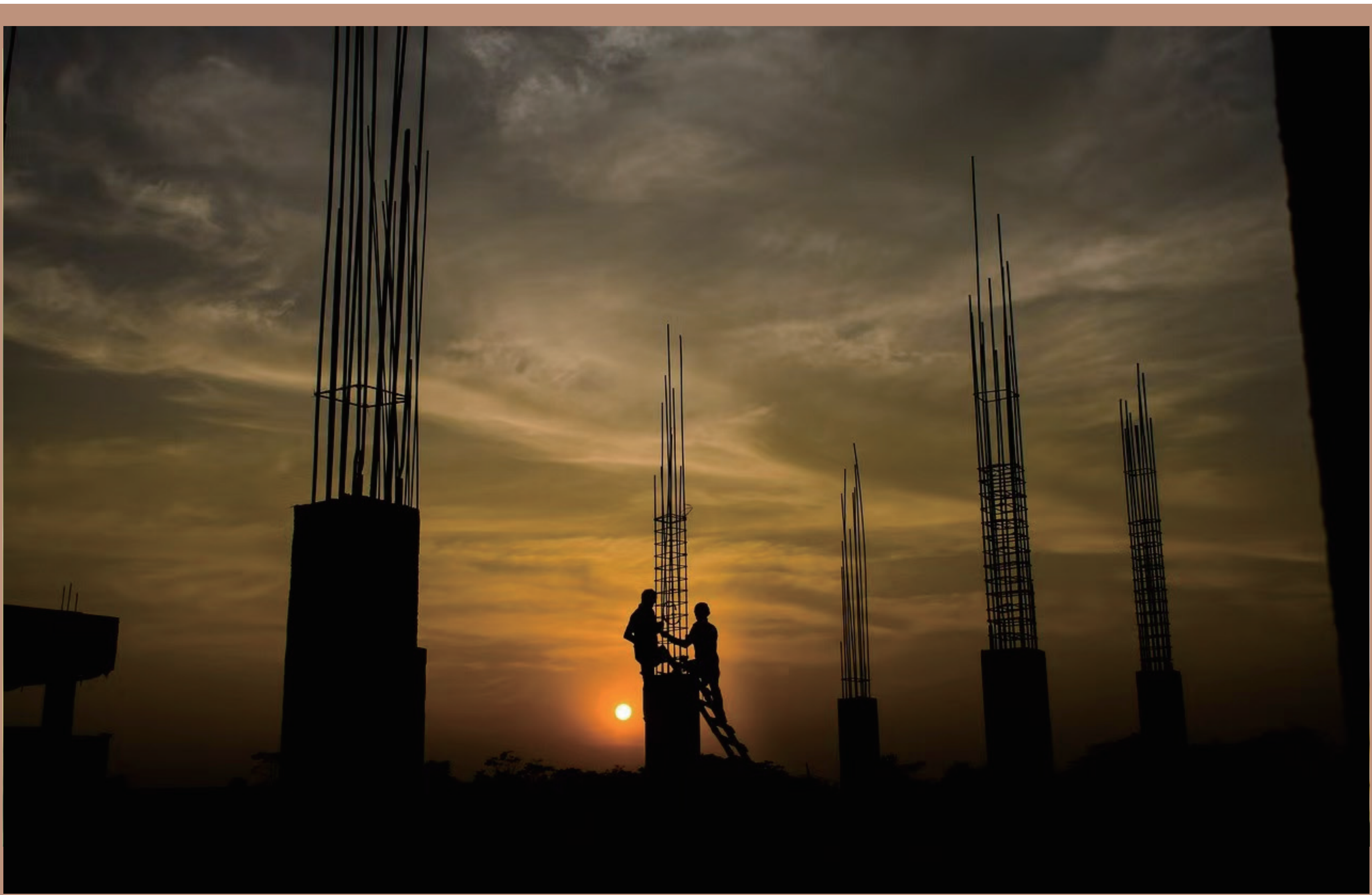
Identifying Potential Debt-for-Development Swaps (DDS) Partners to China

From Subjective Assessment to a Scoring System



The International Institute of Green Finance (IIGF) of Central University of Finance and Economics (CUFE)

Bingcai LIU; Han CHEN; Yaqi WANG; Wei SHEN

April 2025

About The International Institute of Green Finance (IIGF)

The International Institute of Green Finance (IIGF) of Central University of Finance and Economics (CUFE) is an independent and non-profit think tank established in China in 2016, based on its predecessor Research Center for Climate and Energy Finance (RCCEF), established in 2011. IIGF actively engage with policymakers, financial institutions, and industry leaders to promote sustainable practices and advocate for policies that support green finance development in China and globally.

Acknowledgements

We are tremendously grateful to the following reviewers for their dedication in providing insightful comments and suggestions: Luo WANG, Jingying SUN and Lin JI. Any errors that remain are the authors' sole responsibility.

CONTENTS

Chapter One

Introduction

Debt-for-Development Swap (DDS) is an innovative debt relief tool that allows debtor countries to convert part of their external debt into funding for domestic economic and social development projects. This helps reduce debt burdens while supporting sustainable social, economic, and environmental progress.

For many countries in the Global South, high levels of bilateral debt and repayment pressure have long been major obstacles to development. According to the International Debt Report (World Bank Group 2024a), global interest rates saw their sharpest rise in four decades in 2022. That year, Global South countries spent a record $443.5 billion on bilateral debt repayment. The report also forecasts that in 2023 and 2024, the 24 poorest countries may face a 39% increase in debt servicing costs due to rising interest payments and currency fluctuations. These challenges are unlikely to ease in the short term.

At the same time, Global South countries face large funding gaps in addressing environmental and development crises. The World Investment Report 2023 (UNCTAD 2023) shows that foreign direct investment (FDI) into developing countries totaled $916 billion in 2022, which is a 4% decrease from the previous year. Most of this investment was concentrated in a few large emerging economies, while many other countries, including the least developed countries, experienced stagnation or steep declines. Investment in key public sectors—such as water and sanitation, healthcare, agriculture, and education—has been particularly weak.

Therefore, although DDS cannot fully resolve the debt and development challenges faced by countries in the Global South, it offers a potential supplementary policy tool and an innovative solution to support bilateral debt restructuring and development financing.

As a major creditor to some developing countries, China's global political and economic strategy is inevitably affected by the long-term debt issues and development challenges faced by these nations. Therefore, implementing DDS is necessary. Through DDS, China can help ease the fiscal pressures of debtor countries and support their social and economic development, strengthening political and economic ties in the process.

Funds from DDS projects are often directed toward sectors such as education, healthcare, and environmental protection, contributing to the achievement of the Sustainable Development Goals (SDGs). Promoting SDGs also aligns with the concept of a "community of shared future for mankind," which is a core principle of China's Green Belt and Road Initiative (BRI). This approach can help China and its BRI partners navigate complex international challenges, improve human well-being, and work together to achieve the SDGs.

At present, research on debt-for-development swaps (DDS) mainly remains at the theoretical level, focusing on the conditions, methods, and potential for implementation. Buckley (2009) examined the evolution, application, and impacts of DDS, providing a detailed explanation of its operating mechanisms, advantages, and challenges. Cassimon and Vaessen (2007) explored the links between debt relief and development goals, particularly the Millennium Development Goals (MDGs). They noted that traditional DDS, due to its small scale and high transaction costs, had a limited impact on development, while larger debt initiatives showed stronger economic benefits. They also advocated strategic, large-scale DDS practices in the Asia-Pacific region, offering tailored solutions for sectors such as education and health.

Haughton and Keane (2021) discussed the potential of DDS in addressing debt challenges and achieving the Sustainable Development Goals (SDGs) in developing countries. They recommended using more flexible mechanisms with fewer restrictions on debtor countries to create a more inclusive debt treatment framework and ensure funds are directed toward development sectors. Karaki and Bilal (2023) explored how to scale up DDS to create deeper impacts on sustainable development. Potential pathways include multilateral debt swaps, commercial debt swaps using guarantees and multi-party participation, and promoting investment through DDS.

Current literature pays little attention to the mechanisms for selecting debtor countries for DDS projects, which is a key focus of this report. We will also discuss how to design relatively objective selection criteria to improve the success rate of DDS projects. For China, establishing an effective selection mechanism is particularly important. On one hand, screening debtor countries can help prioritize projects in countries with urgent debt relief needs and strong development demands. On the other hand, selecting countries with stronger governance ability, political stability, and strategic importance to creditors can better safeguard creditors' strategic interests, ensuring effective project implementation, supervision, and the achievement of its broader strategic and diplomatic goals.

This report explores the issue of selecting debtor countries for China's implementation of DDS. It identifies four key factors that influence debtor country selection: debt vulnerability, development potential, political feasibility, and bilateral relations. Among these, debt vulnerability and development potential directly affect the urgency and necessity of DDS, while political feasibility and bilateral relations influence the long-term success and transaction costs of DDS projects (Chen, Shen, and Shi 2023).

Building on these initial findings, this report further expands the secondary indicators under each factor and develops a comprehensive scoring system. This system is used to rank the feasibility of implementing DDS across different debtor countries and to identify those countries where DDS cooperation with China would face the greatest challenges or be relatively easier to implement. The report places particular focus on China's ten largest bilateral debtor countries and four selected key debtor countries (Egypt, Laos, Zambia, and Sri Lanka), presenting their DDS feasibility scores and highlighting the specific challenges each country may face.(Table 1)

Table 1. Top ten debtor countries to China (2023) (Excluding conflict-affected countries)

Debtor Country	Debt to China in billion $ (2023)
Pakistan	22.56
Argentina	21.22
Angola	17.86
Sri Lanka	8.65
Bangladesh	6.73
Egypt, Arab Rep.	6.37
Zambia	6.15
Lao PDR	6.03
Kenya	6.01
Cote d’Ivoire	4.20

Source: World Bank International Debt Statistics database

Chapter Two

DDS Partnership Scoring Index (DDS-PSI)

Based on a preliminary review of existing literature, this report develops the DDS Partner Scoring Index (DDS-PSI). The index consists of four primary variables and 26 secondary variables. The four primary variables are: debt vulnerability, development potential, political feasibility, and bilateral relations. The details are shown in Appendix 2.

Debt vulnerability is measured by eight secondary indicators, development potential by four, political feasibility by seven, and bilateral relations by seven (see Figure 1). Some indicators are sourced from publicly available data, such as the World Bank's Worldwide Governance Indicators (WGI), while others, such as bilateral relations, are compiled by the author.

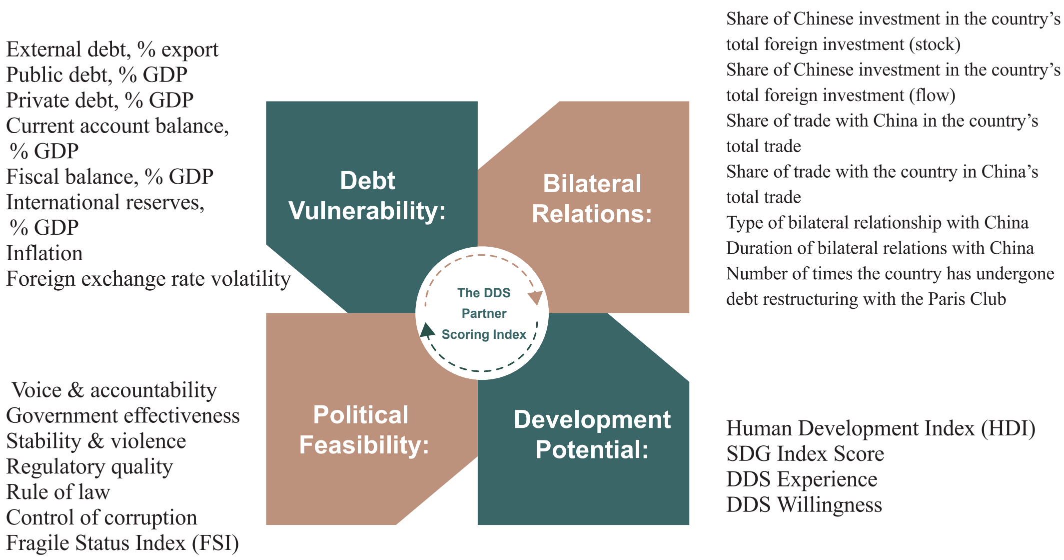


Figure 1. The DDS Partnership Scoring Index (DDS-PSI)

Source: Authors' compilation

According to the World Bank's International Debt Statistics released in December 2023, China has 98 debtor countries. These 98 countries are treated as potential DDS partners, and each country's DDS-PSI score is calculated based on the scoring system. A higher score indicates a better suitability for implementing DDS projects with China.

All 26 secondary variables use data from 2023 or the most recent available year. When 2023 data is not available, this report uses data from 2022 or 2021. If only data from before 2021 is available, the data point is marked as "missing," unless the value has remained unchanged over the past five years. The original data are standardized by converting them into percentile rankings, with values ranging from 0 to 100.

In addition, the World Bank's classification of fragile and conflict-affected countries[1] identifies 21 conflict-affected states and regions (16 of them are China's debtor countries, see Table 2). Due to their unstable political and economic environments, these countries are currently unsuitable for effective project implementation. Therefore, they are removed from the list of China's debtor countries in this analysis. Eritrea is also excluded from the ranking because most of its debt vulnerability data is missing. After removing these countries, the final ranking includes 81 sample countries.

Table 2. Conflict-affected countries and their debt to China (in million USD)

Country	Debt to China, million USD
Afghanistan	0
Burkina Faso	120.13
Cameroon	3784.77
Central African Republic	47.16
Congo, Dem. Rep.	2550.86
Ethiopia	6822.29
Haiti	0
Iraq	645.65
Lebanon	7.16
Libya	0

1.World Bank. 2024. Classification of Fragile and Conflict-Affected Situations.
https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/classification-of-fragile-and-conflict-affected-situations

Country	Debt to China, million USD
Mali	532.35
Mozambique	1703.61
Myanmar	2456.55
Niger	225.44
Nigeria	4291.73
Somalia	0
Sudan	1146.64
Syria	73.94
Ukraine	845.45
West Bank and Gaza	0
Yemen	166.00

Source: World Bank

For the overall scoring, this report applies both subjective and objective methods. Inthe subjective scoring process, weights are assigned to each indicator based on past research experience. Given the expected importance of debt vulnerability and development potential in the DDS mechanism, each of these two variables is assigned a weight of 30%, while political feasibility and bilateral relations are each assigned a weight of 20%. The overall DDS-PSI score is calculated as the weighted average of the percentile rankings of the four primary variables. In the objective scoring process, the entropy weight method is used to assign weights to the indicators and calculate the composite scores.

Each country's score for a primary variable is calculated as the arithmetic average of the percentile rankings of its corresponding secondary variables. For example, a country's debt vulnerability score is the arithmetic mean of the percentile rankings of the eight secondary indicators under debt vulnerability.

1.Debt Vulnerability

Sovereign debt generally refers to debt incurred through issuing bonds, notes, or borrowing from international lending institutions. According to the International Monetary Fund (IMF), sovereign debt refers to debt contracted legally by a national government (Abbas and Pienkowski 2022). It mainly includes external public debt, as well as domestic public debt issued under the guarantee of the state's credit

i Indexes

Sovereign debt vulnerability measures the level of risk and the likelihood of a debt crisis in a country. For developed economies, sovereign debt vulnerability is mainly influenced by internal factors such as economic growth, real interest rates, and fiscal policies. Inflation problems caused by economic overheating often become more severe during downturns, increasing debt risks. A rise in real interest rates can trigger a decline in financial asset values and raise the government's debt servicing costs, weakening its repayment capacity (Kwon, McFarlane, and Robinson 2009). To reduce debt levels, governments may adopt tightening policies to increase tax revenues and stabilize macro leverage. However, this can also push a country into a negative cycle of "debt and deflation" (Lin, Tsomocos, and Vardoulakis 2015).

For developing countries and emerging economies, sovereign debt vulnerability is also influenced by external factors, as their economic foundations are relatively weaker and more sensitive to changes in the external environment. These countries often cannot issue debt in their own currencies. When a large share of a country's debt is denominated in foreign currencies and concentrated in short-term obligations, exchange rate fluctuations can significantly increase the risk of default.

In the context of interest rate hikes by central banks in Europe and the United States, if emerging economies align their macroeconomic policies with those of developed countries, the rise in real interest rates on foreign currency debt often drives up domestic real interest rates, adding to the debt burden and negatively affecting the real economy.

On the other hand, if emerging economies experience large differences in their economic cycles compared to developed countries, the narrowing of interest rate differentials with the U.S. Federal Reserve, combined with weaker sovereign credit, can trigger capital outflows and domestic currency depreciation. In such cases, the negative effects of inflation far outweigh the positives, increasing the risk of a liquidity crisis.

Schaltegger and Weder (2015) found that adjustments in the size of fiscal balances do not significantly reduce the likelihood of sovereign default in emerging economies. Therefore, this report constructs the Sovereign Debt Vulnerability Index using an arithmetic average approach. This method allows the inclusion of multiple macroeconomic variables while avoiding the problem of limited degrees of freedom in multiple regression models.

At the same time, some indicators are adjusted with weights based on the debt-carrying capacity calculation methods outlined in the IMF's Low-Income Country Debt Sustainability Framework (LIC-DSF) (IMF 2018), making the index better reflect each country's repayment ability.

The Debt Vulnerability Index for emerging markets is based on the following eight indicators:

(1) External debt to exports ratio

(2) Total government debt to GDP ratio

(3) Average private credit to GDPratio from 2017 to 2022

(4) Average annual inflation rate from 2021 to 2023

(5) Fiscal balance to GDP ratio

(6) Current account balance to GDP ratio

(7) Foreign exchange reserves to GDP ratio

(8) Number of currency crises since 2000

To construct the Debt Vulnerability Index for emerging market countries, this report first ranks each of the 81 debtor countries by each variable, from low to high vulnerability. After ranking, each country has eight rankings based on the eight indicators. Then, the arithmetic average of the percentile rankings across the eight variables is calculated to obtain each country's Debt Vulnerability Index score. A higher score indicates greater debt vulnerability.

It is important to note that this index only reflects the relative level of debt vulnerability for each debtor country at the time of evaluation. It is not an absolute measure, nor is it fixed over time.

The details of each indicator is as follows:

• External Debt to Exports Ratio:

The higher the share of external debt relative to exports, the greater the risk of increased fiscal burden. A rising external debt to exports ratio indicates that a country's external debt is growing faster than its ability to earn foreign exchange through exports, which may make it harder for the country to meet its debt obligations. A high ratio also makes the country more vulnerable to external shocks.

The International Monetary Fund (IMF) considers this indicator an important measure of debt sustainability. For example, under the Heavily Indebted Poor Countries (HIPC) Initiative, aid decisions are based on thresholds such as a public debt-to-exports ratio of 150% or a public debt-to-revenue ratio of 250%.

In the LIC-DSF framework, the IMF categorizes countries' debt-carrying capacity as weak, medium, or strong. Countries with strong debt-carrying capacity can sustain higher external debt to exports ratios, while countries with weak debt-carrying capacity may face sustainability challenges even at lower ratios. In this report, the external debt to exports ratio is adjusted based on each country's debt-carrying capacity and is used in the ranking of debt vulnerability.

• Total Government Debt to GDP Ratio:

A high macro leverage ratio can cause fiscal strain, limit a government's future spending capacity, and increase the risk of sovereign debt default. When a country's ability to repay debt declines, the probability of default rises, leading to higher interest rates on its external, dollar-denominated debt. This also widens sovereign bond spreads and raises borrowing costs in international capital markets. In short, a high macro leverage ratio means a heavier interest burden and a higher risk of sovereign default (Reinhart and Rogoff 2010).

Differences in debt-carrying capacity also affect the threshold for this indicator. In countries with weak debt-carrying capacity, even a relatively low government debt ratio can create liquidity risks. Therefore, in this report, the total government debt to GDP ratio is also adjusted based on each country's debt-carrying capacity before being included in the ranking.

- **Private Credit to GDP Ratio (2017–2022):**

During periods of financial instability, excessive credit growth can amplify risk transmission. Rapid expansion of private credit often fuels asset bubbles, increasing the likelihood of debt crises. In emerging economies, a significant share of private sector debt is in the form of offshore private bonds, which further exposes countries to exchange rate and interest rate risks. Moreover, rising private credit is often accompanied by a decline in real sector investment, which not only weakens total factor productivity but also undermines future economic growth potential (Miao and Wang 2018).

The ratio is calculated as follows:

If the value in 2022 is X_{2022} and the value in 2017 is X_{2017}, the average annual growth rate is calculated as $(X_{2022}/X_{2017} - 1)/5$.

If 2022 data are missing, the 2021 value is used instead, and the formula becomes $(X_{2021}/X_{2017} - 1)/4$, and so on.

If only data from before 2017 are available, the country's average growth rate is marked as missing.

The average growth rate reflects trends in private sector leverage (Davis et al. 2016).

- **Average Annual Inflation Rate (2021–2023)**

If central banks choose to manage part of the debt through inflation or by directly monetizing future deficits, it can cause inflation expectations to become unanchored. Historical data show that severe inflation episodes are often closely linked to high debt levels, a pattern particularly evident after World War I (Reinhart and Rogoff 2010). Rising inflation increases debt vulnerability. Although high inflation can temporarily reduce the real value of domestic currency-denominated debt, it also heightens future debt repayment instability and poses risks to overall economic stability (Brandao-Marques et al. 2024).

- **Fiscal Balance to GDP Ratio:**

This indicator reflects a government's ability to manage its spending and revenue. A higher fiscal balance to GDP ratio means the government can repay existing debt without relying on new borrowing. This provides greater fiscal space to respond to economic shocks and helps reduce debt risk.

- **Current Account Balance to GDP Ratio:**

The ability to generate foreign exchange through exports is a key factor in repaying foreign currency-denominated debt. A current account surplus indicates more stable debt repayment capacity and lower reliance on external financing. In contrast, a current account deficit reflects an economy's tendency toward excessive consumption, which can undermine long-term sustainability. Persistent and large current account deficits mean a country must rely on foreign capital inflows—such as borrowing or selling assets—to cover its spending gap. Over time, this can lead to a rising external debt burden.

- **Foreign Exchange Reserves to GDP Ratio:**

Adequate foreign exchange reserves strengthen a country's ability to meet its payment obligations and reduce its debt repayment risk. If a country experiences significant reserve losses or needs to seek financial assistance from the International Monetary Fund (IMF), it is considered more vulnerable to economic shocks.

- **Number of Currency Crises:**

A currency crisis typically refers to a sharp depreciation of a country's currency or the government's inability to maintain a fixed exchange rate, often accompanied by capital flight and a rapid decline in foreign exchange reserves.

If a country's debt is denominated in foreign currencies (such as the U.S. dollar or the euro), a currency crisis and resulting domestic currency depreciation can sharply increase the local currency value of its external debt, worsening debt pressure. At the same time, currency crises are often accompanied by rising domestic interest rates, especially when governments adopt tight monetary policies to stabilize the currency. This raises borrowing costs for both businesses and the government, further increasing the debt burden.

Therefore, if a country has experienced multiple currency crises in recent years, it can be considered at higher risk of debt distress. This report uses data compiled by Nguyen, Castro, and Wood (2022), covering currency crises from 2000 to 2019.

ii The rankings of debt vulnerability

Based on the above indicators, this report conducts an in-depth assessment of the sovereign debt vulnerability of 81 of China's debtor countries. The top ten and bottom ten countries in the ranking are shown in Table 3 and Table 4, respectively. In addition, this report specifically examines the co untries with the largest debts to China as of 2023 and evaluates their debt vulnerability (Table 5).

The ten countries with the highest debt vulnerability scores are, in order: Malawi, Sri Lanka, Egypt, Zimbabwe, Zambia, Argentina, The Gambia, Burundi, Sierra Leone, and Pakistan. These countries often face severe challenges, such as significant economic downturns, low levels of international reserves, and high levels of public and private debt. These factors contribute to their high debt vulnerability rankings (Table 3).

The ten countries with the lowest debt vulnerability are, in order: Turkmenistan, Cambodia, Nicaragua, Algeria, Vietnam, Guatemala, Jamaica, Djibouti, Papua New Guinea, and Gabon. Most of these countries have relatively strong debt-carrying capacity and are generally able to maintain a low debt-to-GDP ratio. In addition, most of them have positive current account balances, which is likely a key factor in reducing sovereign debt vulnerability. Their asset prices are relatively stable, and inflation rates have consistently remained below 10% (see Table 4).

According to the World Bank's International Debt Statistics (IDS) database, the countries with the largest debts to China in 2023 and their corresponding debt vulnerability rankings are shown in Table 5. Pakistan tops the list with a debt amount of US$ 22.56 billion. There is a certain degree of positive correlation between a country's debt vulnerability ranking and its actual debt owed to China.

The four countries we are closely monitoring: Sri Lanka, Egypt, Zambia, and Laos, all show high levels of debt vulnerability (Table 5). They share common characteristics, including high external debt-to-exports ratios and inflation rates exceeding 10%. In addition, their current account balances and foreign exchange reserves are negative, further weakening their debt repayment capacity.

Table 3. Ten most debt vulnerable countries

Debtor Country	Debt Vulnerability Ranking	Debt-Carrying Capacity	External Debt to Exports Ratio	Total Government Debt to GDP Ratio	Average Growth Rate of Private Credit to GDP Ratio (2017–2022)	Average Annual Inflation Rate (2021–2023)	Fiscal Balance to GDP Ratio (%)	Current Account Balance to GDP Ratio (%)	Foreign Exchange Reserves to GDP Ratio (%)	Number of Currency Crises Since 2000
Malawi	1	Weak	370.91	105.63	0.030	20.16	−7.55	−6.94	4.93	4
Sri Lanka	2	Weak	464.89	150.20	0.057	17.06	−10.19	−1.95	3.54	0
Egypt	3	Medium	252.56	115.09	0.041	12.46	−4.72	−1.20	8.35	3
Zimbabwe	4	Weak	240.36	117.30	−0.062	319.77	−7.84	0.42	0.44	6
Zambia	5	Strong	230.27	126.76	−0.013	14.66	−6.80	−1.78	10.18	3
Argentina	6	Strong	232.48	169.99	−0.021	84.78	−2.02	−3.47	3.60	6
The Gambia	7	Strong	473.93	78.90	0.138	11.95	−2.99	−4.06	24.66	2
Burundi	8	Weak	402.75	81.69	0.355	18.05	−0.28	−13.33	3.42	0
Sierra Leone	9	Weak	240.43	104.02	0.054	28.93	−7.28	−4.00	13.01	0
Pakistan	10	Medium	384.28	92.54	0.027	16.74	−7.75	−0.66	4.06	0

Table 4. Ten least debt vulnerable countries

Debtor Country	Debt Vulnerability Ranking	Debt-Carrying Capacity	External Debt to Exports Ratio	Total Government Debt to GDP Ratio	Average Growth Rate of Private Credit to GDP Ratio (2017–2022)	Average Annual Inflation Rate (2021–2023) Fiscal Balance to GDP Ratio (%)	Fiscal Balance to GDP Ratio (%)	Current Account Balance to GDP Ratio (%)	Foreign Exchange Reserves to GDP Ratio (%)	Number of Currency Crises Since 2000
Gabon	72	Medium	104.55	84.58	0.03	2.99	−1.832	4.17		0
Papua New Guinea	73	Medium	128.37	52.11	−0.03	4.02	−4.437	16.6	12.6	0
Djibouti	74	Weak	64.84	79.02	−0.02	2.72	−3.879	23.52	12.25	0
Jamaica	75	Strong	280.76	78.93	−0.05	2.91	0.276	1.49	25.07	0
Guatemala	76	Strong	130.25	27.84	0.00	5.78	−1.361	2.88	20.88	0
Vietnam	77	Medium	37.93	34.03	0.04	2.75	−1.613	5.12	21.47	0
Algeria	78	Weak	10.21	64.33	−0.03	8.60	−0.101	2.16	33.85	0
Nicaragua	79	Strong	186.18	41.34	−0.07	7.95	0.704	4.54	30.55	0
Campodia	80	Strong	86.95	25.85	0.22	3.46	−0.653	1.32	62.9	0
Turkmenistan	81	Strong			−0.04	9.65	1.302	4.75		0

Table 5. Top ten debtor countries to China (2023) and their debt vulnerability rankings

Debtor Country	Debt Vulnerability Ranking	Debt-Carrying Capacity	External Debt to Exports Ratio	Total Government Debt to GDP Ratio	Average Growth Rate of Private Credit to GDP Ratio (2017–2022)	Average Annual Inflation Rate (2021–2023)	Fiscal Balance to GDP Ratio (%)	Current Account Balance to GDP Ratio (%)	Foreign Exchange Reserves to GDP Ratio (%)	Number of Currency Crises Since 2000
Pakistan	10	Medium	384.28	92.54	0.03	16.74	−7.75	−0.66	4.06	0
Argentina	6	Strong	232.48	169.99	−0.02	84.78	−2.02	−3.47	3.60	6
Angola	28	Strong	119.50	92.92	−0.03	20.25	−4.25	3.07	16.46	3
Sri Lanka	2	Weak	464.89	150.20	0.06	17.06	−10.19	−1.95	3.54	0
Bangladesh	56	Medium	160.22	39.79	−0.01	6.91	−2.31	−0.75	5.00	0
Egypt	3	Medium	252.56	115.09	0.04	12.46	−4.72	−1.20	8.35	3
Zambia	5	Strong	230.27	126.76	−0.01	14.66	−6.80	−1.78	10.18	3
Lao PDR	20	Weak	279.57	159.65	0.05	12.37	−0.43	−0.26	11.17	0
Kenya	24	Medium	358.85	87.91	−0.01	5.03	−5.25	−3.94	6.83	0
Cote d'Ivoire	45	Weak	240.05	74.19	−0.02	4.59	−2.65	−6.04		0

2. Development Potential

National development potential mainly refers to a country's ability and gaps in achieving sustainable development goals across economic, social, cultural, and environmental fields. This indicator also considers the debtor country's development vision, priority areas, and the actions and measures it has taken to reach these goals. Development potential focuses not only on the speed and scale of economic growth but also on the quality and effectiveness of development. It emphasizes balanced progress across economic, social, cultural, and ecological dimensions, making it a multi-dimensional concept.

i Indexes

The successful implementation of DDS requires long-term commitment from both the creditor and debtor countries. The process can last for years or even decades, demanding sustained cooperation on sustainable development. A debtor government must genuinely prioritize promoting sustainable development and improving the well-being of its people as part of its development strategy. This is a basic condition for the smooth implementation of DDS.

Therefore, the indicators selected under this category reflect both the debtor country's potential value for sustainable development and its government's commitment to achieving development goals. In addition, if a debtor country has previously participated in DDS projects with other creditors or has shown a strong willingness to engage in DDS, it is considered a positive factor for successfully reaching future DDS agreements.

Specifically, the development potential variable includes four sub-indicators:

(1) Human Development Index (HDI)

(3) Previous DDS Experience

(2) Progress on Sustainable Development Goals (SDGs)

(4) Willingness to Participate in DDS

• Human Development Index (HDI):

This data is sourced from the Human Development Report published by the United Nations Development Programme (UNDP 2024). The HDI combines three key dimensions:

- The ability to lead a long and healthy life, measured by life expectancy at birth;
- The ability to acquire knowledge, measured by mean years of schooling and expected years of schooling;
- The ability to enjoy a decent standard of living, measured by gross national income per capita.

The HDI is a composite index that ranges from 0 to 1 and allows for comparison across countries worldwide. A higher HDI score indicates stronger overall performance in economic and social development, while a lower score suggests weaker development progress[2]. The HDI not only provides the international community with a tool to assess development outcomes but also encourages governments and societies to focus continuously on improving human well-being.

The calculation method involves setting minimum and maximum values for each indicator to standardize and aggregate them into the composite index.

Life Expectancy Index (LEI):

The Life Expectancy Index measures the ability to live a long and healthy life, based

2《HUMAN DEVELOPMENT REPORT 2023/2024》https://hdr.undp.org/human-development-report-2023-24 on life expectancy at birth. The LEI is calculated by setting minimum and maximum values for life expectancy (LE) and applying the following formula:

$$LEI = \frac{LE - LE_{min}}{LE_{max} - LE_{min}} \quad (1)$$

Education Index (EI):

The Education Index measures a country's ability to provide access to knowledge. It is based on two components:

- Mean Years of Schooling (MYS, for adults aged 25 years and older)
- Expected Years of Schooling (EYS, for children entering school)

$$EI = \frac{MYSI + EYSI}{2}$$

$$MYSI = \frac{MYS - MYS_{min}}{MYS_{max} - MYS_{min}} \qquad EYSI = \frac{EYS - EYS_{min}}{EYS_{max} - EYS_{min}} \quad (2)$$

Income Index (II):

The Income Index measures a country's ability to provide a decent standard of living, based on gross national income (GNI) per capita.

$$II = \frac{ln(GNIpc) - ln(GNIpc)_{min}}{ln(GNIpc)_{max} - ln(GNIpc)_{min}} \quad (3)$$

The HDI value is calculated as the geometric average of the three basic indices:

$$HDI = \sqrt[3]{LEI \times EI \times II} \quad (4)$$

• Sustainable Development Goals (SDGs):

This data is sourced from the Sustainable Development Report published by the United Nations Sustainable Development Solutions Network (Sachs, Lafortune, and Fuller 2024). The SDGs were adopted by United Nations member states to guide international cooperation for sustainable development. They continue the global development efforts that followed the expiration of the Millennium Development Goals (MDGs) from 2000 to 2015, setting targets for the 2015–2030 period.

The SDGs consist of 17 goals, 169 targets, and 230 indicators (Table 6). They address common global challenges, including poverty, health, education, gender equality, climate change, urban development, and infrastructure.

As part of the ***2030 Agenda for Sustainable Development***, these 17 goals call for collective global action to end poverty, protect the planet, and improve the lives and future of all people. They provide a clear direction for countries to work toward achieving sustainable development[3].

Table 6. 17 Sustainable Development Goals (SDGs)

Goal	Main Content	Number of Targets	Number of Indicators
1	End poverty in all its forms everywhere	5 quantitative targets, 2 qualitative targets	14
2	End hunger, achieve food security, improve nutrition, and promote sustainable agriculture	5 quantitative targets, 3 qualitative targets	13
3	Ensure healthy lives and promote well-being for all ages	9 quantitative targets, 4 qualitative targets	27
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	7 quantitative targets, 3 qualitative targets	11
5	Achieve gender equality and empower all women and girls	6 quantitative targets, 3 qualitative targets	14

3 《The SDGs and the UN Summit of the Future. Sustainable Development Report 2024》sustainable-development-report-2024.pdf

Goal	Main Content	Number of Targets	Number of Indicators
6	Ensure availability and sustainable management of water and sanitation for all	6 quantitative targets, 2 qualitative targets	11
7	Ensure access to affordable, reliable, sustainable, and modern energy for all	3 quantitative targets, 2 qualitative targets	6
8	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	10 quantitative targets, 2 qualitative targets	17
9	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	5 quantitative targets, 3 qualitative targets	12
10	Reduce inequality within and among countries	7 quantitative targets, 3 qualitative targets	11
11	Make cities and human settlements inclusive, safe, resilient, and sustainable	7 quantitative targets, 3 qualitative targets	15
12	Ensure sustainable consumption and production patterns	8 quantitative targets, 3 qualitative targets	13
13	Take urgent action to combat climate change and its impacts	3 quantitative targets, 2 qualitative targets	8
14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	7 quantitative targets, 3 qualitative targets	10
15	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss	9 quantitative targets, 3 qualitative targets	14
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels	10 quantitative targets, 2 qualitative targets	23
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	19 quantitative targets	25

Source: United Nations

The SDG Index is a composite indicator that aggregates weighted data across all goals.

The calculation of the SDG Index involves four main steps:

(1) Statistical analysis and testing to remove outliers.

(2) Data rescaling to ensure comparability, assigning each variable a value from 0 to 100, where 0 represents the worst performance and 100 represents the best performance.

(3) Aggregation of indicators corresponding to each SDG.

(4) Sensitivity analysis and additional statistical testing.

A higher SDG Index score indicates stronger overall performance in sustainable development and better balance across economic, social, and environmental dimensions.

The SDG Index provides the international community with a common benchmark for measuring progress toward sustainable development. It also serves as an important reference for governments, NGOs, and other stakeholders in designing and adjusting sustainable development strategies.

- **DDS Experience and Willingness:**

This indicator is used to identify whether a debtor country has previously participated in DDS projects or whether senior government officials have publicly expressed willingness to consider DDS. If either condition is met, the indicator will be assigned a value of 1; if not, it will be assigned a value of 0.

For example, Egypt has conducted multiple debt swap transactions with Italy and Germany since 1994 and has signed a Memorandum of Understanding (MoU) with China, showing its interest in exploring DDS opportunities. Therefore, Egypt is assigned a score of "1" for both indicators.

ii Development Potential Rankings

Based on the above indicators, we assessed the development potential of countries that have debt relationships with China. The countries with the highest and lowest development potential are shown in Table 7 and Table 8, respectively. We also specifically evaluated the development potential of China's top ten debtor countries in 2023 (Table 9).

The ten countries with the highest development potential are: Albania, Egypt, Jordan, the Philippines, Argentina, Serbia, Belarus, Costa Rica, Montenegro, and Armenia (Table 7). These countries generally have high Human Development Index scores and strong Sustainable Development Goal performance. Some of them also have successful experience in implementing debt-for-development swap projects.

Table 7. Top ten debtor countries by development potential (index)

Country Name	Development Value (rank)	Human Development Index (HDI)	SDG Index Score	DDS Experience	DDS Willingness
Albania	1	0.79	74.89	1	1
Egypt	2	0.73	69.03	1	1
Jordan	3	0.74	69.05	0	1
Philippines	4	0.71	67.06	1	0
Argentina	5	0.85	74.68	0	0

Country Name	Development Value (rank)	Human Development Index (HDI)	SDG Index Score	DDS Experience	DDS Willingness
Serbia	6	0.81	77.90	0	0
Belarus	7	0.80	79.13	0	0
Costa Rica	8	0.81	73.10	0	0
Montenegro	8	0.84	72.90	0	0
Armenia	10	0.79	74.32	0	0

The countries with the lowest development potential (Table 8) face unstable governments, widespread poverty, limited access to healthcare, and low levels of education. In addition, these countries typically have low incomes, low life expectancy, high birth rates, and severe gender inequality.

Table 8. Bottom ten debtor countries by development potential (index)

Country Name	Development Value (rank)	Human Development Index (HDI)	SDG Index Score	DDS Experience	DDS Willingness
Papua New Guinea	73	0.57	51.97	0	0
Benin	74	0.50	55.75	0	0
Lesotho	75	0.52	54.89	0	0
Sierra Leone	76	0.46	57.55	0	0
Eritrea	77	0.49	53.68	0	0
Burundi	78	0.42	55.45	0	0
Djibouti	79	0.52	51.66	0	0
Liberia	80	0.49	52.10	0	0
Madagascar	81	0.49	51.33	0	0
Chad	82	0.39	43.78	0	0

The countries with the largest debts to China in 2023 and their development potential rankings are shown in Table 9. On average, these countries rank relatively low in terms of development potential, with only Argentina and Egypt showing higher development potential.

The IIGF is closely monitoring four countries: Sri Lanka, Egypt, Zambia, and Laos. Among them, Sri Lanka and Egypt demonstrate higher levels of human development and sustainable development performance, while Laos and Zambia show medium or lower levels in both areas.

Table 9. Top ten debtor countries to China (2023) and their development potential rankings

Debtor Country	Development Value (rank)	Human Development Index (HDI)	SDG Index Score	DDS Experience	DDS Willingness	Debt to China in 2023 (billion $)
Pakistan	32	0.54	56.93	1	0	22.56
Argentina	5	0.85	74.68	0	0	21.22
Angola	72	0.59	51.58	0	0	17.86
Sri Lanka	30	0.78	67.76	0	0	8.65
Bangladesh	52	0.67	63.84	0	0	6.73
Egypt	2	0.73	69.03	1	1	6.37
Zambia	67	0.57	53.60	0	0	6.15
Lao PDR	54	0.62	62.85	0	0	6.03
Kenya	18	0.60	62.29	1	0	6.01
Cote d'Ivoire	28	0.53	62.35	1	0	5.16

3. Political Feasibility

The success of DDS largely depends on the governance efficiency and political risks in the debtor country. Although the private sector plays important roles at various stages, most DDS transactions are initiated and supervised by government agencies or related institutions, functioning as a form of public-private partnership (Hansen 1989; Post 1990).

Successful DDS implementation requires government to have high administrative efficiency and strong coordination abilities, both within government structures and with external stakeholders. The environmental value generated through DDS must be professionally verified and certified. And the verification process often relies on national regulatory support to prevent rent-seeking behavior related to environmental assets.

Finally, implementing DDS projects in regions affected by war or political instability is highly challenging. Project design must take local political stability into account. For example, political unrest in Egypt between 2011 and 2014 caused major delays in the implementation of debt-for-development swap projects with Italy.

i Indexes

The data for the political feasibility variable mainly comes from the World Bank's Worldwide Governance Indicators (WGI), which collects expert opinions from the public, private, and non-governmental sectors on governance performance across more than 200 countries and regions (World Bank Group 2024b).

In addition, the political feasibility variable includes the Fragile State Index (FSI) published by The Fund for Peace, which reflects the social, economic, and political pressures faced by countries (The Fund for Peace 2024).

The political feasibility category consists of seven sub-variables:

(1) Voice and Accountability

(2) Political Stability and Absence of Violence

(3) Government Effectiveness

(4) Regulatory Quality

(5) Rule of Law

(6) Control of Corruption

(7) Fragile State Index

• Voice and Accountability:

This variable reflects the extent to which a country's citizens are able to participate in selecting their government, as well as the degree of freedom of expression, freedom of association, and media freedom.

• Political Stability and Absence of Violence:

This variable measures the likelihood that a government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism.

• Government Effectiveness:

This variable captures the quality of public services, the civil service system, the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to its policies.

• Regulatory Quality:

This variable reflects the government's ability to formulate and implement sound policies and regulations that support private sector development.

• Rule of Law:

This variable measures the degree of trust to the rules of society, particularly in the areas of contract enforcement, property rights, the quality of police and courts, and the likelihood of crime and violence.

• Control of Corruption:

This variable captures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the influence of elites and private interests over the state.

• Fragile State Index (FSI):

This indicator ranks countries annually based on the pressures they face that affect their fragility. Each country's score is based on 12 key political, social, and economic indicators and more than 100 sub-indicators. Lower scores indicate greater stability, while higher scores indicate increased fragility.

ii Political Feasibility Rankings

Based on WGI and FSI data, Table 10 and Table 11 list the debtor countries with the highest and lowest rankings for political feasibility.

The top ten debtor countries are Samoa, the Dominican Republic, Mauritius, Cabo Verde, Costa Rica, Vanuatu, Tonga, Grenada, Jamaica, and Rwanda (Table 10).

These countries, which perform well in the DDS Political Feasibility Index, generally share a structural profile characterized by "small size – outward orientation – service-based economies – reform-driven governance". Their characteristics include:

• Limited land and population result in shorter policy implementation chains;

• Dependence on tourism and external capital creates strong incentives to improve governance;

• Long-term institutional reforms provide positive feedback for strengthening rules of law and anti-corruption efforts.

As a result, these countries tend to achieve high scores across the secondary indicators and are considered “high political feasibility” examples in the evaluation of potential DDS projects.

Table 10. Top ten debtor countries by political feasibility (index)

Debtor Country	Political Feasibility (Rank)	Voice and accountability	Political stability and absence of violence terrorism	Governance Effectiveness	Regulatory quality	Rule of law	Control of corruption	Fragile States Index
Samoa	1	0.98	87.74	62.26	−0.27	80.66	0.55	65.1
Dominican Rep.	2	0.79	95.75	49.06	0.34	75.47	0.54	60.8
Mauritius	3	0.60	75.47	75.94	1.17	77.83	0.41	38
Cabo Verde	4	0.94	81.13	51.89	0.26	60.85	0.98	60.1
Costa Rica	5	1.07	83.49	55.66	0.57	64.62	0.47	40.4
Vanuatu	6	0.71	83.02	32.08	−0.09	58.96	−0.03	N/A
Tonga	7	0.84	89.15	45.28	−0.35	69.34	−0.42	N/A
Grenada	8	0.70	85.38	54.72	0.39	67.92	0.48	53.7
Jamaica	9	0.59	57.55	71.70	0.19	51.89	−0.02	61.9
Rwanda	10	−0.93	47.64	61.32	0.16	56.13	0.56	82.3

The bottom ten countries in the political feasibility ranking are Zimbabwe, Nicaragua, Iran, Vietnam, Belarus, Burundi, Chad, Tajikistan, Eritrea, and Turkmenistan (Table 11). In contrast to the "small, open, service-driven" countries, these ten countries generally share a structural profile of "medium-to-large size, resource dependence, authoritarian governance, and entanglement in conflict or sanctions."

Their large populations and territories weaken the ability to carry out refined governance, while resource-based or planned economies create greater opportunities for rent-seeking, undermining the rule of law and regulatory quality. Conflicts, sanctions, and geographic disadvantages further erode their fiscal and administrative capacities. Multiple layers of negative feedback contribute further to their consistently poor performance across the secondary indicators of political feasibility.

Table 11. Bottom ten debtor countries by political feasibility (index)

Debtor Country	Political Feasibility (Rank)	Voice and accountability	Political stability and absence of violence terrorism	Governance Effectiveness	Regulatory quality	Rule of law	Control of corruption	Fragile States Index
Zimbabwe	73	−1.10	16.51	10.85	−1.43	11.32	−1.26	96.9
Nicaragua	74	−1.35	33.49	13.68	−0.91	8.96	−1.29	77.7
Iran	75	−1.46	8.49	18.40	−1.59	17.45	−1.13	85.4
Vietnam	76	−1.29	0.00	0.20	−0.43	−0.20	−0.29	58.3
Belarus	77	−1.63	18.40	19.81	−1.33	11.79	−0.58	69.9
Burundi	78	−1.39	12.74	10.38	−0.95	9.91	−1.52	94.2
Chad	79	−1.48	8.96	8.49	−1.15	8.02	−1.49	104.6
Tajikistan	80	−1.67	21.23	23.58	−1.20	10.85	−1.43	74.2
Eritrea	81	−1.88	14.62	3.77	−2.37	2.83	−1.28	94.5
Turkmenistan	82	−1.94	42.45	12.26	−2.07	6.13	−1.44	64.5

Table 12 presents the political feasibility rankings and secondary indicator scores for the ten countries with the largest debts to China in 2023. It can be observed that these countries generally rank low in political feasibility, but not at the very bottom. They typically share characteristics such as large population size, heavy debt burdens, and limited but functioning governance systems. These factors collectively impact their scores in secondary indicators such as voice and accountability, government effectiveness, and regulatory quality, yet they have not reached the level of state collapse seen in the most fragile countries.

These countries face large infrastructure gaps and limited financing options, while political risks remain relatively manageable. Most of them also hold significant strategic or resource value. Thus, the relatively low political feasibility rankings among China's major debtor countries are not coincidental, but rather the result of a combination of their economic structures and governance characteristics.

Table 12. Top ten debtor countries to China (2023) and their political feasibility rankings

Debtor Country	Political Feasibility (Rank)	Voice and accountability	Political stability and absence of violence terrorism	Governance Effectiveness	Rule of law	Regulatory quality	Control of corruption	Fragile States Index
Pakistan	62	–0.86	6.60	29.25	–0.89	25.00	–0.80	89.9
Argentina	38	0.54	46.70	41.98	–0.70	34.91	–0.45	46.4
Angola	57	–0.80	22.64	13.21	–0.61	16.04	–0.60	86.9
Sri Lanka	28	–0.19	18.87	35.85	–0.65	52.36	–0.38	90.3
Bangladesh	65	–0.75	13.21	23.11	–0.93	29.72	–1.08	85.2
Egypt	55	–1.45	14.15	33.96	–0.71	42.45	–0.68	81.6
Zambia	30	–0.09	50.00	27.83	–0.53	33.02	–0.53	81.8
Lao PDR	60	–1.66	74.06	30.19	–0.99	23.58	–0.97	74.7
Kenya	40	–0.21	15.09	41.04	–0.38	40.57	–0.76	87.8
Cote d’Ivoire	25	–0.42	26.42	37.74	–0.15	35.38	–0.35	87.1

4. Bilateral Relations

Economic and diplomatic relations between creditor and debtor countries can significantly affect the implementation of DDS. For example, if the two countries have close economic ties and large volumes of bilateral trade, the likelihood of reaching a DDS agreement is higher. Similarly, strong diplomatic relations help overcome coordination barriers and reduce transaction costs, thus facilitating DDS deals.

For emerging creditors like China, bilateral relations are an especially important factor in the success of DDS implementation. In addition, the debtor country's relations with other creditors should not be overlooked, as entering a multilateral sovereign debt restructuring process may greatly reduce the willingness of bilateral creditors to pursue DDS arrangements.

i Indexes

- **The bilateral relations variable includes seven sub-indicators:**

(1) Share of Chinese investment in the country's total foreign investment (stock)

(2) Share of Chinese investment in the country's total foreign investment (flow)

(3) Share of trade with China in the country's total trade

(4) Share of trade with the country in China's total trade

(5) Type of bilateral relationship with China

(6) Duration of bilateral relations with China

(7) Number of times the country has undergone debt restructuring with the Paris Club

The first six indicators are positively correlated with the bilateral relations ranking, while the last indicator (Paris Club debt restructurings) is negatively correlated.

- **Foreign Direct Investment (FDI):**

FDI strengthens economic ties between the investing country and the host country. Such investments often promote technology transfer, industrial upgrading, and trade, contributing to greater stability and shared interests in bilateral relations.

This report uses two indicators to measure FDI:

• The share of Chinese investment in the host country's total foreign investment (stock)

• The share of Chinese investment in the host country's total foreign investment (flow)

Investment stock reflects the historical relationship between the two countries, while investment flow reflects the recent development of their bilateral relations.

- **Bilateral Trade Volume:**

Bilateral trade is measured using two indicators:

• The share of trade in goods and services between China and the debtor country as a percentage of the debtor country's total trade

• The share of trade with the debtor country as a percentage of China’s total trade

Generally, a higher share indicates more active trade between the two countries and plays a positive role in strengthening bilateral relations.

- **Duration of Diplomatic Relations with China:**

This indicator is calculated by subtracting the year diplomatic relations were established from 2024.

- **Type of Diplomatic or Partnership Relations with China:**

Based on different formulations of China’s diplomatic relationships, partnerships with other countries can be broadly divided into three levels across seven categories. According to analyses by Li and Ye (2019), Myers and Barrios (2021) and related news reports[4] , these relationships can first be grouped into two broad types: partner-

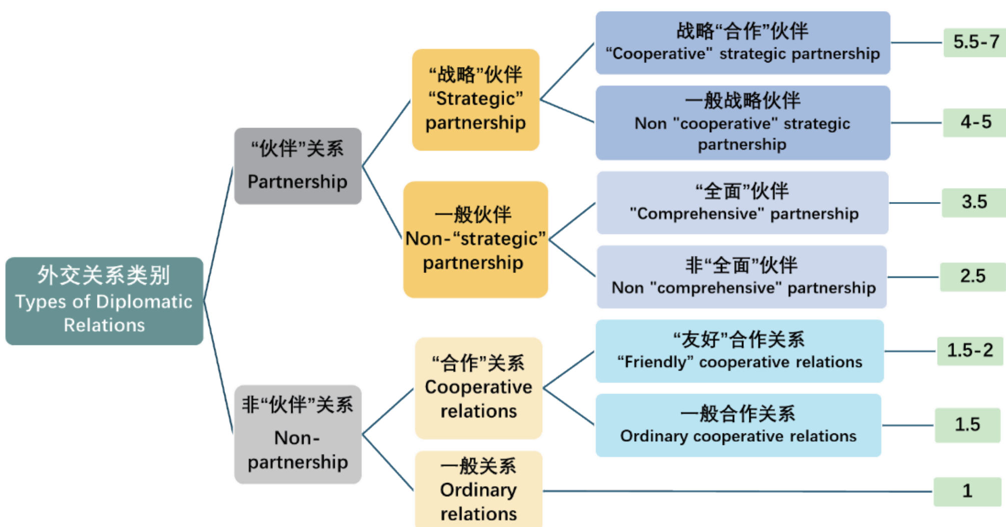
4. BBC. 2024. China’s Diplomacy: How Beijing Categorizes Its Foreign Relationships. https://www.bbc.com/zhongwen/simp/chinese-news-67387061

ships and non-partnerships, with partnerships indicating closer ties.

Among partnerships, there is a further distinction between strategic partnerships and general partnerships, with strategic partnerships representing stronger relations. Within strategic partnerships, an additional distinction is made between cooperative and non-cooperative types, where a strategic cooperative partnership represents the closest diplomatic relationship.

As shown in Figure 2, we adopt a three-tier classification system to categorize China's diplomatic relations, assigning a score from 1 to 7 for each relationship type. A higher score indicates closer and stronger bilateral relations (Figure 2).

Figure 2. Categories of bilateral relations to China



Source: Li and Ye (2019), Myers and Barrios (2021)

Following the 2024 Forum on China-Africa Cooperation (FOCAC), China upgraded its diplomatic relations with most African countries from "friendly cooperative relations" to "strategic partnerships." Since 2024 China has also upgraded its diplomatic relations with several other countries. For example, on July 11, 2024, during a meeting in Beijing between Bangladeshi Prime Minister Sheikh Hasina and President Xi Jinping, China elevated its relationship with Bangladesh from a “strategic cooperative partnership” to a “comprehensive strategic cooperative partnership.” In our system, the score for Bangladesh has been increased from 5.5 to 6 accordingly.

- **Likelihood of Debt Restructuring through the Paris Club:**

This variable is measured by the number of times a debtor country has undergone debt restructuring with Paris Club creditors. The data is sourced from official debt restructuring announcements published on the Paris Club website. This variable is negatively correlated with the bilateral relations category—meaning that the more frequently a country has restructured debt with the Paris Club, the less suitable it is for engaging in a DDS project with China.

ii Rankings of bilateral relations

Table 13 and Table 14 present the top ten and bottom ten debtor countries ranked by the bilateral relations variable. Table 15 shows the bilateral relations scores and rankings for the countries with the largest debts to China in 2023.

The top ten countries ranked by the bilateral relations indicator with China are Laos, Vietnam, Pakistan, Mongolia, Cambodia, Tajikistan, Uzbekistan, Iran, Bangladesh, and Kenya (Table 13). Although these countries differ in size, political systems, and cultures, most of them either share a border with China or are located in key regional positions. They are all developing economies with strong ambitions for economic growth and industrialization. In addition, most of these countries established diplomatic relations with China early on, maintain high-level diplomatic partnerships, and engage in active bilateral trade with China.

The ten countries with the lowest rankings on the bilateral relations indicator with China are El Salvador, Dominica, Guatemala, North Macedonia, Nicaragua, the

Dominican Republic, Grenada, Eswatini, Honduras, and Saint Vincent and the Grenadines (Table 14). Most of these countries are geographically distant from China, have small economies, and are highly dependent on the U.S. and Europe. More importantly, many of them have maintained—or previously maintained—diplomatic ties with Taiwan. As a result, they lack formal diplomatic and financing channels with China and often adopt a cautious or even resistant stance toward deepening cooperation with China.

Combined with limited market size and higher credit risks, China's engagement in investment, trade, and official exchanges with these countries has been relatively limited. This has led to consistently low scores across all sub-indicators of the bilateral relations index, including investment, trade, duration of diplomatic ties, and relationship type.

Table 13. Top ten debtor countries by bilateral relations with China

Debtor Country	Bilateral Relations (Rank)	FDI from China/from World (Stock), %	FDI from China/from World (Flow), %	Trade with China, % Debtor Country's Total Trade	Trade with China, %China's Total Trade	Type of Diplomatic Relations with China	Duration of Diplomatic Relations with China	Number of Debt Treatments with Paris Club
Laos	1	69.46	69.64	36.77	0.13	6	63	0
Vietnam	2	5.94	14.02	29.44	4.41	6	74	1
Pakistan	3	22.03	17.86	23.22	0.40	7	73	7
Mongolia	4	4.89	8.40	74.30	0.31	5	75	0
Cambodia	5	16.46	34.80	22.93	0.28	6	66	3
Tajikistan	6	68.67	120.82	42.11	0.07	7	32	1
Uzbekistan	7	16.72	14.74	26.12	0.26	7	32	0
Iran	8	6.22	22.65	26.88	0.28	5	53	0
Bangladesh	9	20.76	10.43	19.82	0.46	6	49	0
Kenya	10	15.44	12.75	24.52	0.16	6	61	4

Table 14. Bottom ten debtor countries by bilateral relations with China

Debtor Country	Bilateral Relations (Rank)	FDI from China/from World (Stock), %	FDI from China/from World (Flow), %	Trade with China, % Debtor Country's Total Trade	Trade with China, %China's Total Trade	Type of Diplomatic Relations with China	Duration of Diplomatic Relations with China	Number of Debt Treat-ments with Paris Club
El Salvador	73	N/A	N/A	9.18	0.03	1	6	1
Dominica	74	1.37	−0.14	17.02	0.00	1.5	20	1
Guatemala	75	0.01	0.06	11.26	0.09	0	0	1
North Macedonia	76	0.13	1.16	2.20	0.01	2	31	2
Nicaragua	77	0.05	0.06	4.98	0.02	4.5	39	6
Dominican Republic	78	0.01	−0.08	17.02	0.00	1	6	4
Grenada	79	0.14	−0.03	4.82	0.00	1.5	39	3
Eswatini	80	N/A	N/A	1.06	0.00	0	0	0
Honduras	81	0.02	N/A	6.96	0.04	1	1	6
St. Vincent and the Grenadines	82	1.89	−6.29	4.25	0.00	0	0	1

Table 15. Top ten debtor countries to China (2023) and their bilateral relations rankings

Debtor Country	Bilateral Relations (Rank)	FDI from China/from World (Stock), %	FDI from China/from World (Flow), %	Trade with China, % Debtor Country's Total Trade	Trade with China, %China's Total Trade	Type of Diplomatic Relations with China	Duration of Diplomatic Relations with China	Number of Debt Treat-ments with Paris Club
Pakistan	3	22.03	17.86	23.22	0.40	7.00	73	7
Argentina	58	1.41	−0.19	11.86	0.33	5.00	52	9
Angola	19	20.97	−16.84	42.16	0.44	6.00	41	2
Sri Lanka	18	3.53	13.46	14.96	0.08	5.50	67	1
Bangladesh	9	20.76	10.43	19.82	0.46	6.00	49	0
Egypt	33	0.81	2.07	12.38	0.30	5.00	68	2
Zambia	12	9.91	108.22	32.17	0.10	6.00	60	10
Lao PDR	1	69.46	69.64	36.77	0.13	6.00	63	0
Kenya	10	15.44	12.75	24.52	0.16	6.00	61	4
Cote d'Ivoire	60	5.57	5.75	14.46	0.10	1.50	41	13

5. Overall Ranking: DDS Partner Scoring Index (DDS-PSI)

i Subjective Weighting Rankings

The overall ranking of the DDS Partner Scoring Index (DDS-PSI), shown in Appendix 1, is calculated as a weighted average of four primary variables: Debt Vulnerability (30%), Development Potential (30%), Political Feasibility (20%), and Bilateral Relations (20%).

The top ten and bottom ten countries in the composite ranking are listed in Table 16 and Table 17. It can be observed that the highest-ranking countries generally perform well in debt vulnerability, development potential, and political feasibility. Although some of these countries have relatively low scores in bilateral relations with China, this does not significantly affect their overall suitability for DDS projects.

Table 16. Ten debtor countries most suitable for DDS (based on subjective weighting method)

Debtor Country	Subjective Rank	Debt Vulnerability (Rank)	Development Value (rank)	Political Feasibility (Rank)	Bilateral Relations (Rank)
Egypt	1	3	2	55	33
South Africa	2	2	46	19	16
Albania	3	66	1	18	62
Jordan	4	14	3	15	59
Argentina	5	6	5	38	58
Senegal	6	13	27	17	41
Brazil	7	11	14	31	40
Viet Nam	8	4	22	76	1
Mauritius	9	42	16	3	29
Kenya	10	24	18	40	10

Table 17. Ten debtor countries least suitable for DDS (based on subjective weighting method)

Debtor Country	Subjective Rank	Debt Vulnerability (Rank)	Development Value (rank)	Political Feasibility (Rank)	Bilateral Relations (Rank)
Zimbabwe	72	68	65	73	13
St. Vincent and the Grenadines	73	67	43	45	80
Lesotho	74	51	75	39	67
Eswatini	75	62	61	51	71
Honduras	76	54	57	58	82
Guatemala	77	76	59	59	63
Comoros	78	47	68	72	64
Djibouti	79	74	79	67	36
Chad	80	63	82	79	55
Nicaragua	81	79	51	74	78

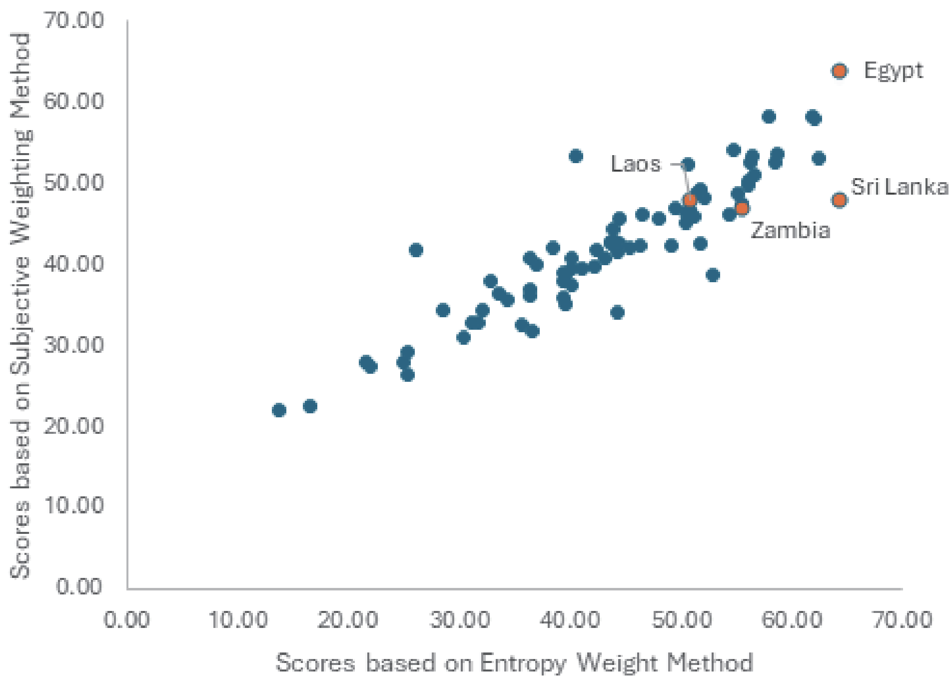
ii Entropy Weight Ranking

This report also applies the entropy weight method to score the DDS-PSI based on the four primary variables. The entropy weight method is an objective weighting approach based on information entropy. It aims to determine the weight of each variable by calculating its information entropy, thereby reducing bias caused by subjective weighting. In this method, information entropy reflects the distribution and variability of each variable; the lower the entropy value, the greater the dispersion of the data, and the greater the variable's influence (i.e., weight) on the overall score.

After standardizing the four primary variables and calculating their entropy values, the estimated weights are: Debt Vulnerability (20.5%), Development Potential (29%), Political Feasibility (26.7%), and Bilateral Relations (23.8%). It is shown that Political Feasibility and Development Potential have higher variability and thus play a greater role in distinguishing countries' suitability for DDS projects.

By comparing the results from subjective weighting and entropy weighting (Figure 3), it is evident that the two scoring methods are highly correlated, and both effectively reflect the relative suitability of target countries for debt-for-development swap projects.

Figure 3. Comparison of DDS-PSI Scores: Subjective Weighting vs. Entropy Weighting



Source: Authors' compilation

This report also lists the top ten and bottom ten countries based on the composite scores using the entropy weighting method (Table 18 and Table 19). It can be observed that compared to the subjective weighting method, there are no significant changes in the rankings under the entropy method. Egypt ranks first in both scoring approaches, which further supports the rationale for China to pursue debt-for-development cooperation with Egypt.

In addition, Table 20 presents the DDS-PSI rankings for the countries with the largest debts to China in 2022 under both the subjective weighting and entropy weighting methods. Most of China's major debtor countries rank relatively high in terms of suitability for debt-for-development swaps. Nearly all these countries perform better in the indicators of debt vulnerability and bilateral relations, although some show relatively weaker performance in development potential and political feasibility.

Table 18. Ten debtor countries most suitable for DDS (based on Entropy Weight Method)

Debtor Country	Entropy Score Rank	Debt Vulnerability (Rank)	Development Value (rank)	Political Feasibility (Rank)	Bilateral Relations (Rank)
Egypt	1	3	2	55	33
Sri Lanka	2	39	30	28	18
Mauritius	3	42	16	3	29
Jordan	4	14	3	15	59
Albania	5	66	1	18	62
Senegal	6	13	27	17	41
Kenya	7	24	18	40	10
South Africa	8	2	46	19	16
Serbia	9	40	6	20	34
Brazil	10	11	14	31	40

Table 19. Ten debtor countries least suitable for DDS (based on Entropy Weight Method)

Debtor Country	Entropy Score Rank	Debt Vulnerability (Rank)	Development Value (rank)	Political Feasibility (Rank)	Bilateral Relations (Rank)
Lesotho	72	51	75	39	67
Burundi	73	8	78	78	53
Turkmenistan	74	18	39	82	24
Eswatini	75	62	61	51	71
Djibouti	76	74	79	67	36
Guatemala	77	76	59	59	63
Comoros	78	47	68	72	64
Honduras	79	54	57	58	82
Chad	80	63	82	79	55
Nicaragua	81	79	51	74	78

Table 20. Top ten debtor countries to China (2023) and their DDS-PSI Rankings

Debtor Country	Entropy Score Rank	Subjective Rank	Debt Vulnerability (Rank)	Development Value (rank)	Political Feasibility (Rank)	Bilateral Relations (Rank)	Debt to China in Billion $ (2023)
Pakistan	11	11	10	32	62	3	22.56
Argentina	17	5	6	5	38	58	21.22
Angola	56	57	28	72	57	20	17.86
Sri Lanka	2	20	39	30	28	18	8.65
Bangladesh	48	51	56	52	65	9	6.73
Egypt	1	1	3	2	55	33	6.37
Zambia	15	23	16	67	30	12	6.15
Lao PDR	27	25	20	54	60	2	6.03
Kenya	7	10	24	18	40	10	6.01
Cote d'Ivoire	37	39	45	28	25	60	5.16

Chapter Three

Conclusions

Although DDS and related tools hold great potential for addressing the debt and environmental crises in developing countries, DDS transactions led by emerging bilateral creditors—such as China, India, and Turkey—remain very limited. Emerging creditors face significant challenges in institutional innovation and capacity building, and there is a lack of effective evaluation methods to identify debtor countries suitable for DDS pilot projects.

As emerging creditors like China see their sovereign lending portfolios continue to grow and take on greater international responsibility for achieving global sustainable development goals, having a reliable evaluation system becomes even more critical.

This report develops the DDS Partner Scoring Index (DDS-PSI), which consists of four primary indicators and 26 secondary indicators. Using this index, we assessed 82 of China's debtor countries to evaluate their suitability for participating in China's DDS initiatives. The index system also provides important reference points for China when selecting partners for debt-for-development projects.

The analysis shows that the four key countries selected in this report—Egypt, Laos, Sri Lanka, and Zambia—all possess favorable conditions for launching DDS projects. However, their performance in development potential and political feasibility still leaves room for improvement. In practice, China should adopt targeted strategies based on the specific conditions of each country. For example:

• In Egypt, cooperation could focus on infrastructure and new energy projects, supporting its "Vision 2030" plan and aligning with China's broader strategic cooperation in the Middle East and North Africa region.

• In Sri Lanka, priority could be given to port and logistics development projects to strengthen its role as a regional hub, while carefully managing political instability and public opinion risks.

• In Laos, efforts could focus on agricultural modernization and energy development, particularly in synergy with existing initiatives such as the China-Laos Railway, while balancing Laos's economic dependence on China.

• In Zambia, support could be directed toward mining development and renewable energy projects to help the country move beyond resource dependence, while taking into account the need for coordination with multilateral creditors during debt restructuring.

By adopting country-specific strategies, China can achieve both economic and political benefits while advancing its debt-for-development projects.

The DDS-PSI scoring system still have the potential to be further improved. For example, the Debt Vulnerability variable could incorporate additional indicators, such as exchange rate stability, and distinguish between low-income countries and market-access countries. In addition, adopting a multi-period analysis could help differentiate short-, medium-, and long-term debt vulnerabilities, allowing potential DDS opportunities to be identified across different timeframes.

Other variables also require further refinement. For instance, the Bilateral Relations variable could include indicators for outward foreign direct investment (FDI) and measures of trade structure complementarity between China and the debtor country, providing a more comprehensive assessment of bilateral economic relations.

Further, more detailed research is needed on specific debtor countries. This includes designing targeted DDS implementation pathways and transaction structures based on each country's national conditions. In addition, to advance and coordinate DDS transactions more effectively, capacity building for both public and private sector stakeholders is essential.

References

[1] Abbas, S.M. Ali, and Alex Pienkowski. 2022. "What Is Sovereign Debt?" IMF Finance & Development Magazine: 60–61.

[2] Brandao-Marques, Luis, Marco Casiraghi, Gaston Gelos, Olamide Harrison, and Gunes Kamber. 2024. "Is High Debt Constraining Monetary Policy? Evidence from Inflation Expectations." Journal of International Money and Finance 149: 103206. doi:10.1016/j.jimonfin.2024.103206.

[3] Buckley, Ross. 2009. "Debt-for-Development Exchanges: The Origins of a Financial Technique." The Law and Development Review 2(1): 53–76. doi:10.2202/1943-3867.1027.

[4] Cassimon, Danny, and Jos Vaessen. 2007. "Theory, Practice and Potential of Debt for Development Swaps in the Asian and Pacific Region." Economic Systems 31(1): 12–34. doi:10.1016/j.ecosys.2006.12.003.

[5] Chen, Han, Wei Shen, and Lin Shi. 2023. Debt for Nature/Development Swaps in the Chinese Context. International Institute of Green Finance.

[6] Davis, J. Scott, Adrienne Mack, Wesley Phoa, and Anne Vandenabeele. 2016. "Credit Booms, Banking Crises, and the Current Account." Journal of International Money and Finance 60: 360–77. doi:10.1016/j.jimonfin.2015.09.008.

[7] Hansen, Stein. 1989. "Debt for Nature Swaps — Overview and Discussion of Key Issues." Ecological Economics 1(1): 77–93. doi:10.1016/0921-8009(89)90025-6.

[8] Haughton, Howard, and Jodie Keane. 2021. "Alleviating Debt Distress and Advancing the Sustainable Development Goals." Sustainable Development 29(3): 528–36. doi:10.1002/sd.2198.

[9] IMF. 2018. Guidance Note on the Bank-Fund Debt Sustainability Framework for Low Income Countries. International Monetary Fund. Policy Paper. https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/02/14/pp122617guidance-note-on-lic-dsf (January 14, 2025).

[10] Karaki, Karim, and San Bilal. 2023. Upscalling Debt Swaps for Greater Impact. European Centre for Development Policy Management. Discussion Paper. https://www.researchgate.net/profile/Sanoussi-Bilal/publication/372787415_Upscaling_debt_swaps_for_greater_impact/links/64c8a45f862f8d299987557f/Upscaling-debt-swaps-for-greater-impact.pdf.

[11] Kwon, Goohoon, Lavern McFarlane, and Wayne Robinson. 2009. "Public Debt, Money Supply, and Inflation: A Cross-Country Study." IMF Staff Papers 56(3): 476–515. doi:10.1057/imfsp.2008.26.

[12] Li, Quan, and Min Ye. 2019. "China's Emerging Partnership Network: What, Who, Where, When and Why." International Trade, Politics and Development 3(2): 66–81. doi:10.1108/ITPD-05-2019-0004.

[13] Lin, Li, Dimitrios P. Tsomocos, and Alexandros P. Vardoulakis. 2015. "Debt Deflation Effects of Monetary Policy." Journal of Financial Stability 21: 81–94. doi:10.1016/j.jfs.2015.10.005.

[14] Miao, Jianjun, and Pengfei Wang. 2018. "Asset Bubbles and Credit Constraints." American Economic Review 108(9): 2590–2628. doi:10.1257/aer.20160782.

[15] Myers, Margaret, and Ricardo Barrios. 2021. "How China Ranks Its Partners in LAC – Inter-American Dialogue." https://thedialogue.org/how-china-ranks-its-partners-in-lac/ (January 14, 2025).

[16] Nguyen, Thanh Cong, Vítor Castro, and Justine Wood. 2022. "A New Comprehensive Database of Financial Crises: Identification, Frequency, and Duration." Economic Modelling 108: 105770. doi:10.1016/j.econmod.2022.105770.

[17] Post, Marilyn. 1990. "The Debt-for-Nature Swap: A Long-Term Investment for the Economic Stability of Less Developed Countries." International Lawyer 24(4).

[18] Reinhart, Carmen M., and Kenneth S. Rogoff. 2010. "Growth in a Time of Debt." American Economic Review 100(2): 573–78. doi:10.1257/aer.100.2.573.

[19] Sachs, Jeffrey D., Guillaume Lafortune, and Grayson Fuller. 2024. Sustainable Development Report 2024. Sustainable Development Solutions Network. https://dashboards.sdgindex.org/ (January 14, 2025).

[20] Schaltegger, Christoph A., and Martin Weder. 2015. "Fiscal Adjustments and the Probability of Sovereign Default." Kyklos 68(1): 81–110. doi:10.1111/kykl.12074.

[21] The Fund for Peace. 2024. "Fragile States Index." https://fragilestatesindex-.org.

[22] UNCTAD. 2023. World Investment Report 2023. Geneva, Switzerland: United Nations Conference on Trade and Development. https://unctad.org/system/files/official-document/wir2023_en.pdf (January 14, 2025).

[23] UNDP. 2024. Human Development Reports Human Development Report 2023-24. United Nations. https://hdr.undp.org/content/human-development-report-2023-24 (January 14, 2025).

[24] World Bank Group. 2024a. International Debt Report. Washington, DC: World Bank. Text/HTML. https://www.worldbank.org/en/programs/debt-statistics/idr/products (January 14, 2025).

[25] World Bank Group. 2024b. "Worldwide Governance Indicators." www.govindicators.org.

Appendix 1. Complete Ranking of the DDS Partner Scoring Index (DDS-PSI) Based on Subjective Weighting and Entropy Weighting Methods

Debtor Country	Entropy Weight Score (Out of 100)	Entropy Weight Ranking	Subjective Weighting Score	Subjective Weighting Ranking	Debt Vulnerability Ranking	Development Potential Ranking	Political Feasibility Ranking	Bilateral Relations Ranking
Egypt	64.37	1	63.81	1	3	2	55	33
Sri Lanka	64.26	2	48.10	20	39	30	28	18
Mauritius	62.40	3	53.01	9	42	16	3	29
Jordan	62.15	4	58.07	4	14	3	15	59
Albania	61.98	5	58.22	3	66	1	18	62
Senegal	58.76	6	53.52	6	13	27	17	41
Kenya	58.46	7	52.66	10	24	18	40	10
South Africa	57.88	8	58.34	2	2	46	19	16
Serbia	56.56	9	51.13	13	40	6	20	34
Brazil	56.50	10	53.43	7	11	14	31	40
Pakistan	56.33	11	52.65	11	10	32	62	3
Ghana	56.16	12	49.69	15	15	56	13	30
Kazakhstan	56.04	13	50.17	14	43	11	35	14
Indonesia	55.51	14	47.33	22	61	36	21	11
Zambia	55.47	15	46.97	23	16	67	30	12
Rwanda	55.21	16	48.78	18	12	62	10	47
Argentina	54.70	17	54.02	5	6	5	38	58
Mongolia	54.33	18	46.07	29	69	40	27	4
Uzbekistan	52.83	19	38.79	55	77	37	56	7
Philippines	52.12	20	48.34	19	49	4	26	43
Maldives	51.85	21	49.14	16	22	18	24	50
Samoa	51.70	22	42.68	38	64	60	1	31.5
Turkey	51.41	23	48.84	17	27	12	44	38
Fiji	51.13	24	45.86	30	50	25	11	61
Tonga	50.77	25	47.90	21	23	55	7	44
Costa Rica	50.76	26	46.37	27	59	8	5	73
Lao PDR	50.76	27	46.56	25	20	54	60	2

Debtor Country	Entropy Weight Score (Out of 100)	Entropy Weight Ranking	Subjective Weighting Score	Subjective Weighting Ranking	Debt Vulnerability Ranking	Development Potential Ranking	Political Feasibility Ranking	Bilateral Relations Ranking
Vanuatu	50.58	28	52.27	12	5	66	6	28
Tanzania	50.51	29	45.05	33	52	31	37	19
Dominica	50.51	30	46.52	26	33	29	2	76
Ecuador	49.49	31	46.95	24	31	20	42	35
Jamaica	49.16	32	42.29	41	75	38	9	49
Montenegro	48.08	33	45.68	31	46	8	12	72
Dominican Republic	46.53	34	46.13	28	25	15	16	79
Cabo Verde	46.39	35	42.39	40	38	49	4	74
Nepal	45.43	36	42.18	42	36	53	43	26
Cote d'Ivoire	44.50	37	42.65	39	45	28	25	60
Malawi	44.41	38	45.60	32	1	71	36	68
Tunisia	44.36	39	34.02	68	81	22	32	65.5
Morocco	44.26	40	41.50	46	60	34	29	48
North Macedonia	44.11	41	42.74	36	55	13	14	77
Kyrgyz Republic	43.96	42	44.29	34	29	24	70	25
Gambia, The	43.76	43	42.69	37	7	69	33	54
Armenia	43.64	44	42.81	35	57	10	23	69
Grenada	43.24	45	40.66	49	71	17	8	81
Zimbabwe	42.71	46	31.99	72	68	65	73	13
Sierra Leone	42.40	47	41.79	45	9	76	49	31.5
Bangladesh	42.14	48	39.66	51	56	52	65	9
Suriname	41.01	49	39.50	53	48	41	41	57
Viet Nam	40.57	50	53.29	8	4	22	76	1
Guinea	40.13	51	40.91	47	30	44	71	27
Benin	40.13	52	37.55	59	34	74	34	42
Iran, Islamic Rep.	40.09	53	39.58	52	70	26	75	8
Congo, Rep.	39.65	54	38.79	56	53	48	68	17
Cambodia	39.61	55	35.13	65	80	58	51	5
Angola	39.44	56	37.98	57	28	72	57	20
Uganda	39.41	57	35.80	63	65	35	47	65.5
Guyana	39.41	58	38.88	54	58	33	22	70
Belarus	38.53	59	42.00	43	41	7	77	39
Bolivia	36.93	60	40.12	50	21	42	66	56
St. Vincent and the Grenadines	36.66	61	31.82	73	67	43	45	80
Tajikistan	36.49	62	40.76	48	35	47	80	6

Debtor Country	Entropy Weight Score (Out of 100)	Entropy Weight Ranking	Subjective Weighting Score	Subjective Weighting Ranking	Debt Vulnerability Ranking	Development Potential Ranking	Political Feasibility Ranking	Bilateral Relations Ranking
Togo	36.42	63	36.84	60	32	63	48	46
Algeria	36.41	64	36.17	62	78	21	69	23
Papua New Guinea	35.71	65	32.63	71	73	73	50	15
Madagascar	34.32	66	35.73	64	17	81	64	37
El Salvador	33.68	67	36.48	61	37	45	46	75
Solomon Islands	32.77	68	37.84	58	26	70	61	22
Liberia	32.15	69	34.35	67	19	80	53	52
Gabon	31.77	70	32.93	69	72	50	63	45
Mauritania	31.12	71	32.73	70	44	64	54	51
Lesotho	30.38	72	31.09	74	51	75	39	67
Burundi	28.61	73	34.44	66	8	78	78	53
Turkmenistan	26.14	74	41.82	44	18	39	82	24
Eswatini	25.43	75	29.21	75	62	61	51	71
Djibouti	25.28	76	26.52	79	74	79	67	36
Guatemala	24.92	77	27.97	77	76	59	59	63
Comoros	21.98	78	27.44	78	47	68	72	64
Honduras	21.55	79	27.99	76	54	57	58	82
Chad	16.48	80	22.51	80	63	82	79	55
Nicaragua	13.80	81	22.06	81	79	51	74	78
Eritrea	/	/	/	/	/	77	81	21

Appendix 2. List of Indicators

Primary Indicator	Secondary Indicator	Data Source	Database	Indicator Type
1. Debt Vulnerability	1. External Debt to Exports Ratio	International Monetary Fund (IMF)	Regional Economic Outlook (2004)	Continuous
	2. Total Government Debt to GDP Ratio	International Monetary Fund (IMF)	Global Debt Database	Continuous
	3. Average Growth Rate of Private Credit to GDP Ratio (2017–2023)	International Monetary Fund (IMF)	Global Debt Database	Continuous
	4. Average Annual Inflation Rate (2021–2023)	World Bank	Global Inflation Database	Continuous
	5. Fiscal Balance to GDP Ratio	International Monetary Fund (IMF)	Historical Public Finances Database (2004)	Continuous
	6. Current Account Balance to GDP Ratio	World Bank	World Development Indicators	Continuous
	7. Foreign Exchange Reserves to GDP Ratio	International Monetary Fund (IMF)	International Financial Statistics	Continuous
	8. Number of Currency Crises Since 2000	Nguyen, Thanh Cong, Vítor Castro, and Justine Wood. "A new comprehensive database of financial crises: Identification, frequency, and duration." Economic Modelling 108 (2022): 105770.	Compiled by authors	Discrete
2. Development Potential	1. Human Development Index (HDI)	United Nations Development Programme (UNDP)	Human Development Report	Continuous
	2. Sustainable Development Index (SDG Index)	UN Sustainable Development Solutions Network	Sustainable Development Goals Report	Continuous
	3. Previous DDS Experience	Publicly Available Data	Compiled by authors	Categorical
	4. Willingness to Participate in DDS	Publicly Available Data	Compiled by authors	Categorical
3. Political Feasibility	1. Voice and Accountability	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	2. Political Stability and Absence of Violence	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	3. Government Effectiveness	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	4. Regulatory Quality	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	5. Rule of Law	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	6. Control of Corruption	World Bank	Worldwide Governance Indicators (WGI)	Continuous
	7. Fragile State Index (FSI)	The Fund for Peace	Fragile State Index	Continuous

Primary Indicator	Secondary Indicator	Data Source	Database	Indicator Type
4. Bilateral Relations	1. Share of Bilateral Trade with China in Total Trade	International Monetary Fund (IMF)	Direction of Trade Statistics	Continuous
	2. Years of Diplomatic Relations with China	Ministry of Foreign Affairs of China	Ministry of Foreign Affairs Database	Continuous
	3. Type of Diplomatic Relations with China	Ministry of Foreign Affairs of China	Ministry of Foreign Affairs Database	Categorical
	4. Number of Sovereign Debt Restructurings with Paris Club	World Bank; Paris Club	International Debt Statistics	Continuous


IGF