Kiribati NDC Implementation Roadmap



2021

Transport and Energy Efficiency Sectors in Kiribati



NDC Implementation Roadmap for Transport and Energy Efficiency Sectors in Kiribati

IMPLEMENTING PARTNERS

REGIONAL PACIFIC NDC HUB

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Disclaimer

This NDC Implementation Roadmap is prepared for the Government of Kiribati based on best available information and stakeholder consultations results gained between November 2019 and March 2020, and it is noted that underlying information used to prepare the NDC Implementation Roadmap and final results presented are subject to change.

Information and conclusions presented in this document may not necessarily represent those of the Regional Pacific NDC Hub and its implementing partners, including the implementing partners member states.

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Abbreviations and Acronyms

BAU	Business as Usual
CROP	Council of Regional Organisations of the Pacific
DBK	Development Bank of Kiribati
DSM	Demand Side Management
EE	Energy Efficiency
GGGI	Global Green Growth Institute
GHG	Greenhouse Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GOK	Government of Kiribati
IMO	International Maritime Organisation
KNEG	Kiribati National Expert Group
KNSL	Kiribati National Shipping Line Limited (previously Kiribati Shipping Service Ltd – KSSL)
KOIL	Kiribati Oil Co. Ltd
kWh	Kilowatt hour
MELAD	Ministry of Environment, Lands and Agricultural Development
MOFED	Ministry of Finance and Economic Development
MICTTD	Ministry of Information Communication, Transport and Tourism Development
MISE	Ministry of Infrastructure and Sustainable Energy
MRV	Measurement, Reporting and Verification
NDC	Nationally Determined Contribution
OB	Office of the President
ODA	Official Development Aid
PICs	Pacific Island Country(s)
PIPA	Phoenix Islands Protected Area
PUB	Public Utilities Board
SOEs	State Owned Enterprise
SPC	the Pacific Community (formerly Secretariat of the Pacific Community)
SPREP	Secretariat of the Pacific Regional Environment Programme (Formerly South Pacific Regional Environmental Programme)
tCO2 / tCO2e	Metric tons of carbon dioxide (equivalents)
TEU	Twenty-foot equivalent unit
USD / US$	United States Dollar
USP	University of the South Pacific

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EXECUTIVE SUMMARY

Kiribati's (Intended) Nationally Determined Contribution (NDC) issued in 2016 is specific to the power generation, Agriculture, Forestry and Other Land Use (AFOLU), energy efficiency, and transport sectors, and has the following Greenhouse Gas (GHG) mitigation targets for the period of 2020 to 2030:

> **Target 1:** To unconditionally reduce 13.7% of BAU greenhouse gas emissions and conditionally reduce 48.8% of BAU greenhouse gas emissions by 2025;
>
> **Target 2:** To unconditionally reduce 12.8% of BAU greenhouse gas emissions and conditionally reduce 49% of BAU greenhouse gas emissions by 2030.

The BAU baseline scenario as defined in the (Intended) NDC leads to GHG emissions of approximately 73,500 tCO_2e annually in 2025, and 78,300 tCO_2e annually in 2030. The goal of this NDC Roadmap is to provide a temporal pathway with concrete mitigation actions, and indicate approximate investment needs, to achieve the transformational change called for to contribute to the above targets.

In this NDC Roadmap the mitigation actions are divided between the two sectors of transportation and energy efficiency, and are closely aligned to existing national policies, strategies, and plans. The implementation of the identified mitigation actions are expected to start and be implemented during the short-term (2020-2022), medium-term (2023-2025), and long-term (2026-2030) action periods.

The total estimated annual CO2 mitigation achievable against the BAU baseline in 2030 by the mitigation actions included in this NDC Roadmap is 33,100 tCO_2/yr, and this is a potential mitigation of 42% against the BAU baseline in 2030.[1] The estimated total costs for implementing the full extent of the mitigation actions included in this NDC Roadmap is US$ 210M, consisting of an estimated US$ 195M in investment cost and US$ 15.5M in capacity building & technical assistance support needs.

- **Transport Sector (18,200 tCO_2/yr; US$ 163M)**

The transport sector has the potential to mitigate 18,200 tCO_2/yr in 2030, and this is 23% against the BAU scenario. The estimated investment needs for the transport sector mitigation actions are US$ 151.5M and estimated capacity building & technical assistance support needs are US$ 11.5M. The contribution of this potential mitigation comes from five actions in maritime transport (6,300 tCO_2/yr), three actions in land transport (11,500 tCO_2/yr), and one action in aviation (400 tCO_2/yr).

- **Energy Efficiency Sector (14,900 tCO_2/yr; US$ 47.5M)**

The energy efficiency sector has the potential to mitigate 14,900 tCO_2/yr in 2030, and this is 19% against the BAU scenario. The estimated investment needs for the energy efficiency sector mitigation actions are US$ 43.5M and estimated capacity

1 Since all the mitigation actions are includes in the energy sector only CO2 emissions are determined.

building & technical assistance support needs are US$ 4.0M. The contribution of this potential mitigation comes from three actions in power and appliances (11,700 tCO_2/yr), and three actions in buildings, government, and industry (3,200 tCO_2/yr).

- **Institutional Arrangements for Implementation**

The implementation of this NDC Roadmap will require constant coordination and active efforts amongst the public-sector, private-sector, development partners, and regional organisations. The Office of the President and the Kiribati National Expert Group are expected to be the central point to coordinate the overall implementation of the Roadmap and oversee the MRV processes. The processes supporting implementation and MRV will happen as selected ministries implement national sector planning and regulations, and physical implementation will be performed by the public-sector, private-sector, development partners, and regional organisations. Technical and capacity building support is expected to be coordinated and provided by national and regional institutions, and financial support is expected to be provided by government, SOEs, private sector and development partners.

- **Monitoring, Reporting and Verification (MRV)**

The main purpose of the MRV framework for this NDC Roadmap is to transparently demonstrate progress made towards the targets defined in the NDC via the mitigation actions in the transport and energy efficiency sectors. This is done by measuring ex-post emission reductions gained through the mitigation actions in the sectors, tracking the progress of implementation in terms of other impacts (e.g. policies, co-benefits, and contribution to Sustainable Development Goals), and tracking the need for and use of support in the form of means of implementation (e.g. finance, technology transfer, capacity building). Kiribati needs support to significantly strengthen the MRV system, which should be built from the bottom-up to ensure transparency and to contribute to the effectiveness of mitigation actions.

- **Financing of Mitigation Actions**

Due to past financial sector activities, stakeholders in Kiribati have limited experience with the implementation of a significate portion of the financial instruments needed to finance the mitigation actions in this NDC Roadmap. Existing limitations are mainly due to the scale of finance needed for the financial instruments and the complexity of these. Additional capacity building and technical assistance will be needed to prepare individual financial instruments for each mitigation action and scale them to the level needed to support significant GHG mitigation in the transport and energy efficiency sectors. The financing of all mitigation actions will include grants, and a few are expected include equity, debt, and fiscal policy/regulation changes which will need to work together as blended finance to ensure the level of transition needed to reach the mitigation potential of each mitigation action.

Kiribati is committed to ensuring the implementation of this NDC Roadmap and is working towards reaching the combined (unconditional and conditional) mitigation target of 61.8% from a BAU scenario in 2030. It is recognised that achieving this target will require unconditional actions by Kiribati, and some of these are in progress in terms of power generation through renewable energy which is not included in this NDC Roadmap. However, it is also recognised that the full potential for reaching the NDC targets is conditional on Kiribati receiving significant support in the form of means of implementation.

1. BACKGROUND OF KIRIBATI AND THE CONTEXT OF THIS NDC ROADMAP

The Republic of Kiribati is an island country in the Pacific Ocean that comprises 33 atolls and reef islands, with an Exclusive Economic Zone (EEZ) of 3,550,000 km². Close to 60% of Kiribati's total population of over 110,000 people resides on the South and North Tarawa islands, and close to 6,500 people reside on Kiritimati Island, representing the largest population centres. The remaining population are divided between Kiribati's 20 other islands.[2]



Figure 1: Photos of Tarawa Atoll, Kiribati in 2019

Kiribati's US$ 188M economy is one of the smallest economies in the world with a per capita GNI of US$ 3,140 in 2018.[3] Kiribati's economy is strongly dependent upon government spending, as evidenced with the Government of Kiribati's (GOK) budget of US$ 159M[4] while flows of personal remittances accounted for approximately US$ 20M in 2018.[5] Government spending and remittances represent 95% of the GDP of Kiribati and this shows that the private sector in Kiribati is a comparatively small portion of the country's economy. The economy of Kiribati mainly consists of services followed by agriculture and fisheries, with a lesser extent industrial services.[6] Kiribati is a recipient of a large amount of Official Development Aid (ODA) in the form of development partner grants for investment and capacity building. According to the OECD the net ODA for Kiribati in 2018 was US$ 74M, which is 39% of the GDP of the country.[7]

The atolls and islands of Kiribati sit very close to the equator and the country has a hot, humid, tropical climate with an average air temperature of 28.3°C and average rainfall of about 2100 mm per year in Tarawa. Across Kiribati, the average temperature is relatively constant year-round, and the country faces the impacts of both El Niño (dry season) or La Niña (wet season) events. Anecdotal evidence from integrated vulnerability assessments and national consultations suggests that communities in Kiribati are experiencing increasing temperatures, stormier weather, more frequent coastal inundation, and declining coastal fishery stocks. During this century Kiribati is expected to experience higher air and sea temperatures, changing and more extreme rainfall and drought, sea level rise, and increased ocean acidification due to climate change.[8]

2 National Statistics Office, Ministry of Finance (2016) '2015 Population and Housing Census'
3 World Bank (2020) Kiribati. https://data.worldbank.org/country/KI
4 National Economic Planning Office (2017) '2018 Budget', Government of Kiribati.
5 World Bank (2020) 'Personal Remittance Received Kiribati'. https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=KI
6 The World Factbook (2020) 'Kiribati' https://www.cia.gov/library/publications/the-world-factbook/geos/kr.html
7 OECD (2020) 'Aid at a glance by recipient' https://www.oecd.org/dac/financing-sustainable-development/datavisualisations/
8 Republic of Kiribati (2019) 'Kiribati Climate Change Policy', Government of Kiribati.

1.1 Kiribati's Nationally Determined Contribution (NDC)

The GOK is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) which entered into force in 1994. Kiribati's continued commitment to climate change is demonstrated through Kiribati's ratification of the Kyoto Protocol in 2000, and the GOK's ratification of the Paris Agreement and issuance of its (Intended) Nationally Determined Contribution (NDC) in 2016.

Kiribati's (Intended) NDC is specific to the power generation, Agriculture, Forestry and Other Land Use (AFOLU), energy efficiency, and transport sectors.

Kiribati's (Intended) NDC has the following mitigation targets for the period of 2020 to 2030:

> **Target 1:** To unconditionally reduce 13.7% of BAU greenhouse gas emissions and conditionally reduce 48.8% of BAU greenhouse gas emissions by 2025.
>
> **Target 2:** To unconditionally reduce 12.8% of BAU greenhouse gas emissions and conditionally reduce 49% of BAU greenhouse gas emissions by 2030.

The BAU scenario is based on projections from the GHG emissions of approximately 63,000 tCO_2e in 2014, leading to BAU emissions of approximately 73,500 tCO_2e annually in 2025, and 78,300 tCO_2e annually in 2030. In the context of global GHG emissions Kiribati's per capita CO_2 emissions are estimated to be 0.6 tCO_2 per person in 2014, and the country's overall GHG emissions represent only 0.0002% of global emissions.[9]

The unconditional contribution is to reduce emissions by 10,090 tCO_2e annually throughout the period 2020 up to 2030. Whereas the conditional contribution is to reduce emissions by 35,880 tCO_2e annually by 2025, and by 38,420 tCO_2e annually by 2030.

A summary of the Kiribati's (Intended) NDC commitment is shown in the Figure below.

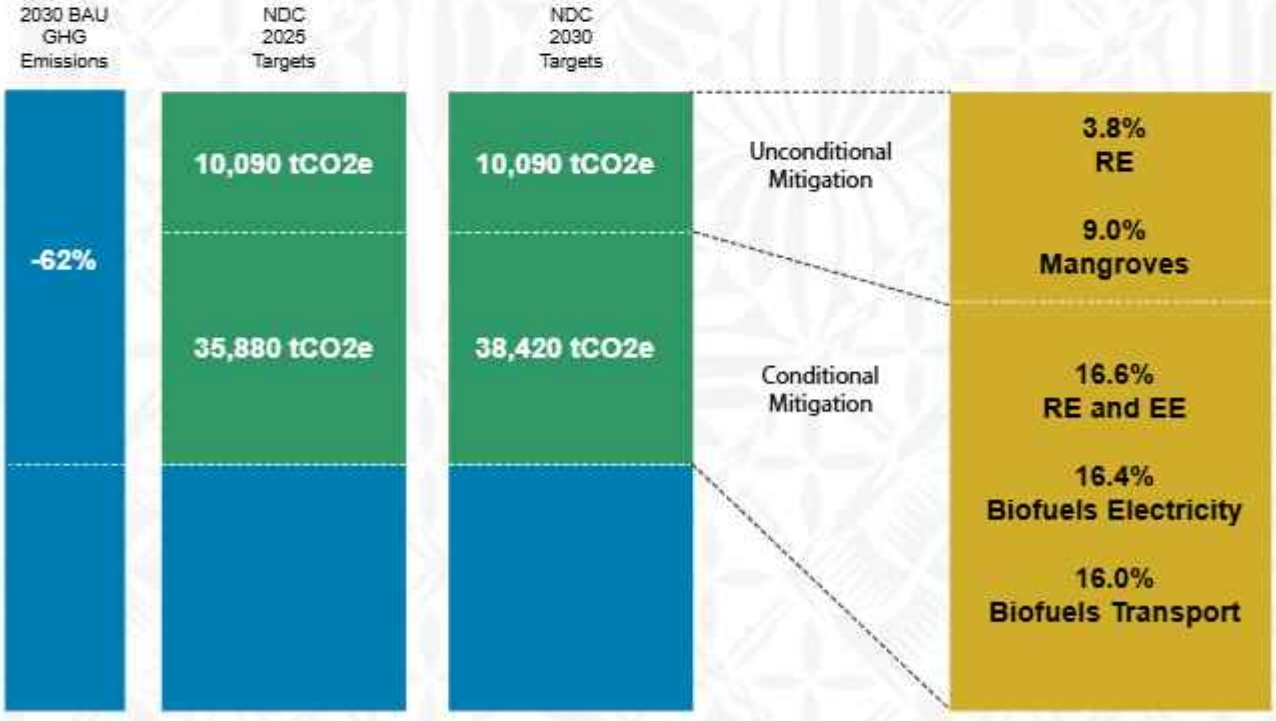


Figure 2: Depiction of the mitigation commitments under the (Intended) NDC

9 Republic of Kiribati (2016) "Intended Nationally Determined Contribution", Government of Kiribati.

1.2 Goal and Objectives of this NDC Roadmap

The Goal of this NDC Roadmap is to provide a temporal pathway for the implementation of mitigation actions in the domestic transport and energy efficiency sectors which contribute to Kiribati's NDC targets. This NDC Roadmap is developed in parallel to the NDC Investment Plan for the transport and energy efficiency sectors in Kiribati, and this parallel document includes a project pipeline of mitigation opportunities, and should be reviewed for further detail on the mitigation actions identified in this NDC Roadmap.

To achieve this goal, this NDC Roadmap answers the question of "How can the transport and energy efficiency sectors contribute towards achieving the Kiribati's NDC targets", by:

- Defining a pathway with specific investment and mitigation actions leading to reduced GHG emissions and result in transformational change in the transport and energy efficiency sectors; and,
- Providing sufficient detail regarding the scope of resources and support needed to implement the mitigation actions and track their progress, including:
    - Technology and Infrastructure needs,
    - Investment needs,
    - Capacity Building and Technical Assistance needs (CB & TA),
    - Governance and Institutional Arrangements, and
    - Strengthened Monitoring, Reporting, and Verification system.

The Objective of this NDC Roadmap is to contribute to the NDC target of Kiribati through a total mitigation of up to 33,100 tCO2 annually by 2030, and this is 42% of the projected BAU emission for 2030.

1.3 Boundary of this NDC Roadmap

The boundary of this NDC Roadmap is principally based on the physical domestic activities within the transport and energy efficiency sectors of Kiribati and is further split into the following sub-sectors aligned to current GOK policies, plans, and regulations:

Table 1: Sub-sectors addressed in this NDC Roadmap

Transport Sub-Sectors	Energy Efficiency Sub-Sectors[10]
• Land • Maritime • Aviation	• Power Generation • Appliances • Buildings • Government • Industry

It is important to note that as more renewable energy is supplied to the grid, the net mitigation impact of electricity demand-side energy efficiency will decrease, insofar that for each kWh saved from energy efficiency the corresponding CO_2 emissions factor per kWh will be lower with greater renewable energy supply. However, even with the potential for higher generation levels of renewable energy on the gird, demand-side energy efficiency leads to a large financial & economic impact within this NDC Roadmap as it reduces the infrastructure investment needs by reducing the capacity needed from renewable energy electricity generation projects.

10 Noted that energy used in cooking (outside of electricity) is not included within the Roadmap.

1.4 Alignment of the Roadmap to National Policies / Strategies / Plans

The GOK has extensively integrated climate change across national and several sector level policies, strategies, and plans. This NDC Roadmap is aligned with nine primary policies, strategies, and plans divided into the following three categories shown in the figure below: Multi-Sector National, Multi-Sector Climate Change, and Energy & Transport Sectors.[11]

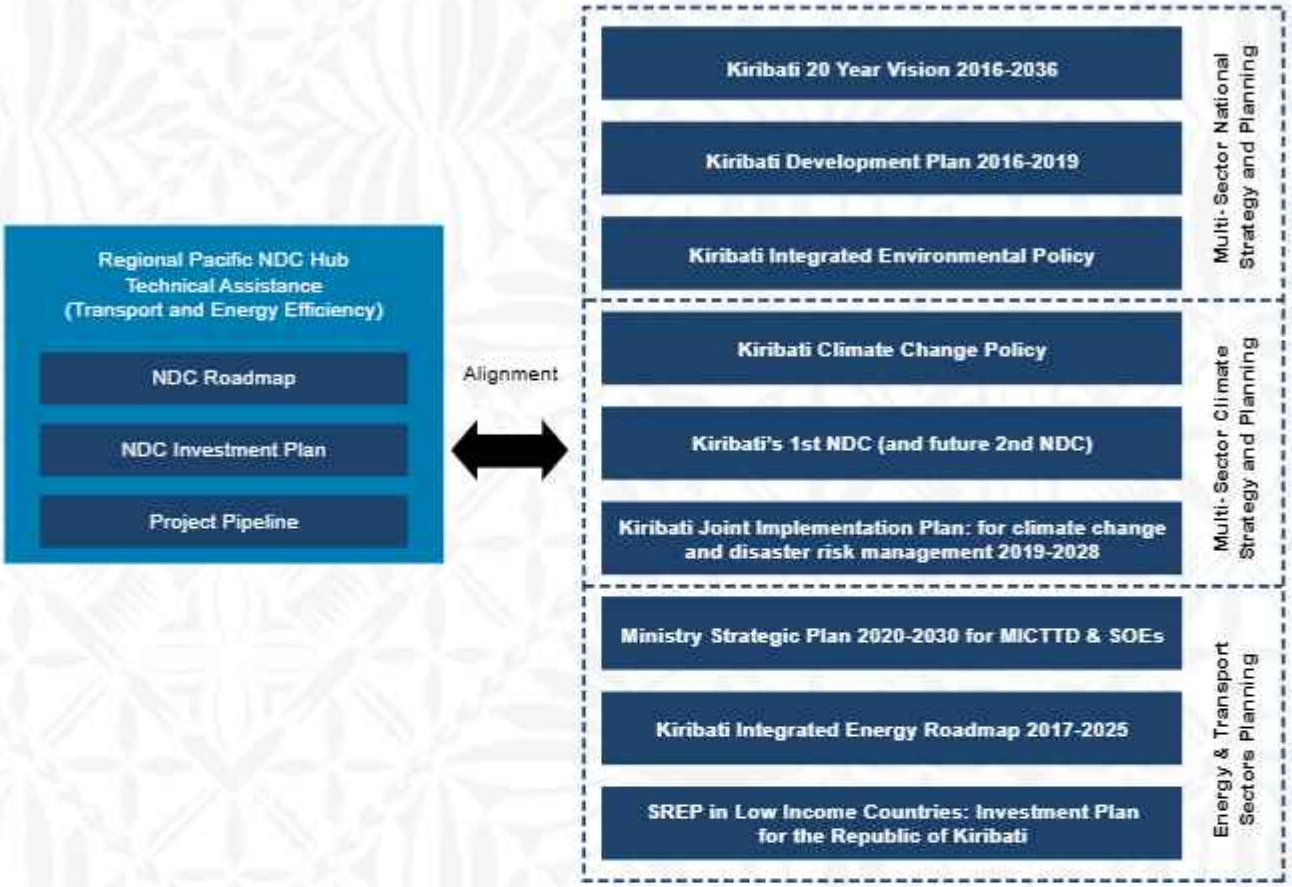


Figure 3: NDC Investment Plan alignment with national strategy and planning

This NDC Roadmap was developed after the above policies, strategies, and plans – allowing for alignment – and thus is not integrated within them. This NDC Roadmap was parallelly developed and is aligned with the NDC Investment Plan for the transport and energy efficiency sectors prepared in 2020. The nature of the planning cycle in Kiribati means there is an opportunity to integrate the chosen mitigation actions of this NDC Roadmap into future national and sectoral plans.

11 It is noted that there are some additional secondary policies, strategies, and plans not listed.

1.5 Inclusive Stakeholder Engagement Process

The inclusive process undertaken for stakeholder engagement for the development of this NDC Roadmap focused on an engagement directed at key national and international stakeholders whose actions have a material impact on the transport and energy efficiency sectors. The stakeholder engagement involved consultation with selected knowledgeable national institutions, organizations, and companies who represent consumers or users, as well as regional and international organisations. The figure below depicts the stakeholders engaged during the development of this NDC Roadmap and the approval process.

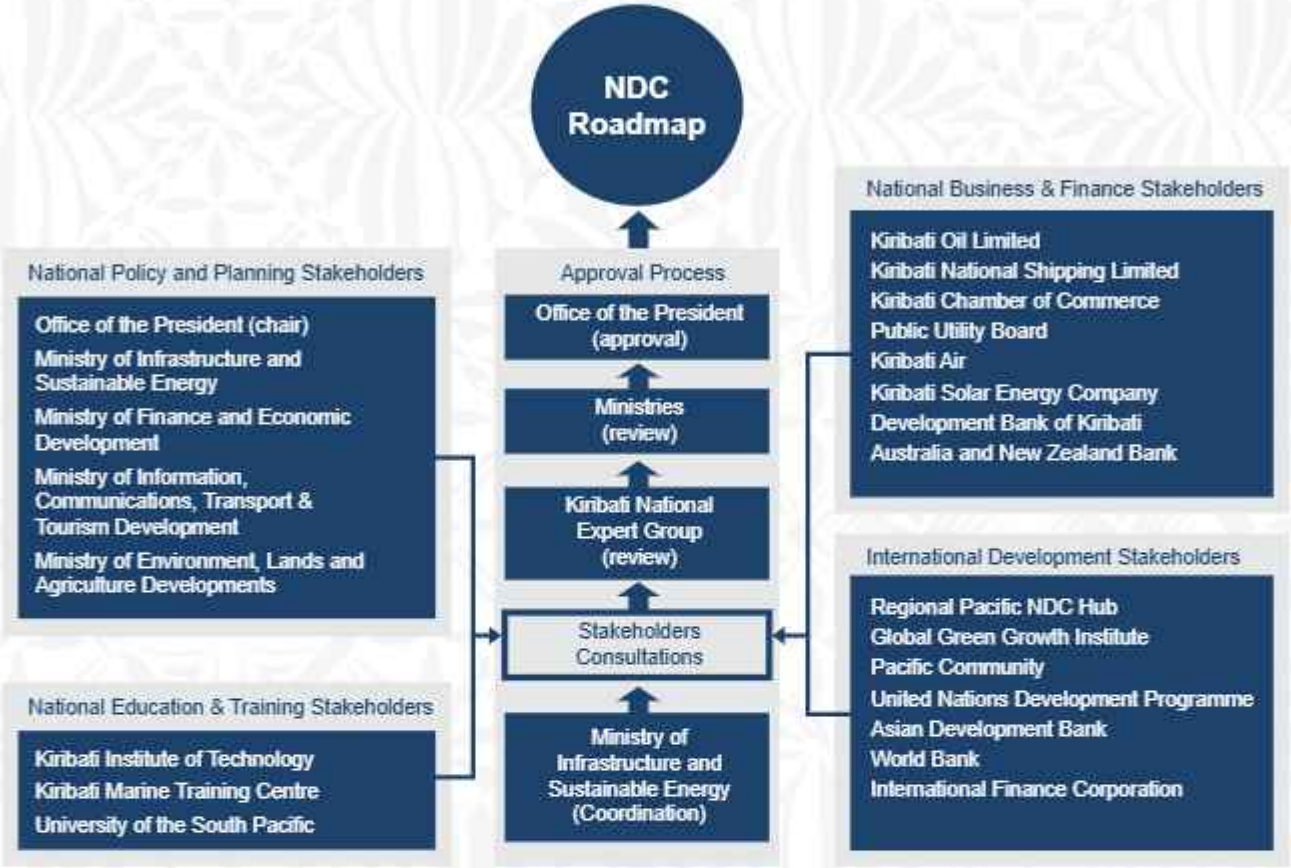


Figure 4: Diagram of stakeholder engagement and communication process

Approximately twenty-three (23) different national, regional, and international organisations were engaged during the stakeholder engagement process over the period of developing this NDC Roadmap (and the parallelly developed NDC Investment Plan). The stakeholder engagement process consisted of one-on-one meetings with key stakeholders, workshops and small-group consultations.

The approval process for this NDC Roadmap (and the parallelly developed NDC Investment Plan) included comprehensive consultations, in addition to sectoral information gathered by the Ministry of Infrastructure and Sustainable Energy (MISE). After the stakeholder consultations described above were completed, draft documents were reviewed by the Kiribati National Expert Group (KNEG) and ministries, who provided final feedback during a validation meeting. After the validation meeting the revised NDC Roadmap was reviewed by the Office of the President, and final approval was given.

2. MITIGATION ACTIONS WITHIN TRANSPORT AND ENERGY EFFICIENCY SECTORS

2.1 Mitigation in the Transport Sector

The proposed mitigation actions for the transport sector have the potential to reduce 115,400 tCO_2 between 2020 and 2030, and to reach an annual mitigation potential of 18,200 tCO_2/yr in 2030. This is a potential mitigation of 23% of the estimated BAU baseline in 2030 as defined in the (Intended) NDC. These mitigation actions have a total estimated investment cost of US$ 163M, comprised of a total of US$ 11.5M for capacity building & technical assistance, and US$ 151.5m for investment capital. The Figure below shows the periodic breakdown of indicative capacity building & technical assistance needs, investment capital needs, and mitigation potential. More details on the temporal financing pathway for the mitigation actions can be found in the NDC Investment Plan.

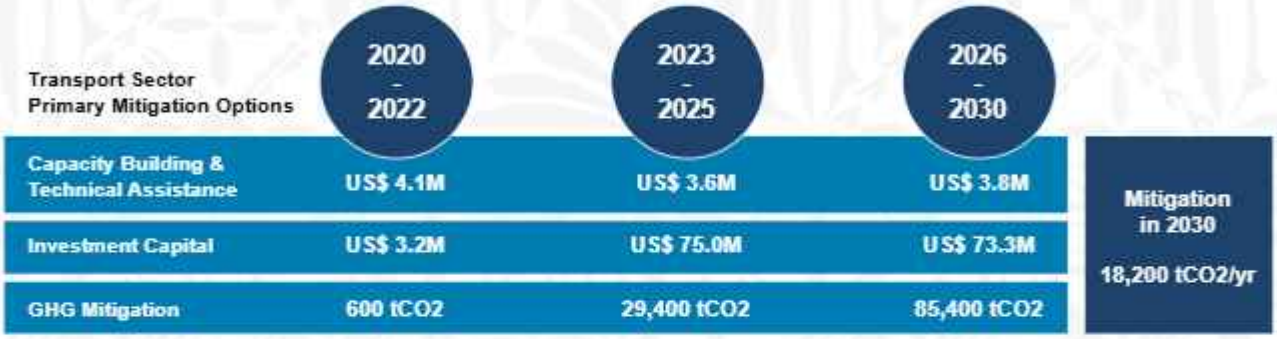


Figure 5: Consolidated temporal financing pathway – Transport Sector

2.1.1 Maritime transport mitigation actions

The maritime transport mitigation actions under this NDC Roadmap focus on actions that are implementable between 2022 and 2026, running continuously through the long-term and having a measurable impact on GHG mitigation through 2030. These actions include sectoral planning, utilisation of fuel-efficient outboard motors, and building and operationalising low-carbon vessels. The figure below gives the name of the mitigation actions, their potential for mitigation in 2030, needs for Capacity Building and Technical Assistance (CB & TA), and capital investment needs.



Figure 6: Mitigation actions in maritime transport (2020-2030)

A. National Action Plan for Decarbonising Maritime Transport

This action will provide technical assistance for the preparation and implementation of a national action plan for decarbonising maritime transport, including for lodging in collaboration with the International Maritime Organisation (IMO)[12]. The plan will address means to encourage decarbonisation of international ships visiting Kiribati's ports, ships flagged to Kiribati, and all other domestic vessels, through a set of policies, incentives, and investments that will support the transition of Kiribati's domestic shipping sector towards zero-carbon (the other pipeline projects proposed below will form part of this national action plan). Implementation of this plan, once developed and approved, will support and guide investment towards low-carbon options rather than BAU, and will reduce GHG emissions by 40% by 2030 and 100% by 2050 from the maritime transport sector.[13]

B. Outboard Motor Transition

This action replaces 2,010 of the 2-stroke outboard motors used in Kiribati with either 4-stroke motors (1,560) or electric outboards (450) by 2030. The action will also include a capacity building and training programme for maintenance and operation of the alternative outboard motors for boat operators and mechanics. 4-stroke outboards are considerably more energy efficient than 2-stroke motors, which are likely the single largest source of GHG emissions for the Kiribati domestic maritime sector. Electric outboards (assuming that recharging is from renewable sources) require no fossil fuels. This action, therefore, will result in reduced GHG emissions by reducing fossil fuel consumption.

C. Low Carbon Mini-Container Ship

This action includes investment in a mini-container ship of 80 twenty-foot equivalent unit (TEU) capacity to be operated by Kiribati National Shipping Limited (KNSL). Because maintaining essential sea connectivity is a core priority of the GOK, this vessel will be government owned and operated. The vessel design will incorporate space for limited domestic passenger transport between Kiribati's three island groups. Depending on an options assessment and feasibility, the vessel will be either a low carbon new-build (preferred) or a second-hand vessel retrofitted with a range of emissions abatement measures. Under the new build scenario GHG emissions will be minimised through advanced hull and propeller design, wind-hybrid main propulsion, solar/wind/biofuel auxiliaries, low energy berths and maximised operational efficiencies.

D. Small Low Carbon Cargo/Passenger Freighter

This action includes the investment in a freighter of approximately 200 tonnes, with some passenger capacity, to be operated by KNSL. The freighter will serve as a general service vessel primarily to smaller atolls to maintain basic supply routes outgoing and copra/primary produce coming inward. The vessel will be similar in design to the low carbon freighter being designed under the Cerulean Project but with allow for limited domestic passenger capacity.[14] A low-tech, low-carbon, low-cost approach to design will be undertaken to build this freighter. Assuming a new build is purchased, GHG emissions will be minimised through advanced hull and propeller design, wind-hybrid main propulsion, solar/wind/biofuel auxiliaries, low energy hotel services and maximised operational efficiencies.

E. Zero Impact Cruise Liner

This action calls for the implementation of a pilot 'zero impact' small scale cruise liner with capacity of 40-50 passengers operating from Tarawa to the Phoenix Islands Protected Area (PIPA), which is the largest designated Marine Protected Area in the world.[15] The vessel, will be a true blue-water vessel capable of self-sufficiency throughout routes of up to 2,500 NM with near-zero impact on the maritime or terrestrial environment, and with a zero-carbon operating footprint. The design may include wind/electric hybrid propulsion, renewable energy (biofuel/solar/wind) for auxiliary hotel load[16], advanced hull

12 The Marine Environment Protection Committee (MEPC) of IMO held in November 2019 agreed a draft resolution supporting IMO Member States to prepare National Action Plans to complement the IMO Initial Strategy for reduction of GHG emissions from international shipping, and for such plans to be submitted to IMO to enable collaboration and sharing of information (see IMO: National Action Plans and Strategies (accessed 2020) http://www.imo.org/en/OurWork/Environment/PollutionPrevention/AirPollution/Pages/RELEVANT-NATIONAL-ACTION-PLANS-AND-STRATEGIES.aspx)

13 Kiribati NDC does not include a specific target for decarbonisation of the maritime transport sector. The targets provided here are those agreed to work towards by the Pacific Transport Ministers in September 2018 (see 24.II Pacific Regional Energy & Transport Ministers Meeting (Sept 2018) Final Outcomes Statement https://spccfpstore1.blob.core.windows.net/digitallibrary-docs/files/a9/a9cb5b2fbed4b66a9f2ac346ef1b8876.pdf?sv=2015-12-11&sr=b&sig=e0rC%2Bt878t7g6n796klU%2FUjFGOzxw5eRLK6p%2FM4gTdM%3D&se=2021-02-03T00%3A31%3A11Z&sp=r&rscc=public%2C%20max-age%3D864000%2C%20max-stale%3D86400&rsct=application%2Fpdf&rscd=inline%3B%20filename%3D%224_PRETMM_MINISTERS_Outcome_Statement_FINAL.pdf%22)

14 Cerulean Project - A Swire Shipping/USP Partnership (accessed August 2020). https://mcst-rmiusp.org/index.php/projects/current-projects/cerulean-project

15 Conservation International. Phoenix Islands Protect Area project (accessed August 2020) https://www.conservation.org/projects/phoenix-islands-protected-area

16 Energy used on ships for anything other than propulsion is defined as "hotel load" and includes lighting, air conditioning, communications, refrigeration, water desalination, and entertainment.

design, and battery storage. The cruise liner will support the GOK objective to develop PIPA as the core component of a niche zero-impact tourism industry, which can generate employment opportunities and foreign currency for the country.

2.1.2 Land transport mitigation actions

The land transport mitigation actions under this NDC Roadmap are implementable between 2022 and 2025 but are considered long-term in nature with a measurable impact on GHG mitigation through 2030. These actions are:

- increasing the use of bicycles,
- shifting to public transport, and
- use of biofuel blends.

The figure below gives the name of the mitigation actions, their potential for mitigation in 2030, needs for Capacity Building and Technical Assistance (CB & TA), and capital investment needs.



Figure 7: Mitigation actions in land transport (2020-2030)

F. Bicycle/E-Bike Financing Initiative

This action enhances the access and use of bicycles and e-bicycles in Kiribati, which continue to be more popular in Kiribati compared to other PICs. This opportunity involves the inclusion of 7,000 standard bicycles and 7,000 e-bicycles imported into Kiribati and replacing 60% of the motorbikes expected to enter the market in Kiribati under BAU conditions. Ensuring bicycle use as a primary source of transport for people of all ages (reducing reliance on motor vehicle use and associated fuel consumption) can strengthen household cost savings, GHG emission reductions, and provide potential health benefits for the population of Kiribati. This action also includes capacity building to mechanics for the maintenance of standard bicycles and e-bicycles, and the provision of initial spare parts, as a means to encourage the sustainable use of bicycles.

G. Multi-modal Transit Initiative

Public transport in Kiribati is not organized under a formal state-structured system or a robust licensed commercial operator system found in other PICs. Congestion and increases in single-occupancy travel are placing a strain on the road network, which is comprised of a single two-lane road through most of South and North Tarawa while other roads are largely unpaved elsewhere in Kiribati. This action will provide technical assistance, capacity building, and investment in motorised transit services (e.g. buses), which will offer more passenger capacity per vehicle for transit between communities. This action includes establishing Public Private Partnerships (PPPs) to operate up to 132 buses in Kiribati and the operational infrastructure need to continually run them. In addition to reducing GHG emissions, this action will increase mobility and

equity for those in society without driver's licenses, improving options for women, youth, elderly, disabled persons, low-income travellers, and other vulnerable groups.

H. Biofuel Blends in Land and Maritime Transport

A range of sustainable fuels are in use globally, which can be suitable alternatives for vehicles in Kiribati. This action involves the import and use of biofuel blends for diesel and petrol, and the construction of necessary infrastructure to enable the use of these fuels. The applicability, appropriateness, and financial viability of this option is likely dependent on the scale of use of biofuel blends in other PICs, such as Fiji and Samoa. Biofuel blends will need to be shipped from Singapore to fuel transfer hubs in Fiji or directly to Kiribati. Technology piloting in the maritime sector is ongoing, but biofuel blends in land transport, especially biodiesel and ethanol blending, are already used and mandated extensively in Brazil, Europe, North America and Indonesia.

2.1.3 Aviation transport mitigation actions

The single aviation mitigation action under this NDC Roadmap involves operational training to decrease energy use aviation operations and starts implementation in 2021 and will run continuously through 2030. The figure below gives the name of the mitigation actions, their potential for mitigation in 2030, needs for Capacity Building and Technical Assistance (CB & TA), and capital investment needs.



Figure 8: Mitigation action in aviation transport (2020-2030)

I. Aviation Operational Training Programme

This action calls for providing technical assistance for re-training the Air Kiribati and Airports Kiribati staff, and is expected to yield minor emissions reductions through improved on-the-ground and domestic in-flight systems management, air traffic management, and associated operational efficiency measures. This will not necessitate any specific changes in technology, as it can be behavioural change and integration of best practices to realise the energy efficiency gains made through better us of technology centric measures. It will also address the introduction and training on use of emerging technology as it becomes available in Kiribati.

2.2 Mitigation in the Energy Efficiency Sector

The mitigation actions related to achieving energy efficiency in the 2020-2030 period have a total indicative cost of US$ 47.5M, including US$ 4.0M in capacity building & technical assistance, and US$ 43.5M in investment capital. The priority mitigation opportunities have the potential to reduce 62,500 tCO_2 in the 2020-2030 period, reaching a mitigation potential of 14,900 tCO_2/yr in 2030. This is a potential mitigation of 19% of the estimated BAU baseline in 2030 as defined in the (Intended) NDC. The Figure below shows the periodic breakdown of indicative capacity building & technical assistance needs, investment capital needs, and mitigation potential. More information on the temporal financing pathway for the mitigation actions can be found in the NDC Investment Plan.

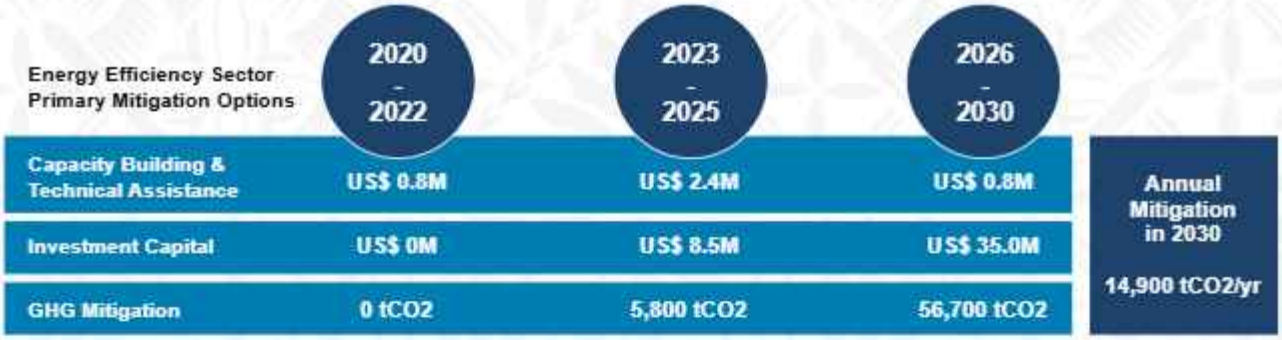


Figure 9: Consolidated temporal financing pathway – Energy Efficiency Sector

2.2.1 Power and appliances mitigation actions

The power- and appliances-related mitigation actions under this NDC Roadmap are implementable between 2021 and 2025, but are long-term measures likely to have a substantial impact on GHG mitigation through 2030. These actions are sectoral planning, address utility and demand side management, and appliance labelling. The figure below gives the name of the mitigation actions, their potential for mitigation in 2030, needs for Capacity Building and Technical Assistance (CB & TA), and capital investment needs.



Figure 10: Mitigation actions in power and appliances (2020-2030)

J. Strengthening and Expanding the Standards and Labelling Programme for Appliances

This action calls for capacity building and technical assistance to support the further development, broader implementation, and enforcement of the standards and labelling (S&L) programme, through expansion into new appliance categories in Kiribati. This includes a market survey for the 3 products/appliances[17] being covered, developing the minimum energy performance standards (MEPS), the higher energy performance standards (HEPS), and the labels for the three products/ appliances, as well as an awareness raising campaign to support the S&L programme. This action will be implemented in combination with the Utility Led Programme to Manage Peak Demand and Savings in South Tarawa.

K. Utility Led Programme to Manage Peak Demand and Savings in South Tarawa

This action calls for the provision of technical assistance and training to the Public Utility Board (PUB) and MISE to control peak demand and save energy in Kiribati through three initiatives: developing and implementing a demand side management (DSM) programme; developing and implementing a demand response (DR) programme; and revision of the power tariff to incorporate demand charges with time of day (TOD) tariff and power factor incentives/penalties for larger users. In support of the DSM and DR programme, training programmes, and awareness raising programmes and a TV and social media campaign will be carried out and a guideline will be developed.

17 MISE is planning to initiate the S&L programme for air-conditioners, refrigerators and lighting products, though not much progress has been made. Depending on the progress being made, the action will support these three products/appliances or three other widely used products/appliances such as fans, TVs, water pumps, washing machines.

The first initiative[18] under the DSM programme will promote the use of more efficient household appliances through bulk procurement of higher energy efficiency household appliances by major retailers for distribution to approximately 9,200 households on South Tarawa over a period of 6 years. The households will be encouraged to return their old appliances to participate in this programme, which will be disposed of through means of recycle in place at the time. A study will be undertaken for overall design of the DSM and DR programmes, including to determine a feasible subsidy rate (consumer discount and/or taxation changes) for the appliances. A mechanism for on-bill financing will be developed to promote affordability.

The DR programme component will involve identifying key non-critical loads in the grid that can be either shifted to off-peak periods of operation or taken offline when there is demand driven stress on the grid. This programme includes providing incentives for those participating in the programme and identifying the means for monitoring and controlling such DR actions.

Considering the period till 2030, the DSM programme and the introduction of TOD tariff is expected to lead to a reduction in peak demand of up to around 6.3 MW and energy savings of around 49,000 MWh.

L. Capacity Building for Integrated Energy Planning and Energy Statistics in Kiribati

This action calls for building capacity on energy statistics and integrated energy planning for key stakeholders in Kiribati such as MISE, PUB, Kiribati Solar Energy Company (KSEC) and Kiribati Oil (KOIL), which could potentially be integrated into a multi-country effort. The program will include training on integrated energy planning, the development of academic modules that can be integrated into existing courses at USP and the strengthening of institutional capacity in Kiribati on integrated energy planning. It is assumed that these measures will indirectly contribute to an annual reduction of up to 1% of the national primary energy consumption, and the new information systems developed will support other energy efficiency actions.

2.2.2 Buildings, industry and government mitigation actions

The mitigation actions addressing energy efficiency in buildings, industry and government procurement under this NDC Roadmap are implementable between 2024 and 2029, resulting in measurable reductions in GHG emissions through 2030. The figure below gives the name of the mitigation actions, their potential for mitigation in 2030, needs for Capacity Building and Technical Assistance (CB & TA), and capital investment needs.



Figure 11: Mitigation actions in buildings, industry and government (2020-2030)

18 This activity will have a close link to the product standards and labelling (S&L) programme as products that are energy labelled through the S&L programme (if they are available during the period of the DSM activity) will be procured and distributed under the DSM activity. The proposed DSM activity can help counter a potential increase in prices of the energy labelled appliances through the S&L programme and can help increase awareness of the benefits of these appliances. By the time the S&L programme is fully operational and effective, the DSM activity can be gradually phased out, as the S&L will by themselves eliminate the low energy efficiency products from the market. However, the DSM programme can continue with other demand side energy efficiency initiatives.

M. Supporting the Retrofitting of Major Hotels and Commercial Buildings

This action will be led by MISE and will provide technical assistance and financial support to hotels and commercial buildings for carrying out energy audits and cost-effective retrofits in up to 15 hotels and commercial buildings. Preliminary energy audits will be conducted in 20 hotels and commercial buildings, followed by detailed audits in 15 buildings. Technical and financial support will be provided to implement the recommendations of the audits in the 15 facilities. An ex-post audit will be conducted to assess the actual energy savings achieved and ensure the proper use of fiscal incentives. The retrofits are expected to reduce energy consumption by up to 40% in each of the participating facilities.

N. Promotion of Sustainable Procurement

This action calls for technical assistance and capacity building for the Central Procurement Unit of the Ministry of Finance and Economic Development (MOFED) for integrating the concept of sustainable procurement into existing public procurement rules and processes. This will also include the development of sustainable procurement guidelines for high volume and carbon-intensive products. This action will also support the implementation of cooperative procurement between government agencies in Kiribati, state-owned enterprises and/or larger private organisations. It may also include sub-regional or bilateral cooperative public procurement with entities located in other PICs. Training will be conducted on sustainable procurement and a module will be developed by USP on the topic to be integrated into regular academic courses and an online course on the topic will also be developed.

O. Capacity Building in Energy Efficiency in Industry

This action calls for the provision of technical assistance and capacity building to support the upgrading of critical industrial equipment to promote energy efficiency and cost savings. A national survey and mapping of energy-intensive activities in the industry sector will be conducted in fish processing plants, copra processing plants, ice plants and others, followed by detailed energy audits to assess the potential technology options or operation and maintenance approaches available to improve energy efficiency. Finally, technical advisory and financial support will be provided for the implementation of the upgrades and financing options for up to five facilities. The potential for cogeneration and sharing of such resources between industrial facilities and nearby power generation facilities will be explored. For the capacity building component, a certification system for energy auditors will be developed. Training will be provided for a selected number of beneficiaries, based on demand and available resources. A system for reporting and aggregating energy data from industry will also be developed. Assuming 25% reduction in energy consumption, around 340 Terra Joules is expected to be saved through 2030 due to the different activities taken.

2.3 Contributions to the Sustainable Development Goals (SDGs)

The following table shows linkages between the mitigation actions described in this NDC Roadmap and the Sustainable Development Goals (SDGs) based on the broadly known impacts for the deployment of various technologies and measures defined in the mitigation actions in the sectors. More detailed quantitative / qualitative assessments will be required during implementation to determine attribution to the SDG targets.

Table 2: List of the mitigation actions expected contributions to the SDGs

Sustainable Development Goals (SDGs)[19]	Mitigation Action														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1 No Poverty	✓	✓	✓	✓	✓		✓		✓						
2 Zero Hunger		✓	✓	✓											
3 Good Health and Well-Being		✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓
4 Quality Education															
5 Gender Equality						✓	✓								
6 Clean Water and Sanitation							✓								
7 Affordable and Clean Energy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8 Decent Work and Economic Growth	✓	✓	✓	✓	✓	✓	✓		✓						
9 Industry, Innovation and Infrastructure							✓		✓	✓	✓	✓	✓	✓	✓
10 Reduced Inequalities						✓	✓		✓						
11 Sustainable Cities and Communities						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12 Responsible Consumption and Production	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13 Climate Action	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14 Life Below Water	✓	✓	✓	✓	✓	✓									
15 Life on Land						✓	✓								
16 Peace, Justice and Strong Institutions															
17 Partnership for the Goals	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

19 https://www.un.org/sustainabledevelopment/



3. INSTITUTIONAL ARRANGEMENTS FOR IMPLEMENTATION

A high-level mapping of key stakeholders and their roles is given in the figure below taking into account the total portfolio of fifteen actions for the transport and energy efficiency under this NDC Implementation Roadmap.[20] Implementation of the roadmap will require robust institutional arrangements, including mitigation actions by stakeholders as well as support (technology transfer, capacity building, and finance) needed to implement the mitigation actions.

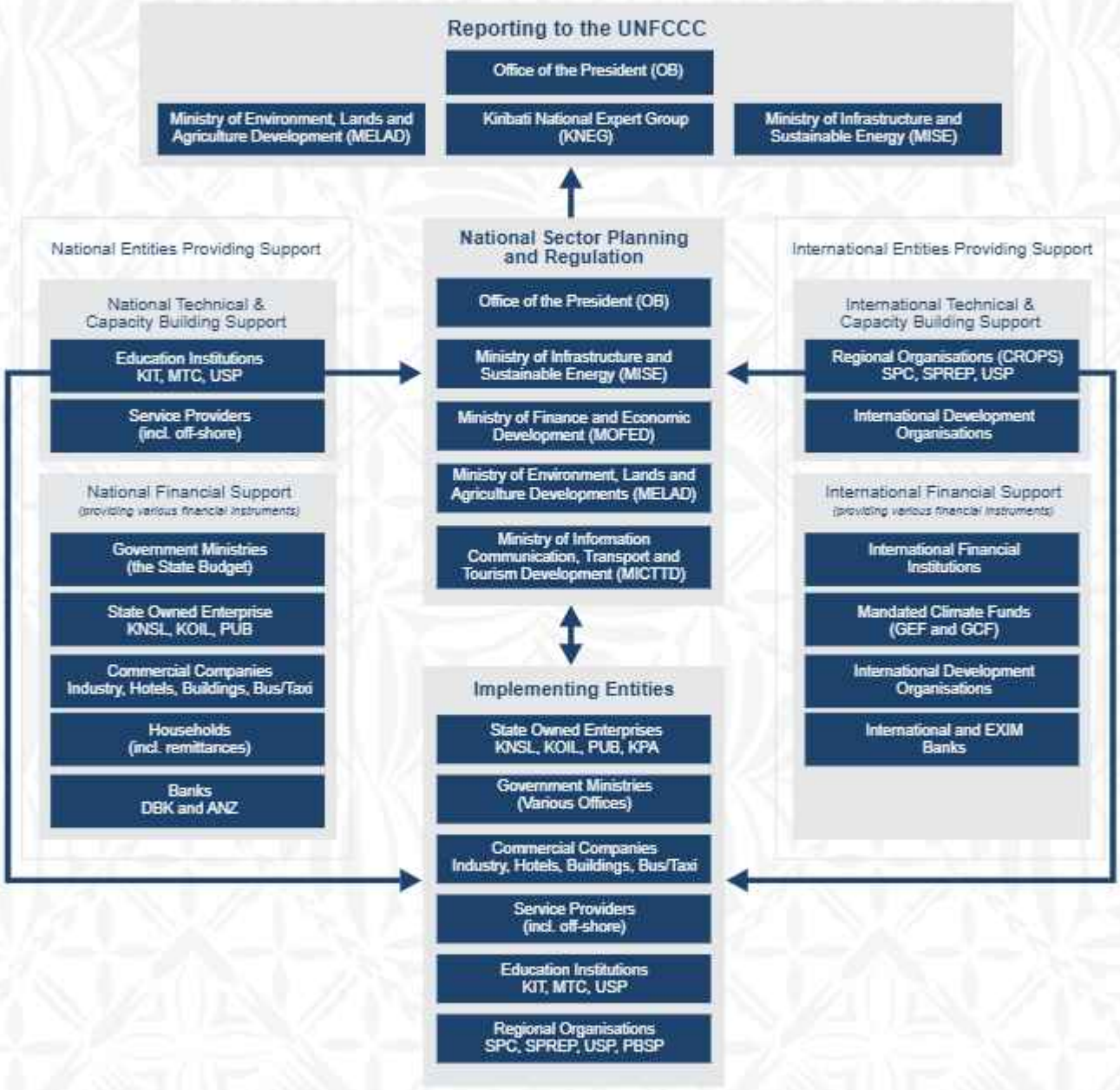


Figure 12: Institutional arrangements for implementation

20 Potential stakeholder roles specific to each mitigation action can be found in the NDC Investment Plan and Projects Pipeline.

The points below provide highlights of the five macro-level roles for the different stakeholders, noting that some stakeholders can potentially address more than one role, as seen in the Figure 12.

- ***Reporting to the UNFCCC:*** It is proposed to continue existing practice, where the Office of the President (OB) currently has the overall responsibility to report on the progress of implementation of the NDC to the GOK and the UNFCCC. The progress reporting will be developed by the Ministry of Environment, Lands and Agriculture Developments (MELAD) with information complied by the Ministry of Infrastructure and Sustainable Energy (MISE) and reviewed by the Kiribati National Expert Group (KNEG). This arrangement is the top of the MRV framework described later in Chapter 4, and the information will also be used by applicable ministries to inform international partners about the progress of individual mitigation actions.

- ***National Sector Planning and Regulation:*** All of the mitigation actions included in this NDC Roadmap require different magnitudes of sectoral planning and regulations (both new or changes thereof). Sectoral planning and regulations are handled by the respective ministries who hold statutory authority over the different activities to be implemented within each mitigation action. For mitigation actions in this NDC Roadmap these GOK entities are primarily OB, MELAD, MISE, Ministry of Finance and Economic Development (MOFED), and Ministry of Information Communication, Transport and Tourism Development (MICTTD).

- ***Implementing Entities:*** The private sector (commercial companies and service providers), State Owned Enterprises (SOEs), educational institutions, regional organisations (such as the Council of Regional Organisations of the Pacific, CROP), and departments of different ministries will manage and implement the activities of the mitigation actions. Due to the different capacities and resources available to these entities, several of them will likely need to be involved in implementing each mitigation action. One of the challenges will be ensuring sustainable partnerships and coordination between these implementing entities.

- ***National Support Entities:*** These entities provide support in the form of technical training and capacity building, and mainly consist of national education institutions and service providers. Some may also provide finance or domestically managed international finance will be provided. Examples of these entities include ministries, SOEs, private sector (commercial companies and households), and national banks.

- ***International Entities Providing Support:*** These entities also provide support in the form of technical assistance and capacity building, and mainly consist of national CROPs and international development organisations. Some may provide funds through financial instruments, such as grants or innovative debt related products. Examples of these entities include: International Finance Institutions (IFIs), climate funds, international development organisations, and international & EXIM banks.

Kiribati is one of the smaller Pacific Island Countries (PICs) facing the same common challenges as other PICs in the development, implementation, and financing of climate change and social and economic development. This reality of common challenges has significant potential to be addressed in the PICs through multi-country efforts to increase effectiveness and efficiency, guided by a country driven process. To optimise PICs wide efforts in climate change, including for NDC implementation and finance, multi-country efforts specific to certain sectors should be emphasised via single coordinating entities who will manage a multi-partner approach, to optimise shared resources, ensure a coordinated and collective effort, and capitalise on economies of scale.

4. MEASUREMENT, REPORTING AND VERIFICATION (MRV) FRAMEWORK

Article 13 of the Paris Agreement establishes an enhanced transparency framework for action and support which requires parties to provide transparent information on the progress made towards their NDC targets and the support they need and have received. Furthermore, Decision 18/CMA.1 requires parties to submit to the UNFCCC Biennial Transparency Reports (BTR) every two years starting in 2024, and this decisions sets out the BTR requirements for reporting.[21] Additional guidance is provided on reporting formats proposed in SBSTA 51 items 11b and 11c.[22] The Measurement, Reporting and Verification (MRV) of progress of the NDC in accordance with the above has some identical information gathering and reporting requirements as for the UNFCCC reporting of National Communications (NCs) and Biennial Update Reports (BURs)[23], but the majority under the Paris Agreement are either new or augmented.

The boundary for implementation of Kiribati's NDC is large in terms of the physical activities which will need to be performed and the activities needed to support moving them forward. The MRV requirements can be categorised to the five NDC Thematic Areas and their sub-areas shown in the figure below, e.g. Adaptation, GHG Mitigation, GHG Inventory, Means of Implementation (MOI), and Cross-Cutting Components. For the MRV of the mitigation actions in the transport and energy efficiency sectors defined in this NDC Roadmap, three of these NDC Thematic Areas apply (outlined in red in the figure below).

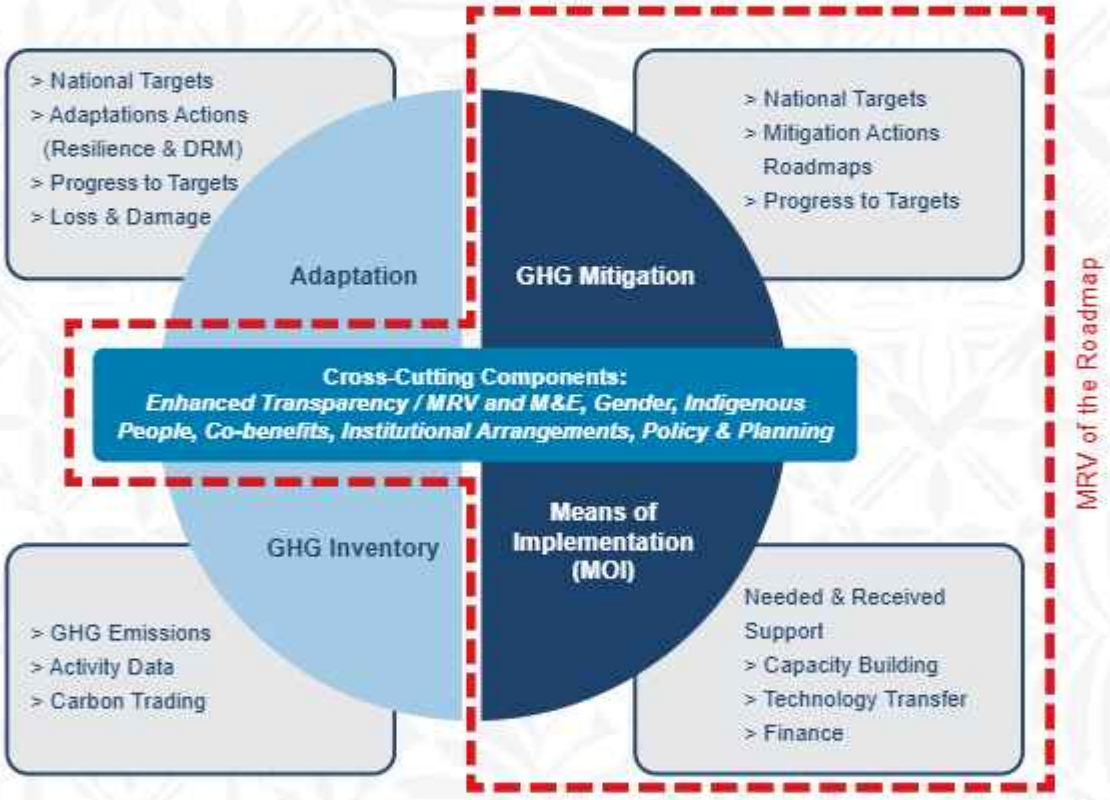


Figure 13: NDC thematic areas for MRV

The robust MRV framework for this NDC Roadmap for the transport and energy efficiency sectors will ensure transparency, accuracy, and comparability by addressing the three NDC thematic areas. As shown in Figure 14, the MRV framework and supporting activities will function in a bottom-up manner and will include the strengthening of data gathering and methodologies used for determining the following components:

A. Information on mitigation actions progress,

B. Combined subsector information (e.g. results of all mitigation actions combined),

21 "Decision 18/CMA.1 Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement" https://unfccc.int/sites/default/files/resource/cma2018_3_add2_new_advance.pdf

22 Subsidiary Body for Scientific and Technological Advice (SBSTA) 51, https://unfccc.int/event/sbsta-51

23 The Biennial Transparency Reports (BTR) is expected to replace the Biennial Update Reports (BURs) in 2024

C. Support needed & received, and

D. Cross-cutting information.

Components A and B will be determined through activity information reported by implementing entities, and components C and D will be determined through information reported by ministries and supporting entities.

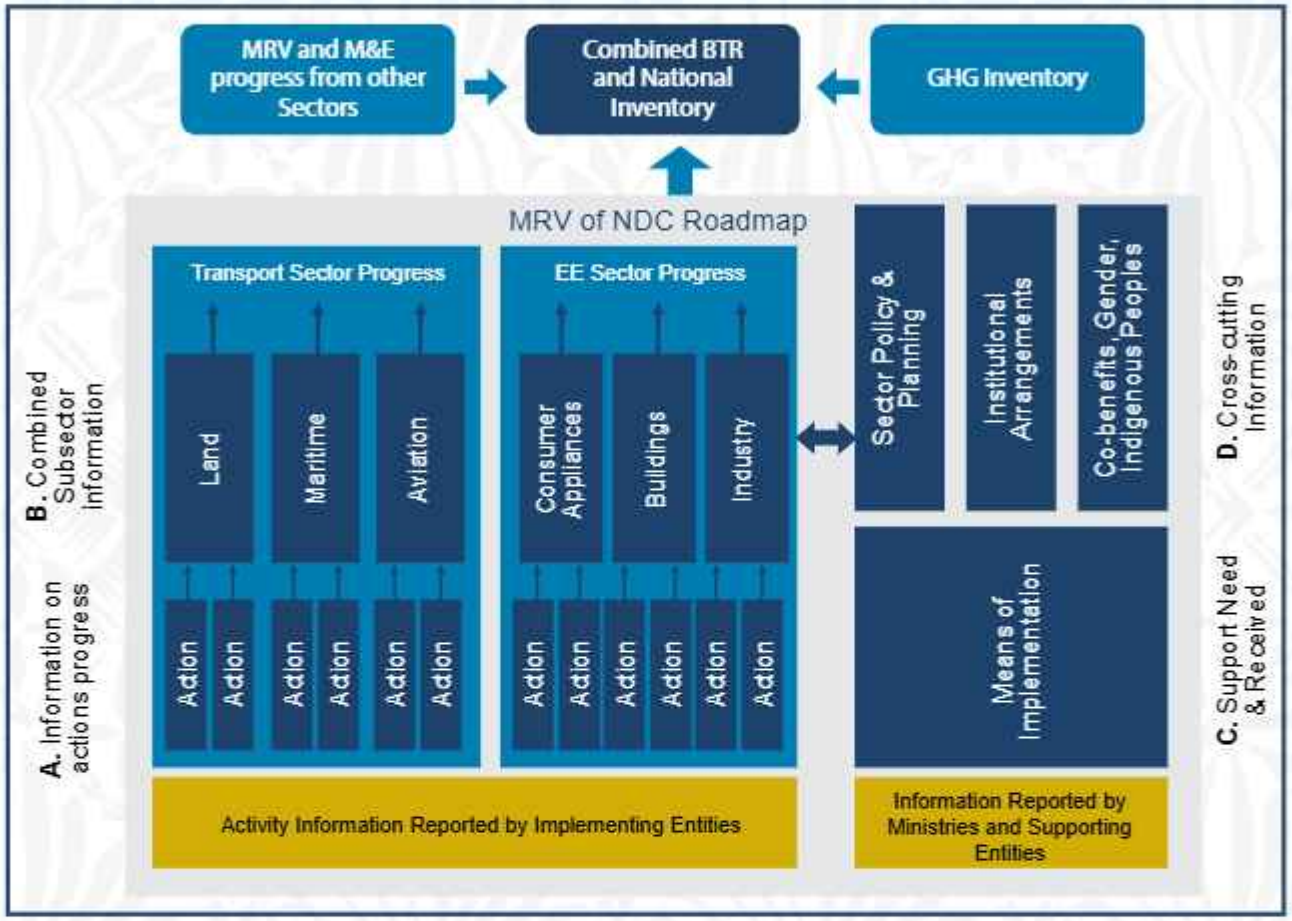


Figure 14: MRV framework for this NDC Roadmap

The MRV framework will utilise existing information and reporting pathways, identify additional data and reporting pathways where needed, use internationally recognized & strengthened methodologies, and incorporate the processes needed for verification. For determining GHG emissions mitigated IPCC 2006 guidance will be utilised where applicable, especially for activity data and methodologies. The applicable IPCC 2006 guidance is found in Volume 1 on General Guidance and Reporting, and Volume 2 on Energy. Though it is noted that the GHG mitigation data and methodologies will incorporate other elements than those found in the IPCC 2006 guidance due to country circumstances and that IPCC 2006 guidance cannot directly be applied to all the mitigation actions.

Related to this, the specific need for strengthening of data and methodologies for each mitigation action will be addressed in the short- and medium-term (2020-2025) of this NDC Roadmap, as to ensure data availability and clearly defined reporting responsibilities for entities. This strengthening of the MRV framework is quite important, as it was identified during the assessment for this NDC Roadmap (and the parallelly developed NDC Investment Plan) that available data and data-gathering is not currently of sufficient character and quality to determine highly accurate GHG emissions for most of the mitigation actions. This strengthening will take place in cooperation between the implementing entities and supporting entities associated with data gathering and reporting.

The MOI will be tracked through existing, or strengthened processes, for data and methodologies for tracking support needed and received which are specific to the mitigation actions in this NDC Roadmap. Existing systems within the GOK will allow for the reporting of sectoral policy & planning and institutional arraignments. However, strengthened systems will be needed to report in more detail on the co-benefits and impacts / responsive approaches on gender and indigenous peoples.

Table 3 below indicates the proposed board roles for key national stakeholders who will be involved in the MRV processes. The key national stakeholders are assigned proposed roles based on the four MRV components previously mentioned, macro-level coordination, and applicable sectors. More information on the stakeholders' roles in each mitigation action can be found in the NDC Investment Plan.

Table 3: Broad MRV roles for key national stakeholders

A. Information on each mitigation actions progress	B. Combined subsector information
Macro-level coordination: MELAD (and KNEG)	Macro-level coordination: MELAD (and KNEG)
Transport: MICTTD, MOFED, KIOL, KNSL	Transport: MICTTD
Energy Efficiency: MISE, MOFED, MICTTD, PUB, KOIL	Energy Efficiency: MISE
C. Support needed & received	**D. Cross-cutting information**
Macro-level coordination: OB, MOFED, DBK	Macro-level coordination: OB, MOFED
Transport: MICTTD	Transport: MICTTD
Energy Efficiency: MISE	Energy Efficiency: MISE

Table 4 below presents the broader categories of information which are expected to be reported under the MRV framework, where mitigation action specific information needed (especially for determining GHG mitigation) can be found in the NDC Investment Plan.

Table 4: Broader categories of information needed for MRV

E. Information on each mitigation actions progress	F. Combined subsector information
• Action name and brief description	• Summary of expected and achieved GHG mitigation (annualised)
• Objectives of the action	• Status of implementation by sector
• Type of instrument (regulatory, economic)	• Status of planned actions by sector
• Status (planned, adopted or implemented)	• Status of support needs by sector
• Sector affected	• Status of support received by sector
• GHG gases affected	
• Start year of implementation	
• Implementing entity / entities	
• Total costs *[optional]*	
• Co-benefits *[optional]*	
• Interaction other mitigation actions *[optional]*	
• Excepted and achieved GHG mitigation (annualised)	
• Methodology or approach used	

G. Support needed & received	H. Cross-cutting information
• Sector and Subsector • Title and description of the activity, programme, or project. • Financial amount • Channel (multilateral, bilateral, regional…) • Recipient and Implementing entities • Expected timeframe • Financial instrument type • Status (committed or received) • Supporting Mitigation, Adaptation, or Cross-cutting activities • Contributes to technology transfer or capacity building • Linkage to national strategy and/or NDC • Expected results and impact • Technology type • Methodology or approach used	• Description of institutional arrangements for planning and implementation • Description of enacted related national policies and planning • Description of the MRV framework/system • Information on inclusive gender and indigenous peoples processes in planning and implementation of the NDC.

5. FINANCING OF THE MITIGATION ACTIONS

Kiribati has one of the smallest economies in the PICs, and it cannot support all the transitional changes needed to ensure low carbon transport and energy efficiency. The private sector (households and businesses) has experience with small levels of use of equity and retail & commercial lending. While the public sector (Government of Kiribati entities) has reliable experience in the use of the state budget and grants, and in some cases limit use of other special financial instruments such as lending guarantees. The estimated US$ 210.5M in investment needed to implement the mitigation actions in this NDC Roadmap, is equivalent to 112% of Kiribati's Real GDP in 2018,[24] and 138% of the Government of Kiribati's state budget for 2018.[25]

Each of the mitigation actions for both the transport and energy efficiency sectors follows the general individual financing pathway as depicted in the below. This individual financing pathway is divided into parts:

Part A – *Financing the preparation* of the mitigation opportunities (or a part thereof) for implementation, and

Part B – *Financing the implementation* and operation of the mitigation opportunities (or a part thereof).

It is common that Part A is needed to secure financing for Part B. Part A has three components, the first of which is to prepare one or more Project Development and Funding Application(s), which can, for example, include developing a multi-donor funding project with GCF, and/or one or more bilateral projects with development agencies. These Project Development and Funding Application(s) may directly fund project implementation or may fund Capacity Building activities for strengthening of institutions before implementation, or fund Technical Assistance activities for feasibility studies and/or structuring financial instruments. Part B also has three components, the first of which is the Implementation and Operationalising of Financial Instruments (one or more) which finance the physical activities of the mitigation action, and can for example include a tax incentive or a loan facility. This is then supported by the other two components of Part B which may fund Capacity Building activities for an institution's long-term operation of the mitigation opportunity or fund Technical Assistance activities for continuous training of persons skilled in maintaining the mitigation action.

24 [value of US$ 188M] World Bank (2020) Kiribati. https://data.worldbank.org/country/KI
25 [value of AU$ 196M = US$ 152M] Government of Kiribati (2017) "2018 Budget" Dec. 2017.

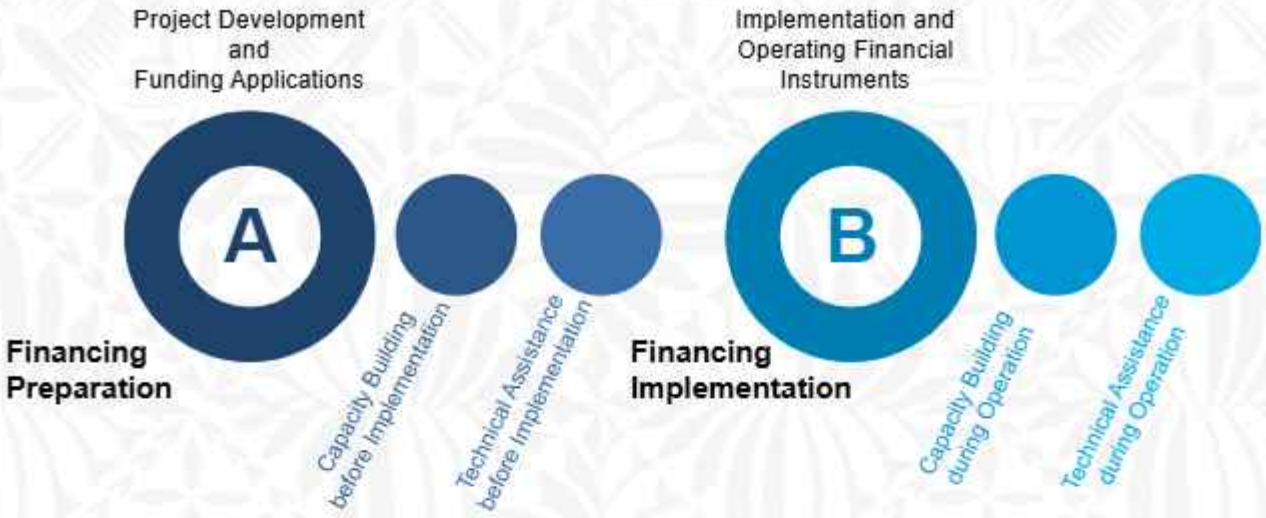


Figure 15: Individual Financing Pathway included in the estimated financing needs

In relation to private and public finance, Kiribati has a limited number of financial instruments available to fund change within the transport and energy efficiency sectors, and these are currently implemented at small scale. Figure 16 below shows financial instruments which stakeholders in Kiribati have experience with (highlighted in dark blue boxes). Figure 16 also shows financial instruments where Kiribati has limited or no experience (highlighted in light blue boxes). Many of the financial instruments shown can be used in different combinations to finance the mitigation actions presented in this NDC Roadmap, in the form of blended finance. More information on the types and sources of financial instruments which can be used to finance the mitigation actions can be in the NDC Investment Plan.

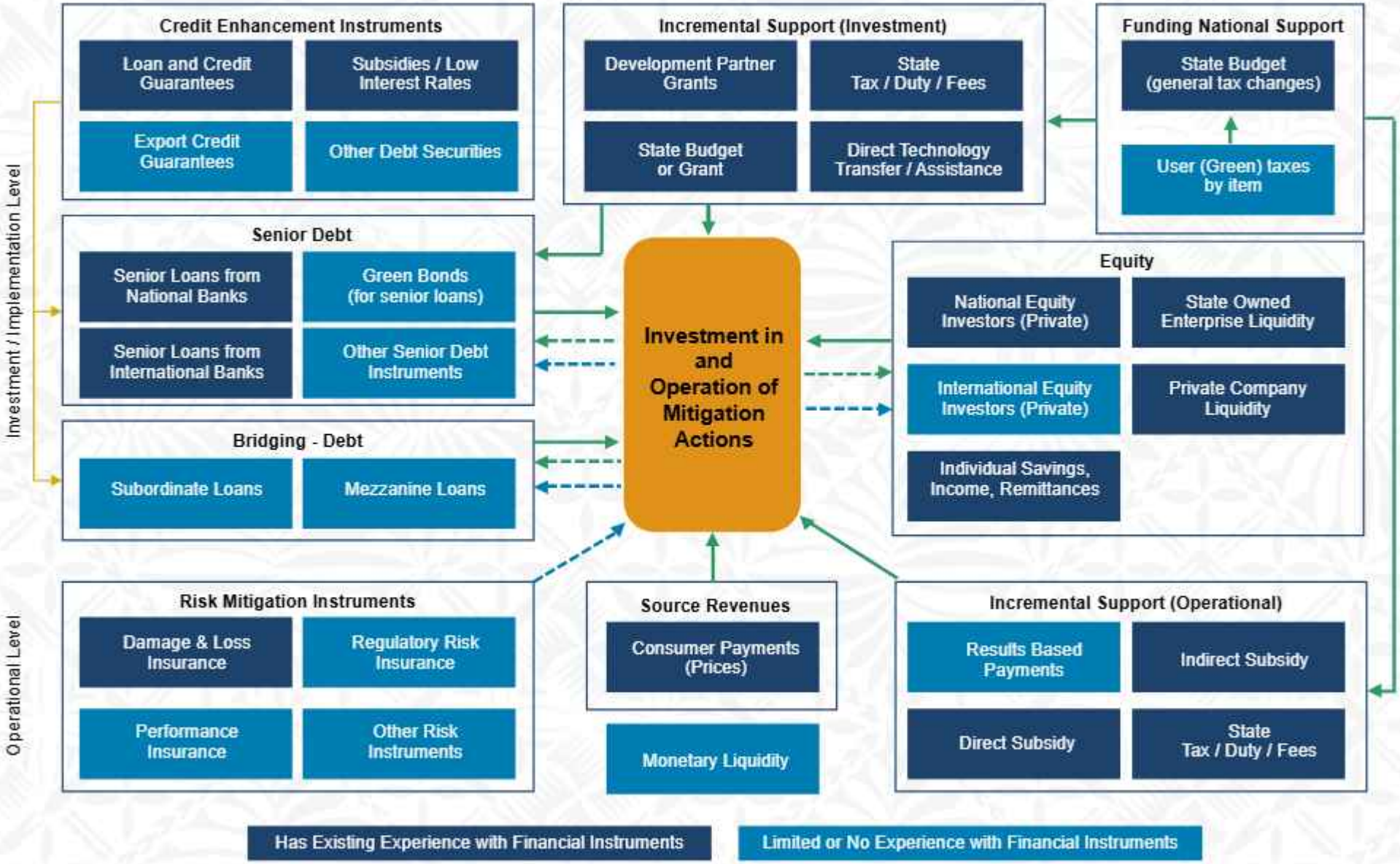


Figure 16: Financial instruments where the Transport & Energy Efficiency sector have some, limited or no experience in Kiribati

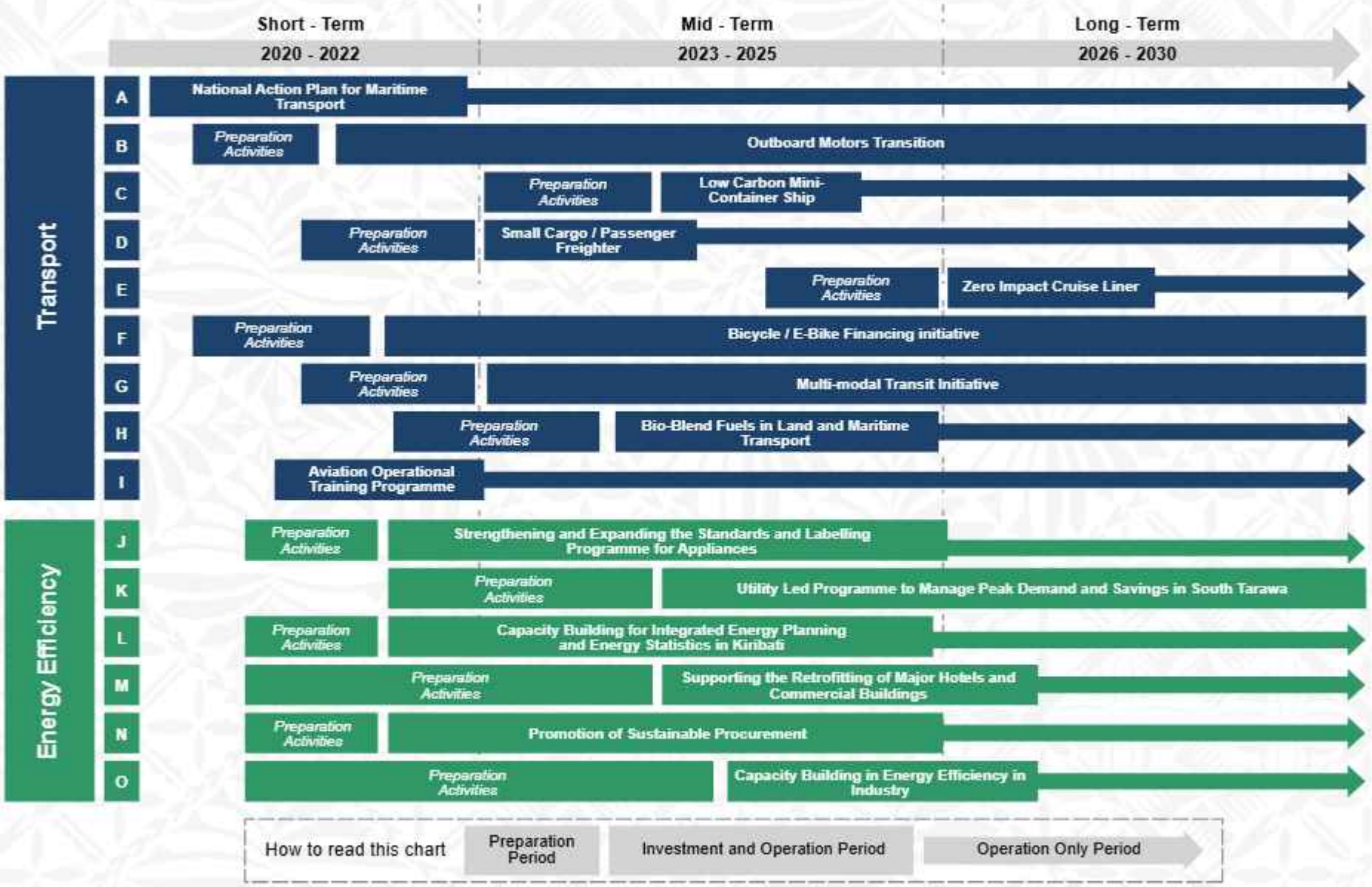
Due to past financial sector activities, stakeholders in Kiribati have limited experience with the implementation of a significate portion of the financial instruments needed to finance the mitigation actions. Existing limitations are mainly due the scale of finance needed for the financial instruments and complexity of this. Additional capacity building and technical assistance will be needed to prepare individual financial instruments for each mitigation action and scale them to the level needed to support significant GHG mitigation in the transport and energy efficiency sectors. The financing of all mitigation actions will include grants, and a few are expected include equity, debt, and fiscal policy/regulation changes which will need to work together as blended finance to ensure the level of transition needed to reach the mitigation potential of each mitigation action. Table 5 below indicates the expected financial instrument types primarily needed to implement the mitigation actions, and it is noted that secondary needs for financial instruments are possible, but these are not listed. More information regarding the potential means to finance the mitigation actions can be found in the NDC Investment Plan.

Table 5: Financial Instruments and their priority needs to finance mitigation actions

Financial Instrument Types	Priority needs to finance mitigation actions
Private Equity from Households	B and F
Private Equity from Businesses	**B, G, M, and O**
Grants for Capacity Building and Technical Assistance	A, B, C, D, E, F, G, H, I, J, K, L, M, and O
Non-Government Grants for Finance	**C, D, E, F, G, M, and K**
Guarantees for Credit	B, F, G, K, M, and O
Guarantees for Export	**NA**
Concessional Loans	B
Commercial Loans*	**B, G, K, M, and O**
Retail Loans*	B, F, and K
State Budget & SOEs	**O**
Taxation: import duties & excise, corporate, personal	B, F, G, K, and O
Insurance: Performance and Loss/Damage	**G**

** Includes the possibility of revolving loan programmes.*

6. TIME PLAN FOR IMPLEMENTATION





NDC Implementation Roadmap for Transport and Energy Efficiency Sectors in Kiribati

IMPLEMENTING PARTNERS

REGIONAL PACIFIC NDC HUB

GGGI

WITH FINANCIAL SUPPORT FROM

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Australian Aid

NEW ZEALAND
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