Kiribati

Kiribati 2022 Constraints Analysis Report

MILLENNIUM CHALLENGE CORPORATION
UNITED STATES OF AMERICA

An Analysis prepared by the Millennium Challenge Corporation of the United States of America for the development of a Millennium Challenge Threshold Program with the Republic of Kiribati.

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Abstract

Kiribati has a unique geography, comprising three distinct island groups of 33 islands in the Pacific Ocean. As a low-lying atoll country, Kiribati is extremely vulnerable to impacts of climate change and has limited capacity to cope with natural disasters. Despite slow and uneven economic growth in recent decades, extreme poverty rates (at the $1.90 per day per capita poverty line) in Kiribati declined from 13 percent to 5 percent between 2006 and 2019. Outside of the capital island of South Tarawa, a subsistence economy predominates, characterized by high dependence on natural resources (particularly fisheries and copra products) and low levels of productive employment and labor market participation. Like most small Pacific Island developing states, Kiribati faces limited opportunities to diversify production and exports; fishing is the dominant source of foreign exchange. The country has a relatively large public sector (including approximately 28 state-owned enterprises) that accounts for roughly two-thirds of the 10 percent of the population in wage employment.

The Kiribati Constraints Analysis identified three binding constraints to inclusive economic growth in the country: (1) disproportionately low participation of I-Kiribati ("I-Kiribati" is both the noun and adjective used to refer to the Kiribati people) workers in opportunities for international labor mobility; (2) insufficient fiscal capacity and public financial management to meet climate-resilient development needs; and (3) vulnerability to degradation of critical coastal natural capital, exacerbated by population pressures and climate change. Further, the analysis examined the consequences of each constraint for vulnerable population subgroups, including women and youth. These three binding constraints were proposed for more detailed exploration in the subsequent Root Cause Analysis ("RCA") phase of MCC's program development process.

Country Context

Geography

Kiribati comprises three distinct island groups in the Pacific Ocean—the Gilbert Islands, the Line Islands, and the Phoenix Islands (see Figure 1 below). The country has a total of 32 coral atolls and one raised coral island, straddling the Equator (and until 1994, the International Date Line). The capital, Tarawa, lies about halfway between Hawaii and Australia. A British colony since 1916, the Gilbert Islands became independent as Kiribati ("Kiribati" is the Gilbertese spelling of "Gilberts") in 1979.

Kiribati has a unique geography, including 811 km2 of land mass (about four times the size of Washington, DC) and 1,143 km of coastline dispersed over an exclusive economic zone ("EEZ") of about 3.5 million km2, an area slightly larger than that of India.[1] The country has the world's largest (and deepest) UNESCO World Heritage site, the Phoenix Islands Protected Area.

As a low-lying atoll country,[2] Kiribati is extremely vulnerable to climate change and has limited capacity to cope with natural disasters. Climate variability intermittently causes extreme weather events in Kiribati driven by the El Niño-Southern Oscillation; such events are predicted to become more frequent.[3] The ND-GAIN Exposure Index—a summary measure of countries' exposure to climate change impacts[4]—for Kiribati is several standard deviations above expectations based on a cross-country regression. An analysis by the Global Facility for Disaster

1 CIA World Factbook. This is the world's twelfth-largest EEZ, ranked between those of Brazil and Mexico (*https://www.worldatlas.com/articles/countries-with-the-largest-exclusive-economic-zones.html*).

2 Kiribati has a mean elevation of 2 meters (CIA World Factbook).

3 "Climate variability and climate change are already causing and are predicted to continue to cause increased surface air and sea temperatures, increased precipitation throughout the year, more days of extreme rainfall and heat, rising sea levels and increasing ocean acidification" Government of Kiribati (2014 and 2019, p. 8).

4 The Notre Dame Global Adaptation Initiative (ND-GAIN) Exposure index gauges the extent to which human society and its supporting sectors are stressed by the physical factors associated with future changing climate conditions. See *https://gain.nd.edu/assets/254377/nd_gain_technical_document_2015.pdf* for details.

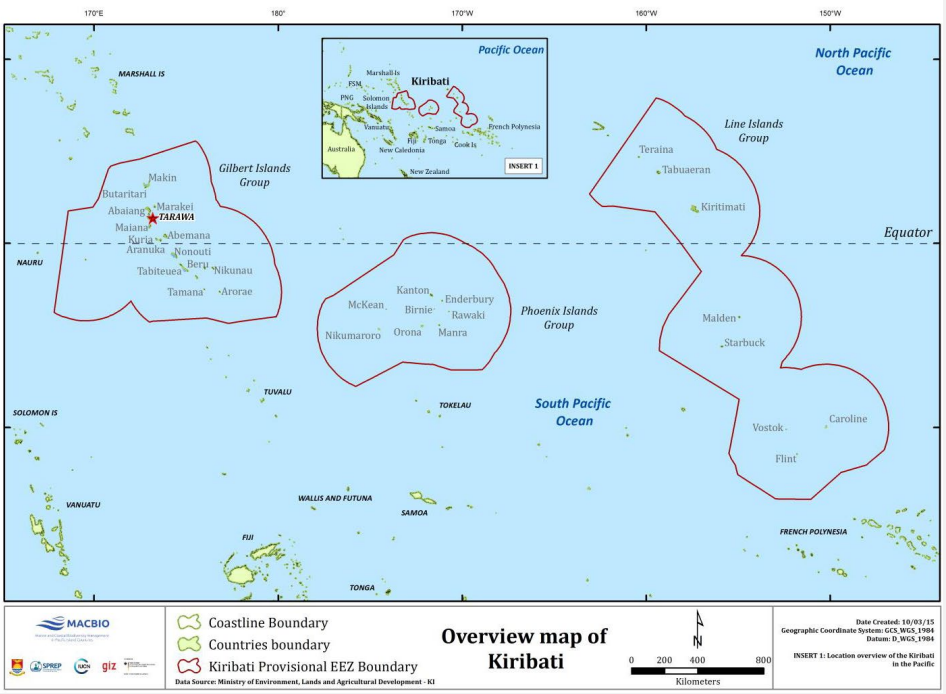
What is a Constraints Analysis?

MCC's evidence-based approach begins with a constraints-to-economic growth analysis (CA). In a CA, MCC works with a partner country to examine and prioritize the issues that constrain its economy. The CA approach builds on the "growth diagnostic" framework put forward by economists Ricardo Hausmann, Dani Rodrik, and Andrès Velasco (HRV). As HRV point out, all developing countries face significant economic and development challenges, but these challenges do not all equally restrict growth. The diagnostic framework provided by HRV helps to structure the investigation of potential binding constraints. It has been refined through application, both within MCC and the broader economic development community.

Why Does MCC Use Constraints Analysis?

Identifying the most binding constraints to growth helps MCC target its investment on the areas that, if addressed, are most likely to promote sustainable, poverty-reducing growth in a given country. Prioritization helps maximize the limited financial resources and implementation capacity needed to effect change. As HRV also argue, focusing on the most binding constraints helps to minimize the risk that development interventions create negative unintended economic consequences.

FIGURE 1: Detailed map of Kiribati



Source: MACBIO

Reduction and Recovery[5] highlighted coastal flooding and tsunamis (and to a lesser extent extreme heat) as the most critical natural hazards facing Kiribati. Regarding the threat of sea level rise, the summary assessment of the joint World Bank and Asian Development Bank Climate Risk Country Profile is that:

> [T]he most high-profile climate risk, that of permanent inundation and land loss is serious, and likely to impact on relatively impoverished communities, though its historical framing may lack nuance. The likelihood of a complete end to the viability of human inhabitation of Kiribati's islands seems low, but climate-driven risks are expected to grow. Damage and loss seem inevitable, and some relocation of populations likely.[6]

Kiribati's Joint Implementation Plan for Climate Change and Disaster Risk Management[7] attempts to systematically address these challenges. Overall, the current strategic orientation of government is to build resilience and to push back on the "Kiribati is sinking" narrative that was indirectly enabled by the previous administration's efforts to raise awareness regarding the impacts

5 Global Facility for Disaster Reduction and Recovery. ThinkHazard!, cited in Tiedemann *et al.* 2021:42.

6 World Bank and Asian Development Bank (2021:16). See also Sengupta *et al.* (2021) for a more technical exposition, which Pala (2021) summarizes thusly: "Coastal geomorphologists report that atoll islands, unlike rocky islands, are in equilibrium with the ocean: storm waves that wash over atolls every year or two deposit sand, raising the islands."

7 Government of Kiribati (2014, 2019).

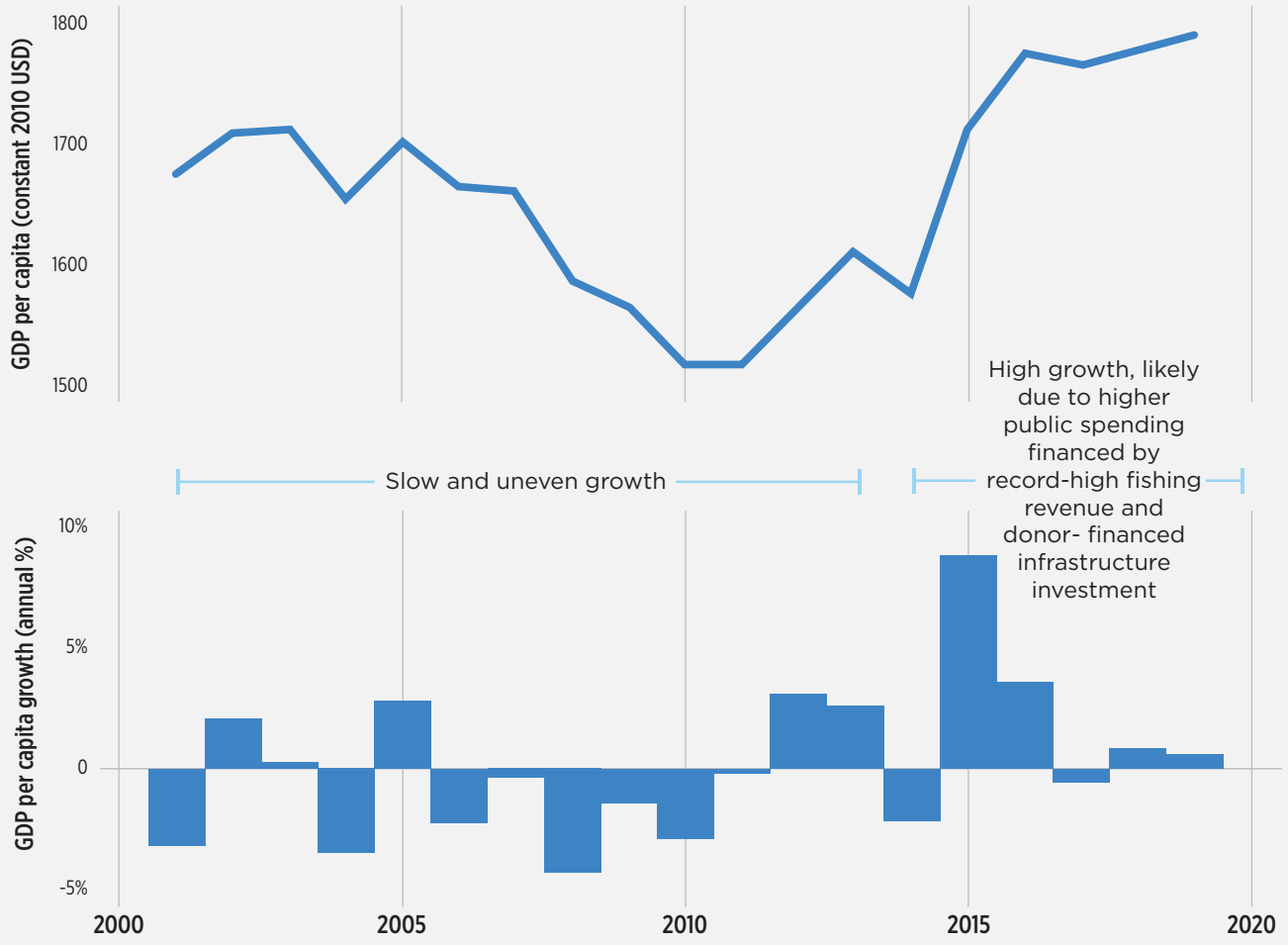
of unmitigated climate change. While the adaptation challenges are manifold, the Government of Kiribati's approach for the medium term is not (at present) undermined by the state of the science, though outlier rapid sea level rise scenarios[8] raise concern, as do projections beyond this century.

Economy

Kiribati has seen slow and uneven growth in gross domestic product ("GDP") per capita over recent decades (see Figure 2 below). The outlier in 2015 was likely due to higher public spending financed by record-high fishing revenue and donor-financed infrastructure investment. Real GDP growth estimates for more recent years are more modest: -0.5 percent in 2020 and 1.8 percent in 2021.

Performance on gross national income ("GNI") per capita—though also volatile—was stronger on average.[9] Comparing Kiribati's GDP per capita growth performance since 1995 to that of many of its island neighbors is instructive.[10] The country saw sluggish growth over this period, and this modest performance was in the middle of the pack against island comparators.

FIGURE 2: Kiribati's GDP per capita growth, 2000-2019



Source: World Bank. World Development Indicators

8 Australian Government. Pacific Climate Futures.

9 GNI includes remittances, fishing license revenues, and earnings on the Revenue Equalization Reserve Fund, Kiribati's Sovereign Wealth Fund.

10 World Bank. World Development Indicators.

Prior to the pandemic, Kiribati's economy saw the strongest growth in services and agriculture (mainly fishing),[11] while industry increased its relative share beginning from a small base in the early 1990s.[12] Disaggregating trends within the services sector more finely, fishing and (especially) construction have increased their shares of value added at the expense of other goods and services and government.[13] Since early 2020, COVID-19 containment measures impacted growth directly through a contraction in services (e.g., restaurant and hotel services, transportation, and related business activities). Planned large investment projects, moreover, were delayed because of restrictions on the movement of personnel and materials. A combination of strict containment measures and lower external demand led to a sharp drop in fishing revenues by about 16 percent.[14] President Taneti Maamau's announcement in September 2021 that Kiribati will begin opening its borders in January 2022 may help to foster confidence toward economic recovery in the coming year.

Most small Pacific Island developing states have limited opportunities for diversification of production and exports; fishing and tourism tend to be the only significant foreign-exchange earning activities in the region.[15] Kiribati's existing tourist flows are, however, extremely modest with only 2,425 tourists in 2017.[16] The prospects for tourism market development, moreover, are severely limited given (i) the cost, frequency and reliability of air travel links to Kiribati; and (ii) the significant investments that would be required in basic infrastructure, destination management and marketing, upgrading the stock of accommodations, and capacity building and human resources.[17]

Fishing is Kiribati's main foreign exchange earning activity. Indeed, according to the World Bank, "Kiribati is one of the most 'fisheries dependent' countries in the world. Located 4,000 kilometers from its trading partners, Kiribati is faced with extremely limited growth prospects beyond fisheries. The Government's Kiribati Development Plan and Kiribati 20-Year Vision emphasize that increasing sustainable returns from fisheries is critical to ensuring inclusive growth and private sector development."[18] In terms of fisheries and potential marine ecosystem service values, Kiribati has the most productive EEZ in the western and central Pacific Ocean.[19] Importantly, Kiribati has the highest volume of catch among fishing nations in the Pacific, accounting for over 28 percent in 2016.[20] Since 2012, the Vessel Day Scheme ("VDS") under the Palau Arrangement[21] has set a maximum number of annual fishing vessel days and a minimum benchmark daily price per vessel. The VDS has dramatically increased Kiribati's economic returns from its fisheries,[22] such that fishing now accounts for about three-quarters of total domestic fiscal revenue; in 2019, fish and fish products comprised over 88 percent of Kiribati's exports. Though fisheries and the revenues derived from them are naturally sensitive to effects of climate change, some analyses project up to an 18 percent increase in tuna fee revenue for Kiribati by 2050

11 Agricultural and livestock activities are limited in the country given scarce land area and poor soil fertility.

12 World Bank. World Development Indicators.

13 Webb (2019).

14 International Monetary Fund (2021a).

15 World Bank (2016a:29).

16 Government of Kiribati, Ministry of Information, Communications, Transport, and Tourism Development. (n.d.). 2017 is the latest year for which tourism data are published. See also World Bank (2016a:38).

17 World Bank (2016a:37-42).

18 World Bank (2020b:7), Government of Kiribati (2016), Government of Kiribati (n.d.).

19 MACBIO - Marine and Coastal Biodiversity Management in Pacific Island Countries.

20 World Bank (2020b:10).

21 "The Palau Arrangement for the Management of the Western Pacific Fishery provides the framework for Parties to adopt management measures pertaining inter alia to the regulation of effort, capacity and seasonal and area closures for their tuna fishery. It provides the legal basis through which the Purse Seine and Longline Vessel Day Schemes have been established to provide limits and increase the economic returns from the tuna fishery" (*https://www.pnatuna.com/content/palau-arrangement-management-western-pacific-fishery*).

22 International Monetary Fund (2019:17).

due in part to changes in tuna spawning and migration patterns.[23]

Kiribati has three other significant sources of revenue:

- *Official development assistance*. In 2016, approximately 34 percent of Kiribati's GDP came from official grants.[24] This figure has been historically volatile and is conservatively projected to decrease in the IMF's medium-term scenario.[25]
- *Remittances from overseas workers.* I-Kiribati remittances in 2018 were 8.9 percent of GDP,[26] a share that has generally increased over time since 1990 when these data were first compiled. Binding Constraints to Growth below examines remittances in more depth in discussing the binding constraint on labor mobility and workforce skills.
- *Earnings on the Revenue Equalization Reserve Fund ("RERF"), the country's sovereign wealth fund.* The International Monetary Fund ("IMF") estimated the RERF's closing balance in 2019 to be A$1.03 billion (in 2006 Australian dollars), corresponding to A$6,496 per capita.[27] The IMF recently recommended[28] further reinforcing fiscal discipline by adhering to the rule-based withdrawal policy approved by Kiribati's Cabinet in 2020, intended to ensure that RERF withdrawals finance only development expenditures.

Like many of its small island neighbors, Kiribati has a relatively large public sector[29] including—depending how various joint ventures are counted—approximately 28 state-owned enterprises ("SOEs") engaged in most economic activities.[30] Accordingly, the public sector accounts for roughly two-thirds of the 10 percent of the population in wage employment.[31] "The government has made half-hearted attempts at public service and public enterprise reform. However, it has been reluctant to implement reform in either area because of the concern over the loss of jobs."[32] The IMF has recently advocated continued efforts to strengthen SOE governance and oversight, including more timely publication of SOEs' audited financial statements.[33] The public sectors of small Pacific Island states have typically been regarded as "too big" because they tend to be larger than those found in other small states and in other states with similar income levels. But some observers have argued[34] that their large size may well be appropriate—or possibly even insufficient—in very small states when one takes into account the inability of their public sectors to take advantage of economies of scale and high degrees of remoteness and dispersion, implying higher costs of service delivery.

Demography and Population

As of July 2021, there were an estimated 113,000 I-Kiribati, some 54 percent of whom are 24 years of age

23 "Notwithstanding the negative impacts expected through climate warming events, Kiribati is also expected to be a net beneficiary of increased abundance of tuna in its EEZ before 2050 due to an eastward shift in key stocks such as skipjack and yellowfin. Under a predicted Intergovernmental Panel on Climate Change (IPCC) warming scenario, Kiribati is expected to see a 17.7 percent gain in revenues from tuna fees, provided the country is positioned to take advantage of such changes which includes ensuring more effective management of fishing vessels operating within its EEZ" (World Bank 2020b:8).

24 International Monetary Fund (2019:17).

25 International Monetary Fund (2019:24 (Table 2))

26 International Labour Organization (ILO) (2019a:9–10).

27 International Monetary Fund (2019:Table 1). According to an Asian Development Bank analysis, return on investment for the RERF averaged 7.7 percent from 1991–2013, though this masks significant fluctuations ranging from ¬10 percent to +25.6 percent (Asian Development Bank (n.d.), p. 3).

28 International Monetary Fund (2021a).

29 International Monetary Fund (2019:20).

30 Duncan and Codippily (2014:114).

31 *Ibid.,* p. 115.

32 *Ibid.,* p. 114.

33 International Monetary Fund (2021a).

34 Horscroft (2014).

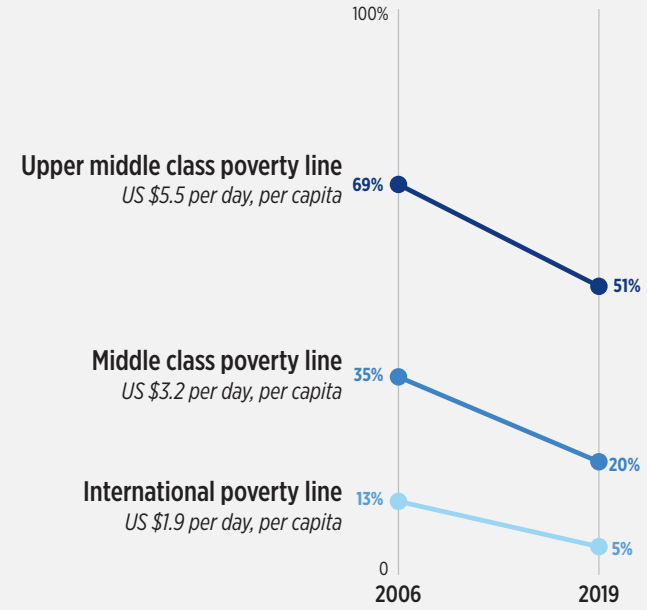
or younger.[35] Population is growing at 1.55 percent per annum with a fertility rate of 3.5 births per woman.[36] This rate is on par with Kiribati's level of development and has been steadily decreasing.

As shown in Figure 3 below, extreme poverty rates in Kiribati declined between 2006 and 2019, from 13 percent to 5 percent at less than USD 1.90/pc/day. However, poverty rates at USD 5.50/pc/day declined less steeply, from 69 percent to 51 percent. In addition, the 2019 Household Income and Expenditure Survey ("HIES") data on adult deprivations indicates that 51 percent of household heads reported that they cannot afford to pay for safe transportation, 29 percent cannot afford to pay for daily fruit or vegetables, and 8 percent cannot afford to pay for weekly meat or fish.

Kiribati's unique geography has led to a divergence in economic development between South Tarawa, where a cash economy prevails, and the Outer Islands, where much of the population practices a more sufficiency-oriented culture. In these communities, cash is not as prevalent, bartering is common, and the combination of accessing fish and local crops, along with the income earned through the subsidy for copra production (see Non-Binding and Near-Binding Constraints below), results in low levels of productive employment and low labor market participation in a traditional cash economy. Outer islanders are highly dependent on natural resources for subsistence and for revenue from copra products. In Tarawa, the population depends more directly on formal employment and the functioning of a cash economy than outer islanders do, including purchase of imported foods. Extremely high population density results in high levels of deprivations related to sanitation and food security.

In both populations, adult women and young women and men face particular challenges. Women's opportunities are limited by very time-consuming domestic and care work combined with rigidly defined gender roles that place the burden of these household and care duties on women. Evidence reflects high levels of gender-based violence, which limits freedom of movement. According to the 2018 Multiple Indicator Cluster Surveys 56 percent of women, since the age of 15, have experienced physical violence by any perpetrator, while 51 percent reported having experienced physical violence by a partner in their lifetimes, and 30 percent have experienced sexual violence by a partner in their lifetimes. Three-quarters (74 percent) of women reported that their husbands or partners track their movements, which is associated with other jealous, accusatory behavior. Among youth ages 15-24, in 2019, 22 percent were unemployed, and 50 percent were not in education, employment, or training.[37] A 2012 AusAID study notes that many young people "depend on subsistence activities that do not reflect their aspirations."[38]

FIGURE 3: Poverty trends in Kiribati, 2006-2019



Source: World Bank 2016a:14 (2006 data); Government of Kiribati, National Statistics Office 2019

Growth Question

Based on its initial scan of the development context in Kiribati, the MCC CT tailored the methodological

35 Government of Kiribati, National Statistics Office (2020).

36 World Bank. World Development Indicators.

37 ILO, ILOSTAT accessed June 2021. ILOStat drew on cleaned 2019 HIES data.

38 AusAID, Commonwealth of Australia (2012:5).

approach of the CA in several respects, endeavoring to respond to the country's unique situation, as described below.

The CT modified MCC's CA diagnostic tree so that the top-line objective is to investigate constraints to *productive employment*.[39] This contrasts with most CAs at MCC, which typically take as their top-line objective the identification of binding constraints to *private investment and entrepreneurship*. As a methodological matter, there is less of a distinction than may appear at first glance in choosing to diagnose constraints to productive employment, rather than constraints to private investment and entrepreneurship, since both drive economic growth.

Focusing on productive employment is fully consistent with the *income approach* for measuring GDP, which accounts for who—e.g., capital or labor—earns the income generated in producing GDP. More specifically, improving productive employment is tantamount to increasing labor incomes from whatever source—the domestic private sector, government employment, or overseas employment. The productive employment focus captures returns to private capital in an instrumental sense as a driver of labor demand.

Several considerations drove this decision:

1. There is a very high level of *un- and underemployment* in the labor force in Kiribati, and a large and growing proportion of working age people who are *inactive* (i.e., not working and not searching for work). Highlighting productive employment thereby focuses the analysis on the potential to improve these individuals' options and outcomes.
2. As in many other small island developing states, the *public sector* in Kiribati accounts for a much larger share of economic activity and employment, for a variety of structural reasons. Returns to private capital are likely less salient for Kiribati's growth prospects given the dominance of SOEs in Kiribati's economy; as a corollary, the country's stock of private capital is very modest. Focusing the CA exclusively on domestic private investment and private sector employment would greatly diminish its empirical relevance and the likely resonance of the findings.
3. The potential contribution to national income from *overseas employment*, is of higher than usual interest due to fundamental geographic and resource-related limitations on expansion of the Kiribati economy.
4. Consistent with MCC's corporate priorities, this framing also more explicitly reflects MCC's increased emphasis on the *inclusivity* and *sustainability* dimensions of growth. In particular, questions about what groups have access to what types of employment are placed in the foreground.

In sum, the *underlying premise* of this framing of the CA is that identifying and relaxing *binding constraints to productive employment* in Kiribati is more likely to highlight relevant pathways toward inclusive and sustainable growth in the medium term than a focus on private investment. This is *not* to say that private investment is not relevant; rather, the CT views it as *instrumental* in the CA via its impact on labor demand.

In addition, given Kiribati's pronounced dependence on and sensitivity to natural resources, the CT undertook a more explicit analysis of contributions of multiple forms of natural capital to economic activity and livelihoods. Moreover, the analysis considered high-level cross-cutting climate impacts at multiple nodes (e.g., macro risk, finance, infrastructure) of the constraint tree.

39 In a 2009 working paper (Ianchovichina and Lundstrom 2009), Elena Ianchovichina and Susanna Lundstrom were the first to articulate a growth diagnostic that specified *constraints to productive employment* as the overarching diagnostic question.

The International Labour Organization defines *productive employment* as employment yielding sufficient returns to labor to permit a worker and his/her dependents a level of consumption above the poverty line. For the qualitative analysis relevant at the CA stage, constraints to productive employment could entail obstacles to (1) increasing the productivity of existing income-generating activities, or (2) reallocating labor toward higher-productivity activities.

Discussion of Constraints

The Kiribati Constraints Analysis identified three binding constraints to inclusive economic growth in the country:

1. Disproportionately low participation of I-Kiribati workers in opportunities for international labor mobility;
2. Insufficient fiscal capacity and public financial management to meet climate-resilient development needs; and
3. Vulnerability to degradation of critical coastal natural capital, exacerbated by population pressures and climate change.

Further, the analysis examined the consequences of each constraint for vulnerable population subgroups, including women and youth.

Comparator Countries

Beginning with the set of low-income and lower middle-income small island developing states (SIDS), the comparator countries set forth in Table 1 below were used for the Kiribati CA.

TABLE 1: Selection Criteria considered in Choosing Comparator Countries

	Kiribati	Cabo Verde	Marshall Islands	Micronesia	Samoa	Solomon Islands	Vanuatu	Tuvalu
Region	East Asia and Pacific	Sub-Saharan Africa	East Asia and Pacific	East Asia and Pacific	East Asia and Pacific	East Asia and Pacific	East Asia and Pacific	East Asia and Pacific
GNP per capita *(current US$)*	3,080	3,400	4,860	3,400	4,020	2,370	3,120	5,430
Population	115847	543,767	58,413	112,640	196,130	652,858	292,680	11,508
Population density (people/km² of land area)	143.02	134.93	324.52	160.91	69.30	23.32	24.01	383.60
Percentage land area having fertile soil[40]	45.68	11.66	50.00	32.86	100.00	80.00	79.89	66.67
Percentage land area having tropical climate[41]	100.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00
Precipitation (average, mm/y)	980	228	2255	3359	1509	3028	206	161
Arable land (% of land area)	2.5	12.4	11.1	2.8	11.1	0.7	1.6	NA
Measures of remoteness:[42]								
Average distance (km)[43]	8727.92	4,904.70	8,338.02	7,830.68	9,567.26	8,945.31	9,717.98	9,420.97
Remoteness index [44]	83.01	45.65	80.05	75.98	88.97	84.61	89.98	87.97

40 See Nunn and Puga (2012) for details.

41 See Nunn and Puga (2012) for details.

42 See United Nations Department of Economic and Social Affairs (2015) for details on the measures of remoteness. Underlying data are discussed in Mayer and Zignago (2011) and United Nations Department of Economic and Social Affairs "National Accounts - Analysis of Main Aggregates (AMA)."

43 *Average distance* is the trade-weighted average distance of a country from world markets.

44 *The Remoteness Index* is a log transformation of average distance to yield an index between 0 and 100.

A factor analysis of the indicators in Table 1 suggested that per capita income, population density, and remoteness were the dominant factors, so the analysis team placed particular weight on these criteria in identifying the above set of comparator countries for this analysis.

Binding Constraints to Growth

This analysis identified three binding constraints to inclusive economic growth in Kiribati:

1. Disproportionately low participation of I-Kiribati workers in opportunities for international labor mobility.
2. Insufficient fiscal capacity and public financial management to meet climate-resilient development needs.
3. Vulnerability to degradation of critical coastal natural capital, exacerbated by population pressures and climate change.

Below, we synthesize the evidence underlying each of these constraints to inclusive growth.

Disproportionately Low Participation of I-Kiribati Workers in Opportunities for International Labor Mobility

Several factors underlie the emergence and persistence of low international labor mobility:

- Limited mutual awareness of opportunities on the part of potential employers in labor-receiving countries in the Pacific and I-Kiribati working-age people alike
- Employers' reliance on return workers and worker referrals
- Economies of scale for employers and labor hire contractors and
- A poor match between workforce skills and standards in Kiribati and expectations of foreign employers

The confluence of such factors has created an early mover advantage for other countries in some labor mobility schemes:[45] That is, Kiribati's Pacific neighbors who were among the first to engage in Australia's and New Zealand's labor mobility schemes have generally seen their high shares of participation in these schemes persist. At the same time, the Government of Kiribati faces numerous unexploited opportunities to improve its labor mobility governance for the I-Kiribati workforce including the design and orchestration of the suite of processes and arrangements surrounding overseas work that forge, support, and sustain connections between workers and employers. These arrangements typically require deep and sustained collaboration with the private sector, labor-receiving country governments, local communities, and civil society.

Given the small size of the Kiribati economy and domestic employment opportunities, living and working overseas has been historically important for I-Kiribati. As early as the 1940s, the colonial administration in Fiji accepted immigrants from the Gilbert and Ellice Islands Colony (now the independent countries of Kiribati and Tuvalu) because of pressures on their coral atoll ecosystems. For the island of Vaitapu (now part of Tuvalu), the main driver was perceptions of growing population pressure on scarce land resources. This scarcity was accentuated by the expansion of coconut plantations in response to high-post-war prices for copra. In the Gilbert Islands (now Kiribati) the pressure of phosphate mining on the landscape and subsistence economy of the island of Banaba prompted the colonial government to negotiate the resettlement of Banabans on Rabi Island in Fiji.[46]

Generations later in 2014, President Anote Tong's administration purchased 20 km2 of land from the Anglican church on Vanua Levu, one of the Fiji Islands about 2,000 km away from Kiribati, as an option for future relocation

45 Howes and Curtain (2019).

46 Bedford and Bedford (2010:90).

of I-Kiribati who may be threatened by rising oceans.[47],[48] Earlier this year, current President Taneti Maamau announced that this land parcel would be transformed—with technical assistance from China—into a commercial farm to help feed I-Kiribati.[49]

Internal movements within Kiribati are more common than international mobility. From the 2019 HIES,[50] 51 percent of heads of household have moved from their birth island to another island. In contrast, international migration is still relatively rare. The estimated total number of migrants from Kiribati worldwide is estimated as 4,370 in 2019, or about 3.7 percent of the population that year.[51] The annual flow of migrants for employment purposes is 0.7 percent.[52] According to a 2016 representative survey of 377 households by the United Nations University Institute for Environment and Human Security ("IEHS"), about 10 percent of individuals reported migrating at least once during the 2005–2015 timeframe: 79 percent of these movements were domestic, 13 percent international, and 8 percent for seafaring.[53]

Lack of demand for workers in Outer Islands pushes job seekers and their families to move from Outer Islands to South Tarawa, which has intensified population density in urban areas of South Tarawa and increased pressure on natural resources in those areas. South Tarawa is now home to over half the population in Kiribati. Pollution of and saltwater intrusion into freshwater lenses under coral land masses has become a particular problem. Between 2009 and 2019, use of flush toilets has decreased by 8 percent in South Tarawa and use of bush, beach, and sea without sanitation facilities increased by 16 percent. Trends like these, tied to population movement to South Tawara, have added new urgency to the policy dialogue in this area.

The current Government of Kiribati is committed to building resilience through domestic development to promote in-situ climate change adaptation and pursues a "Whole of Island Approach" that emphasizes development for the Outer Islands as well as Tarawa. The government views temporary and circular labor mobility as contributing to such resilience both through providing work experience and skills development and through the sending of remittances.[54]

Kiribati's Copra Price Scheme ("copra subsidy"), which compensates growers at roughly twice the market value of copra, is the Government of Kiribati's primary mechanism to transfer national fishing revenues to Outer Island communities to meet basic needs, in turn reducing the impetus to move to Tarawa. Despite the disincentives the copra subsidy creates for households to engage in non-copra-related productive employment, the copra subsidy has been effective in its goal of slowing population growth in South Tarawa. In 2019, over 90 percent of households surveyed that receive copra income indicated that they are less likely to leave their home island because of the income from the subsidy.[55]

Data about motivations for migration support narratives that reveal: (i) South Tarawa and foreign countries are the main destination for people seeking jobs and additional education and training, and (ii) valuing family and being physically together with family are core values among I-Kiribati people. According to the previously-cited 2016 UN University IEHS survey, among those who migrat-

47 Caramel (2014).

48 President Tong indicated that "the acquisition of the 5460-acre piece of land marks a new milestone in government's development plans, particularly in its endeavor to address its economic and food security issues as it is greatly impacted by climate change" (Government of Kiribati, Office of the President (*Te Beritittenti*) 2014).

49 Pala (2021).

50 Government of Kiribati, National Statistics Office (2019).

51 United Nations Population Division, cited in Voigt-Graf (2019:9).

52 Government of Kiribati (2019).

53 Oakes et al (2016:39).

54 Specifically, the Government regards remittances as a source of funds for measures such as seawall building, improving the quality of houses and other infrastructure, and reclaiming land (Voigt-Graf 2019).

55 MCC analysis of Government of Kiribati, National Statistics Office (2019).

ed, the leading reason for both internal migration and international migration, was "work," cited by 34 percent and 46 percent of respondents who had migrated, respectively.[56] The second most frequently-cited reason for migration was education, mentioned by 28 percent of respondents—both for those who migrated internally and those who did so externally. The 2019 HIES data both validates the 2016 IEHS study with respect to domestic mobility and underscores the importance of family to I-Kiribati people. Among heads of households across all island groups, a substantial proportion—21 percent total and 37 percent in South Tarawa—cited moving for a job opportunity or for school as their main reasons for having moved. Notably, over half cited "following family" as their primary reason for moving to their current island residences (59 percent total and 48 percent in South Tarawa).

TABLE 2: Numbers and proportions of PIC8 people and labor migrants residing and working abroad

	Kiribati	Marshall Islands	Micronesia	Palau	Samoa	Tonga	Tuvalu	Vanuatu
In Australia	600	34	18	23	19,093	9,210	122	1107
In New Zealand	1,569	21	15	9	51,681	23,430	1,479	1,779
In United States	185	19,841	4,568	4,851	109,637	41,219	-	45
PIC8 Home population	101,998	68,480	106,487	32,032	194,320	106,146	10,619	227,574
% of home population	2%	29%	4%	23%	93%	70%	15%	1%

	Kiribati	Marshall Islands	Micronesia	Palau	Samoa	Tonga	Tuvalu	Vanuatu
Australia								
Seasonal worker program	14	N/A	N/A	N/A	162	1,497	20	212
New Zealand								
RSE scheme	148	N/A	N/A	N/A	1,212	1,769	72	3,248
Samoan quota	N/A	N/A	N/A	N/A	1,100	N/A	N/A	N/A
Pacific access category	75	N/A	N/A	N/A	N/A	250	75	N/A
United States								
Compacts of free association	N/A	198	271	292	N/A	N/A	N/A	N/A
UH H-2A Temporary Ag. Visa	0	N/A	N/A	N/A	0	0	0	0
Total	237	198	281	292	2,474	3,516	167	3,460

Source: World Bank 2016a:44

56 Oakes et al (2016:43).

TABLE 2. continued: Addendum to above table, expressing numbers of PIC8 migrants as fractions of home populations given above:

	Kiribati	Marshall Islands	Micronesia	Palau	Samoa	Tonga	Tuvalu	Vanuatu
Percent of home population	0.23 percent	0.29 percent	0.25 percent	1.39 percent	1.27 percent	3.31 percent	1.57 percent	1.52 percent
Multiple of KIR's percent of home population	1.0	1.2	1.1	6.0	5.5	14.3	6.8	6.5

Despite motivation among many I-Kiribati to migrate internationally for work and studying, Kiribati significantly underperforms its regional peers in measures of population and labor mobility, as evidenced by the following:

- The number of people residing in the main labor-receiving countries—Australia, New Zealand, and the United States—as a fraction of labor-sending countries' domestic populations. The number for Kiribati is only 2 percent, ranking seventh out of eight Pacific Island countries, exceeding only that for Vanuatu (1 percent).
- The number of workers migrating to the aforementioned labor-receiving countries under the main preferential labor schemes[57] as a fraction of labor-sending countries' domestic populations. Here, the number for Kiribati is only 0.23 percent, ranking last out of eight Pacific Island countries. As a proportion of populations, Kiribati's regional peers send from between 1.1 times (Federated States of Micronesia) and 14.3 times (Tonga) as many workers.

Table 2 above presents additional details.

Employment rates and labor force participation in Kiribati have declined sharply in recent decades, and hourly productivity is low. From 1995 to 2019, the employment rate as a percentage of the working-age population declined from 85 percent to 36 percent, and those outside the labor force (also called "inactive") increased from 15 percent to 63 percent (see Figure 4 below).[58] The "inactive" population may include those in education and training, as well as people engaged in own-use production work, as well as discouraged workers and workers confronting barriers to their job search or to their job availability. Kiribati's overall labor force participation rate (employed plus unemployed looking for work) of 36 percent is lower than that for its neighbors in the region. Similarly, employed I-Kiribati people work comparatively fewer hours per week: on average 22 hours per week in Kiribati compared to 31 hours per week in Vanuatu, 38 hours per week in the Marshall Islands, and 44 hours per week in Samoa (data from 2017–2019).[59]

57 From World Bank (2016a:44), these preferential schemes are as follows:

Australia: Seasonal Worker Program

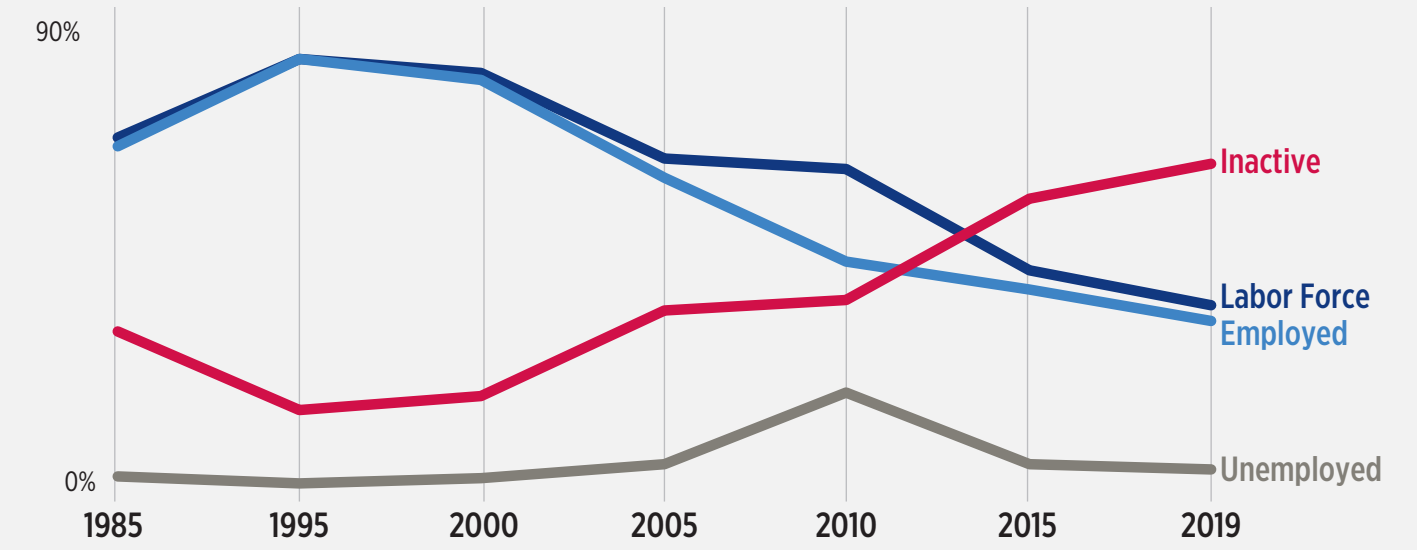
New Zealand: Recognised Seasonal Employer Scheme, The Samoan Quota, The Pacific Access Category

United States: Compacts of Free Association, US H-2A Temporary Agricultural Visa.

58 International Labour Organization (2019b:2) helpfully sets forth the definition and composition of the potential labor force: Persons outside the labour force with the clearest and strongest attachment to the labour market are those who are available to take up a job if a job opportunity comes up even though they are not actively looking for employment (also known as the *available potential jobseekers*), and those who are looking for employment even though they are not currently available for it (also known as the *unavailable jobseekers*). The available potential jobseekers and the unavailable jobseekers together make up the potential labour force. In other words, the *potential labour force* is a subgroup of persons outside the labour force with a labour market attachment, either because they are available for a job or because they are looking for one (but not the two simultaneously, otherwise they would be considered unemployed instead of outside the labour force).

59 ILO, ILOSTAT Data Catalogue.

FIGURE 4: Kiribati Labor Force Structure Over Time – Percentage of Working Age People



Source: 1985-2010 - Government of Kiribati (2015); 2015-2019 – International Labour Organization: ILOSTAT

In terms of labor market dynamics, the domestic labor market in Kiribati is not growing fast enough to accommodate new entrants. When comparing the labor force entrants to formal sector jobs created between Kiribati and its regional neighbors on an annual basis, the ratio of entrants to formal sector jobs created is nearly 50 for Kiribati, far higher than the ratio for any of the other countries considered.[60]

Analysis of labor mobility as a constraint to productive employment must take into consideration the specific challenges that women and youth ages 15-25 face in joining the labor force and becoming employed. In 2019, 57 percent of women were outside the labor force compared to 43 percent of men; in addition, young people ages 15-24 comprised 38 percent of the total number of "inactive" people in Kiribati.[61] Unemployment rates—people looking for work but not working—also point to challenges incorporating youth into productive employment in Kiribati. Drawing on 2015 census data, youth unemployment (17 percent) is almost double the overall working age unemployment rate (9 percent). Young men were far more likely to be unemployed than young women (22 percent vs 7 percent). Finally, although education and training are often considered as a path to employability, between 2017 and 2019, half of I-Kiribati women and men ages 15-24 were neither in employment nor in education or training (NEET).[62]

These stark labor indicators for young people in Kiribati are all the more concerning because, like many of its small Pacific Island neighbors, Kiribati has a rapidly growing population and a youth bulge.[63] The country's population pyramid illustrates that over half of the I-Kiribati population —nearly 54 percent—is 24 years old or younger.[64] In turn, women's opportunities for productive employment (OPEs) are limited by time-consuming domestic and care work combined with strictly enforced, rigidly-defined gender roles placing the burden of these household "duties" on women and not men. Domestic and regional labor markets are also heavily gender segregated. In Kiribati, more men than women work in key remunerative value chains in agriculture (copra) and

60 Curtain et al. 2017:7.

61 Government of Kiribati, National Statistics Office (2020).

62 International Labor Organization, ILOSTAT, Accessed 9/7/21.

63 Factors contributing to the youth bulge include "high fertility rates, varying take-up of contraception, and the difficulty of delivering reproductive health services" (Wilson 2020).

64 Government of Kiribati, National Statistics Office (2020).

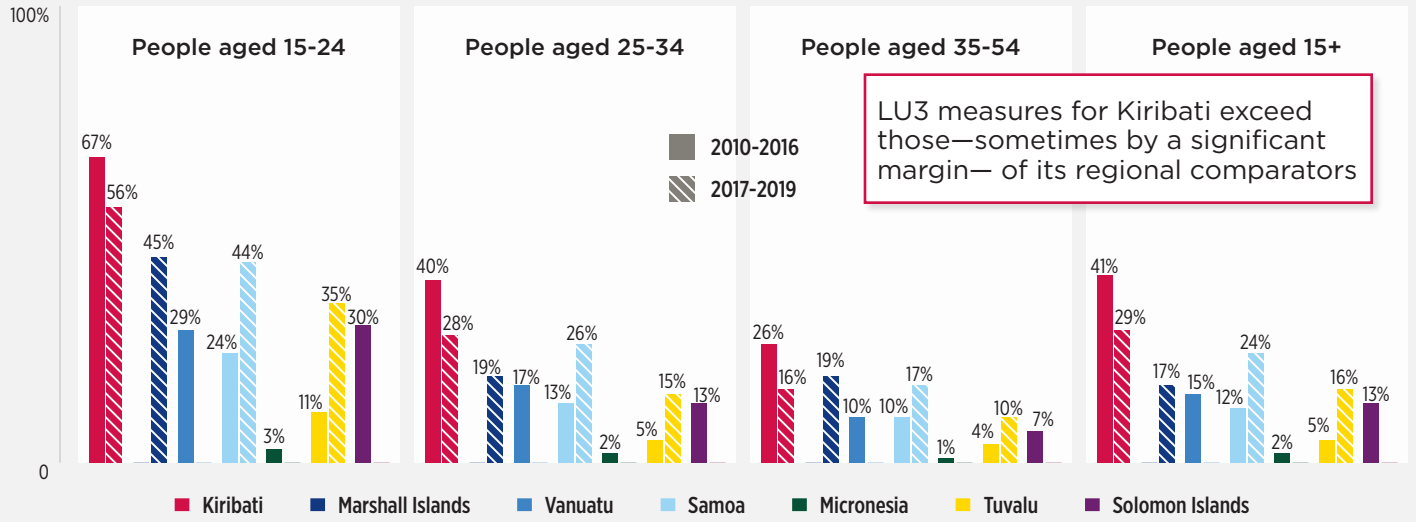
fishing, and more women work in manufacturing and retail/trade.[65]

In 2019, there were three predominant reasons that inactive people age 15+ cited for not having tried to find a job or start a business in the last four weeks: (i) family and/or household responsibilities (32 percent); (ii) lack of experience or lack of jobs matching skills (25 percent); and (iii) being tired of looking for jobs (18 percent). Just six percent cited being in studies or training. Survey findings indicate that those who are available for a job or available to work more hours (87 percent and 88 percent, respectively) significantly outnumber those who want a job or want to work more hours—18 percent and 37 percent, respectively—and this appears to be relevant for both males and females.

Analyzing potential constraints at the industry level, limited labor skills were found to (i) constrain the capacity of I-Kiribati to take advantage of key OPEs available to them in the Oceanic region,[66] and (ii) restrict growth and investment in high-potential growth industries in Kiribati itself.

Both unemployment and under-employment are more pronounced than in comparator countries in the region. Figure 5 below reports a labor underutilization measure known as LU3, the sum of unemployment and those in the potential labor force for each of several age cohorts for Kiribati and its regional comparators. Apart from one exception,[67] the LU3 measures for Kiribati exceed those—sometimes by a significant margin— of its regional comparators. Second, time-related under-employment refers to working-age persons in employment willing and available to work more hours than they currently actually work. I-Kiribati workers work fewer hours per week on average than any of its comparators.[68] Moreover, 37 percent of I-Kiribati workers in employment would like to work more hours.[69]

FIGURE 5: Unemployment + Potential labor force (= Labor underutilization measure LU3) in Kiribati and comparators



Source: International Labour Organization, ILOSTAT, Accessed 8/25/21

65 Government of Kiribati, National Statistics Office (2015).

66 See Curtain et al. (2017:35) for additional context.

67 That is, the cohort of 35- to 54-year-olds for the period 2017-2019, for which Kiribati is in the middle of the pack among those countries reporting these data.

68 International Labor Organization, ILOSTAT, Accessed 8/28/21.

69 Government of Kiribati, National Statistics Office (2020).

Climate change does not yet appear to be the primary direct driver of migration—whether internally or internationally—in Kiribati. According to the aforementioned 2016 household survey, only 19 percent and 1 percent of respondents who had migrated cited the environment as a reason for their internal migration, or international migration, respectively.[70] In terms of future expectations, however, 54 to 75 per cent of I-Kiribati households indicate that they would migrate in response to the manifestation of various potential climate change-related impacts, including availability of fewer fish and a continued rise in sea levels.[71]

Despite continued uncertainties about the magnitude and timing of the impacts of climate change, observers in the region underscore that now is the time to develop and implement coherent and feasible plans to address future migration pressures:

> [T]he reality is that during the next 20 years more atoll dwellers from the central Pacific will be seeking opportunities overseas to derive secure livelihoods for their families.... It makes sense to anticipate this pressure and plan for ways to deal with it progressively rather than deferring contingency planning and addressing the problem only when it becomes a major crisis or emergency.... It will be much more acceptable to societies in both the source and destination countries if migration of increasing numbers of atoll dwellers from the central Pacific can be managed progressively through a coordinated approach to relieving population pressure on islands that may eventually become uninhabitable because of progressive environmental damage.[72]

Simulations of improved labor mobility policies suggest that improved labor mobility policies both in Kiribati and in receiving countries can increase the number of migrants and seasonal workers from Kiribati and the country's per-capita income by an estimated 120 percent by 2040.[73] The relative increment in per-capita income arising from increased policy effort in Kiribati and in labor-receiving countries modeled in these scenarios is the largest among the PIC8 neighbors studied. This outcome is in part an artifact of the degree to which labor market mobility in Kiribati underperforms against comparator countries, as cataloged earlier in this section.

OPEs outside of Kiribati in the region are highly gendered and offer opportunities in a limited number of occupations for women. Four of the six OPEs identified for employment outside of Kiribati involve occupations considered open to, or dominated by, women: (i) personal services work; (ii) personal care work (aged care); (iii) nursing; and (iv) secondary school teaching. Two of these opportunities—personal services and personal carework—match skills that are already commonly accessible to I-Kiribati women at international standard levels. However, despite providing moderate wages, providing personal services as waiters, bartenders, and cooks involves a high incidence of exploitation. The other six of the ten main OPEs identified are occupations dominated by men, and all except agricultural work have strongly masculine occupational identities: (i) agricultural work; (ii) seafaring (labeled "seamen"); (iii) trade work as electricians and carpenters; (iv) meat processing; (v) machine operating and driving; and (vi) service as a ship's officer. Currently, there is limited potential in Kiribati for training to meat processing, machine operation and driving. OPEs assessed as having high potential for "youth" overlap with five of the six "masculine" occupations, suggesting that "youth employment" opportunities are likely to benefit mainly young men, rather than young women. While there is evidence that some of the labor mobility options provide positive professional and

70 Oakes et al (2016:43).

71 Ibid., p. 59.

72 Bedford and Bedford (2010:124).

73 Curtain et al. (2017:75).

personal opportunities for women, further investigation is needed to determine whether enhancing labor mobility would provide improved opportunities in an equitable way or if most of the benefits would accrue to men.

The way workers are recruited and the costs of recruiting and placing workers from Kiribati, particularly workers from the Outer Islands, results in a narrow group of I-Kiribati being employed. First, foreign employers rely on return workers and worker referrals, and worker referrals tend to be members of their families and immediate communities. Foreign employment spots are limited to begin with, and an informal worker referral system that "keeps it in the family" further limits OPEs outside of Kiribati to those with strong social networks and ties to people who have already benefited. Second, while the Government of Kiribati seeks to encourage foreign employers to recruit workers from all the Outer Islands, the current government emphasis on inclusivity does not match the private sector's need for productive workers at cost-effective wages. Recruiting workers from Outer Islands takes more time and involves greater transportation costs both for recruitment and transport to job sites than recruiting workers from South Tarawa or North Tarawa, largely because of unreliable and difficult communication and infrequent and inefficient transport links among islands and between Outer Islands and South Tarawa. Recruiting workers from Outer Islands also raises costs and logistical difficulties because any worker training generally is done in South Tarawa, and workers from Outer Islands need lodging. Further investigation is required regarding potential approaches to minimize tensions between meeting the needs of foreign employers and the Whole of Island Approach that seeks to provide economic development for the Outer Islands.

Insufficient Fiscal Capacity and Public Financial Management to Meet Climate-Resilient Development Needs

Kiribati's extremely narrow fiscal base and lack of rigorous planning, implementation, and asset management likely limit the government's ability to provide a climate-resilient physical environment and public service base for enterprises and their employees to conduct business, and for investors and donors (including eventual private and donor lending) to have confidence that benefits from public and private investments will be sustained.

Kiribati faces extraordinarily high investment and maintenance costs to achieve a climate resilient state for its economy and citizens. Island states are generally recognized as being climate vulnerable and facing heavy adaptation needs,[74] but Kiribati stands out again and again in multiple recent efforts to characterize the fiscal challenges of achieving climate resilience. Most recently, a Pacific-wide IMF report on fiscal needs for climate adaptation found Kiribati to have by far the highest average annual public expenditure requirements to meet resilience goals among Asia-Pacific countries (see Figure 6 below).[75] That estimate amounts to over 25 percent of GDP, and while based on a somewhat strong resilience requirement of avoiding shocks greater than 0.01 percent of GDP, other sensitivity focused on coastal flooding have Kiribati in 1st or 2nd position as well, depending on the resilience level targeted. Beyond pure climate adaptation considerations, in 2016 the World Bank examined fiscal needs for overall development goals for PICs and found Kiribati to have the highest gap between required expenditures and revenues, reaching over 90 percent of GDP by 2040 in a scenario that assumes adequate progress on human development indicators.[76]

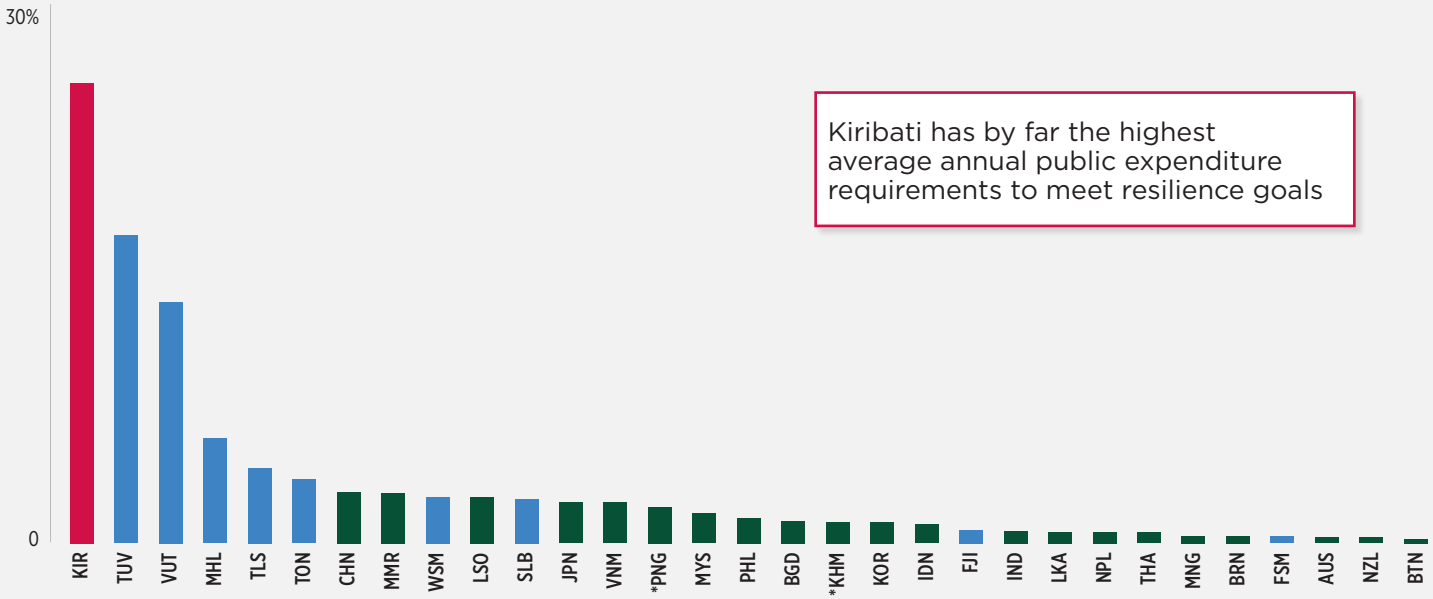
While it may be taken as a given, it is worth noting generally that unmitigated exposure to climate-change driven natural hazards has negative effects on economic activity, and in some cases growth trajectories. The literature

74 Tiedemann et al. (2021).

75 International Monetary Fund (2021b).

76 The World Bank (2016b).

FIGURE 6: Costs of Building Recent IMF calculations indicate the building a climate-resilient economy in Kiribati will require annual investments of over 25 percent of GDP, a high value overall and higher than all Pacific countries considered.



Note: The blue bars represent PIC, and the green bars represent all other Asia-Pacific countries. Bars correspond to the sum of upgrading and retrofitting costs in the public sector and coastal protection costs. The level of protection being costed corresponds to the protection that keeps average annual losses below 0.01 percent of local GDP for protected areas. Data labels in the figure use International Organization for Standardization (ISO) country codes. *Missing values in the risk intolerance case for Cambodia and for the private sector for Papua New Guinea.

Source: International Monetary Fund (2021b)

has not reached an overall consensus on the primary mechanisms and magnitudes, though multiple links have been identified, with repeated exposure to capital depleting events being particularly significant due to their setting back the trajectory of exponential growth.[77] Additionally, though diminishing returns can be reached, recent research has shown great scope for cost-effective climate resilient investments.[78] Therefore, both a strong fiscal base and an ability to carry out resilience-enhancing projects are key to a cost-effective strategy to enable conditions for growth.

Fishing license revenues constitute an extremely large and volatile fraction of government revenues; donor dependence is high; and fiscal restraint has been mixed.

Many Pacific Island Countries are heavily fisheries dependent,[79] but, again, Kiribati stands out, frequently being labeled (as noted above) the most "fisheries dependent country in the world."[80] Kiribati's overall government expenditures routinely exceed its entire GDP, financed via a combination of fishing license revenues and donor grants. In addition, fishing revenues are volatile, and have varied by over 40 percent of GDP since 2015. [81] Donor grants average between 40 and 50 percent of GDP in recent years.[82] While it is worth noting that Kiribati has commendably managed and approved improvements to withdrawal rules to ensure sustainability of its sovereign wealth fund, the RERF, the improved sustainability does not significantly help to meet the anticipated gaps, and overall fiscal restraint is in question.

77 See Piontek et al. (2019) for a summary.

78 Hallegatte et al. (2019).

79 Bell et al. (2021), World Bank (2016a), Asian Development Bank (2021a).

80 World Bank (2020b).

81 Webb 2020, World Bank (2020a).

82 World Bank (2020a:10)

In addition to being an ongoing concern of donors, the fiscal outlook for Kiribati has risen to the level of influencing donor disbursement: The World Bank recently withheld its most recent round of Development Policy Operation funding due to concerns that macro requirements were not met.[83] This issue appears to be nearing resolution based on the Government of Kiribati's demonstrating evidence for higher than previously assumed fishing license revenues – a fact that is partially reassuring, but also points to the fragility and singular dependence on these revenues. Relatedly, a program to enhance Kiribati fisheries was also delayed due to a lapsed loan. In addition, the IMF's most recent Article IV consultation identified Kiribati as having high potential for debt distress due in part to lack of fiscal restraint, as manifested by the planned second round of doubling of the copra subsidies.[84]

Donors and the government itself have repeatedly raised concerns over inadequacies in public financial management that has led to lower credibility of the Government of Kiribati's ability to effectively carry out key elements of public financial management ("PFM")—in particular, public investment management. This concern is made clear across a range of internal and external assessments (see Box 1 below).

BOX 1: Donor and Government Commentary on Fiscal Needs and Public Financial Management

"[A] number of large government capital projects [have] avoid[ed] the more rigorous process of a full budget cycle, degraded the credibility of the annual budget, and created a divergence between development partner and government funding priorities." *– Former director of National Economic Policy Office (NEPO) [Webb 2020:22]*	"Improvements in public financial management are also needed to make public spending more effective in addressing Kiribati's significant climate and development challenges." *– World Bank (2020a)*	"Against the backdrop of an ambitious agenda, it is crucial to strengthen the governance of public investment so that the most beneficial projects are selected, execution is not disrupted, fiscal sustainability is ensured, and the best financing terms are obtained." *– International Monetary Fund (2021a)*
"A key immediate challenge for Kiribati is how to break out of the reactionary cycle of funding low cost and poorly constructed inadequate seawalls that require frequent maintenance and have led to a huge recurring annual financial commitment to try to maintain or upgrade existing seawall, are prone to failure, and have limited serviceable life." *– National Institute of Water & Atmospheric Research (2018)*	"The key to the outcome of improved coastal management in Kiribati has always been about the capacity and resources available to implement improved coastal planning, decision making and protection." *– Kiribati National Coastal Policy and Management Framework (2017)*	"[W]ithout a robust, well-organised system to make prudent expenditure decisions and an asset management system that supports maintenance of new assets, Kiribati is at risk of whittling away what would be the best opportunity it has had in its history to take control of its development future." *– Former director of NEPO (Webb 2020:25)*

83 Development Policy Financing (DPF) is a World Bank lending instrument that provides credits, loans, grants, or guarantees to a borrowing country through "fungible" (i.e., non-earmarked) budget support. It is issued by the International Development Association (IDA), the bank's low-income country arm, and the International Bank for Reconstruction and Development (IBRD), the bank's middle-income country arm. DPF is not earmarked for specific projects but instead supports targeted policy reforms and provides finance directly to a borrowing country's general budget. This budget support comes with conditions, as each loan contains policy conditions that borrowing countries must meet and prior actions to be undertaken as preconditions to DPF lending. Each of these individual loans, grants, or guarantees is called a development policy operation (DPO).

84 International Monetary Fund (2021a).

Fiscal concerns are partially integrated with PFM concerns and are considered together as a single constraint because the ultimate nature of the benefits from improving them is the same. The fundamental assumption motivating improvements in this space is that, if the constraint is not relaxed, some worthwhile resilience-enhancing projects will either not get done (due to inability to self-fund or secure donor funding) or they will get done but will have shorter useful lives and therefore produce fewer benefits than they otherwise might. For example, a causeway that is built to withstand a design-level storm surge may only perform at that level for 10 years instead of 30. Or, more dramatically, a donor may consider the debt distress potential too high and investment management capacity to be too low and decide not to make a concessional loan. The value of an improvement here is not the unspent funds, but the benefits that would otherwise be foregone, due to good projects occurring or being maintained longer. Additionally, recent work (while not specific to Kiribati) has begun to highlight the nonlinear connections between resilience-enhancing investments, shocks, and subsequent fiscal condition.[85]

The very direct dependence of Kiribati's climate adaptation ability on PFM suggests that PFM itself forms an element of the binding constraint, rather than a root cause associated with a more generic high-level constraint such as "lack of climate resilience" or "climate-vulnerable infrastructure." Given that PFM capacities are roughly correlated with country income,[86] Kiribati's PFM capacity does not present as a strong outlier; indeed, in MCC's experience, PFM issues are often uncovered in the course of RCAs, following on from the CA. The argument for treating PFM as the point of departure for the RCA rests on the direct and unambiguous criticality of a PFM constraint as identified by major donors and the government itself. Indeed, the government's own Climate Change and Disaster Risk Finance Assessment[87] devotes a chapter to the "critical" nature of PFM improvements for access to climate finance, as well as multiple references to capacity issues. There is, therefore, little doubt that PFM would be rapidly reached as a core issue during an RCA that began with a higher-level constraint.

Vulnerability to Degradation of Critical Coastal Natural Capital Exacerbated by Population Pressures and Climate Change

Population pressures and climate change exacerbate vulnerability to degradation of critical coastal natural capital. More specifically, healthy coastal ecosystems (such as mangrove, coral, and lagoons) constitute critical natural capital that provides both protective services (e.g., reducing the impacts of storm surge) and provisioning ecosystem services (the habitat for fish, shellfish, breadfruit, and filtration of groundwater) to I-Kiribati. These ecosystems are degraded in some areas and under threat in others, with degradation increasing vulnerability to shocks and reducing the resource base for both economic production and subsistence. From an inclusion perspective, poor households are more likely to be vulnerable to shocks and to depend more directly on coastal resources. Natural resources-based opportunities for economic transformation are central to opportunities for the diversification of the economy and the creation of productive employment on all islands but, in particular, in the Outer Islands.

Natural capital consists of the foundational assets in nature that produce flows of benefits to people. Also known as "ecosystem services," these benefits include coastal protection from natural shorelines like reefs and mangroves, regulating services like water filtration by pristine land and vegetation, and supporting services such as habitat for fish. In the case of atoll nations like Kiribati, essentially all land (e.g., soil, shoreline) and near-shore (e.g., reefs, mangroves) natural capital can be considered "coastal,"[88] and we use the term "coastal ecosystem" somewhat interchangeably with coastal natural capital.

Data limitations in Kiribati make it challenging to conduct extensive formal tests of differential diagnosis in the vein of those recommended by Hausmann et al (2008).

85 Marto *et al.* (2018), and additional work underway cited in International Monetary Fund (2021b).

86 Preston (2021).

87 Government of Kiribati (2014, 2019).

88 Government of Kiribati (2017).

While some partial tests can be conducted, the argument for coastal natural capital as a constraint rests on the logical chain relating dependence and vulnerability as follows: (i) there is unambiguous and high direct dependence on well-managed coastal ecosystems as contributors to well-being and to economic activity, as well as to protection from environmental hazards; this dependence reflects the fact that many of these ecosystem services are effectively non-substitutable to a large extent, at least within contextually determined cost and feasibility limits;[89] and degradation of the natural capital will significantly limit well-being, sustainable development, and productive employment (with the latter liberally interpreted to be inclusive of opportunities to achieve above-poverty consumption levels via subsistence and informal activities); (ii) while the nature and degree of threats vary for specific islands, these ecosystems are clearly under threat from human pressures as well as global environmental change; and (iii) therefore, failure to mitigate these threats by appropriate stewardship of these resources undermines potential for enhancing productive employment and the economic base on which it depends, and also risks reversal of the inclusive growth gains made to date.

Support for the first premise (high direct dependence) is found in numerous data and narrative sources that highlight the intimate connections between the I-Kiribati and their environment. According to the 2015 Census, 67 percent of households have at least one person involved in (coastal) fishing, and the Government of Kiribati considered 80 percent of the population to be "primarily living a subsistence lifestyle."[90] Food and Agriculture Organization (2018) notes "[T]here is a great reliance on marine resources for livelihoods, government revenue, and especially nutrition."[91] Beyond fishing, this includes harvesting of lagoon species such as shellfish, limited aquaculture, and harvesting of land-based goods like coconut and breadfruit. Mangubhai et al. (2019) note that, in spite of the relatively low natural endowments on land "[t]he limited flora able to thrive there are ecologically critical to wildlife on the atolls, as well as for the culture and survival of the I-Kiribati people."[92]

Industry-specific constraints analysis found that poor natural capital, including coastal erosion and limited availability of arable land (see Non-Binding and Near-Binding Constraints below), is a key constraint on investment and growth of six of the seven high potential growth industries identified in Kiribati.

Control of natural resources is governed at the national and island level, but women are often excluded from having input. The National Fisheries Regulation on the Conservation and Management of Coastal Marine Resources (2019) sets out key conservation and management measures, with an emphasis on the role of communities, and bans fishing methods that are considered harmful nationwide. Island Councils under the Ministry of Internal Affairs have bylaws for the enforcement of the regulation, and many have community-based fisheries management plans and designated fish recovery zones.[93] Given widespread participation in coastal fishing and collective reliance on coastal resources, governance of these resources should engage all stakeholders. However, women lack representation in Island Councils: in 2016, only 10 out of 332 Island Councilors were women.[94] Studies published by the Food and Agriculture Organization and the Secretariat of the Pacific Community find that the underrepresentation of women in traditional local government hierarchies has contributed to the dramatic

89 For example, while major desalinization works may make sense in the dense and relatively well-connected urban capital of South Tarawa, it is not viewed as a resilient water supply approach on Outer Islands where repair services and supply chains are not well-established for the technology and for the energy systems to run it.

90 Government of Kiribati (2013).

91 Food and Agriculture Organization (2018).

92 Mangubhai *et al.* (2019).

93 The Local Government Act of 1984 says that Island Councils control nearshore resources within three nautical miles, which are the primary fishing grounds of women.

94 Government of Kiribati (2016).

decline of coastal fishery stocks such as the bivalve ark shell.[95]

Near-shore fisheries generate substantial revenue and offer potential for growth. While off-shore fisheries are the large revenue generators (with most revenue captured by foreign-based vessels), a 2014 study that estimated the value of near-shore fisheries (which are strongly dependent on coastal habitat) found them to be worth nearly USD 35 million, or over 19 percent of Kiribati's GDP that year.[96] Additionally, the present analysis identified expansion of the fisheries value chain as one of several high-potential growth areas.[97]

While coastal flora and fisheries are key provisioning services, intact natural ecosystems are also critical for protection from storms. The Coastal Policy notes:[98]

> Shores are at the front line of exposure to marine hazards such as storms and wave impacts. … Kiribati's shores if undisturbed can naturally build and protect from marine flooding and erosion and where shoreline systems are intact and undisturbed by direct human impacts, they are still providing good protection from marine hazards. Whereas if shores are degraded through human intervention, communities become more exposed to coastal hazards and their resilience to climate change is reduced.

Overall, the many dependencies and connections between coastal stewardship, factors contributing to well-being and economic activity, and degrading local and global pressures are well-illustrated in Figure 7 below. Estimating the strength of these connections to isolate specific pathways is beyond the scope of the CA but would be investigated in the subsequent RCA.

The notion that degradation will significantly limit well-being is borne out by historical examples of declining ecosystem service provision. Food and Agriculture Organization (2018) cites examples of multiple local fisheries that saw temporary increases in exploitation, only to see stocks dramatically decrease, including stocks of ark shell clams, sea cucumber, and aquarium fish.[99] These losses affect livelihoods for both women and men. While men dominate the fishing industry generally, women also play a critical role in in-shore fisheries and depend upon them for food and livelihoods. Women and their families harvest fish and other coastal products such as sea cucumbers and shellfish for commercial sale. In Tarawa, women play a crucial role in the processing and distribution of fish and fish products.[100] In addition, contaminated aquifers (due to lack of adequate sanitation[101]) likely lead to higher mortality,[102] and necessitate boiling of drinking water, which, if done, leads to significant time losses which largely are borne by women.[103]

In addition to fisheries and aquifers referred to above, other elements of coastal ecosystems are also under threat. As indicated in Figure 7, reefs form a critical element of coastal ecosystems and their degradation can have ripple effects. The joint (World Bank/Asian

95 Gillett and Tauati (2018).

Gillett (2016).

96 *Ibid.*

97 Dalberg (2021).

98 Government of Kiribati (2017).

99 ADB (2021b).

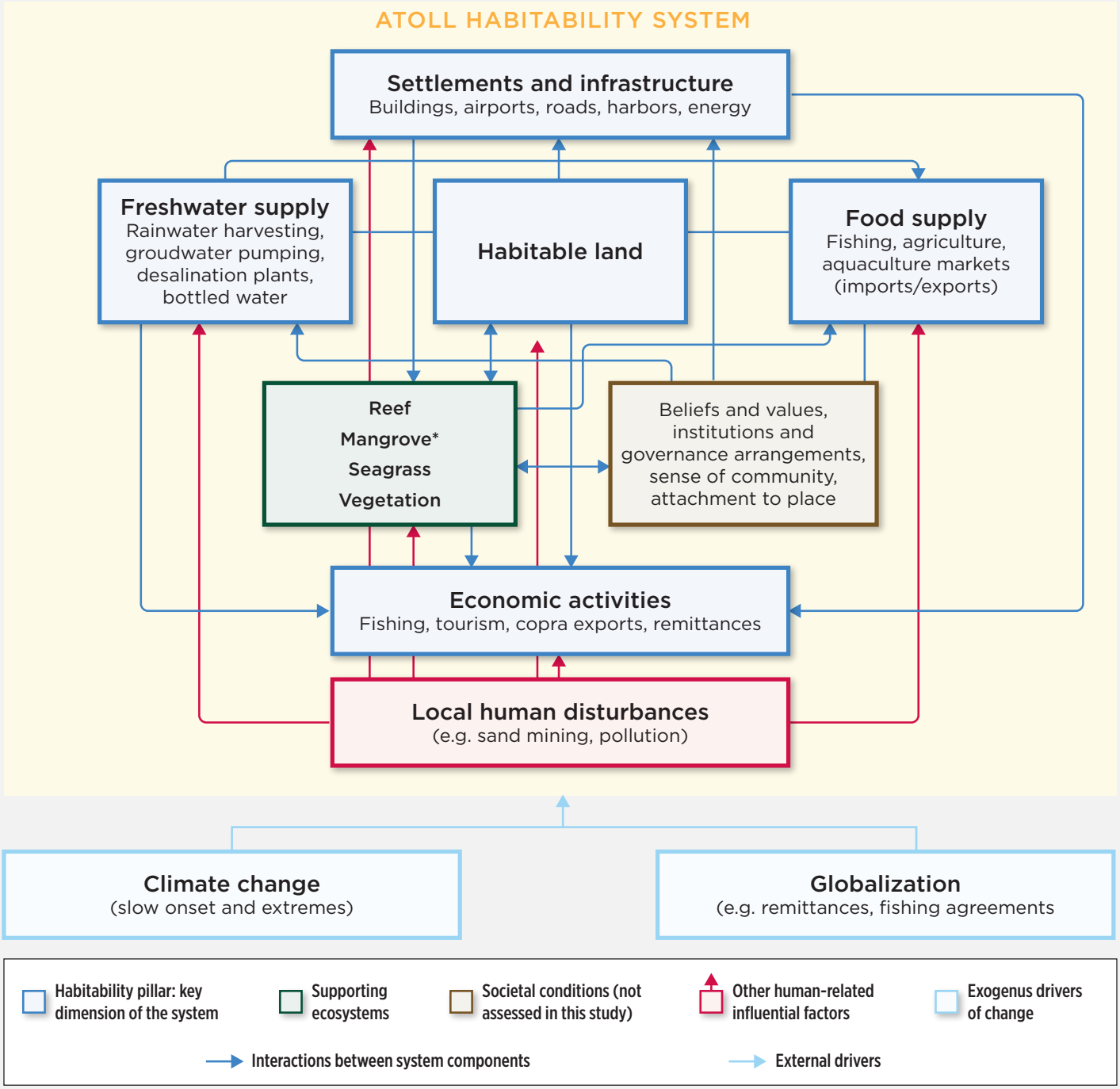
100 Tekanene (2006).

101 The 2015 Census (Government of Kiribati, National Statistics Office 2015) indicates that 20 percent of I-Kiribati use bush, beach, or sea for sanitation.

102 In 2016 Kiribati had a higher rate of mortality—16.7 deaths per 100,000—attributed to unsafe water, unsafe sanitation, and lack of hygiene compared to Vanuatu, Solomon Islands, Samoa, the Federated States of Micronesia, and Cabo Verde (World Bank, World Development Indicators).

103 ADB (2021b).

FIGURE 7: Interconnections between internal and external human and environmental factors affecting atoll habitability (and, by implication, economic prospects)



Source: Duvat, *et al.* (2021)

Development Bank) 2021 Kiribati Climate Risk Country Profile notes that, among other threats, warming temperatures are projected to cause a "significant decline" in the "maximum catch potential of currently resident species" via their impact on reef formation and health.

Separately, Mangubhai et al. (2019) note that "mangroves in Kiribati are threatened by deforestation for domestic purposes, coastal infrastructure development, coastal erosion and sedimentation, alteration of lagoon circulation, freshwater diversion and inter channel blockage,

and pollution." Overall, the heavy pressures from population, the limited land base, and climate change mean that most forms of coastal natural capital are exposed to some form of threat in significant parts of the country, requiring careful governance to ensure they provide a sustainable base for future economic activity.

Non-Binding and Near-Binding Constraints

Overall, the Kiribati Country Team examined a wide range of potential constraints to inclusive growth, including micro risks, high cost of finance, various forms of infrastructure (energy, sanitation, water supply, and information and communications technologies), physical land availability, education, and health. Of these, *micro risks, physical land availability,* and *health* were found to be problematic issues, but ultimately not binding on inclusive growth, as discussed below.

Micro Risks

The most salient microeconomic distortion in Kiribati is likely the copra subsidy instituted in the mid-1990s. In 2016, the copra subsidy was increased from A$1 to A$2 per kilogram; the budget for Fiscal Year 2022 envisions again doubling the subsidy to A$4 per kilogram. The World Bank (2018:15) has observed that the subsidy has multiple objectives: "It is an agricultural subsidy to maintain copra production (a key export), a cash transfer to ensure a supply of cash in outer islands to maintain a monetized economy, an unemployment benefit to provide cash incomes to those who would otherwise be unemployed, a form of conditional cash transfer to encourage people to remain on the outer islands in order to slow urban migration, and one of the key transfer mechanisms that the government uses to redistribute its rising resource wealth (fishing license fee revenue) to the population of the outer islands." Set against these intended benefits of the subsidy, however, are some significant distortions and inefficiencies:

- Copra exports fetch a price on the world market of about A$1.20 per kilogram that is significantly lower than the current guaranteed farmgate price of A$2; every kilogram exported entails a fiscal loss to the country.
- Production and labor allocation decisions are distorted away from potentially more socially valuable activities. As one example, virgin coconut oil (which Kiribati could export competitively without a subsidy) is not as remunerative for households as copra, because of the magnitude of the copra subsidy increase.
- Fiduciary and oversight problems are reportedly rife, e.g., an absence of reliable receipt books, and "shrinkage" of product between the weigh stations where growers deposit raw product and actual export quantities.
- The subsidy is completely untargeted; as a consequence, over time, the program's benefits are increasingly being captured by the non-poor.

New social protection programs in the form of an unemployment benefit (decoupled from copra production) and old-age pensions may diminish the attractiveness of and need for the subsidy. Overall, there is a dearth of systematic evidence on the copra subsidy's impacts. Accordingly, the World Bank is undertaking analytical work using the 2019 HIES to shed additional light on the nature and magnitude of the associated incentive problems.

Natural Capital – Physical Land Availability

Kiribati's arable land per capita is among the lowest in the world, limiting land-based food production and potential productivity-enhancing internal migration to the already dense capital of South Tarawa. Often described with slight hyperbole as "one of the most dense areas on the planet," its average density of approximately 3600 people per square kilometer—and perhaps, more importantly, its minimal availability of undeveloped land—suggests that land may be constraining development. While physical land area is typically not considered a constraint that can be relieved, there is some evidence for the "circumvention" test of differential diagnosis, in that the government displays continued strong interest in augmenting land area, in particular in Temaiku at the southeastern bend

in the atoll. However, costing of this project indicated it was very expensive, and the government has not secured funding, even for a more limited development effort. Land area is also not a constraint on any other island and the government does not see utility in pursuing land augmentation elsewhere. Perhaps most critically from an economic logic standpoint, analysis indicates that returns to labor in South Tarawa are not fundamentally higher than on the Outer Islands, so that using land to expand economic activity at the current levels of density may not have significant benefits to productive employment at the national level. Finally, from the perspective of relaxing constraints to growth, augmenting land area would be a one-time level enhancement—i.e., a "bump" rather than a "bend" in the growth curve.

Employability – Health

Kiribati underperforms relative to most of its regional comparators with regard to key health outcomes. Non-communicable diseases, gender-based violence, suicide, waterborne diseases, and stunting are particularly severe in Kiribati compared to regional peers. Moreover, there is anecdotal evidence that I-Kiribati women avail themselves of New Zealand's "Recognized Seasonal Employer" labor mobility scheme to secure access to better health care.

Regarding potential impacts of people's poor health status on their decisions to migrate for employment, training, or other reasons, only about 6 percent of potential migrants cited health reasons as a constraint on migration. Similarly, research on OPEs did not identify health-related issues as a key constraint to IKiribati accessing these opportunities. Somewhat counterintuitively, analysis of the 2019 HIES indicates that having a chronic illness increases one's chances of labor force participation and employment. The interpretation may be that those afflicted by such illnesses require more resources to meet out-of-pocket health care expenses. In any event, health status does not appear to constitute a serious obstacle to productive employment for I-Kiribati.

Conclusion

This Constraints Analysis presented reasoning and evidence supporting the identification of the following binding constraints to inclusive economic growth in Kiribati:

1. **Disproportionately low participation of I-Kiribati workers in opportunities for international labor mobility.** The relatively low participation of I-Kiribati workers in labor mobility programs has created a self-reinforcing, equilibrium outcome that constrains inclusive growth in Kiribati. This situation both leads to, and reinforces, the following conditions:
    - Limited mutual awareness of opportunities on the part of potential employers in labor-receiving countries and I-Kiribati working-age people alike
    - A poor match between workforce skills and standards in Kiribati and expectations of foreign employers, and
    - Unexploited opportunities by the Government of Kiribati in outreach, coordination, and networking among labor market actors.
2. **Insufficient fiscal capacity and public financial management to meet climate-resilient development needs.** Tenuous fiscal situation and lack of rigorous planning, implementation, and asset management likely limit the government's ability to provide a climate-resilient physical environment and public service base for enterprises and their employees to conduct business, and for investors and donors (including eventual private and donor lending) to have confidence that benefits from investments will be sustained.
3. **Vulnerability to degradation of critical coastal natural capital, exacerbated by population pressures and climate change.** Healthy coastal ecosystems (such as mangrove, coral, lagoons) provide both protective (e.g., against storm surge) and provisioning ecosystem services (fish, shellfish, breadfruit, freshwater). Degradation increases vulnerability to shocks and may also reduce the resource base for both economic production and subsistence. Poor households are more likely to be vulnerable to shocks and also depend more directly on coastal resources.

Each of the three constraints above were explored and refined further through the next stage of the program development process, *Root Cause Analysis*. As discussed in Non-Binding and Near-Binding Constraints above, several other possible constraints to growth were analyzed but were determined to not be binding.

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