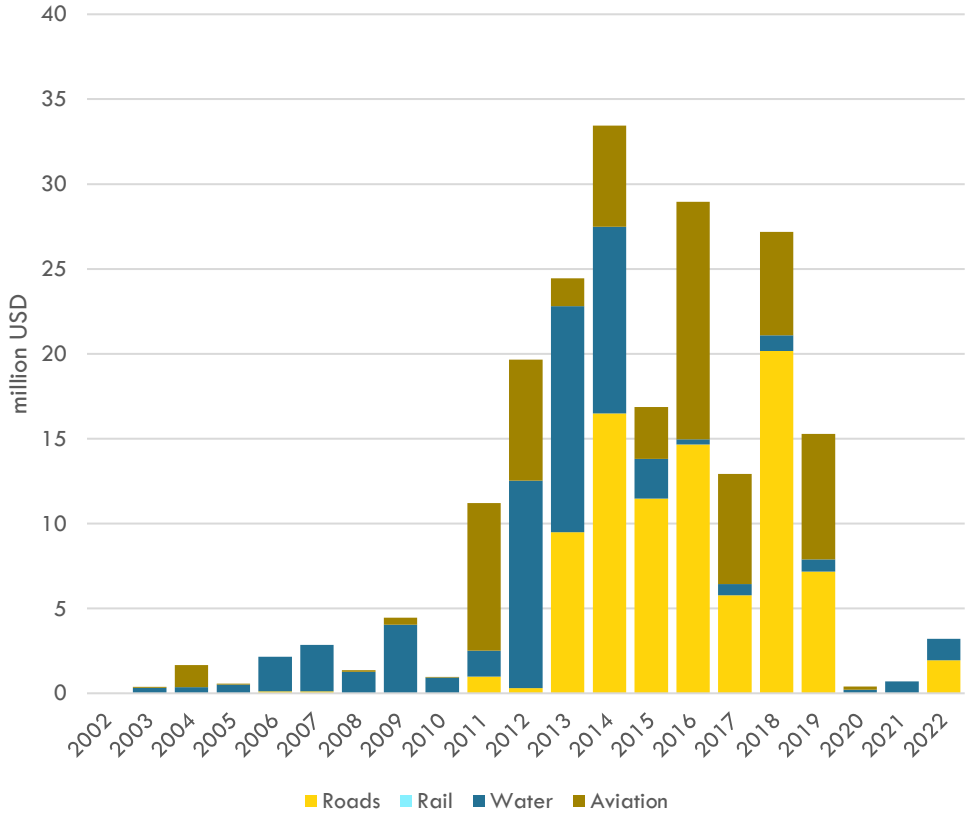

Figure 32: Transport ODA to Kiribati
Source: ATO analysis and visualization based on OECD (2025)

Transport Costs

The International Monetary Fund (IMF) estimates that implicit fossil fuel subsidies—stemming from undercharging for environmental costs, externalities, and forgone consumption taxes— costs Kiribati more than a million USD per year. IMF estimates that the external costs from fossil fuel subsidies relating to congestion, road damage, accidents, local air pollution and foregone VAT in Kiribati has increased by more than 15% in the last 10 years (Figure 33) (IMF 2024). In 2025, the subsidy costs when accounting for full societal costs of fuel use i.e. their supply costs (e.g., labor, capital, raw materials); environmental costs, including carbon dioxide (CO2) emissions, local air pollution, and broader externalities associated with fuel use like road congestion; and general taxes applied to consumer goods was about 4 million USD (constant 2021) (Parry 2023).

Average household consumption data in Kiribati highlights how transport remains a relatively small but uneven expense between urban and rural areas (KNSO and SPC 2025a). Urban households spend about 1,310 on transport, nearly double the rural average of 690 AUD, roughly 5% and 4% of the total household expenditures. Transport ranks well below food, accommodation and food away from home, alcohol and tobacco, housing, and miscellaneous goods and services.

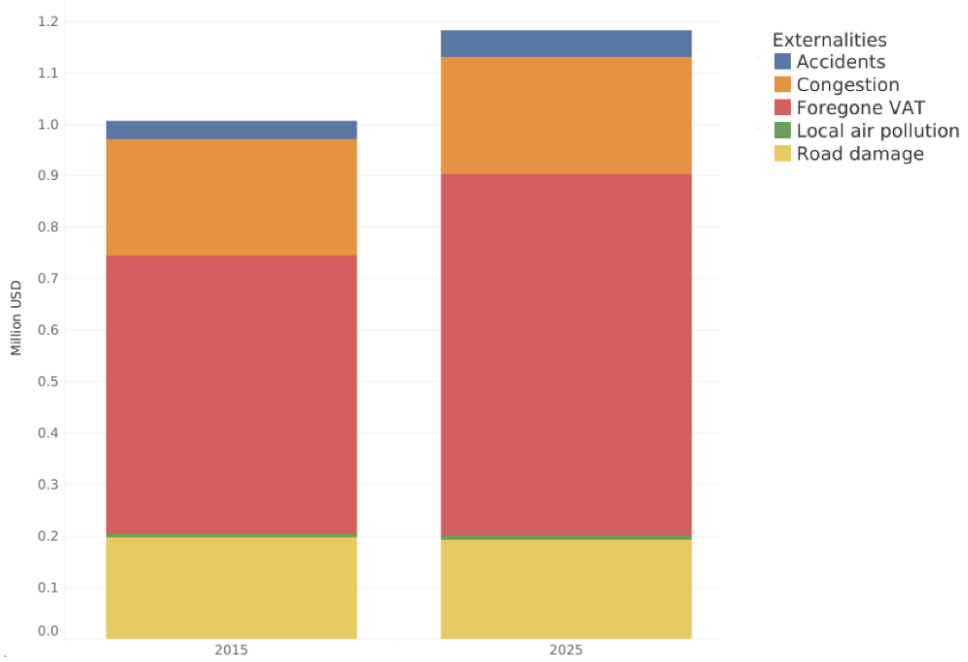

Figure 33: External Costs to Society due to Fossil Fuel Subsidies for Petroleum
Source: ATO analysis and visualization based on: (Parry 2023)

Implicit fossil fuel subsidies—stemming from undercharging for environmental costs, externalities, and forgone consumption taxes— costs Kiribati more than a million USD per year.

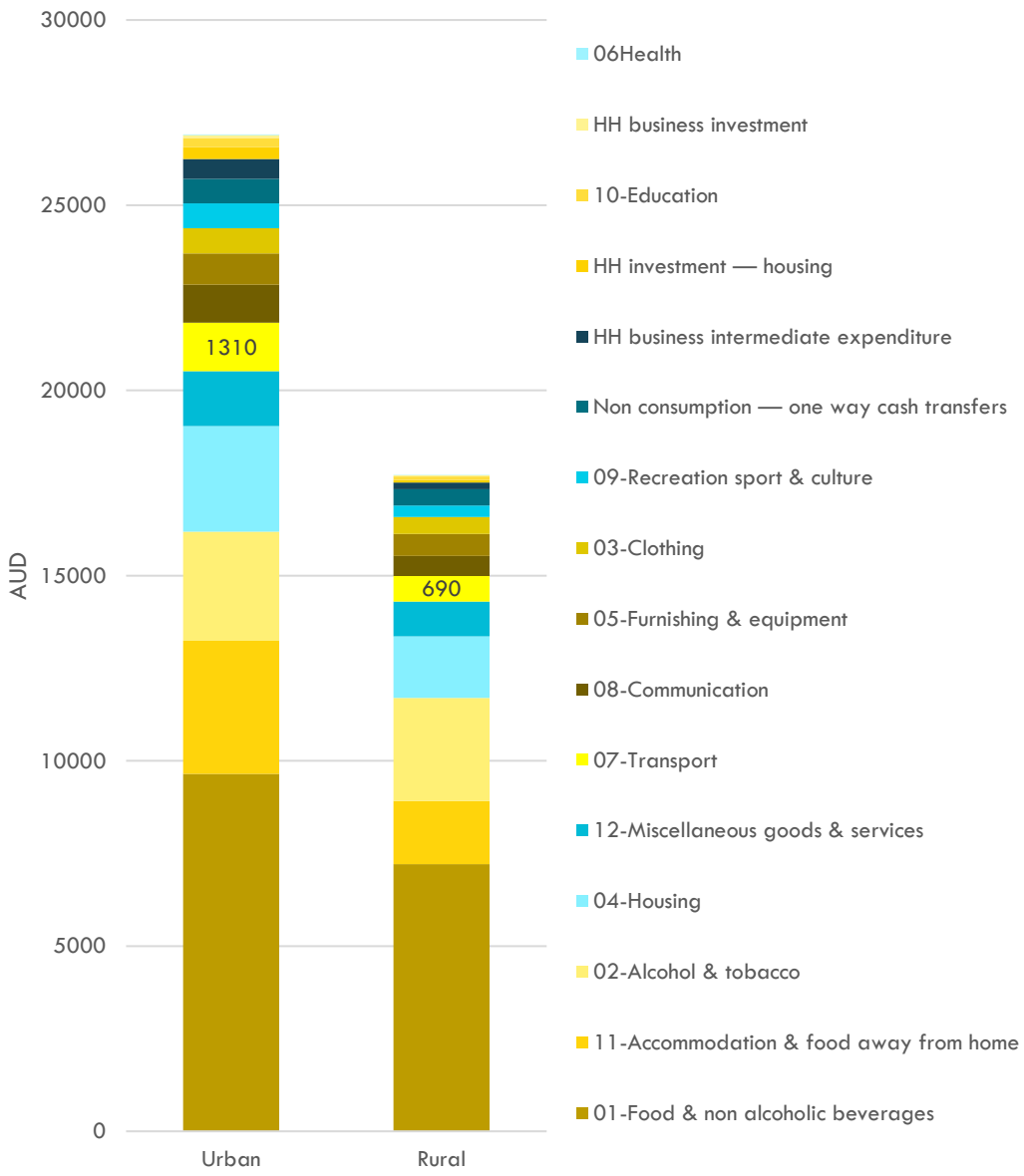

Figure 34. Kiribati - Average Annual Household Consumption (AUD)
Source: Based on data from KNSO and SPC (2025a)

The HIES data also suggests a pronounced urban–rural differentiation in expenditures related to various motor vehicle types (KNSO and SPC 2025a). In urban areas, household vehicle-related consumption is heavily skewed toward motor cars, both in terms of total expenditure and the proportion of households reporting consumption, indicating a strong reliance on private cars despite their relatively high costs. In contrast, rural households appear to concentrate transport spending on motorcycles, with a substantially higher share of households consuming motorcycles compared with cars. Bicycle use remains secondary in both contexts but may play a more important supplementary role in rural areas, while other vehicle types account for a negligible share of consumption overall.

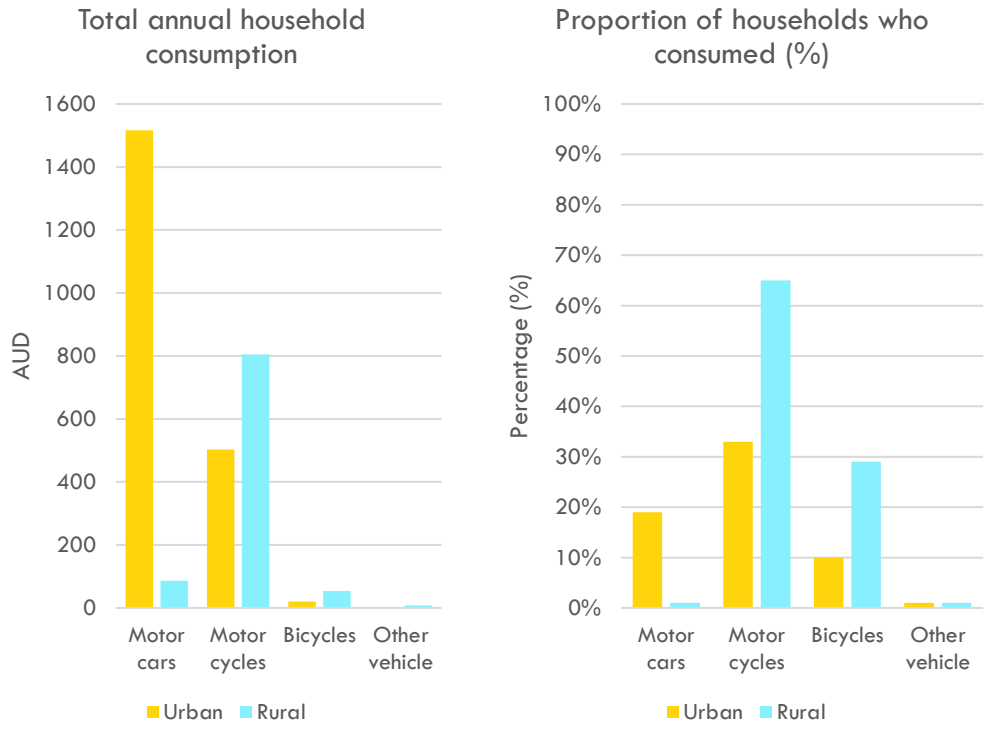

Figure 35. Kiribati - Total Annual Household Consumption – Vehicle-related and the Proportion of Households who Consumed
Source: Based on data from KNSO and SPC (2025a)

Summary

Ensure Access to Sustainable Transport for All

Access to transport services in Kiribati remains uneven, with strong spatial disparities between South Tarawa and the outer islands. While national estimates suggest that a majority of the rural population lives within reach of all-weather roads, a significant number of residents still lack reliable access, particularly on outer islands where unsealed roads, damaged causeways, and limited maritime facilities constrain year-round mobility. Maritime "last mile" access is a critical gap, as many islands lack jetties or ramps and rely on offshore lighterage, posing safety risks and limiting access to healthcare, markets, and essential services

Enhance Sustainable Connectivity and Freight

Kiribati's transport connectivity is fundamentally shaped by geography and dispersion. The road network is limited and fragmented across atolls, with most infrastructure concentrated on South Tarawa and Kiritimati Island. Inter-island connectivity depends almost entirely on maritime and aviation services. Maritime transport underpins domestic freight movement, yet liner shipping connectivity remains low, increasing reliance on indirect routes and raising trade costs. Aviation provides essential national and international links but is constrained by a small number of airports, limited flight frequencies, and deteriorating runway conditions on outer islands

Promote People-Centric Urban Mobility

Motorization is continuously increasing, at the same time, access to formal public transport remains limited, with only a small share of residents located within short walking distance of mapped public transport stops. These dynamics indicate growing dependence on private vehicles in a context where road expansion options are highly constrained.

Make Transport Safe and Secure

Road safety remains a persistent public health concern. The road crash fatality rate has increased compared to earlier years, with pedestrians accounting for a growing share of fatalities. Safety assessments indicate that only a limited proportion of the road network meets higher safety standards for different user groups. While recent investment projects demonstrate a shift toward safer road design and traffic calming measures, systemic challenges remain, including limited data availability, uneven enforcement, and incomplete network coverage.

Advance Low-Carbon, Resilient, and Environmentally Sound Transport

Transport accounts for roughly one-third of Kiribati's total energy consumption and greenhouse gas emissions and relies entirely on imported fossil fuels. Although the growth rate of transport emissions has slowed since the Paris Agreement period, emissions continue to increase faster than the regional average. Climate vulnerability is acute: most transport assets are located in low-lying coastal areas exposed to sea-level rise, storm surge, and flooding. As a result, climate resilience and decarbonization are inseparable priorities for the sector.

Leverage Science, Technology, and Innovation

National strategies increasingly reference improved asset management systems, climate-resilient engineering approaches, digital tools in ports and aviation, and the gradual introduction of electric mobility. However, implementation remains at an early stage. Electric and hybrid vehicles represent only a very small share of vehicle imports, and the emissions benefits of electrification are constrained by the carbon intensity of electricity generation, despite recent increases in solar capacity. Institutional and technical capacity gaps continue to slow the operationalization of these innovations.

Cross-Cutting Elements

Across all transport modes, limited institutional capacity and financing constraints remain binding. Maintenance systems are under-resourced, responsibilities are fragmented across agencies, and large-scale investments continue to depend heavily on external development finance. While national plans clearly articulate priorities related to resilience, safety, and decarbonization, implementation is contingent on sustained international support, stronger inter-agency coordination, and improvements in data, planning, and asset management systems.

Kiribati's transport system operates under conditions of extreme geographic dispersion, acute climate vulnerability, and constrained capacities. As a nation of low-lying atolls spread across a vast ocean, transport is not only a service sector but also a foundational enabler of economic activity, social inclusion, and national resilience.

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Annex 1. Economy ISO Codes

ISO CODE	ECONOMY NAME	REGION	INCOME GROUP
AFG	Afghanistan	Asia	Low income
ARM	Armenia	Asia	Upper middle income
AUS	Australia	Oceania	High income
AZE	Azerbaijan	Asia	Upper middle income
BGD	Bangladesh	Asia	Lower middle income
BTN	Bhutan	Asia	Lower middle income
BRN	Brunei Darussalam	Asia	High income
KHM	Cambodia	Asia	Lower middle income
CHN	People's Republic of China	Asia	Upper middle income
COK	Cook Islands	Oceania	Upper middle income
FJI	Fiji	Oceania	Upper middle income
GEO	Georgia	Asia	Upper middle income
IND	India	Asia	Lower middle income
IDN	Indonesia	Asia	Upper middle income
JPN	Japan	Asia	High income
KAZ	Kazakhstan	Asia	Upper middle income
KIR	Kiribati	Oceania	Lower middle income
KGZ	Kyrgyz Republic	Asia	Lower middle income
LAO	Lao People's Democratic Republic	Asia	Lower middle income
MYS	Malaysia	Asia	Upper middle income
MDV	Maldives	Asia	Upper middle income
MHL	Marshall Islands	Oceania	Upper middle income
FSM	Micronesia (Federated States of)	Oceania	Lower middle income
MNG	Mongolia	Asia	Upper middle income
MMR	Myanmar	Asia	Lower middle income
NIU	Niue	Oceania	Upper middle income
NRU	Nauru	Oceania	High income
NPL	Nepal	Asia	Lower middle income
NZL	New Zealand	Oceania	High income
PAK	Pakistan	Asia	Lower middle income
PLW	Palau	Oceania	High income
PNG	Papua New Guinea	Oceania	Lower middle income
PHL	Philippines	Asia	Lower middle income
KOR	Republic of Korea	Asia	High income
WSM	Samoa	Oceania	Lower middle income
SGP	Singapore	Asia	High income
SLB	Solomon Islands	Oceania	Lower middle income
LKA	Sri Lanka	Asia	Lower middle income
TJK	Tajikistan	Asia	Lower middle income
THA	Thailand	Asia	Upper middle income
TLS	Timor-Leste	Asia	Lower middle income
TON	Tonga	Oceania	Upper middle income
TKM	Turkmenistan	Asia	Upper middle income
TUV	Tuvalu	Oceania	Upper middle income
UZB	Uzbekistan	Asia	Lower middle income
VUT	Vanuatu	Oceania	Lower middle income
VNM	Viet Nam	Asia	Lower middle income
HKG	Hong Kong, China	Asia	High income
TWN	Taipei,China	Asia	High income
IRN	Iran (Islamic Republic of)	Asia	Upper middle income
RUS	Russian Federation	Asia	High income
TUR	Türkiye	Asia	Upper middle income


Asian
Transport
Observatory