



BELIZE

SELECTED ISSUES

May 2024

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Approved By
**Western Hemisphere
Department**

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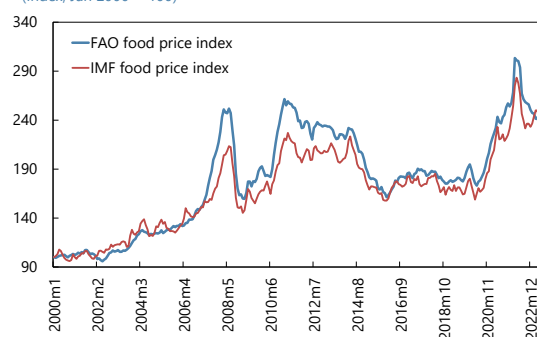
FOOD INFLATION AND FOOD INSECURITY IN BELIZE

Several shocks have increased global food prices in recent years, including dislocations caused by the COVID-19 pandemic and Russia's invasion of Ukraine. The poor have been hurt disproportionately, prompting policymakers to implement measures to protect them. This chapter documents the recent episode of food inflation and food insecurity in Belize; overviews what policies were announced in Belize and the Caribbean during the recent cost-of-living crisis; and discusses the policies Belize could implement to protect its most vulnerable households from the threat of food insecurity going forward.

A. Introduction

1. Several shocks have increased global food prices in recent years. Food prices started rising in early-2021 due to disruptions caused by the COVID-19 pandemic; low harvests in Europe, South America, and the U.S.; and strong demand. This trend was fueled further by Russia's invasion of Ukraine in 2022, as both countries are large producers of wheat, maize, and fertilizers. Although food prices have recently fallen, they remain well above their 20-year average. There are also large upside risks to food prices from climate change and related disasters, and the possible spread of the armed conflicts in Ukraine and the Middle East.

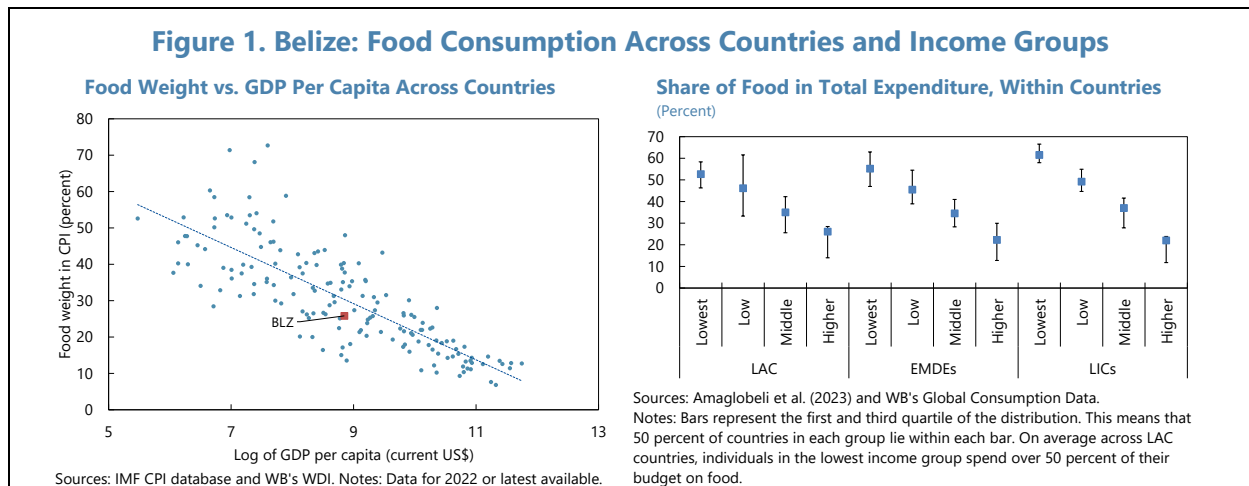
International Food Price Indices
(Index, Jan 2000 = 100)



Sources: FAO and IMF staff calculations.

2. Food inflation disproportionately hurts poorer countries and the poorer segments of the population. The impact of higher food prices is not uniform, they hurt certain countries and, within countries, certain income groups more severely than others. Across countries, food accounts for a larger share of the households' consumption basket in low income and developing countries than in emerging markets or advanced economies (Figure 1, panel 1). Food accounts for 46 percent of the consumption basket in low income and developing countries, 28 percent in emerging market economies, and 16 percent in advanced economies. At 25.8 percent, the weight of food in the consumption basket in Belize is the fourth largest in the Caribbean, making it particularly vulnerable to increases in global food prices. Within countries in Latin America and the Caribbean (LAC), the poorest households tend to allocate two times more of their budget to food than the richest households (Figure 1, panel 2).

3. This chapter analyzes food inflation and food insecurity in Belize. First, it documents the evolution of food prices and food insecurity in Belize since 2019, comparing it to other countries in LAC. Second, it overviews the policies that Belize and other Caribbean countries announced to combat the cost-of-living shock in 2022. Lastly, it discusses the appropriate policies to protect vulnerable households from food price inflation going forward based on economic theory and best practices and estimates how much it would cost the government of Belize to protect the vulnerable population against a rise in food prices like the one in 2022.



4. The appropriate policy response to higher global food prices is to let domestic prices adjust to global prices while providing targeted support to the most vulnerable. Allowing domestic food prices to adjust to global prices lets price signals work and helps reduce domestic consumption and increase domestic production of food items. This policy should be complemented with targeted transfers to the most vulnerable, who are at risk of food insecurity and are hurt disproportionately by the rise in food prices. This policy would be the most cost effective for the government. Policies that limit the pass-through from global to domestic prices lead to broad-based subsidies, which are costly and provide relief to everyone, including to those who might not need it. However, providing targeted support may be difficult for countries with weak social safety nets. These countries can consider alternative targeting approaches (digital solutions and big data) to provide targeted support and may implement temporary price policies with clear exit strategies while they strengthen their social safety nets.

B. Food Inflation and Food Insecurity in Belize

5. In 2023, Belize suffered its highest rate of food inflation since 2008. Food inflation rose from near zero in 2020 to 5 percent in 2021 and a peak of 15.8 percent in March 2023. A cross-country comparison shows that Belize's food inflation since 2020 has been broadly in line with its Caribbean peers. Food prices in Belize rose by 25.8 percent between December 2020 and September 2023, slightly above the increase in the median Caribbean country and about half the increase in the average LA-5 economy (Brazil, Chile, Colombia, Mexico, and Peru; Figure 2).

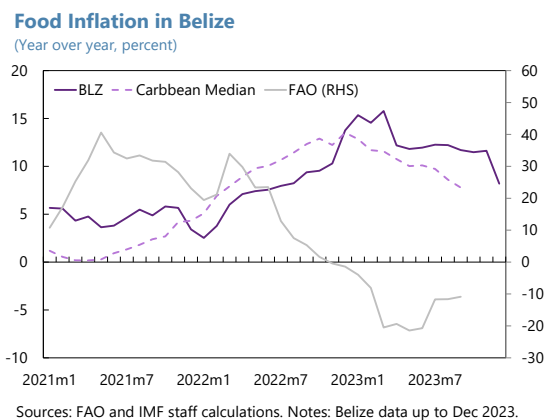
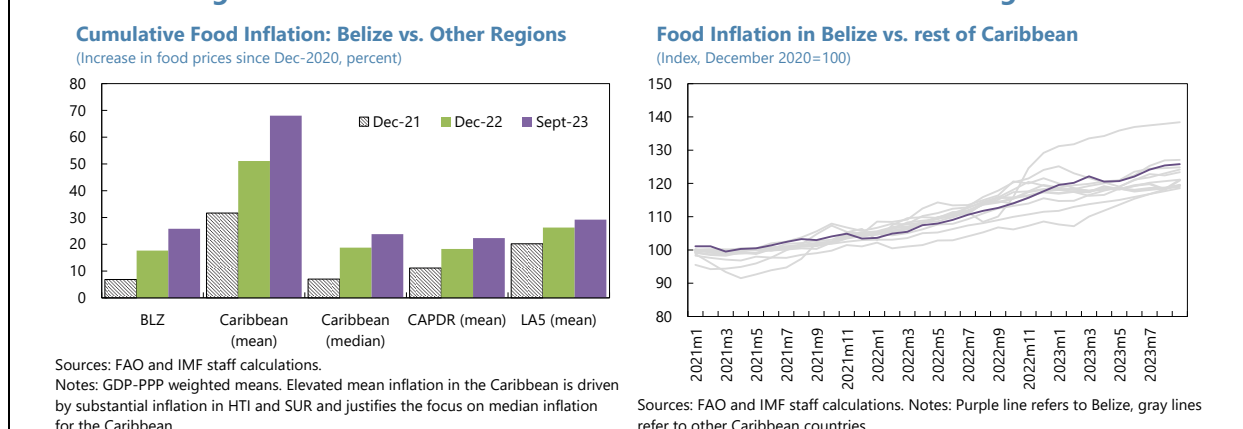


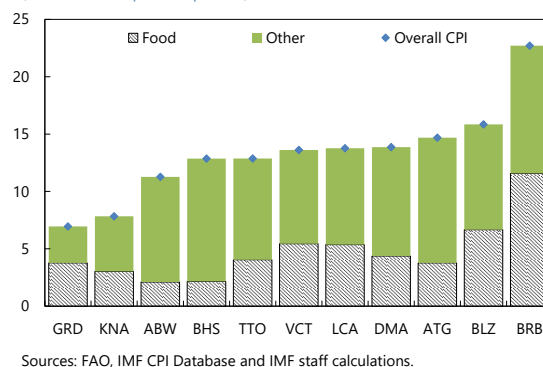
Figure 2. Belize: Food Inflation Versus Other Countries and Regions



6. Food inflation has contributed more to overall inflation in Belize than in peer countries.

In Belize, food inflation contributed over 40 percent of the 15.7 percent headline inflation rate between December 2020 and September 2023, more than the one-third average contribution in other Caribbean countries. Belize’s contribution of food inflation to headline inflation is comparable to that of Barbados and Saint Vincent and the Grenadines, and substantially higher than in the Bahamas and Aruba, where it was less than a fifth.

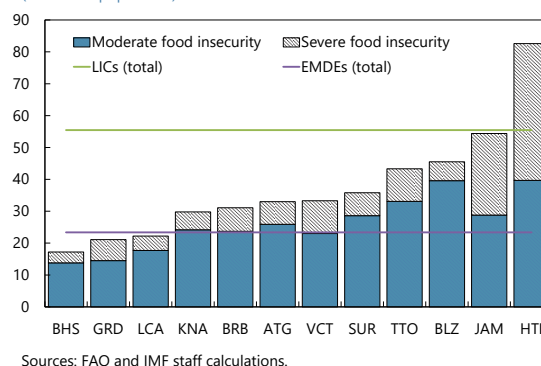
Contribution of Food Inflation to Overall Inflation
(Dec-2020 vs. Sept-2023, percent)



7. More than 40 percent of Belize’s population experienced food insecurity in 2021.

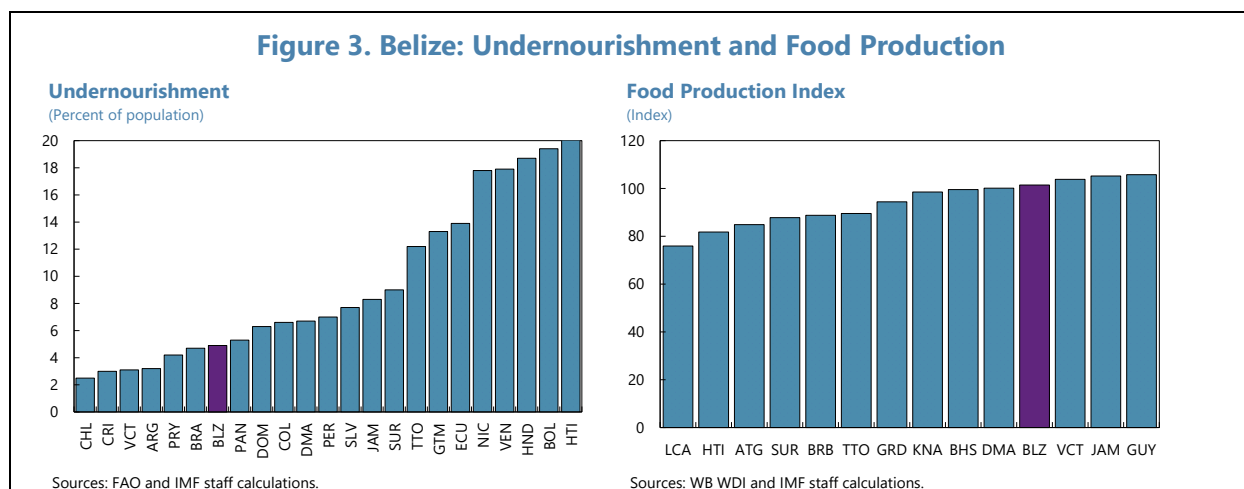
Food insecurity is the share of the population having difficulties accessing food for the development of a normal and healthy life according to the United Nations’ Food and Agriculture Organization (FAO). Moderate food insecurity is when people have reduced the quality and/or quantity of their food and are uncertain about their ability to obtain food due to lack of money or other resources. Severe food insecurity is when people have run out of food and, at the most extreme, have gone days without eating. Food insecurity in Belize was one of the highest in the Caribbean in 2021, with a modest share of the population with severe food insecurity (6 percent) and a large share with moderate food insecurity (40 percent). This implies a high risk that a large share of Belize’s population could suffer severe food insecurity if adverse food price shocks were to materialize. Indeed, the World Food Program’s Caribbean

Food Insecurity Across the Caribbean, 2021
(Percent of population)



Food Security & Livelihood Survey suggests that 18 percent of the respondents in Belize were experiencing severe food insecurity in 2023, following two years of high food inflation.

8. Belize’s undernourishment levels are low partly due to its good conditions to produce food. Belize has a low share of the population whose habitual food consumption is insufficient to provide the dietary energy levels required to maintain a normal and healthy life, lower than in its peer countries in Central America and the Caribbean (Figure 3, panel 1). This reflects the small share of Belize’s population that suffers from severe food insecurity and is partly due to the country’s favorable conditions to produce food as noted by its relatively high food production index (Figure 3, panel 2), which is defined by the FAO as the sum of price-weighted quantities of different edible and nutritious agricultural commodities produced after deductions of quantities used as seed and feed.



C. How Did Countries Respond to the Recent Cost of Living Crisis?

9. This section uses the IMF’s Database on Energy and Food Price Actions (DEFPA) to overview the policies announced by other countries during the recent cost-of-living crisis. The DEFPA (Amaglobeli et al., 2023) catalogues the policies announced by countries in response to the rise in energy and food prices in the first half of 2022. It covers 174 countries, including 90 percent of the advanced and emerging market economies and 80 percent of the low-income and developing countries.¹ The DEFPA identified nearly 750 announced measures, of which 50 percent were targeted to energy prices, 25 percent to food prices, and 15 percent to both sectors. The other 10 percent did not specify the sector. This section discusses the interventions for both energy and food prices as higher energy prices likely also contributed to higher food prices.

10. The Caribbean countries announced fewer and more temporary measures than other countries. The average Caribbean country announced 5 measures with a cost of 0.7 of GDP, while

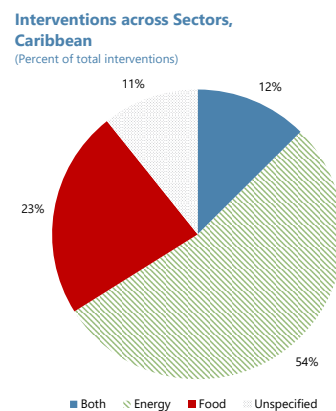
¹ For LAC countries, this section uses the updated results of the DEFPA IMF Country Desk Survey from Amaglobeli et al. (2023), which accounts for policy announced throughout 2022.

the average country in the rest of LAC announced 6 measures with a cost of 0.9 percent of GDP. About 53 percent of the measures in the Caribbean tackled energy prices, 23 percent food prices, 12 percent both sectors, and 9 percent did not specify (Figure 4, panel 1). Over 90 percent of these measures were temporary, and the policy instruments most used were consumption taxes, price subsidies, and in-kind transfers. Over half of the policies were revenue-based, including VAT/consumption taxes, import tariffs and excises (Figure 4, panel 2). Governments in the rest of LAC relied relatively more on price subsidies, cash transfers (likely due to their stronger social safety nets), and other non-fiscal measures like price controls.

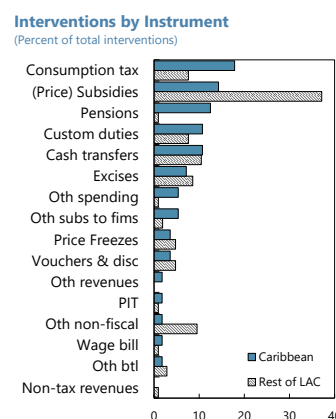
11. Over 60 percent of the measures across countries were targeted to specific segments of the economy, with a large share directed to households. For the Caribbean, 21 percent of the measures were targeted to households and 17 percent to firms, while 24 percent did not specify the sector (Figure 4, panel 3). A larger share of the measures was targeted to households and firms in the rest of LAC. Within policies targeted to households in LAC, 60 percent were aimed at low-income and vulnerable individuals, including cash transfers to women head of households, cuts in utility bills for certain income groups, and subsidized food for those in need.

12. Belize implemented measures to mitigate the rise in energy prices in 2022 and measures to address the increase in food prices in 2023.² On April 1, 2022, the Belizean authorities temporarily reduced the excise taxes on fuel to keep diesel and regular gasoline prices at the pump constant. They also introduced a temporary subsidy to bus operators to limit the increase in bus fares. The estimated cost of these measures was 0.6 percent of GDP between April 2022 and March 2023. The fuel tax reduction was untargeted, as it benefitted both households and firms and did not differentiate by income groups, but the subsidy to bus operators was more targeted to lower income households. In August 2023, the authorities imposed temporary limits on the markup for 32 basic consumption goods, including foodstuff, for wholesalers (15

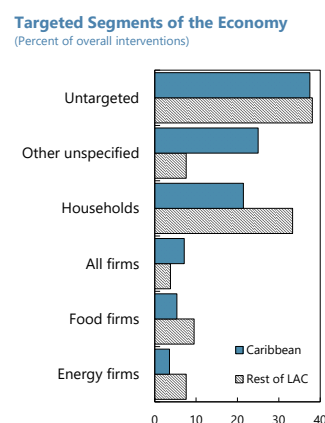
Figure 4. Belize: Policies Interventions to Address the 2022 Cost-of-Living Crisis



Sources: DEFFPA IMF Country Desk Survey, 2022, and IMF staff calculations.



Sources: DEFFPA IMF Country Desk Survey, 2022, and IMF staff calculations.



Sources: DEFFPA IMF Country Desk Survey, 2022, and IMF staff calculations.

² Belize's policies to mitigate the rise in energy prices in 2022 are not included in the DEFFPA IMF Country Desk Survey.

percent) and retailers (25 percent).³ The goal was to limit monopolistic practices and price gouging. It is still too early to assess how effective this measure has been.

D. How to Tackle Food Insecurity and Food Inflation in Belize?

13. What are the best practices countries should consider when protecting the vulnerable households against food inflation? This section summarizes general guidelines for an appropriate policy response to food price shocks based on previous IMF work.⁴ Leveraging the social safety net (e.g., targeted cash transfers) is the most cost-effective way of alleviating the burden of high food prices on the most vulnerable and it should be preferred to broad-based mechanisms that prevent international prices from passing through to domestic prices and create market distortions.

14. Policymakers should allow the passthrough from international food prices to domestic food prices to let demand and supply respond to price changes. The supply of food does not increase quickly when global food prices rise due to crop cycles and the use of fixed inputs such as land in agricultural production, but it increases over the medium term. Thus, short term adjustments to higher food prices primarily occur through reduced food consumption, which may increase food insecurity. If providing targeted support to vulnerable households is not feasible, temporary price subsidies to food products with low demand elasticity may help safeguard vulnerable populations (Green and others, 2013). Different from energy price subsidies, food price subsidies are more targeted to the poorer households who spend a larger share of their income on food. Importantly, price subsidies should have clear exit clauses. Prolonged price subsidies can crowd out productive expenditure and reduce agricultural production. As price subsidies are phased out, they should be replaced by targeted transfers to the most vulnerable.

15. Targeted support to the most vulnerable is more cost-effective. Targeted policies that leverage existing social safety nets have smaller deadweight losses than price subsidies (Amaglobeli and others, 2023). Options include emergency food relief, food stamps, or cash transfers. However, the ability to target benefits depends on the strength of the social safety nets. Countries like Belize, which do not have strong social safety nets, could support the vulnerable by leveraging existing programs like Building Opportunities for Our Social Transformation (BOOST). If expanding the social safety net is not possible, alternative targeting approaches such as demographic or categorical criteria, geographic targeting, self-selection targeting, community targeting, or proxy-means testing, could be considered. Belize could also leverage the latest Census data to identify geographical areas most in need. Targeted transfers should be temporary and require the beneficiaries to take training and seek employment. Moreover, targeted support should be accompanied by an awareness campaign on food prices across retailers. If targeting benefits is not possible in the short term, Belize could consider temporary tax reductions for staple foods with clear sunset clauses while the safety net is strengthened.

³ <https://www.nationalassembly.gov.bz/wp-content/uploads/2023/11/SI-No.-88-of-2023-Supplies-Control-Prices-Amendment-No.-27-Regulations-2023.pdf>.

⁴ See Amaglobeli et al. (2023), Amaglobeli et al. (2022) and Rother et al. (2022).

16. Staff estimates that protecting the vulnerable against a food price shock like the one in 2022 would cost the Belizean government between 0.1 and 0.8 percent of GDP depending on the group targeted.

The estimations assume that: (i) the level of consumption of vulnerable households is the same as for the average Belizean; (ii) the share of food in the consumption basket is constant over time; (iii) the share of food in the consumption basket of vulnerable households is the same as that of the average Belizean; and (iv) the government can target the most vulnerable households and provides a one-time transfer equal to the increase in the cost of the food basket.⁵ The results show that it would cost 0.1 percent of GDP to protect the households with severe food insecurity, and 0.8 percent of GDP those with any form of food insecurity. The cost would be lower if the transfer compensates for just part of the food price increase.

Belize: The Cost of Fully Compensating the Vulnerable for Food Inflation in 2022	
A: Private final consumption expenditure (BLZ mn, 2021)	2874.4
B: CPI weight on food (percent, 2020)	25.8
C = A x B: Private final consumption of food (BLZ mn, 2021)	741.6
D: Food inflation (percent, 2021 -> 2022)	13.8
E = C x D: Increase in value of food consumption (BLZ mn, 2021)	102.0
F: Fraction of pop. with severe/any form of food insecurity (2021)	5.9/45.5
G = E x F: Cost of fully compensating the vulnerable (BLZ mn, 2021)	6.0/46.4
H: GDP (current, 2022)	5661.0
I = G x H: Cost in percent of 2022 GDP	0.11/0.82
<small>Sources: SIB, IMF CPI Database, FAO, and IMF staff calculations.</small>	

17. The policies to mitigate the increase in food prices should not undermine other policy objectives. Although providing targeted support to vulnerable households is less costly than broad-based subsidies, the fiscal costs may still be sizable and may conflict with other policy objectives such as reducing public debt or expanding priority expenditure on infrastructure and crime prevention. To safeguard these policy objectives, it is important to consider offsetting revenue and expenditure measures to limit the impact on the fiscal balance. It is also important to foster competition in the agricultural sector by promoting international trade while supporting farmers to become more productive. The latter will become even more urgent with climate change, as more frequent and intense climate-related disasters are likely to disrupt domestic agricultural production.

18. The authorities should evaluate the impact of the recent policy that regulates markups on essential goods by wholesale and retail operators when they have sufficient data. The limits on the markup for 32 essential goods were introduced to limit the increase in food prices and avoid monopolistic practices. However, this measure faces some key design challenges. First, the items subject to markup limits may not be the consumption goods with the highest price increases in the recent period. Second, this policy may not necessarily curb inflation, as retailers can increase prices on other consumption goods to compensate for their losses on the regulated items. Third, this policy may not be effective if it is not properly enforced, which will require additional resources.

⁵ Assumption (i) likely overestimates the level of food consumption of vulnerable households and thus the cost of protecting them, while assumption (iii) likely leads to an underestimation as poorer households spend a larger share of their income on food than richer households. Staff assumes that these two biases broadly offset each other.

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DESIGNING A FISCAL RULE FOR BELIZE

Belize's ambitious reform agenda and strong economic recovery from the pandemic have restored debt sustainability, but debt dynamics have become more difficult since 2023. A well-designed fiscal rule would help Belize entrench debt sustainability and build sufficient buffers against adverse shocks. Staff recommends a rule that targets a reduction in public debt to 50 percent of GDP by 2030 by raising the primary balance from 1.2 percent of GDP in FY2023 to 2 percent from FY2025 onwards. A well-defined escape clause and an automatic adjustment mechanism can provide flexibility to respond to large adverse shocks without undermining the credibility of fiscal policy.

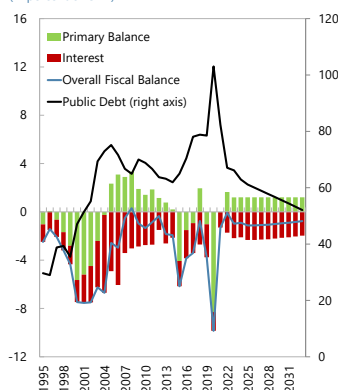
A. Introduction

1. Belize experienced large macroeconomic imbalances in the two decades prior to the COVID-19 pandemic. The fiscal and current account deficits widened sharply in 1999-2004 due to expansionary policies aimed at boosting growth (higher spending on infrastructure and housing, tax cuts, subsidized credit), and reconstruction after Hurricanes Keith and Iris. As a result, public debt rose from 30 percent of GDP in 1995 to 75 percent in 2005 despite strong real GDP growth, which averaged 6.8 percent in 1996-2005. The authorities made efforts to lower public debt in 2005-14, including by reducing the fiscal deficit and completing two debt restructurings in 2007 and 2012. However, public debt remained above 60 percent of GDP partly because of slower real GDP growth. The fiscal and current account deficits widened again in 2015-19 due to increases in public sector wages, transfers, and capital expenditure, and a one-off payment for a nationalized company. As a result, public debt rose to 80 percent of GDP in 2017-19 despite the completion of a third debt restructuring in 2017.

2. The COVID-19 pandemic amplified pre-existing vulnerabilities and increased public debt to unsustainable levels. Real GDP contracted by 13.7 percent in 2020 led by contractions in tourism and contact-intensive activities, while the fiscal deficit widened to 9.9 percent in FY2020 due to both lower revenues and higher pandemic-related expenditure. As a

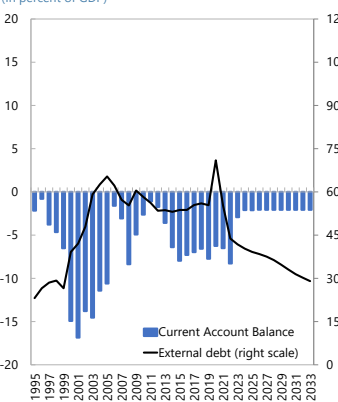
Figure 1. Belize: Fiscal and External Positions, Real GDP Growth, and Interest Rates

Fiscal Balance and Public Debt
(In percent of GDP)



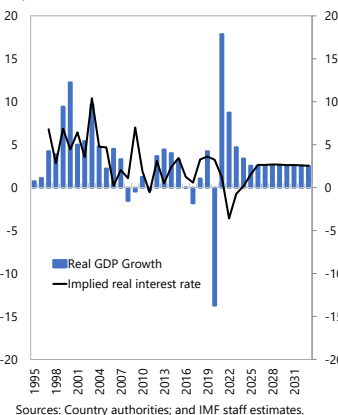
Sources: Country authorities; and IMF staff estimates.

Current Account Balance and External Debt
(In percent of GDP)



Sources: Ministry of Finance and Central Bank of Belize.

Real Growth and Implied Real Interest Rate
(In percent)



Sources: Country authorities; and IMF staff estimates.

result, public debt increased to 103 percent of GDP in 2020, a level that staff assessed as unsustainable under current policies.

3. The authorities have been implementing an ambitious reform agenda to restore debt sustainability since 2021. The agenda has three pillars: a large fiscal consolidation, debt operations, and growth-enhancing structural reforms. On fiscal consolidation, the government cut public sector wages and spending on goods and services, delayed infrastructure projects, and enhanced revenue administration. On debt operations, the government completed a debt for marine protection swap with The Nature Conservancy, which reduced public debt by 9 percent of GDP and enhanced marine conservation, and a 4.9 percent of GDP discount on Belize's Petrocaribe debt with Venezuela. On growth-enhancing structural reforms, efforts have been made to ease access to affordable credit for small and medium sized enterprises, digitalize systems, and enhance the resilience to climate change and natural disasters, including by investing in climate resilient infrastructure.

4. The authorities' reform agenda and the strong economic recovery from the pandemic significantly reduced public debt. Real GDP grew by 17.9 percent in 2021 and 8.7 percent in 2022, led by tourism, retail and wholesale trade, transportation, and construction. Nominal GDP grew even faster as inflation also increased. This, plus the implementation of the authorities' reform agenda, cut the fiscal deficit to 0.1 percent of GDP in FY2022 and reduced public debt to 67 percent in 2022.

5. Debt dynamics have become more difficult since 2023. Real GDP growth and inflation have moderated, and interest rates have risen, contributing less to debt reduction. Real GDP grew by 4.7 percent in 2023 and is projected to grow by 2.5 percent in the medium term as the output gap closed, while inflation fell to 4.4 percent in 2023 and is projected to decline further as commodity prices fall. Global interest rates rose in 2023 and are expected to remain high as central banks in advanced economies keep a tight monetary stance to reduce inflation. In addition, the government settled outstanding legal claims and acquired the Port of Belize from a foreign investor in 2023. As a result, public debt fell more slowly to 66 percent of GDP in 2023 and is projected to remain above 50 percent of GDP until 2034 under current policies, in which the primary balance remains at 1.2 percent of GDP over the medium term. Public debt could be even higher if the country is hit by more frequent and severe climate related disasters due to climate change.

6. The authorities should build on the public debt reduction of the last two years and target a level of public debt that provides sufficient buffers in the medium term. Given the fall in the growth-interest rate differential and lower scope for debt operations, reducing debt would require raising the primary balance with revenue and expenditure measures. Anchoring this plan in a fiscal rule with clear targets and specific measures would boost its credibility.

B. Rule Design

7. A well-designed fiscal rule would help Belize target an appropriate public debt level in the medium term. Such a rule would enhance fiscal discipline, transparency, and accountability, would help avoid building imbalances as in the two decades prior to the pandemic, and would

ensure that the country has sufficient fiscal buffers to respond to adverse shocks. A well-designed fiscal rule should satisfy the following general conditions (IMF, 2018a):

- *Sustainability*: Compliance with the rule should ensure long term debt sustainability.
- *Stabilization*: The rule should not increase economic volatility; it should let automatic stabilizers operate and/or allow discretionary countercyclical changes in taxes or expenditures.
- *Simplicity*: The rule should be easily understood by decision makers and the public.
- *Operational guidance*: The rule should provide clear guidance to the annual budget process. Budget aggregates targeted by the rule should be largely under the control of the policymaker.
- *Resilience*: A rule should be in place for a sustained period to build credibility, and it should not be easily abandoned after a shock.
- *Ease of monitoring and enforcement*: Compliance with the rule should be easy to verify, and there should be costs associated with deviations from targets.

8. There are likely tradeoffs among these conditions. A tradeoff between stabilization and simplicity is likely. Flexible rules that stabilize the economy after shocks are more complex (e.g., rules that target cyclically adjusted balances). A tradeoff between resilience and operational guidance is also likely. Rules that include flexibility provisions (such as loosely defined escape clauses) might complicate the budget process as fiscal targets can change with conditions. A tradeoff between stabilization and sustainability is also possible. Weak macroeconomic conditions might justify relaxing the fiscal rule's ceiling while risks to fiscal sustainability could argue against it.

9. Successful implementation of a fiscal rule requires the enhancement of institutional and legislative arrangements (IMF, 2018b). Buy-in from politicians and the public (through effective communication), a solid track record of strong fiscal performance, and effective Public Financial Management (PFM) systems are necessary pre-conditions for success. Ensuring accountability and transparency through regular reporting to parliament or an independent oversight committee (such as a fiscal council) would also increase public support for and confidence in the framework. While careful consideration should be given when setting the initial parameters of the fiscal rule, revisions may be required as economic circumstances change and provisions for such could be incorporated in the relevant fiscal responsibility law. Reaching the operational target may also require a transitional period where the authorities implement revenue and expenditure measures to gradually reach the desired primary balance.

10. Staff recommends a fiscal rule with a public debt anchor and a primary balance intermediate target to prioritize sustainability and simplicity over stabilization. Given Belize's history of macroeconomic imbalances and still high public debt, staff considers it key to have a fiscal rule that brings debt to a level that provides sufficient buffers in the medium term (*sustainability*). In that context, a natural anchor would be a public debt-to-GDP level in a specific year. As an intermediate target to guide the annual budget process, staff recommends a primary balance-to-

GDP level that is consistent with the debt target (*simplicity*). A primary balance operational rule is preferred to an expenditure rule for small states with high exposure to natural disasters and high initial debt (IMF, 2022b). Staff does not recommend targeting the cyclically adjusted primary balance as it is hard to estimate potential GDP in Belize given large lags in the publication of GDP data and large revisions to the historical data when the new data is published.¹

11. The recommended fiscal rule for Belize is in line with other fiscal rules in the Caribbean (Table 1). Most fiscal rules in the Caribbean have a public debt-to-GDP anchor, but they vary in the target level and the coverage of the public sector. Most Caribbean countries also use the primary balance-to-GDP as the main intermediate target, which in some cases is complemented with secondary intermediate limits on spending, including on current spending or the wage bill.

Table 1. Belize: Fiscal Rules with Debt-to-GDP Targets in Selected Caribbean Countries

Country	Medium term Anchor		Operational Targets					Independent Oversight Arrangements
	Debt Perimeter	Debt/GDP Target	Fiscal Balance	Primary Balance	Revenue	Expenditure (including wages)	Expenditure Growth	
Antigua & Barbuda	Central government	70	✓	✓	✓	✓		Fiscal Resilience Oversight Committee (not yet established)
The Bahamas	Central government	50	✓		✓	✓		Fiscal Council appointed by the Minister
Dominica	Non-financial public sector	60		✓				Fiscal Responsibility Committee, appointed by the Minister
Grenada	Non-financial public sector	55		✓		✓	✓	Fiscal Responsibility Oversight Committee nominated by parliament
Jamaica	Consolidated central and public bodies	60	✓					Fiscal Commissioner, appointed by the Governor General
St. Vincent & the Grenadines	Central government	60		✓		✓	✓	Fiscal Responsibility Mechanism appointed by the cabinet

Sources: IMF (2022b), Country authorities, and IMF staff calculations.

¹ GDP data from the demand side (real and nominal) as well as nominal data from the supply side are only available at annual frequency and are published with a significant lag. Although the authorities produce quarterly real GDP data from the supply side, these series undergo large revisions when the annual series are published.

C. Rule Calibration for Belize

12. The calibration of fiscal rules should follow a sequenced approach, from the medium term anchor to the operational target (IMF, 2018a). As the key anchor of fiscal policy in Belize, the medium term public debt-to-GDP anchor should be set first, guided by debt sustainability considerations and the need to build sufficient fiscal buffers to guard against adverse shocks. The calibration of the operational primary balance-to-GDP rule should then follow from the debt anchor, in line with accounting identities that link public debt to the primary balance.

13. There are several methods to estimate the appropriate level of public debt. Theoretical methods allow for a rich analysis of different factors, but the estimates are highly sensitive to a few calibrated parameters. Empirical methods rely on metrics such as historical averages or estimates from reduced-form equations, which also vary widely depending on the methodology used.

14. Staff recommends a public debt anchor of 50 percent of GDP for Belize. This is the lesser of two estimates. The first one (53 percent of GDP) is the median public debt-to-GDP ratio among emerging market economies with investment-grade sovereign ratings across two major rating agencies (Moody's and Standard & Poor's) in 2023. The second one (50 percent of GDP) relies on the authorities' 2021 Medium-term Recovery Plan, which sought to reduce public debt to 70 percent of GDP by 2030. The debt anchor is estimated by subtracting a safety margin from that benchmark based on simulations of potential shocks (Figure 2).²

15. Belize's high exposure to natural disasters, fixed exchange rate regime, and potential contingent liabilities could justify a more prudent debt anchor of about 45 percent of GDP. The authorities could choose a lower public debt target than 50 percent of GDP because:

- The median public debt-to-GDP ratio among investment grade emerging market economies falls to 46 percent of GDP if countries with floating exchange rate regimes are excluded.³
- There are possible fiscal contingent liabilities related to vulnerabilities in the financial sector and/or from the future deployment of Public Private Partnerships.
- Climate change is expected to make climate disasters more frequent and more severe (Annex I), which would justify an additional reduction in the debt target of about 5 percent of GDP.⁴

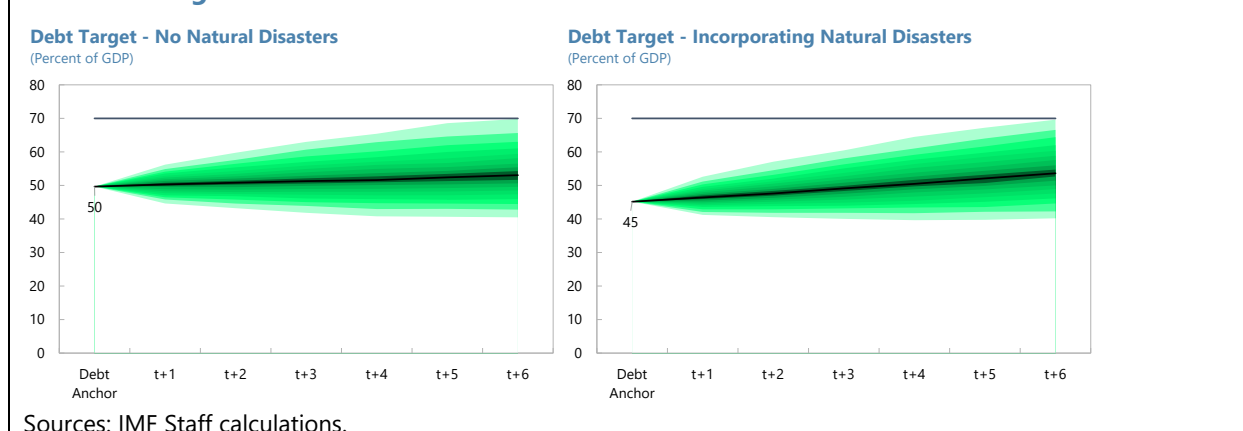
² These shocks are derived from an estimated joint distribution of macroeconomic variables (growth, interest rates, the real effective exchange rate, and the primary fiscal balance) based on Belize's history over the past two and a half decades. The safety margin is calibrated to ensure – with a 95 percent probability – that public debt does not cross the ceiling of 70 percent of GDP over the next six years.

³ This is consistent with Na and others (2018), which finds that economies with fixed exchange rates have less debt-carrying capacity and face higher borrowing costs than their floating exchange rate counterparts.

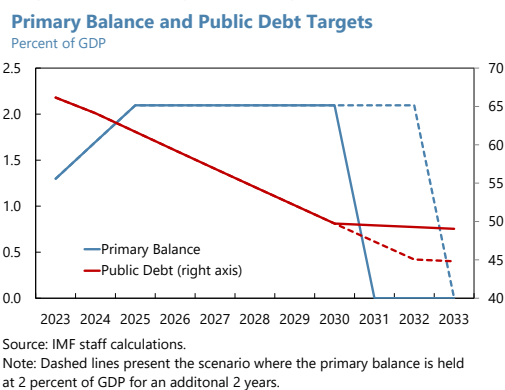
⁴ The risk natural disaster is modelled as in IMF (2023). The growth shock, Y_t , is a function of the historical growth shock, Y_t^* , and the effects of natural disaster drawn from a Pareto distribution $\Pi_{D_{t-1}} Z_t$, where Π is an indicator

(continued)

Figure 2. Belize: Simulated Debt Anchors with 70 Percent of GDP Limit



16. Staff recommends achieving the 50 percent of GDP debt target by 2030 by raising the primary surplus to 2 percent of GDP from FY2025 onwards. The 0.8 percent of GDP increase in the primary surplus should rely mostly on revenue mobilization given the large fall in government spending since the pandemic and the need to expand infrastructure, social, and crime prevention spending to boost growth and make it more inclusive and resilient to climate change and related disasters. Moreover, keeping the primary surplus at this level through 2032 would reduce public debt to 45 percent of GDP and thus provide sufficient buffers for more frequent and severe climate disasters. The primary balance target could be reduced to zero afterwards to keep public debt broadly stable in percent of GDP.



D. Incorporating the Response to Large Shocks

17. A well-designed fiscal rule should have adequate escape clauses to allow for sufficient flexibility to respond to large shocks without undermining its credibility. Deviation from the fiscal rule targets should be triggered only under extraordinary circumstances (e.g., large natural disasters or a pandemic). The activation of the escape clause and subsequent reports to parliament should be accompanied by a clear, time-bound plan to get public debt back to its target after the effects of the shock have faded. An automatic adjustment mechanism that prescribes the necessary fiscal adjustment in response to cumulative deviations from the primary balance target as in Jamaica would reduce the uncertainty about the future fiscal path and ensure that debt returns to its target in a pre-determined timeframe (IMF, 2022a). This mechanism could facilitate temporary cyclical deviations away from the 2

function and D_t is drawn from a Bernoulli distribution and is equal to 1 with probability p . The probability of a natural disaster, p , matches the incidence of disasters in Belize with damages of at least 2 percent of GDP during 2000-22. Z_t is drawn from a Pareto distribution with parameters calibrated to match the average marginal growth effects of natural disasters during 2000-22 and the skewness of growth shocks. Damages from natural disasters are translated into losses in real GDP with the rule of thumb of Lian and others (2022).

percent primary balance target followed by higher primary balances in the medium term to ensure that public debt reaches its 50 percent of GDP target by 2030.

18. Setting a contingency fund for natural disasters and increasing investment in resilient infrastructure would require additional fiscal efforts in the near to medium term but could justify a higher debt target in the long term. The main advantage of setting up a contingency fund to respond to high frequency, low severity climate disasters is that the funds would be available immediately after a disaster, thus speeding up the response. Without a contingency fund, a disaster that reduces the primary balance would increase public debt more (Annex I). Therefore, creating a contingency fund of 1 percent of GDP, as recommended in the 2018 Climate Change Policy Assessment for Belize (IMF, 2018c), could justify a 1 percent of GDP higher long term debt target as part of the response to natural disasters would be financed by the contingency fund rather than by issuing new debt. Similarly, frontloading investment in resilient infrastructure could mitigate the damages from large climate disasters and require lower fiscal buffers over the long term. However, the exact mapping from resilient infrastructure investment to reduced fiscal buffers would depend on the type of investment and its location and would require careful assessment of the expected impact of natural disasters and the appropriate increase in the debt target.⁵

E. Conclusion

19. Staff recommends implementing a fiscal rule that targets a reduction in public debt to 50 percent to GDP by 2030 by raising the primary balance to 2 percent of GDP from FY2025 onwards. A well-designed fiscal rule would keep public debt on a downward trajectory and entrench debt sustainability. This rule should be simple and prioritize debt sustainability over output stabilization. Targeting a reduction of public debt to 50 percent of GDP would ensure that it stays below the 70 percent of GDP threshold for sustainability with 95 percent probability over the next six years given the historical distribution of shocks. Reducing public debt further to 45 percent of GDP by 2032 would provide additional buffers to respond to more frequent and severe climate disasters. Building a contingency fund to finance the response to frequent, low severity events, and increasing investment in resilient infrastructure could justify a higher gross debt anchor in the long term but they would require larger primary surpluses in the short term.

20. A well-defined escape clause and an automatic adjustment mechanism to return to the rule targets would provide sufficient flexibility to respond to large shocks without hurting the credibility of fiscal policy. Such clauses should require the prior approval of parliament and be triggered only under exceptional circumstances (e.g., large climate related disasters or pandemics). Clearly communicating the primary balance path required to return debt to its original target could ensure that fiscal policy remains credible and fiscal objectives are met in a timely manner.

⁵ Fernandez-Corugedo and others (2023) find that increasing the share of climate resilient public capital stock from zero to 80 percent yields significant benefits for Dominica. After a natural disaster that destroys 10 percent of the capital stock and temporarily reduces total factor productivity, output is 6 percent higher in the scenario with climate resilient investment than in the scenario without it over the long run. These effects are even larger under a scenario where climate change increases the intensity of natural disasters.

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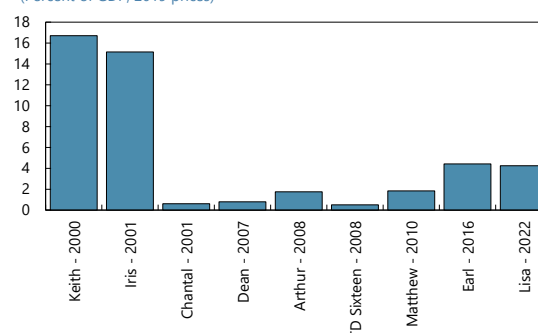
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Annex I. Macroeconomic Effects of Climate-Change and Natural Disasters

1. Belize is highly exposed to climate change and natural disasters. Of the 182 countries in the Global Climate Risk Index, Belize was in the top 5 percent for losses to climate-related natural disasters during 2000–2019 and in the top 15 percent of climate-related disaster fatalities.¹ Much of Belize is at sea level and its major infrastructure (commercial and transportation facilities, health, public buildings) is near the coast, making it vulnerable to large-scale inundation from sea-level rise and storm surges. Sea-flooding and more variable rainfall are also expected to amplify existing water supply problems and undermine the agriculture, energy generation, and tourism sectors.

2. Climate related disasters are expected to continue impacting economic activity and public debt in Belize. Belize has suffered several natural disasters in the last 25 years, including hurricanes, tropical storms and floods, with an average damage (lost output and destroyed capital) of 5 percent of GDP during 2000–23.² The losses from Hurricane Keith in 2000 were estimated at 17 percent of GDP and those from Tropical Storm Earl in 2016 at 4 percent of GDP. These disasters also reduced government revenue and increased spending on emergency assistance and reconstruction, leading to widening fiscal deficits and rising public debt. Going forward, the damages from disasters in the Caribbean are expected to rise by between 22 and 77 percent by 2100 (Acevedo, 2016) due to higher sea surface temperatures.

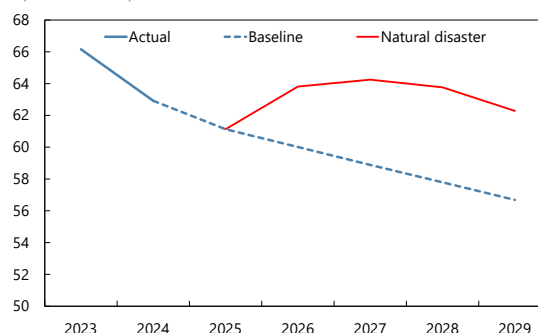
Losses From Tropical Cyclones in Belize Since 2000
(Percent of GDP, 2019 prices)



Sources: EM-DAT: The Emergency Events Database, and IMF Staff Calculations.

3. An illustrative scenario shows the threat to debt sustainability from climate disasters. The scenario assumes that a hurricane in 2026 causes 6 percent of GDP in damages. Real GDP growth falls by 3 percent below baseline in the year of the disaster, by 1 percent in the next year, and rises by 0.5 percent above baseline in the next two years due to reconstruction.³ The government covers two-thirds of the damage (4 percent of GDP): 2 percent of GDP in the first year and 1 percent of GDP in each of the next two years. The shock has a

Impact of Natural Disasters on Public Debt
(Percent of GDP)



Sources: Central Bank of Belize, and IMF Staff Calculations.

¹ Global Climate Risk Index 2021 (<https://www.germanwatch.org>).

² Measured in 2019 prices.

³ These assumptions are consistent with the estimates in IMF (2017), Chapter 2.

large impact on public debt, shifting the entire trajectory upwards by about 6 percent of GDP above the baseline.

4. Climate change could also reduce hydroelectricity generation, which provides around half of Belize’s electricity. Lower precipitation and higher evaporation would reduce river flows, reservoir inflows, and the availability of water, including for energy production. In addition, parts of the fossil fuel supply, electricity generation, and transmission infrastructure are close to the coast and are thus vulnerable to storm surges, inundation, sea level rise and coastal erosion. Rising sea levels and more intense hurricanes and tropical storms could also accelerate soil erosion, leading to the contamination of groundwater, the salinization of water sources, and the sedimentation of dams and reservoirs, reducing the quality of the country’s water resources.

5. Activity in key sectors such as agriculture and tourism would also be severely affected by climate change. Given the proximity to the coast and the low-lying land, tourism and agriculture infrastructure and production are expected to be severely impacted by the higher activity of, and the damage caused by tropical cyclones. Lower precipitation, higher evaporation, and the contamination and salinization of water sources are also expected to impact these sectors. Moreover, rising sea surface temperatures will likely disrupt marine ecosystems (coral bleaching, seaweed invasion, and reduced fish populations), with large costs to the tourism and fisheries sectors.

6. Mitigating the effects of climate change and natural disasters requires strengthening resilience. In line with the 2018 Climate Change Policy Assessment (IMF, 2018c), a key priority for Belize is to elaborate a comprehensive Disaster Resilience Strategy (DRS), that internalizes resilience building into a credible macroeconomic framework, and focuses on three key areas:

- *Structural resilience.* Investing in climate-resilient infrastructure, including in robust roads, bridges, and seawalls, would limit the damage on output and capital from natural disasters. Increasing the share of public expenditure allocated toward resilience-building investment will support this objective over the long term.⁴ Strengthening building codes and land use regulations would further reduce vulnerability to climate shocks.
- *Financial resilience.* Establishing a natural disaster reserve fund of 1 percent of GDP would help finance the response to high frequency, low severity events. For more severe events, a mix of ex-ante contingent credit lines and participation in regional insurance mechanisms would help. Moreover, the inclusion of climate resilient debt clauses (CDRCs) in new debt contracts could enable Belize to defer its debt payments for a pre-determined period after a natural disaster, with the aim of expanding fiscal space to provide aid and support to affected populations.

⁴ The World Bank’s Public Expenditure Review (2024) estimated that climate related spending totaled 1.5 percent of total public expenditure in 2021/22, of which almost half was related to climate adaptation. However, total climate related spending was 39 percent less than that required to fund Belize’s Nationally Determined Contribution.

- *Post-disaster resilience.* Reforming social protection programs to scale up quickly after a disaster would speed up humanitarian relief. Reforming budget classification to capture disaster events of all magnitudes would help track, assess, and improve relief and reconstruction efforts.

7. Strengthening resilience to climate change and related disasters entails large fiscal costs. Investing in resilient infrastructure, building fiscal buffers, and expanding insurance coverage are costly. Given limited fiscal space, advancing in these priority areas requires mobilizing revenue, reprioritizing spending, and enhancing access to affordable financing. The implementation of a comprehensive DRS would help enhance access to financing for resilience building initiatives from multilateral creditors, the Green Climate Fund, and the Conservation Fund. Anchoring the overall fiscal strategy on a credible multiyear fiscal rule would enhance its credibility, increase near term fiscal space, and ease access to the external capital market.