

Now or Never

Mobilizing Capital for Climate and Conservation in a Debt-Constrained World

BY REBECCA RAY AND B. ALEXANDER SIMMONS



ABOUT THE AUTHORS



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Mauritius. Photo by Cyrus Pellet via Unsplash.

EXECUTIVE SUMMARY

Emerging market and developing economies (EMDEs) need an immediate and stepwise increase in climate and conservation investments between now and 2030 in order to meet the United Nations 2030 Sustainable Development Goals and the targets set forth by the Paris Agreement, and interrupt a cycle of extreme weather events, financial instability, debt crises and insufficient fiscal space for investment in resilience. Of those annual investments, \$1 trillion must come in the form of external capital, according to the Independent High-Level Expert Group on Climate Finance (Songwe, Stern and Bhattacharya 2022). Yet, at exactly the moment that such an urgent mobilization of capital is necessary, EMDEs face high costs of capital and debt stress, rendering such investments impossible without swift and ambitious reform of the global financial architecture.

Using newly available data on external debt and environmental investment needs, this report examines the ability of EMDEs to mobilize foreign capital and juxtaposes those capabilities with the level of environmental investment needs to 2030. Specifically, we explore the fiscal and environmental needs of 108 EMDEs across three categories: (1) those facing **debt stress**, defined as either being in debt distress or at risk of debt distress, (2) countries that are not facing near-term debt stress but that face **capital market constraints** in the current macroeconomic context and (3) those with **access to capital markets**.

Main findings:

- Ninety-five countries are either facing debt stress or high capital costs that will significantly impede their ability to mobilize foreign capital flows to meet their investment needs. Of these, 91 EMDEs have environmental investment needs or opportunities that are above the global median.
- Sixty-two countries are facing **debt stress**, defined by Ramos et al (2023) as being either at risk of debt distress or already in distress.¹ These 62 countries are either currently undergoing debt restructuring or are in immediate need restructuring. This group includes most of Africa and Oceania, but also includes countries in every region of the world. These countries need new liquidity, significant reductions in the net present value of their external public and publicly guaranteed debt, and new financing at a very low cost.
 - Of Debt Stress countries, 33 owe over half of their projected 2024-2028 debt service payments to just one creditor or class of creditor. The largest share of these – 21 countries – are expected to pay over half of this debt service to multilateral development banks (MDBs), while eight are in the same situation with China, two with bondholders and two with Paris Club creditors.
 - These 62 countries have higher debt service burdens on aggregate as a share of projected government revenue and projected exports. Concomitantly, they have higher climate change vulnerability, as well as greater opportunities for both terrestrial and marine biodiversity conservation.
- An additional 33 countries may not need immediate restructuring but may face **capital market constraints**. For this group, borrowing costs in capital market surpass growth projections and new capital flows are hampered by sovereign bond ratings below “investment grade.” This group includes many countries in Central and Western Asia, as well as Latin America. Many of these countries will need debt suspension, new liquidity and credit enhancements to ensure new that any financing does not jeopardize future debt sustainability.

¹ “Stress” is a broader term used to include not only those countries already classified by the International Monetary Fund (IMF) as being in distress but also those classified by either the IMF or United Nations Development Programme as being at risk of distress.

- Just 13 countries have relative **capital market access**, defined as having “investment grade” bond ratings and/or dollar-denominated borrowing costs below growth projections, though in most of these cases, countries still face *domestic* borrowing rates exceeding growth expectations and therefore need new forms of affordable capital.
- Immediate action is necessary to secure comprehensive debt relief for those countries facing debt stress and reduce the cost of capital for those countries not in debt stress.

The unfolding debt and development crisis is a serious obstacle for meeting necessary environmental investments around the world. As first order reforms, a stepwise increase in levels of both liquidity and development finance are needed, as well comprehensive debt relief linked to climate and development investments. These are important steps toward reforming the global financial architecture to better address the environmental and economic challenges of the 21st century. It is truly now or never for such reforms.

INTRODUCTION

The world is facing a “now or never” moment for climate and sustainable development investment, documented by a wide and growing array of scholars (Gallagher et al. 2023b; Kulkarni et al 2022; Leal Filho et al 2022). As part of the United Nations Framework Agreement for Climate Change process, an Independent High-Level Expert Group on Climate Finance (IHLEG) estimates that emerging market and developing economies (EMDEs) other than China will need over \$1 trillion in new external financing annually to avert catastrophic climate change and over \$2 trillion in annual investment to meet the United Nations 2030 Sustainable Development Goals (SDGs) (Songwe, Stern and Bhattacharya 2022). On a national level, the World Bank Country Climate and Development Reports (CCDRs) estimate that these climate investments range widely among countries, from less than 1 percent of annual gross domestic product (GDP) for Türkiye, to over 10 percent of annual GDP for Pakistan (World Bank 2023a,c).

While these sums may appear stratospheric, their importance cannot be overstated. Without these investments, countries are at risk of a vicious cycle in which diminished ecosystem services from habitat and biodiversity loss increase vulnerability to extreme weather events associated with climate change, which in turn lead to economic volatility, periodic fiscal crises and the build-up of sovereign debt, further limiting the necessary fiscal space to engage in climate and conservation investment. Exacerbating this paradox is the fact that countries most at risk from climate change have contributed the least to the problem, resulting in a “climate debt” from high-income countries to their lower-income neighbors (Clements, Gupta and Liu 2023).

To disrupt the vicious spiral of debt and environmental degradation and build towards a virtuous cycle of resilience and growth, creditors must take action to reduce the economically unsustainable debt levels that have accumulated in the last few years after a particularly acute confluence of factors – including the interruption of economic growth and new spending challenges brought by the COVID-19 pandemic, as well as historically high interest rates meant to arrest high-income countries’ post-lockdown inflation. Debt-for-nature and debt-for-climate swaps can help free debtor resources to support long-term goals and can serve as an important element in debt relief and capital mobilization, though their history shows the importance of a careful approach to ensure a return to long-term financial sustainability, as well as effective progress toward sustainability goals (Essers, Cassimon and Prowse 2021; Nestmann 2023).

For countries not currently facing unsustainable debt levels, creditors must work to bring down the high costs of capital impeding the long-term investments necessary for global sustainable development. The broader global financial architecture needs to be reformed through multilateral

development bank (MDB) capital increases, increased issuances of Special Drawing Rights through the International Monetary Fund and increased use of currency swap arrangements, among other reforms.

Using newly available data on external debt and environmental investment needs, this report examines the ability of EMDEs to mobilize foreign capital and juxtaposes those capabilities with the level of environmental investment needs to 2030. More specifically, we explore the fiscal and environmental needs of 108 EMDEs across three categories: (1) those facing **debt stress**, defined as either being in debt distress or at risk of debt distress, (2) countries that are not facing near-term debt stress but that face **capital market constraints** in the current macroeconomic context and (3) those with **access to capital markets**. The following section defines and describes these three categories of countries and their debt challenges. The third section describes the debt burdens faced by each category of EMDEs and the major creditors who will need to be involved in any effective debt restructuring or capital market reforms. The fourth section explores the varying climate and conservation needs and investments of each group. The fifth section concludes with potential avenues and policy recommendations for closing the financing gap and mobilizing capital for necessary environmental investments. An Appendix offers greater details on the methodologies used in this report and a deeper examination of the debt and capital market access of countries in the three capital market categories.

DEBT PROFILES FOR EMDES

Following the example of Ramos et al. (2023), this report divides EMDEs into three groups based on their current debt scenarios. Of 108 EMDEs other than China² that participate in the World Bank's International Debt Statistics (IDS) database, we highlight three categories of countries: those experiencing debt stress, capital market constraint and capital market access.

The 62 countries facing **debt stress** have been identified by the International Monetary Fund (IMF) and/or the United Nations Development Programme (UNDP) as facing the highest risk of debt distress. They are described in more detail by IMF (2023a), Jensen (2023), Ramos et al. (2023) and Gallagher et al (2023a,b). Note that Ramos et al. (2023) include seven additional Debt Stress countries that are not included in the present analysis, as they are excluded in the World Bank IDS database: Cuba, Kiribati, Marshall Islands, Micronesia, South Sudan, Tuvalu and Venezuela. Ramos et al. (2023) recommend a new agreement akin to the Group of 20's (G20) Common Framework for Debt Treatments Beyond the Debt Service Suspension Initiative (DSSI) (Georgieva and Pazarbasioglu 2021) but expanded to include middle-income debtors and a broader array of creditors, complemented with new concessional finance.

The 33 countries with **capital market constraints** may not be facing near-term risk of debt distress, but they lack the fiscal space for additional borrowing due to historically high capital costs coupled with low economic growth forecasts. This group is defined by sovereign bond yields that are higher than their projected 2023-2028 GDP growth and bond ratings below investment grade by major credit ratings agencies. These two criteria – growth rates above sovereign bond yields and investment grade bond ratings – are traditional rules of thumb for the ease of access to capital markets. The first guideline (the relationship between growth and bond rates) has generated much discussion among economists regarding its importance and the extent to which sustainable borrowing is possible when interest rates outpace growth and even when they do not (Blanchard 2022; Guzman and Heymann

² China is excluded as a borrower due to its exclusion from the IHLEG's SDG and climate investment needs inventory (Songwe, Stern and Bhattacharya 2022) and its primary role as a creditor. An additional 12 countries are included in the IDS database but are excluded here due to insufficiently public data on bond yields and ratings to classify as having capital market access or constraint: Algeria, Bhutan, Guinea, Guyana, Iran, Myanmar, Nepal, St. Lucia, Syria, Timor-Leste, Vanuatu and Yemen.

2016; Frenkel 2005; Mehrotra and Sergeyev 2021). Similarly, bond ratings agencies have attracted much attention for their importance in developing economies' fiscal policy space, alone and relative to other macroeconomic factors (Griffith-Jones and Kraemer 2021; Jaramillo and Tejada 2011). Though the precise mechanisms of their importance will likely remain under debate in the near term, these two guidelines can safely be considered general signs of a country's access to affordable finance for conservation and climate.

As Table 1 shows, as of 2023, these capital-constrained countries are facing government bond yields well above projected GDP growth rates. Additional borrowing at these rates may raise debt-to-GDP ratios and lead to unsustainable debt burdens. This situation creates a clear mismatch with the benefits of conservation and climate investment, which build economic resilience gradually over relatively long periods of time when well designed, but which are not generally associated with rapid short term economic growth (Barrett, Travis and Dasgupta 2011; Turner et al 2012).

Table 1: Capital Constrained Countries' Bond Ratings, USD-denominated Bond Yields and GDP Growth Projections

	Bond Ratings			Sovereign Bond Yields Compared to GDP Growth		
	Fitch	Moody's	S&P	Sovereign bond yield	Real GDP growth projected '23-'28	Bond rate less GDP %
Albania		B1	B+		3.4%	
Armenia	BB-	Ba3	B+	7.0%	4.6%	+2.4pp
Azerbaijan	BB+	Ba1	BB+	5.9%	2.1%	+3.8pp
Bangladesh	BB-	B1	BB-		6.9%	
Bolivia	B-	Caa1	B-	13.8%	2.2%	+11.6pp
Bosnia & Herzegovina		B3	B		3.0%	
Brazil	BB	Ba2	BB-	6.2%	1.9%	+4.3pp
Cambodia		B2			6.3%	
Costa Rica	BB-	B2	B+	6.8%	3.2%	+3.6pp
Côte d'Ivoire	BB-	Ba3	BB-	7.6%	6.3%	+1.3pp
Dominican Rep.	BB-	Ba3	BB	7.1%	5.1%	+2.0pp
Fiji		B1	B+		3.6%	
Georgia	BB	Ba2	BB	6.9%	5.1%	+1.8pp
Guatemala	BB	Ba1	BB	6.3%	3.7%	+2.6pp
Honduras		B1	BB-	8.9%	3.6%	+5.3pp
Jamaica	B+	B2	B+	6.0%	1.7%	+4.3pp
Jordan	BB-	B1	B+	7.4%	2.9%	+4.5pp
Lesotho	B				1.7%	
Mongolia	B	B3	B	5.5%	3.8%	+1.7pp
Montenegro		B1	B		3.0%	
Morocco	BB+	Ba1	BB+	6.1%	3.4%	+2.7pp
North Macedonia	BB+		BB-		3.4%	
Paraguay	BB+	Ba1	BB	4.6%	3.6%	+1.0pp
Russia				36.5%	1.0%	+35.5pp
Rwanda	B+	B2	B+	9.1%	6.9%	+2.1pp

	Bond Ratings			Sovereign Bond Yields Compared to GDP Growth		
	Fitch	Moody's	S&P	Sovereign bond yield	Real GDP growth projected '23-'28	Bond rate less GDP %
Senegal		Ba3	B+	9.0%	6.4%	+2.6pp
Serbia	BB+	Ba2	BB+	6.2%	3.9%	+2.3pp
South Africa	BB-	Ba2	BB-	7.7%	1.5%	+6.2pp
Togo		B3	B		5.4%	
Türkiye	B	B3	B	8.1%	3.2%	+4.9pp
Turkmenistan	B+				1.9%	
Uganda	B+	B2	B		6.6%	
Uzbekistan	BB-	Ba3	BB-	7.1%	5.5%	+1.6pp

Sources: IMF 2023d; Trading Economics 2023; JPMorgan Emerging Market Bond Index Global Diversified USD.

Note: Bond ratings are current as of May 2023. Bond yields are weighted averages of USD-denominated bonds as of August 1, 2023. Where multiple yields are listed, the lowest is used.

Only 13 countries have relative **capital market access**, defined by at least one “investment grade” rating by a major bond rating agency and/or dollar-denominated sovereign bond yields below 2023-2028 projected GDP growth rates. Nonetheless, as Table 2 shows, even these countries do not enjoy unencumbered access to global credit markets. Of the 13 countries in this category, eight have available public data for USD-denominated bond yields, and half of those have yields that are above their projected GDP growth. Furthermore, bond yields are even higher for bonds in national currencies issued in domestic markets. All but one of these countries with available data face domestic bond yields above GDP growth rates.

Table 2: Capital Market Access Countries’ Bond Ratings, Bond Yields and GDP Growth Projections

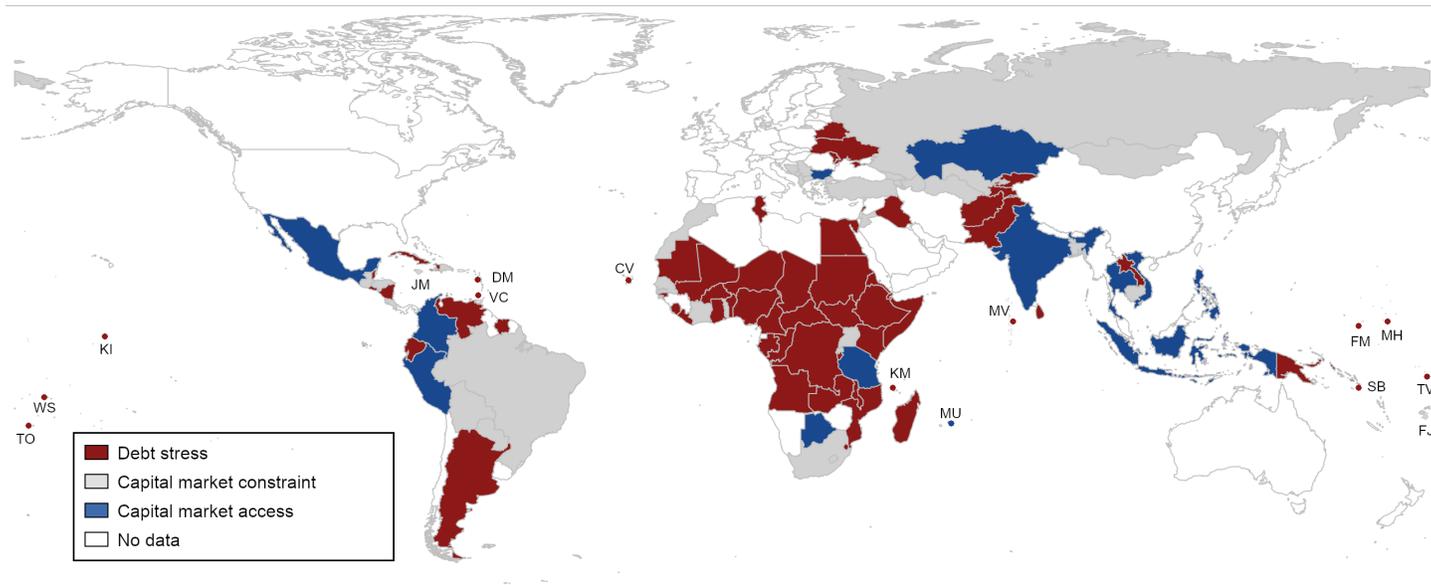
	Sovereign Bond Ratings			Sovereign Bond Yields		Real GDP growth proj., 2023-2028	Bond rate less GDP %	
	Fitch	Moody's	S&P	USD-denom.	National currency		USD-denom.	National currency
Botswana		A3	BBB+		8.2%	4.1%		+4.1pp
Bulgaria	BBB	Baa1	BBB			3.0%		
Colombia	BB+	Baa2	BB+	7.3%	10.1%	3.0%	+4.3pp	+7.1pp
India	BBB-	Baa3	BBB-	5.5%	7.2%	6.3%	-1.8pp	+0.9pp
Indonesia	BBB	Baa2	BBB	5.3%	6.3%	5.0%	+0.3pp	+1.3pp
Kazakhstan	BBB	Baa2	BBB-	5.4%		3.3%	+2.1pp	
Mauritius		Baa3	BBB-		3.9%	3.5%		+0.4pp
Mexico	BBB-	Baa2	BBB	7.8%	9.5%	1.9%	+5.9pp	+7.6pp
Peru	BBB	Baa1	BBB	5.8%	6.5%	3.0%	+2.8pp	+3.5pp
Philippines	BBB	Baa2	BBB+	5.0%	6.4%	6.2%	-1.2pp	+0.2pp
Tanzania	B+	B2		4.4%	11.4%	6.6%	-2.2pp	+4.8pp
Thailand	BBB+	Baa2	BBB+		2.6%	3.1%		-0.5pp
Vietnam	BB	Ba2	BB+	6.0%		6.7%	-0.7pp	

Sources: IMF 2023d; S&P Dow Jones. 2023; Trading Economics 2023; JPMorgan Emerging Market Bond Index Global Diversified USD.

Note: Bond ratings are current as of May 2023. Bond yields are current as of August 2023. Where multiple bond yields appear the lowest is used.

Figure 1 shows the distribution of these three categories of EMDEs globally. All major regions of the world have EMDEs in each debtor category, although most of Africa and Oceania fall within the Debt Stress category while Capital Market Access countries are more heavily concentrated in Asia.

Figure 1: EMDEs Other than China, by Debtor Category



Source: Author compilation from IMF (2023a); Jensen (2023); Ramos et al. (2023).

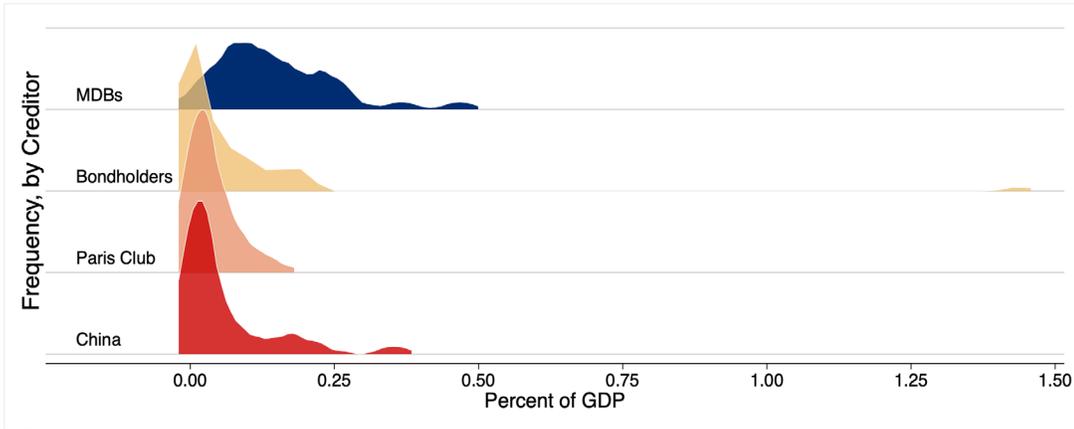
Note: Seven countries shown here in the Debt Stress category lack sufficient public debt and/or environmental data for inclusion in the remainder of this report: Cuba, Kiribati, Marshall Islands, Micronesia, South Sudan, Tuvalu and Venezuela.

DEBT BURDENS AMONG EMDES

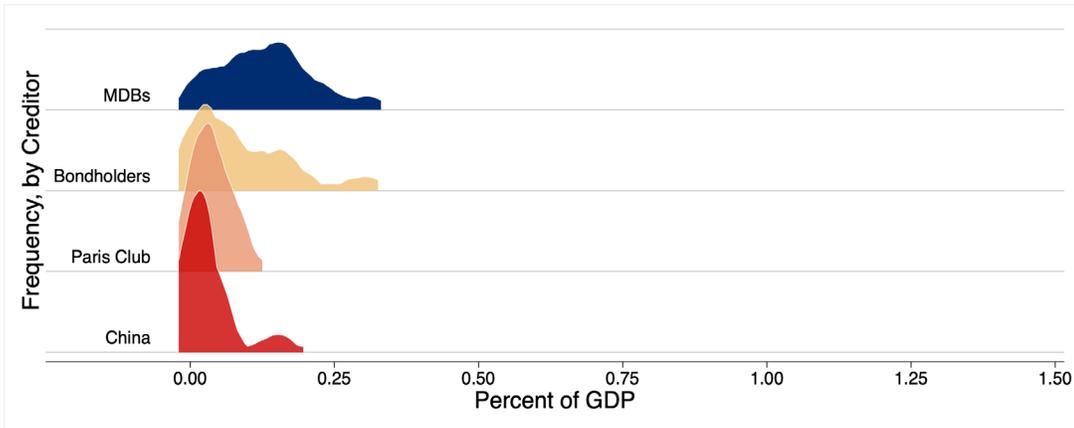
Figure 2 shows the external public and publicly guaranteed (PPG) debt stock as a share of GDP for each category of EMDEs. Countries with debt stress predominantly owe multilateral development banks (MDBs) and China (Lebanon, which owes 144 percent of its GDP to bondholders, is an outlier in this regard, as shown in Figure 2A). Countries with capital market constraint and capital market access predominantly owe MDBs and bondholders. The same overall trend emerges for debt service payments, measured as a share of projected government revenue (Figure 3) or projected exports (Figure 4).

Figure 2: External PPG Debt Stock by Borrower and Creditor Category (% of GDP)

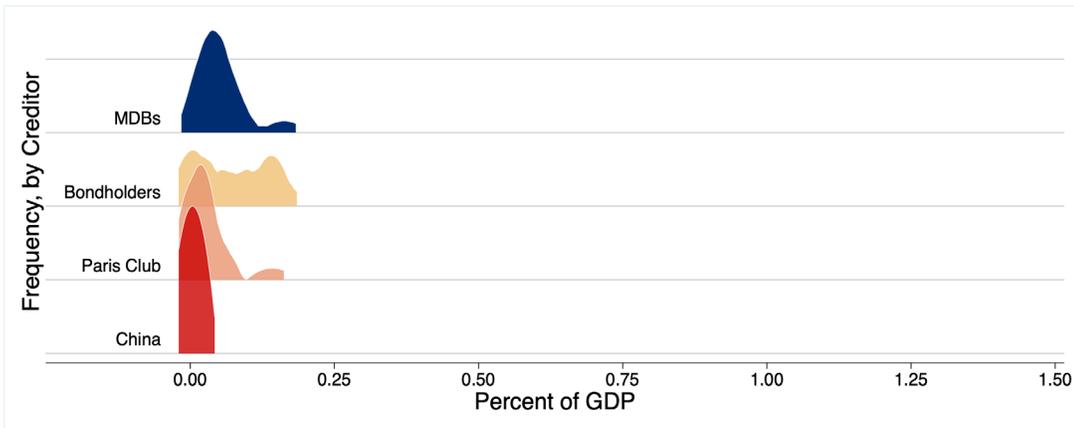
A. Debt stock of EMDEs with Debt Stress



B. Debt stock of EMDEs with Capital Market Constraint



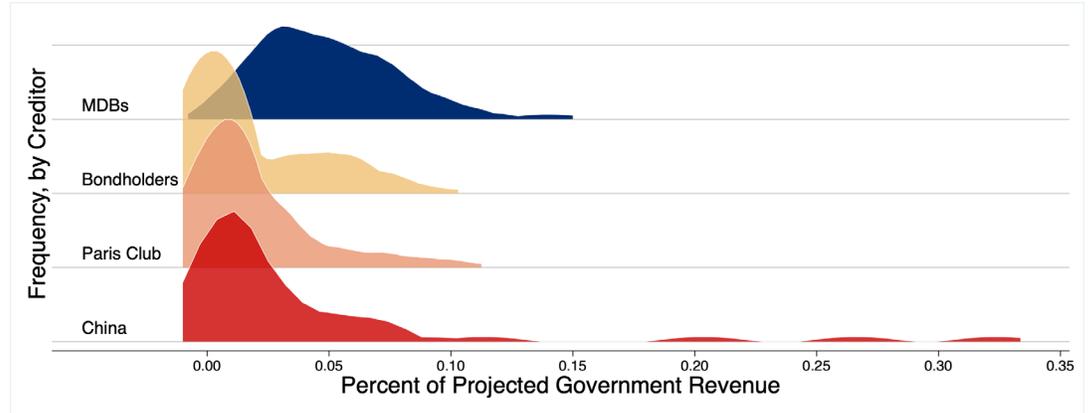
C. Debt stock of EMDEs with Capital Market Access



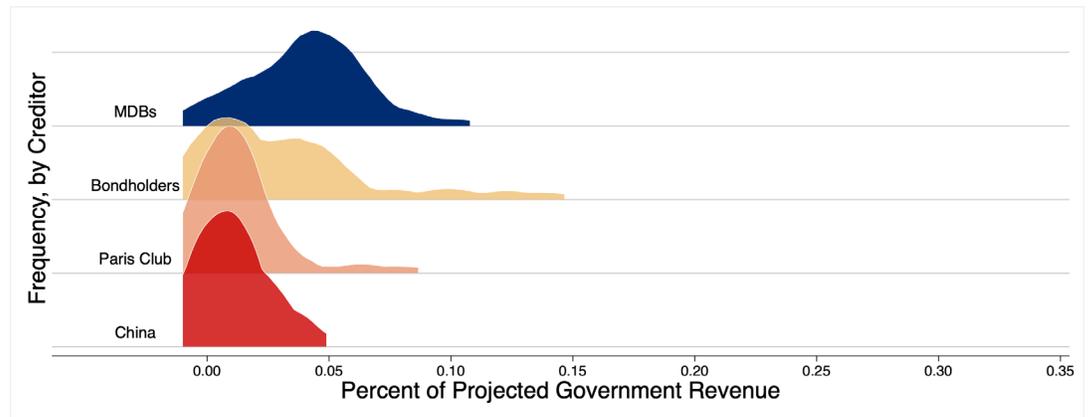
Source: Author calculations from IMF 2023d; World Bank 2023b.

Figure 3: External PPG Debt Service Payments, 2024-2028 (% of Government Revenue)

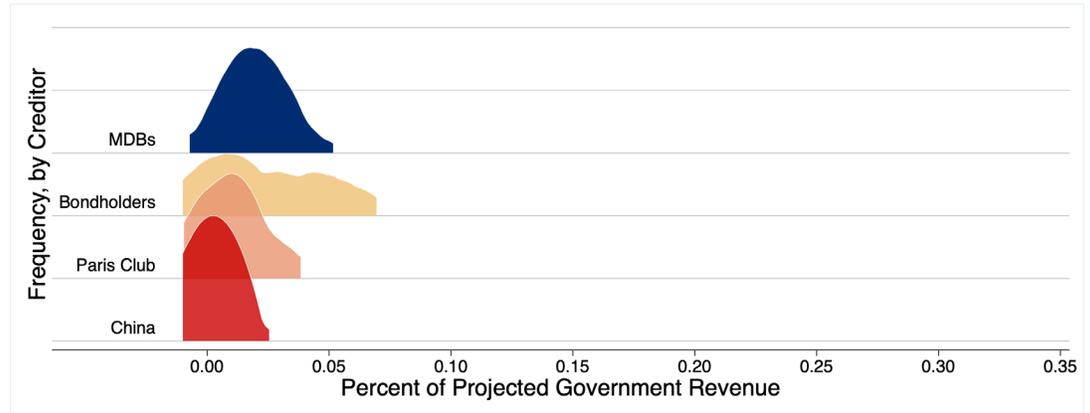
A. Debt Service Payments of Countries with Debt Stress



B. Debt Service Payments of Countries with Capital Market Constraint



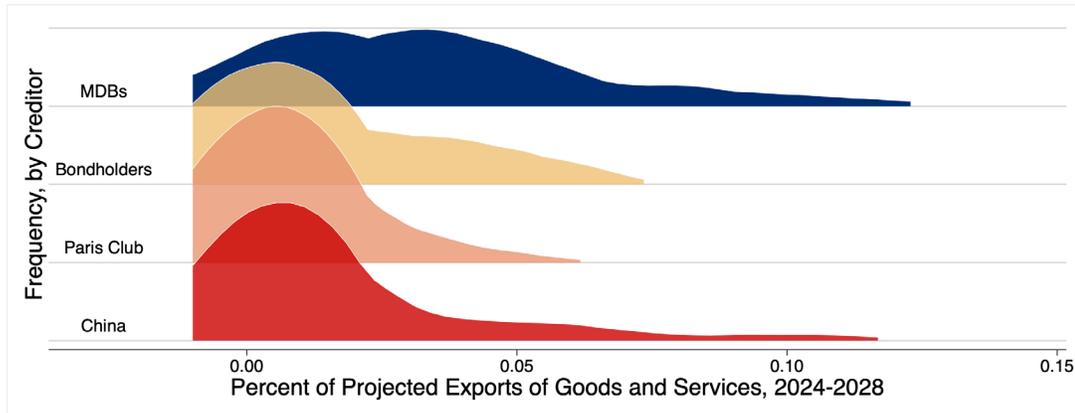
C. Debt Service Payments of Countries with Capital Market Access



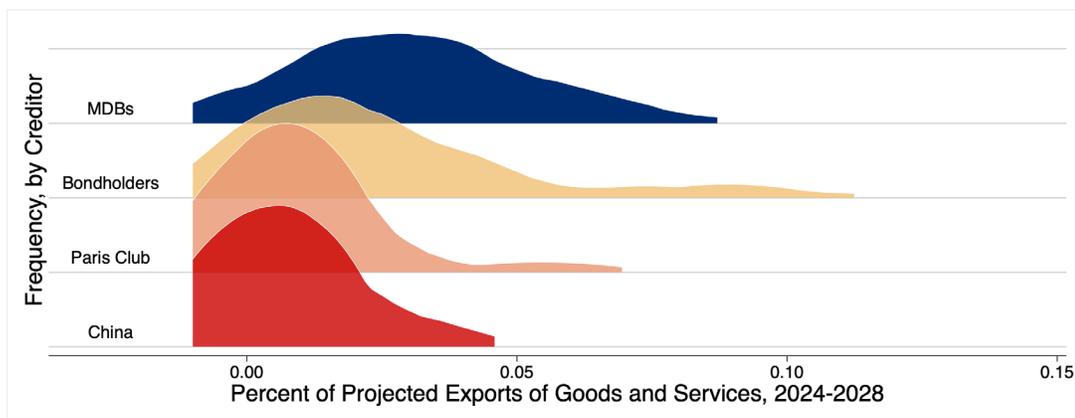
Source: Author calculations from IMF 2023b,d; World Bank 2023b.

Figure 4: External PPG Debt Service Payments, 2024-2028 (% of Exports)

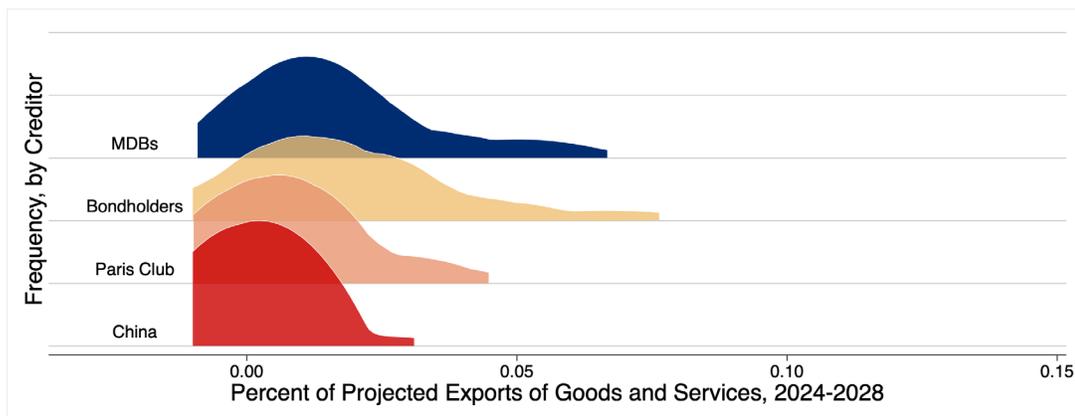
A. Debt Service Payments of Countries with Debt Stress



B. Debt Service Payments of Countries with Capital Market Constraint



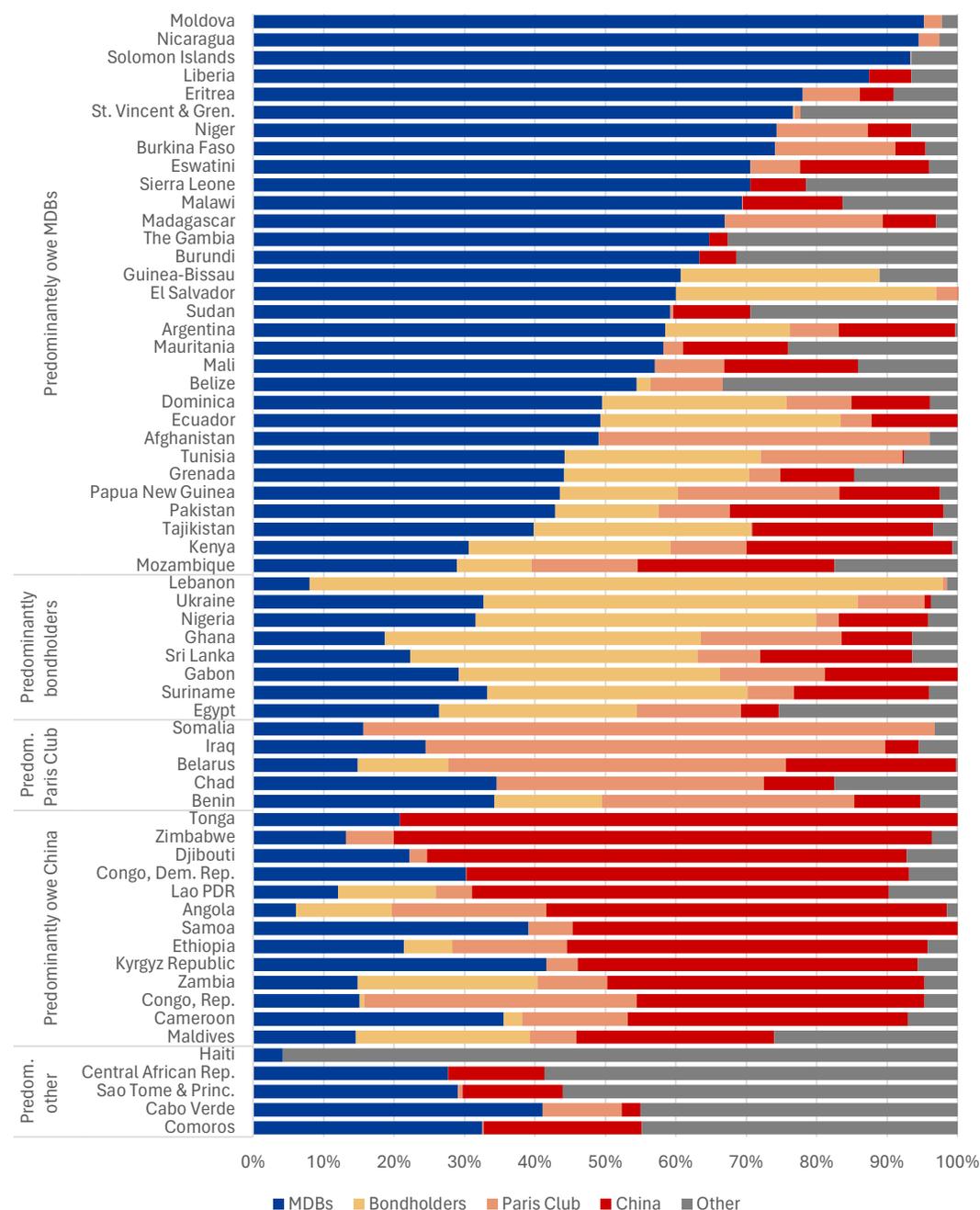
C. Debt Service Payments of Countries with Capital Market Access



Source: Author calculations from IMF 2023c,d; World Bank 2023b.

For countries facing debt stress, a particularly crucial aspect of the debt burden is the expected value of near-term debt service payments. Figure 5 shows more detail regarding the creditors to be paid for each Debt Stress country. Half of this category (31 countries) predominantly owe their debt service payments to MDBs. An additional 13 countries predominantly owe China, eight countries predominantly owe bondholders, five countries predominantly owe Paris Club creditors, while another five countries predominantly owe creditors not in any of these major categories. Thus, any major debt restructuring initiative that is to be effective will require the participation of all creditor classes.

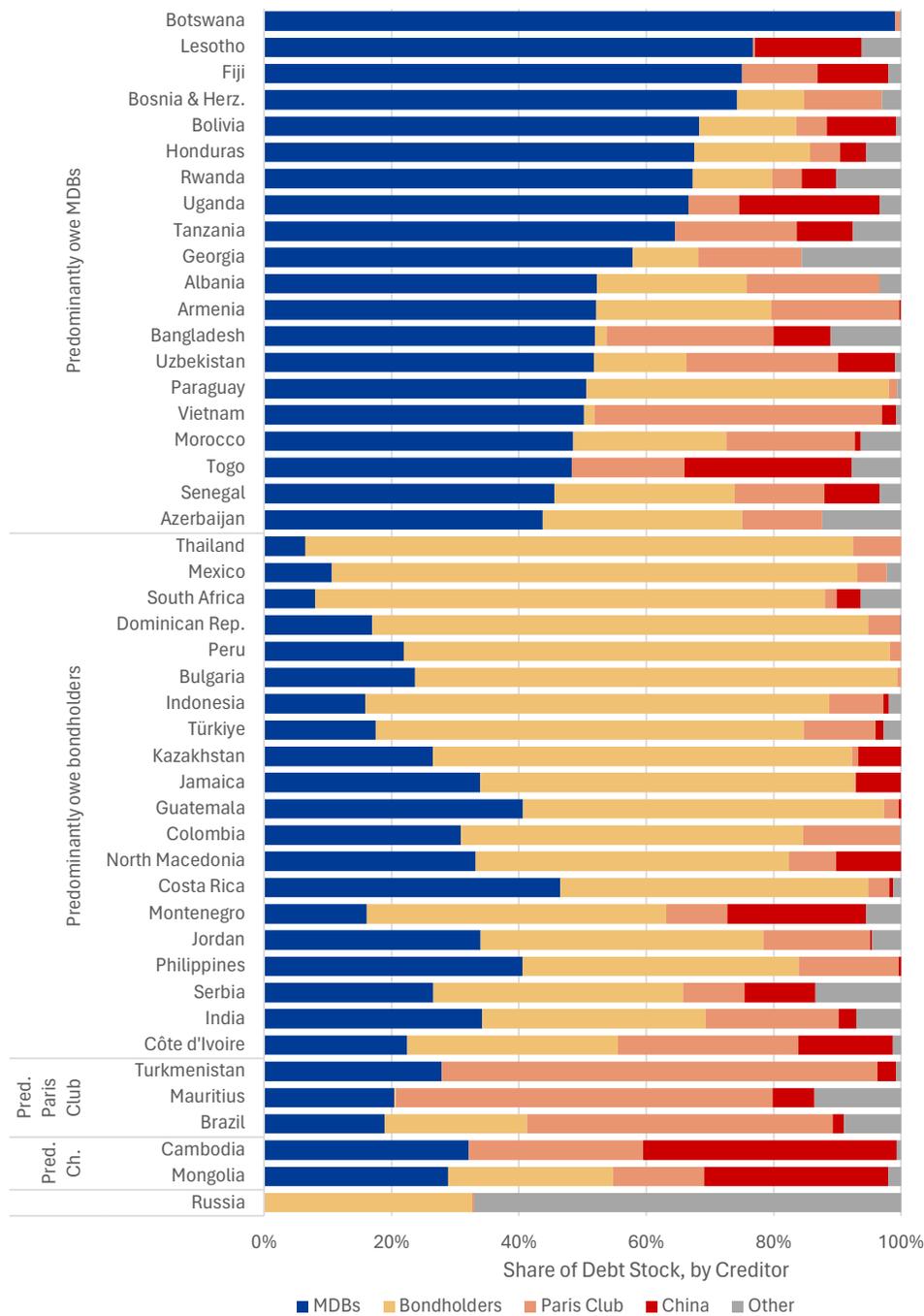
Figure 5: Debt Stress Countries' Debt Service Payments, 2024-2028, Share Owed to Major Creditors



Source: Author calculations from World Bank 2023b.

Countries with capital market constraint and even some with capital market access may choose to pursue greater access to markets by lowering the cost of capital through debt swaps or other arrangements with creditors who hold significant shares of their debt. Figure 6 shows the distribution of debt stock by creditor for countries with capital market constraint or access. MDBs and bondholders are the top creditors for 20 countries each, followed by the Paris Club (three countries) and China (two countries).

Figure 6: Capital Market Constraint and Access Countries' Debt Stock to Major Creditors



Source: Author calculations from World Bank 2023b.

ENVIRONMENTAL INVESTMENT NEEDS AND OPPORTUNITIES OF EMDES

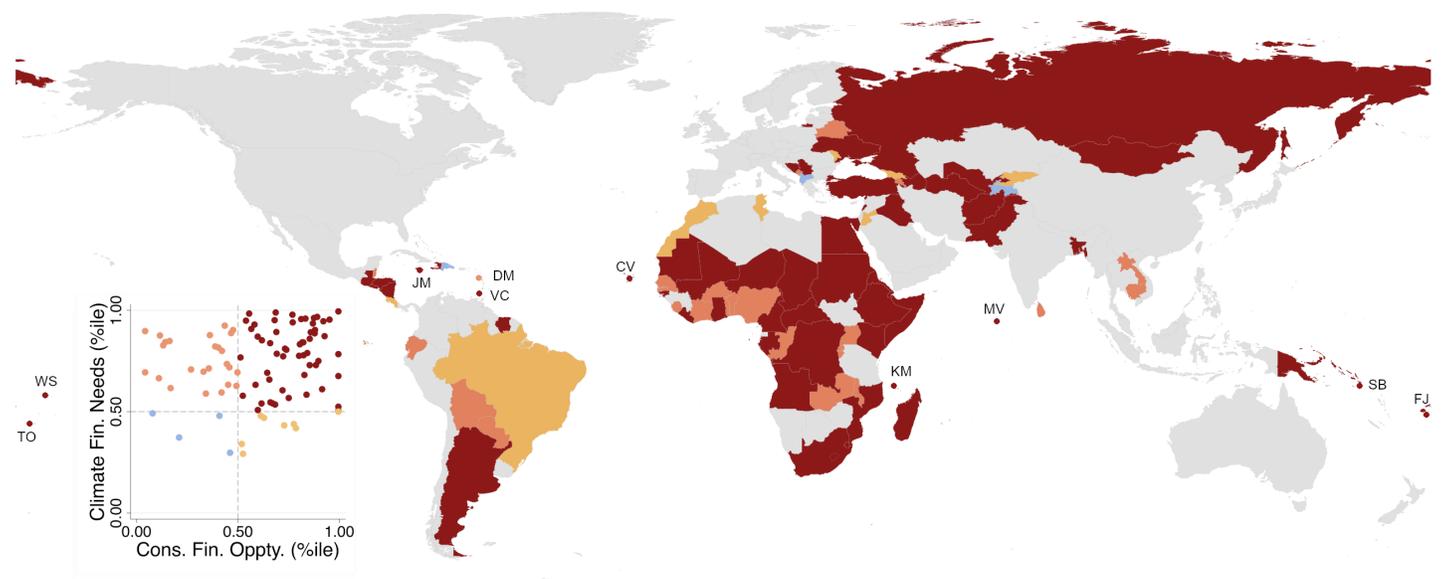
Most countries in the Debt Stress and Capital Market Constraint categories have high climate and/or conservation investments needs and opportunities. In fact, 91 of the 95 EMDEs with debt stress or capital market constraint have above-median climate investment needs or conservation investment opportunities, while only four countries have below-median levels of both when compared with countries around the world: Albania, Dominican Republic, North Macedonia and Tajikistan. Four measures

of environmental investment needs and opportunities are included, each measured as percentiles across all countries in the world:

- **Climate change adaptation needs:** the relative (percentile) value of each country's Climate Vulnerability Index according to the Notre Dame Global Adaptation Initiative (ND-GAIN).
- **Climate change mitigation investment needs:** projected 2030 carbon emissions under a business-as-usual scenario, measured in tons of carbon dioxide (CO₂) per capita.
- **Land conservation opportunities:** the unprotected portion of each country's intact land, with land considered to be "intact" if it has less human modification than pasture. A high portion of unprotected intact land indicates a strong potential for land conservation investment through expanding the network of national protected areas.
- **Marine conservation opportunities:** the cumulative human impact (CHI) for each country's exclusive economic zone (EEZ) if less than 30 percent of coastal waters are protected, reflecting the commonly used "30 by 30" goal of protecting 30 percent of oceans by 2030 (Stokstad 2023). Lower CHI levels indicate a stronger potential for expanded marine protected areas and are given higher "opportunity" percentile scores.

Figure 7 shows the distribution of climate and conservation needs and opportunities among countries in the Debt Stress and Capital Market Constraint categories. A country is considered to have above-median climate investment needs if its mitigation and/or adaptation needs are above the global median, and conservation opportunities are treated similarly. The four countries whose climate finance needs and conservation finance opportunities are below the global median (Albania, Dominican Republic, North Macedonia and Tajikistan) are shown in light blue. More information on these measurements is included in the Appendix. The eight countries with above-median conservation opportunities but below-median climate investment needs are shown in light yellow. The 25 countries shown in orange have above-median climate investment needs but below-median conservation finance opportunities. The remaining 57 countries, in red, all have above-median climate finance needs and conservation finance opportunities.

Figure 7: Sustainability Investment Needs and Opportunities Among Countries with Debt Stress or Capital Market Constraint



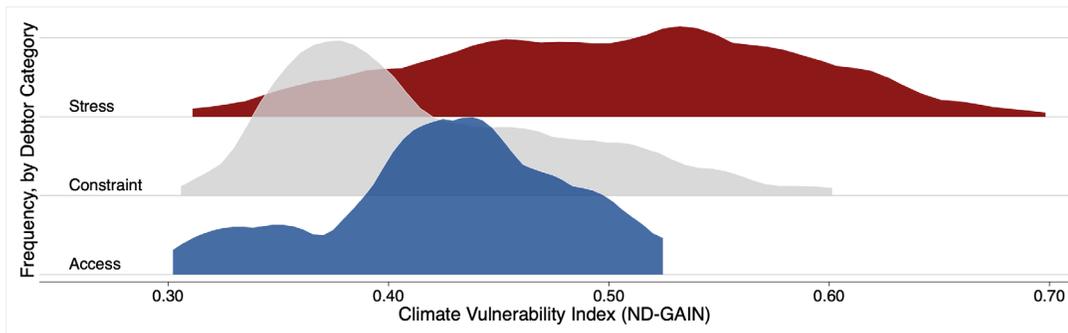
Source: Author compilation.

Note: Countries in grey are in the capital market access category, and are excluded from this review or have insufficient data. More details available in Appendix.

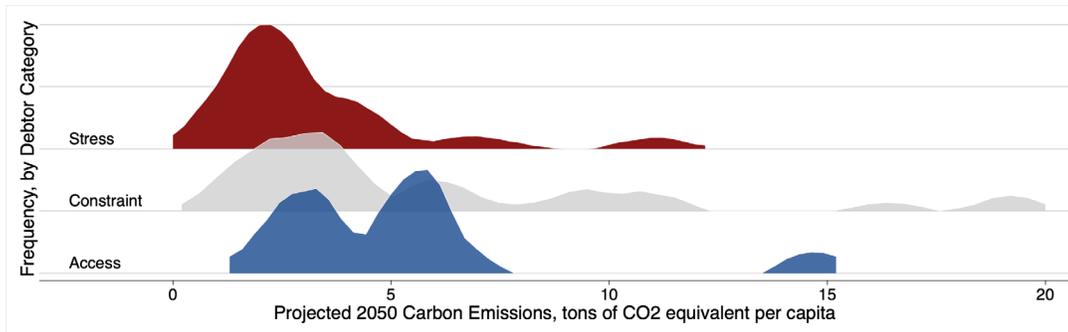
Figure 8 shows these results in more detail. Overall, countries with debt stress are more vulnerable to the effects of climate change than their peers, with a median ND-GAIN CVI score of 0.51 compared to 0.40 and 0.43 for the countries with capital market constraints and access, respectively (Figure 8A). Climate change mitigation needs show an opposite trend: countries with capital market access have higher projected carbon emissions than countries facing capital market constraints or debt stress (Figure 8B). Countries' levels of unprotected intact land are more broadly distributed, but Debt Stress countries have a greater tendency to have over 90 percent of their intact land unprotected (Figure 8C). Finally, Debt Stress countries' coastal waters tend to have a lower average CHI level, meaning that they are relatively more intact and could benefit from protection to ensure these refuges are secured into the future (Figure 8D).

Figure 8: Climate and Conservation Investment Needs and Opportunities, Distribution by Debtor Category

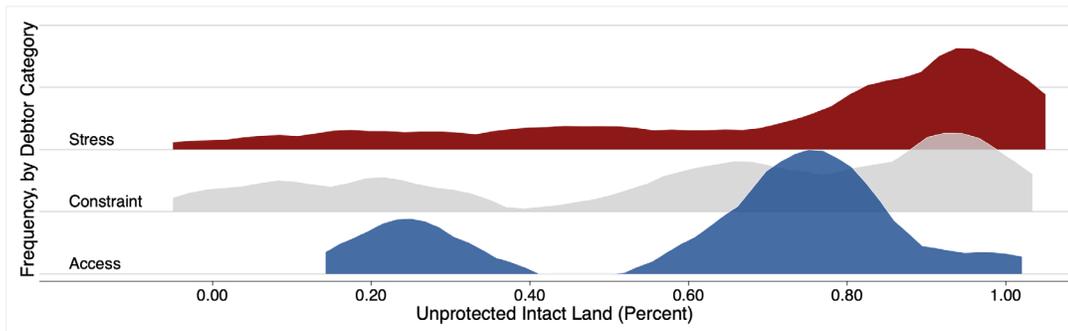
A. Climate Change Adaptation Needs: Climate Vulnerability Index (ND-GAIN)



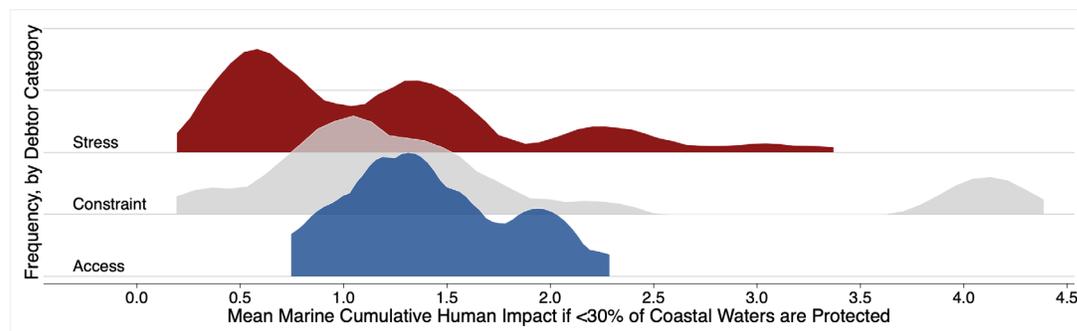
B. Climate Change Mitigation Needs: Projected 2030 Carbon Emissions (CO2 equivalent per capita)



C. Land Conservation Opportunities: Unprotected Intact Land (Percent)



D. Marine Conservation Opportunities: Mean Marine Cumulative Human Impact if <30 Percent of Coastal Waters are Protected



Source: Author calculations based on Chen et al 2023; Climate Resource 2023; ND-GAIN 2023; Simmons et al. 2021; Halpern et al. 2015; UNEP-WCMC and IUCN 2022. More detail available in Appendix.

NOW OR NEVER: POLICY RECOMMENDATIONS

Immediate action is needed to curtail the intrinsically linked global debt and environmental crises. National climate and conservation commitments may quickly become empty promises if countries cannot obtain the necessary fiscal space for investing in nature-based solutions and climate change mitigation and adaptation measures. When investment needs remain unmet, vicious cycles can form as degraded ecosystems become more vulnerable to the impacts of climate change, unleashing economic instability, recurring debt crises and diminished fiscal space for necessary sustainability investments. It is incumbent upon creditors to build virtuous cycles based on resilience and sustainable development. However, as the results in this report show, there is no single creditor responsible for this task and therefore a globally coordinate effort is needed.

Global financial stability and environmental sustainability must be prioritized as part of comprehensive and ongoing efforts to reform the Bretton Woods institutions, such as the World Bank's current Evolution Roadmap, which incorporate the importance of global public investment needs for sustainable development (Banga 2023; Gallagher et al 2023b). Furthermore, the ongoing efforts of the Global Sovereign Debt Roundtable to promote coordination among creditors for comprehensive and timely action is promising and must be supported (Summers et al 2023).

As first order reforms, a stepwise increase in levels of both liquidity and development finance are needed, as well comprehensive debt relief linked to climate and development investments.

Increasing liquidity can be achieved through the following steps, as advanced by Diwan et al (2023, 2024), Ramos (2023) and Zucker-Marques et al (2023):

- The IMF should bolster new issuances of Special Drawing Rights (SDRs) and rechannel a proportion of those SDRs into the IMF and development financial institutions (DFIs);
- Advanced economy central banks should extend currency swaps with EMDEs, increase EMDE quota shares at the IMF and support the expansion of Regional Financial Arrangements around the world;
- The G20 should reinstate and reinvigorate the DSSI, including all classes of creditors and all income levels of borrowing countries.

Development finance can be rapidly expanded to provide guarantees, grants and potentially broker debt-for-nature/climate swaps to reduce the cost of capital and finance investment needs through the following steps, as advanced by Summers et al (2023) and Zucker-Marques and Gallagher (2023):

- MDBs at all levels should advance capital increases;
- MDBs should improve their capital adequacy frameworks, especially through hybrid capital methods such as rechanneling SDRs and issuing innovative financing instruments, like Sustainable Future Bonds;
- Public DFIs should fostering greater cooperation among themselves, as together they command over \$23 trillion (Xu et al 2021).

Comprehensive debt relief is also paramount for those countries facing debt stress. The G20 Common Framework will need to be reformed along the following lines, as advanced by Volz and Zucker-Marques (2023) and Zucker-Marquez et al (2023):

- Calibrating the level of debt relief to meet the investment needs defined in this report;
- Compelling all creditors to participate in comprehensive debt relief;
- Deploying a 'fair' Comparability of Treatment principle across all creditors, adjusting the amount of debt relief provided by various creditors according to the level of *ex ante* debt relief in initial loan commitments.

These are important steps toward reforming the global financial architecture to better address the environmental and economic challenges of the 21st century. The world must seize this “now or never” moment to mobilize capital for the shared climate and development goals: climate change mitigation and adaptation, biodiversity conservation and sustainable development for EMDEs around the world.

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APPENDIX

The Appendix provides more information on the methodologies used in this analysis. It is organized into two sections. The first provides more detail on debtor categories, followed by a second section on the definitions and applications of environmental investment needs and opportunities.

DEBTOR CATEGORIES AND DEBT BURDENS

Debtor categories are defined according to the classification system developed by Ramos et al (2023). “Debt Stress” countries are those listed in IMF (2023) and Jensen (2023) as being at high risk of near-term debt stress. “Capital Market Constraint” countries are those not included in Ramos et al (2023) but whose most recent sovereign bond yields exceed their projected GDP growth for the 2023-2028 period according to IMF (2023d), and/or have no “investment grade” bond ratings by major credit rating agencies, as shown in Table 1, above. “Capital Market Access” countries are the remaining EMDEs, with at least one “investment grade” bond rating and/or sovereign bond yields below projected GDP growth. The countries within each category are shown in Table 3.

Table 3: Debtor Categories

Debt Stress Countries (62)		
Afghanistan	Eswatini	Nicaragua
Angola	Ethiopia	Niger
Argentina	Gabon	Nigeria
Belarus	Gambia, The	Pakistan
Belize	Ghana	Papua New Guinea
Benin	Grenada	Samoa
Burkina Faso	Guinea-Bissau	São Tomé and Príncipe
Burundi	Haiti	Sierra Leone
Cabo Verde	Iraq	Solomon Islands
Cameroon	Kenya	Somalia
Central African Republic	Kyrgyz Republic	Sri Lanka
Chad	Laos	St. Vincent and the Grenadines
Comoros	Lebanon	Sudan
Congo, Democratic Republic	Liberia	Suriname
Congo, Republic	Madagascar	Tajikistan
Djibouti	Malawi	Tonga
Dominica	Maldives	Tunisia
Ecuador	Mali	Ukraine
Egypt	Mauritania	Zambia
El Salvador	Moldova	Zimbabwe
Eritrea	Mozambique	
Capital Market Constraint Countries (33)		
Albania	Fiji	Paraguay
Armenia	Georgia	Russia
Azerbaijan	Guatemala	Rwanda
Bangladesh	Honduras	Senegal
Bolivia	Jamaica	Serbia
Bosnia and Herzegovina	Jordan	South Africa
Brazil	Lesotho	Togo
Cambodia	Mongolia	Türkiye
Costa Rica	Montenegro	Turkmenistan
Côte d'Ivoire	Morocco	Uganda
Dominican Republic	North Macedonia	Uzbekistan

Capital Market Access Countries (13)		
Botswana	Indonesia	Peru
Bulgaria	Kazakhstan	Philippines
Colombia	Mauritius	Tanzania
India	Mexico	Thailand
		Vietnam

Source: Author compilation from IMF (2023a); Jensen (2023); Ramos et al (2023); Trading Economics 2023.

CONSERVATION AND CLIMATE INVESTMENT NEEDS AND OPPORTUNITIES

This report uses four indicators of climate investment needs and conservation investment opportunities: climate change mitigation needs, climate change adaptation needs, land conservation opportunities and marine conservation opportunities. This section describes the methodology applied to each. Climate change mitigation and adaptation investment needs and land conservation opportunities are estimated using existing literature and are described briefly. Marine conservation opportunities, which rely on original calculations, are described in more detail. For each indicator, Figure 3 uses normalized versions (expressed as percentiles among all countries in the world) while Figure 4 uses the original values described.

Climate change adaptation needs rely on the most recent (2021) scores of the Climate Vulnerability Index (CVI) of the Notre Dame Global Adaptation Initiative (ND-GAIN). While many other estimates of climate vulnerability exist, the ND-GAIN CVI includes the most relevant measurements for the present analysis. It considers the potential impacts of climate change on six sectors (food, water, health, ecosystem services, human habitat and infrastructure) through three avenues: each sector's *exposure* to climate change, its *sensitivity* to climate change and its adaptive *capacity*. It excludes considerations of national policy or economic or social readiness, which are incorporated in a separate ND-GAIN indicator.

Climate change mitigation needs reflect countries' projected 2030 carbon emissions under a business-as-usual scenario, measured in tons of CO₂ equivalent per capita (Climate Resource 2023).

Land conservation opportunities follow the method developed by Simmons et al (2021). They are measured as the share of intact land that is not formally protected. Determinations of the "intactness" of land draw from Williams et al. (2020), whose Human Footprint Index (HFI) maps human pressures at a median granularity of 0.5 meters around the world. Following Simmons et al (2021), this analysis considers land to be "intact" if it has a corresponding HFI level below 4.0, indicating less human modification than pasture. Land is considered to be "unprotected" based on its exclusion from the system of national protected areas reported by UNEP-WCMC and IUCN 2020.

Marine conservation opportunities are described in greater detail in the following, as they entail novel calculations for the present analysis. Estimates of the recent state of the world's coastal waters were obtained from the Cumulative Human Impacts (CHI) dataset (Halpern et al. 2015). The dataset quantifies the impacts from climate-, ocean-, and land-based pressures on marine habitats around the world (at the approx. 1 km² resolution) based upon the presence of 18 anthropogenic stressors and the vulnerability of 20 marine habitats to each stressor. For each ocean cell, a CHI index is calculated by adding all of the pressures facing the habitats within that cell.

The most recent estimates of human impacts (2013) were used to identify threatened seascapes. Pressures were distinguished between controllable and uncontrollable threats from the perspective of a marine protected area. All climate pressures (ocean acidification, sea level rise, sea surface

temperature, and UV radiation) were considered comparatively uncontrollable and excluded from the calculation of human impacts. The following remaining pressures were used to calculate the modified CHI index, all of which are potentially controllable in an effective managed marine protected area:

- Ocean-based threats: ocean pollution, shipping, oil rigs, invasive species, artisanal fishing, destructive demersal fishing, non-destructive demersal fishing (low bycatch), non-destructive demersal fishing (high bycatch), pelagic fishing (low bycatch) and pelagic fishing (high bycatch);
- Land-based threats: inorganic pollution, light pollution, nutrient pollution (fertilizers), nutrient pollution (pesticides) and coastal population pressure.

After combining all ocean- and land-based threats to calculate the new CHI index for each marine cell, the average CHI score was calculated for all marine cells within each country's coastal waters. This score represents a single continuous measure of the state of a country's coastal waters, ranging from 0 (pristine condition) to 5.90 (heavily modified).

For each country, the extent of their coastal waters was defined by the boundaries of all marine ecoregions within their marine Exclusive Economic Zone (EEZ) (Spalding et al. 2007). Notably, this area is exceptionally smaller in size than the entire EEZ, and there is considerable variation between countries given their inherent bathymetric differences. We excluded the majority of open waters constituting countries' EEZs due to (1) the relatively low human impacts in these open oceans that can mask the high impacts nearer to the coastline, and (2) given the tendency for countries to establish MPAs in these open oceans where biodiversity threats and potential conflict with stakeholders is very low. All impacts described in this analysis are therefore only representative of conditions within these coastal waters.

Some coastal waters are not represented in these results. Marine areas within EEZs with disputed ownership between two or more countries were excluded from the analysis, as well as marine areas within EEZs that are jointly governed by two or more countries, given the increased complexity of governance and management within these areas. Countries were also excluded from the analysis if they did not have any data regarding marine impacts. Of the 255 territories and sovereign countries examined, 193 (76 percent) met all of these screening criteria and were included in the analysis.

Under the Convention on Biological Diversity's (CBD) previous Aichi Target 11, a global target was set to conserve 10 percent of the world's coastal and marine areas through protected areas and OECMs by 2020. However, the Post-2020 Global Biodiversity Framework has set a new goal (Target 3) to protect at least 30 percent of the planet by 2030—often referred to as the '30 x 30' target. Thus, there is a new global push for all countries to adopt the 30 x 30 goal, applied to both terrestrial and marine ecosystems.

To identify where protection gaps are greatest among the seascapes with optimal conditions for intervention, spatial data was obtained from the World Database on Protected Areas (UNEP-WCMC and IUCN 2022) to calculate the proportion of each country's coastal waters that are currently covered by marine protected areas.

Aggregating the environmental investment needs and opportunities defined and normalizing the results (as percentiles among all countries in the world) yields four categories of countries based on their results relative to each other. These categories are shown in Table 4. Category 1 includes countries whose climate investment needs and conservation investment opportunities are all at or below the global 50th percentile level. As Table 4 shows, just four EMDEs fall into this category. Category 2 includes countries that score above the 50th percentile globally on at least one conservation investment opportunity indicator but at or below the 50th percentile for climate investment needs. This is

the second smallest of the four categories, with 10 EMDEs. Category 3, with scores at or below the 50th percentile on conservation investment opportunities but scores above the 50th percentile for at least one climate investment need, includes 32 EMDEs. The remaining 57 EMDEs studied fall into Category 4, with scores above the 50th percentile globally on at least one climate investment need and at least one conservation investment opportunity. As Figure 7 shows, above, Debt Stress and Capital Constraint countries are much more likely to present above-median levels of climate investment needs and conservation investment opportunities than are Credit Market Access countries.

Table 4: Countries by Debtor and Environmental Investment Category

Category, Environmental Investment Needs and Opportunities				
	1 Neither	2 Conservation	3 Climate	4 Both
	<50 th percentile on climate needs and conservation opportunities	>50 th percentile on ≥1 conserv. oppt'ies, <50 th percentile on climate needs	>50 th percentile on ≥1 climate need, <50 th percentile on conserv. oppt'ies.	>50 th percentile on ≥1 climate need and ≥1 conservation opportunity
Debt Stress Countries	Tajikistan	Kyrgyz Republic Moldova Tunisia	Belarus Belize Benin Burkina Faso Burundi Congo, Republic Dominica Ecuador Gambia Laos Malawi Nigeria Sierra Leone Sri Lanka Zambia Zimbabwe	Afghanistan Angola Argentina Cabo Verde Cameroon Central African Republic Chad Comoros Congo, Dem. Rep. Djibouti Egypt El Salvador Eritrea Eswatini Ethiopia Gabon Ghana Grenada Guinea-Bissau Haiti Iraq Kenya Lebanon Liberia Madagascar Maldives Mali Mauritania Mozambique Nicaragua Niger Pakistan Papua New Guinea Samoa São Tomé and Príncipe Solomon Islands Somalia St. Vincent & Grenadines Sudan Suriname Tonga Ukraine

	Category, Environmental Investment Needs and Opportunities			
	1 Neither	2 Conservation	3 Climate	4 Both
	<50 th percentile on climate needs and conservation opportunities	>50 th percentile on ≥1 conserv. oppt'ies, <50 th percentile on climate needs	>50 th percentile on ≥1 climate need, <50 th percentile on conserv. oppt'ies.	>50 th percentile on ≥1 climate need and ≥1 conservation opportunity
Capital Market Constraint Countries	Albania Dominican Rep. North Macedonia	Brazil Costa Rica Georgia Jordan Morocco	Armenia Bolivia Cambodia Côte d'Ivoire Montenegro Paraguay Rwanda Senegal Togo Uganda	Azerbaijan Bangladesh Bosnia and Herz. Fiji Guatemala Honduras Jamaica Lesotho Mongolia Russia Serbia South Africa Türkiye Turkmenistan Uzbekistan
Capital Market Access Countries		Colombia Peru	Botswana Bulgaria Mauritius Philippines Thailand	India Indonesia Mexico Kazakhstan Tanzania Vietnam

Source: Author compilation.

