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Staff Guidance Note on the Application of the Joint Fund-Bank Debt Sustainability Framework for Low-Income Countries

Prepared by the staffs of the IMF and the World Bank

Approved by Reza Moghadam and Danny Leipziger

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ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AsDB	Asian Development Bank
BOP	Balance of Payments
CIRR	Commercial Interest Reference Rate
CPI	Consumer Price Index
CPIA	Country Policy and Institutional Assessment
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
EBRD	European Bank for Reconstruction and Development
EDSS	Economic Data Sharing System
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIPC	Heavily Indebted Poor Country
IDB	Inter-American Development Bank
LIC	Low-Income Country
MDB	Multilateral Development Bank
MDG	Millennium Development Goal
MDRI	Multilateral Debt Relief Initiative
PV	Present Value
SPR	Strategy, Policy and Review Department (Fund)
PEFA	Public Expenditure and Financial Accountability
PPG	Public and Publicly-Guaranteed
PRGF	Poverty Reduction and Growth Facility
PRMED	Economic Policy and Debt Department (Bank)
PRMVP	Office of the Vice President and Head of Network (Bank)
SECBO	Board Operations (Bank)
TFP	Total Factor Productivity
WEO	World Economic Outlook

I. Introduction and Country Coverage[1]

1. **The objective of the joint Fund-Bank debt sustainability framework for low-income countries is to support LICs in their efforts to achieve their development goals without creating future debt problems.** Countries that have received debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative (MDRI) need to be kept on a sustainable track.[2] Under the framework, country DSAs are prepared jointly by Bank and Fund staff, with close collaboration between the two staffs on the design of the macroeconomic baseline, alternative scenarios, the debt distress rating, and the drafting of the write-up.[3]

2. Joint Bank-Fund LIC **DSAs** are generally expected to be prepared once a year for PRGF-eligible, **IDA**-only countries (Table 1). For PRGF-eligible countries that are not IDA-only, Fund staff is expected to produce a LIC DSA once a year,[4] unless the country has significant access to market financing, in which case Fund staff could conduct the annual DSA using the template designed for middle-income countries. Given that the Bank is a large creditor to most of these countries, close consultation with Bank staff is still desirable for all countries with limited or no market access that are PRGF-eligible but not IDA-only.

3. The DSF should be seen as an upstream device to inform country teams' broader dialogue with the authorities—rather than an ex-post consistency check. Country teams should also communicate frequently on DSAs with the relevant Multilateral Development Banks (MDBs) in the preparation of DSAs, present DSA results to the authorities (staff in the ministry of finance, central bank, and other relevant government entities), and share the final DSA files with the authorities.[5] Staff should also encourage the authorities to consent to the publication of the DSA. Following the Board meeting, and with consent of the authorities, country teams are encouraged to present the DSA findings to donors and other interested parties.

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[1] The guidance note has been prepared jointly by the World Bank and the IMF staffs and updates the one prepared in May 2007 (http://www.imf.org/external/np/pp/2007/eng/041607.pdf). Implementation of the new guidelines will be reviewed as needed, once sufficient experience has been accumulated.

[2]The Executive Boards of the Fund and the Bank approved the debt sustainability framework (DSF) for low-income countries (LICs) in April 2005 (IMF and IDA, 2005) and reviewed it in March 2006 (IMF and IDA, 2006) and November 2006 (IMF and IDA, 2006a).

[3] "DSF" refers to the framework for joint debt sustainability analyses in LICs. "DSA" refers to an analysis of debt sustainability in a particular country.

[4] The guidance provided in this note also applies to Fund-only LIC DSAs.

[5] A separate note provides specific guidance on MDB involvement in the DSA process.

Table 1. PRGF-Eligible Countries According to IDA Status

Last update: July 1, 2008

IDA-only countries		Non-IDA-only countries
Afghanistan	Madagascar	Albania 1/
Angola	Malawi	Armenia
Bangladesh	Maldives	Azerbaijan
Benin	Mali	Bolivia
Bhutan	Mauritania	Dominica
Burkina Faso	Moldova	Georgia
Burundi	Mongolia	Grenada
Cambodia	Mozambique	India
Cameroon	Myanmar	Pakistan
Cape Verde	Nepal	Papua New Guinea
Central African Republic	Nicaragua	St. Lucia
Chad	Niger	St. Vincent and the Grenadines
Comoros	Nigeria	Uzbekistan
Congo, Democratic Republic of	Rwanda	Zimbabwe 2/
Congo, Republic of	Samoa	
Côte d'Ivoire	São Tomé and Príncipe	
Djibouti	Senegal	
Eritrea	Sierra Leone	
Ethiopia	Solomon Islands	
Gambia, The	Somalia	
Ghana	Sri Lanka	
Guinea	Sudan	
Guinea-Bissau	Tajikistan	
Guyana	Tanzania	
Haiti	Timor Leste	
Honduras	Togo	
Kenya	Tonga	
Kiribati	Uganda	
Kyrgyz Republic	Vanuatu	
Lao P.D.R.	Vietnam	
Lesotho	Yemen, Republic of	
Liberia	Zambia	

1/ Albania is an IBRD country but PRGF eligible.
2/ Due to Zimbabwe's overdue financial obligations to the PRGF trust, it is currently not eligible for using PRGF resources.

4. **The new financial environment of LICs, particularly post debt relief, poses new policy challenges.** Debt relief has led to the perception of a large borrowing space in some LICs. Simultaneously, the emergence of new creditors and the rising importance of domestic debt have led to an expansion in the volume and sources of funds available to these

countries. In view of the risks raised by these developments, the Fund and Bank Boards called on staffs to enhance the rigor and quality of DSAs and the effectiveness of the DSF. Country teams are therefore expected to strengthen the application of the DSF by using its built-in precautionary aspects, designing realistic baseline macroeconomic and growth scenarios, integrating domestic debt more systematically into the assessment of debt sustainability, and introducing additional vulnerability indicators in cases where debt to private external creditors is significant. In all these areas, further experience accumulated under the DSF will be important to inform and refine future practice, as embodied in these guidelines.

5. **The guidance note is structured as follows.** Section II covers analytical aspects of the DSA framework, including the main changes introduced in this note (Box 1). Section III discusses DSA design and operational implications. Section IV discusses technical modalities for preparing DSAs including timing, information sharing, review, and clearance. Section V outlines arrangements for HIPCs. Section VI discusses a communications strategy. Annex I provides a user's guide to the templates and Annex II contains a DSA outline template.

Box 1. Enhancing the DSF: Main Changes from Previous Practice

- **Historical scenarios** should be used actively and large differences between the baseline and historical scenarios will need to be carefully justified in the text (Section III A).
- **Scrutinizing past projections** against outcomes is critical to improve the quality of future projections (Section III A).
- **High projected growth dividends** associated with large upfront borrowing (5 percent of GDP or more in PV terms) trigger the inclusion of an alternative "high-investment, low-growth" scenario and a detailed and explicit justification of projected growth dividends (Section III A).
- **Financing assumptions** require an explicit justification when the scenario assumes a significant improvement in the terms, such that, absent this improvement, the evolution of debt indicators would be significantly worse (Section III A).
- **Public DSAs** should be included in all DSAs. The write up should explicitly flag situations where the inclusion of domestic debt in overall debt and debt-service prospects would lead to a different interpretation of debt sustainability from consideration of external debt and debt service alone (Section III B).
- **Additional analysis** is needed in cases where increased private external capital flows into sovereign debt instruments may give rise to new vulnerabilities (Section III C).
- **A three-year moving average CPIA score** should be used to reduce the volatility of the thresholds and, as a result, the potential unwarranted fluctuations in the IDA grant share for a given country (Section II B).
- **Building capacity and ownership**. Staff should actively discuss the DSA assumptions and outcomes with the authorities and encourage them to use the instrument (Section VI).
- **DSAs should be published as supplements to Fund staff reports, self contained (in both Bank and Fund documents), and easily accessible** to enhance the effectiveness of the DSF as a coordinating tool for creditors and borrowers (Section IV A).
- **Review process.** To provide teams with early constructive feedback, a preliminary DSA needs to be included in IMF briefing papers; Bank-Fund collaboration needs to take place prior to the preparation of briefs for the DSA to be joint (Section IV A, B, D and Box 3). In cases where the DSA is needed for a Bank document, a similar timeline should be adhered to.

II. LIC DSA FRAMEWORK

6. **The LIC DSA framework is built on three pillars:** (i) a standardized forward-looking analysis of debt and debt-service dynamics under a baseline scenario, alternative scenarios, and standardized stress test scenarios (also referred to as bound tests); (ii) a debt sustainability assessment based on indicative country-specific debt-burden thresholds that depend on the quality of policies and institutions in the country; and (iii) recommendations on a borrowing (and lending) strategy to limit the risk of debt distress, while maximizing the resource envelope to achieve the Millennium Development Goals (MDGs).

A. Debt and Debt-Service Projections and Indicators

7. **The DSF requires projection of external and total public sector debt indicators.** To that end, staff inserts historical and projected data for a range of macroeconomic variables in one mandatory pre-set template which is used for public and publicly-guaranteed (PPG),[6] and private external debt[7] in the external DSA and for total public sector debt including domestic debt (where possible including state-owned enterprises) in the public sector DSA.[8/9] The template is designed for a twenty-year projection period (in light of the long maturity of LIC debt) and uses a uniform discount rate to calculate the present value of future external debt-service obligations. The discount rate will be adjusted in the template whenever the six-month average U.S. dollar commercial interest reference rate (CIRR) deviates from the rate in the template by more than 100 basis points for a period of six months or more. The template automatically produces output tables that display the dynamics of debt and debt-service ratios in the baseline scenario and summarize the results of standardized alternative scenarios and stress tests to enable an assessment of the country's vulnerability to sustained deviations from the baseline and to various plausible shocks. These scenarios should, when appropriate, also be adjusted to take account of country-specific circumstances.[10]

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[6] Including debt owed by the central bank to the IMF, if any.

[7] Private external debt is not considered for the purpose of IDA grant allocations. Nonetheless, the level and the evolution of private external debt clearly matter for overall external debt sustainability and in some cases the inclusion of private external debt would lead to a different overall debt sustainability assessment.

[8] External debt is defined on a residency basis and may thus include domestic currency denominated debt. In practice, because of difficulties in record keeping (e.g., secondary market trading) and data limitations in LICs, domestically-issued debt is often used as a proxy for domestic debt (see section III. B.).

[9] The analysis only covers medium and long-term debt. Short-term debt only affects the financing need in each period, assuming that such debt is paid off within the year. If a country rolls over a significant stock of short-term debt each year, the template may have to be modified.

[10] The bound tests are partial, and assume a passive fiscal policy. Fiscal reaction functions could, if desired, be included in an alternative scenario, where this is deemed important enough by staff to warrant investigation and discussion in the DSA. The reaction functions would need to be modeled separately.

Table 2. Debt Burden Thresholds under the DSF
(Applying to external public debt)

	PV of debt in percent of			Debt service in percent of	
	Exports	GDP	Revenue	Exports	Revenue
Weak Policy	100	30	200	15	25
Medium Policy	150	40	250	20	30
Strong Policy	200	50	300	25	35

8. **Debt sustainability is assessed based on debt and debt service relative to measures of repayment capacity.** Debt stock indicators provide a useful measure of the total future debt-service burden of existing debt. This burden is best measured using the present value (PV) of debt to capture the concessionality of outstanding debt. Debt-service indicators provide a measure of the immediate burden that debt imposes on a country by crowding out other uses of scarce resources. Repayment capacity is measured by GDP, exports of goods and services, or government revenues. The most relevant measure of repayment capacity depends on the constraints that are most binding in an individual country. PV debt ratios are summary indicators of the burden represented by the future obligations of a country and thus reflect long-term risks to solvency, while the time path of debt-service ratios provides an indication of the likelihood and possible timing of liquidity problems.[11]

B. Country-Specific Debt-Burden Thresholds

9. **The DSF uses policy-dependent external debt-burden indicators because the debt levels that LICs can sustain are influenced by the quality of their policies and institutions.** These debt-burden thresholds are not to be seen as rigid ceilings but as guideposts for informing debt sustainability assessments. Policy performance is measured by the Country Policy and Institutional Assessment (CPIA) index, compiled annually by the World Bank. The DSF divides countries into three performance categories: strong, medium, and poor.[12] Table 2 shows the associated external debt-burden thresholds. The risk classification depends on the indicative thresholds and therefore on the CPIA score. To reduce undesirable uncertainty regarding the country's financing terms from IDA (and possibly other

[11] Note that the debt service-to-export ratio is a hybrid indicator of solvency and liquidity concerns. See "External Debt Statistics: Guide for Compilers and Users", IMF, June 25, 2003.

[12] A rating at or above 3.75 corresponds to strong performance; a rating between 3.25 and 3.75 reflects medium performance; and a rating at or below 3.25 corresponds to poor policy performance.

donors) from annual fluctuations in the CPIA, the three-year moving average CPIA score should be used to determine a country's policy performance under the DSF.[13]

C. Debt Distress Risk

10. **Every joint Fund-Bank and Fund-only DSA should include an explicit assessment of the country's risk of debt distress.** Depending on how the country's current and projected **external public debt indicators** compare with the thresholds under the baseline, alternative scenarios, and stress tests, a country is classified (see IMF and IDA, 2005):

- **Low risk**. All debt indicators are well below relevant country-specific debt-burden thresholds. Stress testing and country-specific alternative scenarios do not result in indicators significantly breaching thresholds. In cases where only one indicator is above its benchmark, judgment is needed to determine whether there is a debt sustainability problem or some other issue, for example, a data problem.
- **Moderate risk**. While the baseline scenario does not indicate a breach of thresholds, alternative scenarios or stress tests result in a significant rise in debt-service indicators over the projection period (nearing thresholds) or a breach of debt or debt-service thresholds.
- **High risk**. The baseline scenario indicates a protracted breach of debt or debt-service thresholds but the country does currently not face any payment difficulties. This is exacerbated by the alternative scenarios or stress tests.
- **In debt distress**. Current debt and debt-service ratios are in significant or sustained breach of thresholds. The existence of arrears would generally suggest that a country is in debt distress, unless there are other reasons than debt-service burden for not servicing its debt.

11. **The assessment of the risk of debt distress needs to strike a balance between a mechanistic use of this classification and a judgmental approach.** There may be cases where staff judge that a mechanistic approach would imply an unreasonable rating. These could include, for instance, a marginal and temporary breach of thresholds, or an ability to pay that is not captured in the template but evidenced from the level of foreign exchange reserves; or lack of available CPIA scores as may be the case in countries that have not been active in IDA or that are newly re-engaging. In those cases, judgment should be applied and explained in the DSA write-up.

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[13] Because CPIA scores are averages of 16 indicators of policy and institutional quality, the CPIA thresholds should not be used mechanically in country assessments. In addition, in cases where the move to the three-year average leads to undue volatility in the performance rating and thereby potentially to fluctuations in the loan-grant mix, country teams, upon confirmation with reviewing departments (PRMED and SPR), may apply discretion as to the exact timing of the changing to the three-year average.

III. DSA Design and Operational Implications

12. **DSAs should function as an upstream device in relation to Bank and Fund program design and inform the broader dialogue with the authorities.** Aimed at early detection of debt-related vulnerabilities, DSAs should be a cornerstone for the elaboration of medium-term debt strategies, fiscal frameworks, and public expenditure planning in support of sustainable progress toward the country's development goals (the third DSF pillar). To achieve these objectives, DSAs need to be based on *realistic* macroeconomic scenarios, and this section provides guidance on their design. It also provides guidance on how to address within the DSA the rising importance of domestic debt in many LICs and the emergence of new creditors.

A. Design of Macroeconomic Scenarios

13. **DSAs need to be based on *realistic* macroeconomic scenarios.**[14] The principal mechanism for promoting realism in DSAs is to scrutinize baseline projections by (i) subjecting them to *reality checks* and (ii) making use of existing and new *precautionary features* of the DSF. The reality checks and precautionary features are intended to provide safeguards against excessive borrowing and a return to debt distress, without constraining *justified* optimism about the effective use of external resources to promote growth, reduce poverty, and achieve the MDGs.

Standard Reality Checks

14. **Checks against historical outcomes help guard against excessive optimism:**

- **Historical scenarios** are a standard feature built into the DSA template to compare baseline projections with the evolution of debt ratios under historical trends for key economic variables. Baseline debt ratios that are significantly lower than the ratios under the historical scenario raise concerns of excessive optimism and require explicit justification of the underlying economic rationale in the DSA write-up. Plausible reasons for deviations include recent performance improvements that are not adequately reflected in historical (10-year) averages or structural breaks, such as the end of civil conflict.
- **Scrutinizing past projections** provides another useful signal about the realism of staff forecasts and the overall macroeconomic framework. "Post-mortems" explaining differences of assumptions and outcomes for key variables of the previous DSA are therefore expected in the write-up. In situations where previous DSAs proved too optimistic, assumptions should be subject to more detailed scrutiny and justification, and would presumably need to be revised if they have not been adequately adjusted to account for previous forecast errors.

[14] Realistic in this context means a scenario that takes due account of a country's growth potential but also capacity constraints, including the risk that desired policy reforms may not be implemented.

- **Financing assumptions** that envisage a notable improvement in financing terms, such that, absent this improvement, the evolution of debt indicators would be significantly worse, require an explicit justification of the underlying factors driving this improvement. Plausible justifications include, for example, the contracting of concessional loans that has already taken place and firm commitments of highly concessional financing from specified donors. Some review of the accuracy of past financing assumptions would be called for in such cases.

15. Explicit justification will be required if the sustainability of debt ratios is driven by DSA assumptions of *sharp* shifts in fiscal policy (e.g., a significant improvement in revenue collection), the investment rate, the financing mix, or productivity growth.

Reality Checks and Precautionary Features in Scaling-Up Scenarios

16. **While historical experience provides a useful benchmark, it may underestimate future growth prospects, for example, if a country is expected to scale up public investment significantly.** An analytical challenge in scaling-up scenarios is to project the impact of additional public investment on other macroeconomic variables, such as GDP growth, exports, and public revenues, which determine the relevant debt indicators.

17. **In the absence of rules of thumb, teams are expected to justify carefully their underlying assumptions and check their plausibility.** In doing this, they will need to take into account a range of country-specific factors that influence the link between public spending and other macroeconomic variables. Teams should draw as much as possible on a country's own history, analytical considerations, and empirical cross-country work (see Box 2 and Appendix 3 of IMF and IDA, 2006a).

18. **Some general conclusions drawn from the empirical literature also provide useful guidance:**

- Prolonged growth accelerations are rare, arguing for caution.
- Even if individual projects have high rates of returns, the macroeconomic returns (notably the impact on GDP, government revenues, and exports) tend to be considerably lower, since these are modulated by factors outside the scope of the project itself.
- The quality of policies and institutions has a large influence on the macroeconomic return of public investment.
- Economic volatility, including aid volatility, and shocks, which cannot be projected *ex ante*, argue for caution in average growth/export projections over time.

19. Special scrutiny is needed in situations of high projected growth dividends associated with ambitious borrowing plans:

- Inclusion of an *alternative "high-investment, low-growth" scenario is mandatory* if the baseline assumes that an ambitious debt-financed investment program leads to sizeable

growth dividends. One benchmark for "sizeable" would be growth rates of at least one standard deviation above the historical average. Another would be if changing growth alone to historical levels would imply a significantly worse debt outlook, such that sustainability is critically dependent on the projected growth acceleration. In these cases, the DSA should include an alternative scenario that assumes little or no growth payoff from the debt-financed investment program. The baseline will then need to be supported by compelling evidence that the assumed growth dividends are very likely to materialize. Absent such evidence, the baseline should be revised.

- A detailed and explicit *justification of projected growth dividends* (e.g., in a separate box) is required if the baseline includes very large *upfront* borrowing—which has been found to significantly increase the likelihood of debt distress. Large upfront borrowing is defined as an annual increase in the PV of public external or total public debt of 5 percent of GDP or more.

Box 2. Indicators for Analysis of the Link Between Debt-Financed Investment and Growth

When available, the indicators listed below can help establish a link between public expenditure and growth, and ultimately define the scope for debt accumulation. Relevance and availability will vary by country and these indicators are not expected to be shown explicitly in DSAs. In general, a comparison with their evolution in the country's past and in relevant comparator groups could provide useful benchmarks. The Bank would be expected to take the lead in this analysis.

Rates of Return
- Microeconomic studies on rates of return of projects
- Implementation lags/gaps for investment and recurrent budgets
- Estimates of stocks and shortfalls in public capital
- Composition of public expenditures in terms of growth impact

Structural Constraints
- Policy and institutional constraints as indicated by the CPIA, public governance indicators, Doing Business surveys, PEFA, other public expenditure management analyses
- Level and growth rates of public investment
- Completion or implementation rate of public investment projects
- Skill shortages that can only be alleviated in the long run

Macroeconomic Constraints
- The cost of capital, as indicated through firm-level surveys and real interest rates
- Rate (or rate of growth) of private investment
- Excess reserves/lending capacity in banking system
- Various real exchange rate measures (unit labor costs, export market share)

Aggregate Trends
- Growth rate of per capita GDP
- Growth rate of TFP
- Results of "binding constraints to growth" analyses

B. Treatment of Domestic Debt

20. **Regardless of the size of public domestic debt, all LIC DSAs must include a public DSA.** Public domestic debt typically involves higher costs and shorter maturities, and is large and increasing in many LICs. Empirical analysis shows that rising domestic debt increases the likelihood of external debt distress. Public DSAs are therefore expected to play a critical role in helping detect and address any emerging risks.

21. **The coverage and definition of domestic debt should be guided by the following considerations.** In line with general statistical norms, public domestic debt is defined on a residency basis and may thus include foreign currency-denominated obligations.[15] Domestic debt data should seek to cover the liabilities of the broader public sector, including the central government, local governments, government-owned enterprises, and the central bank. In most cases, data limitations will limit the coverage to just the central or general government, at least until the capacity to record fully all public sector liabilities is established. To the extent possible, public sector contingent liabilities, including those arising from public-private partnerships and weaknesses in the financial sector, should be taken into account. Staff should flag these problems and any steps taken to improve coverage in the DSA write-up.

22. **Guided by the results of stress tests and alternative scenarios, staff's assessment should focus on the following issues:**

- **Domestic debt risks**: Staff should provide a thorough review of risks in cases where domestic debt stocks are significant (i.e., above 15-20 percent of GDP). Irrespective of the level of domestic debt, any rapid recent build-up of domestic debt would warrant an explanation. In both cases, staff's assessment should cover any specific circumstances behind the high/rising debt stock (e.g., general budget financing or assumption of contingent liabilities), including its creditor base, likely duration, financing burden, and medium-term implications.
- **Primary balance**: The public DSA should be a key tool to assess whether the projected evolution of the primary fiscal balance is consistent with debt sustainability. Staff should assess the risks (if any) posed by the baseline primary fiscal deficit path.
- **Debt distress classification**: The level and the evolution of domestic debt and debt service clearly matter for overall (fiscal) sustainability. In cases where the inclusion of domestic debt and debt service would lead to a different sustainability assessment than that under the external DSA, the DSA write-up should provide an expanded commentary, reviewing debt-servicing risks and medium-term fiscal implications. ***However, this assessment does not affect a country's classification of the risk of (external) debt distress and therefore IDA's grant allocation. The risk of debt distress rating will be guided only by the results of the external DSA relative to the thresholds.***

[15] As indicated in footnote 8, the residency criterion is sometimes difficult to apply. In those cases, domestically-issued debt is often used as a proxy for domestic debt.

C. Treatment of Debt Held by Private External Creditors

23. **Increased private sector capital flows into both domestic and external sovereign debt instruments could provide additional resources for LICs, but may also give rise to new vulnerabilities that require monitoring.** These vulnerabilities include: (i) abrupt reversals in market sentiment leading to sudden capital outflows; (ii) non-standard financing terms, such as collateralization with future export receipts, weakening medium-term debt sustainability; and (iii) secondary balance sheet effects on the domestic financial system as a result of shifts in lending away from lower yield government securities toward riskier assets, possibly creating contingent public liabilities.

24. **For countries borrowing significant amounts from private external creditors, the DSF should be complemented with additional analyses of short-term debt-related vulnerabilities and financial sector soundness.** Where private capital inflows become significant, the additional indicators suggested in Table 3, subject to data availability, could contribute to highlight: (i) risks to sovereign liquidity stemming from the composition and maturity structure of debt; (ii) external liquidity and rollover risks, and the adequacy of reserve cover (especially in relation to short-term debt), which may need to reflect the risk of reversals in market sentiment;[16] and (iii) weaknesses in the financial sector that may give rise to contingent public liabilities. Where these factors are significant, they should be explained and taken into account in the sustainability assessment.

25. **In relevant cases, country teams should discuss with the authorities any policies that could help alleviate these risks.**[17] The following is an illustrative but not exhaustive list of such policies. A desirable debt-management framework should assign the legal authority to borrow and identify permissible instruments and accountability mechanisms. Portfolio management should be facilitated through an effective recording of the debt stock; a framework for liquidity forecasting; and the availability of critical indicators to monitor benefits, costs, and risks associated with borrowing from private sources. This could imply a need for technical assistance. Reserve adequacy may need to be re-assessed. More broadly, the sequencing of reforms would typically need to strengthen the framework for banking supervision and prudential regulation prior to undertaking steps to liberalize the capital account.

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[16] In particular, reserve targets originally aimed at providing sufficient foreign exchange to meet the country's import requirements may need to be adapted to provide sufficient cover also for the country's short-term external debt obligations (at remaining maturity), including nonresident's holdings of domestic government paper (which may have to be estimated given data limitations).

[17] This work would typically be done by the Fund as part of the surveillance work on monetary management and exchange rate policies.

Table 3. Suggested Indicators for Vulnerability Analysis

Indicator	Source	
	Current DSF	Additional Indicators
Indicators of public sector stock imbalances (solvency risk)		
PV of public sector debt-to-GDP (public sector revenue)	✓	
PV of external public sector debt-to-GDP (exports)	✓	
PV of foreign-currency denominated public sector debt-to-GDP	✓	
PV of contingent liabilities (not included in public sector debt)	✓	
Public sector debt-to-GDP ratio	✓	
Of which: External	✓	
Of which: Foreign currency denominated	✓	
Of which: Foreign currency linked		✓
Of which: Indexed to the CPI		✓
Primary deficit that stabilizes public sector debt-to-GDP	✓	
Indicators of external sector stock imbalances (solvency risk)		
PV of external debt-to-GDP (exports)	✓	
External debt-to-GDP	✓	
Non-interest external current account deficit that stabilizes external debt-to-GDP	✓	
Indicators of public sector flow imbalances (liquidity, rollover risks)		
Public sector debt service-to-revenue 1/	✓	
External public debt service-to-exports	✓	
Public sector gross financing need (in percent of GDP) 2/	✓	
Short-term public debt-to-total debt (at remaining maturity) 3/		✓
Domestically-issued public debt held by nonresidents-to-GDP		✓
Indicators of external sector flow imbalances (external liquidity, rollover risks)		
External debt service-to-exports (revenue)	✓	
External gross financing need (billions of U.S. dollars) 4/	✓	
Gross official reserves-to-short-term external debt (at remaining maturity) 5/		✓
Extended reserve cover 6/		✓
Gross official reserves-to-broad money (M2)		✓
Foreign currency deposits-to-foreign assets of the banking system		✓
Indicators of financial system soundness		
Regulatory capital-to-risk-weighed assets		✓
Nonperforming loans-to-total loans (gross and net of provisions)		✓
Claims on the Government and Central Bank-to-total banking sector claims		✓
Private sector credit growth		✓
Foreign currency loans-to-total loans		✓
Foreign currency deposits-to-total banking sector deposits		✓
Share of foreign currency deposits held by nonresidents		✓

Source: IMF.

1/ The sum of interest and amortization of medium- and long-term debt.
2/ Defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.
3/ Amortization of medium- and long-term debt plus stock of short-term debt at the end of the last period.
4/ Defined as the current account deficit adjusted for net FDI inflows plus total external amortization due plus the stock of short-term debt at the end of the last period.
5/ External short-term debt includes amortization of medium- and long-term debt plus stock of short-term debt at the end of the last period.
6/ Gross official reserves in percent of the current account deficit adjusted for net FDI inflows plus total external amortization due plus the stock of short-term debt at the end of the last period plus foreign currency deposits in the banking system.

D. Operational Implications

26. **LIC DSAs play a pivotal role in determining terms of IDA assistance and should also have an impact on Fund program design:**

- LIC DSAs form the basis for determining the grant/loan mix in IDA allocations and those of some other multilaterals, including the African Development Fund. IDA-only countries judged to be at high risk of debt distress risk or in debt distress receive 100 percent grant financing from IDA, while countries at moderate risk receive a 50/50 blend of grants and traditional credits, and countries at low risk continue to receive 100 percent credit financing on standard IDA terms.
- Because DSA risk ratings determine IDA grant allocations, regular IDA *credit terms* on all IDA lending should be assumed for all years in the projection period for which grant finance has not already been committed to by IDA. The same applies to other major MDBs who link the terms of their assistance to the DSF risk rating.
- For the Fund, programs for LICs in which debt sustainability is a concern could supplement existing debt limits with conditionality related to the PV of external debt, as well as make more systematic use of limits on the overall fiscal deficit as compared to existing limits on domestic financing. Conditionality on the PV of external debt would be derived from the DSA on a fiscal year basis. It would also be expected to be in the form of indicative targets, because of the complexity of PV calculations and the associated difficulties in monitoring PV-based targets (IMF and IDA, 2004b).
- It is presumed that the recommended grant element for concessional loans, including in Fund-supported programs, would increase with the risk of debt distress (see IMF and IDA, 2006a). The DSA should be the primary means of assessing the impact of alternative financing strategies and recommending the minimum concessionality for new lending.
- When the debt distress risk classification shifts to a higher level, staff should conduct a comprehensive reassessment of the recommended debt accumulation strategy.
- DSAs can be used to analyze the potential impact of unexpected borrowing, especially in the context of IDA's nonconcessional borrowing policy.

IV. Modalities For Preparing DSAs

A. Frequency and Presentation

27. **A joint LIC DSA is expected to be prepared once a year for each IDA-only, PRGF-eligible country.** Each calendar year, Fund and Bank country teams need to agree on a schedule for the preparation of DSAs for individual countries. For the Fund, a DSA will normally be produced for an Article IV consultation, and otherwise in the context of program requests or reviews. For the Bank, the DSA will be required for Country Assistance Strategies

and for IDA allocation purposes.[18] It is therefore critical that both sides agree well ahead of time on the content and timing of the DSA (Box 3). In cases where a joint DSA is needed in the context of a Bank operation in a country where the Fund's Board is not expected to consider a review for an arrangement or conclude an Article IV consultation within two months, the joint DSA would be sent to the Fund's Board for information at the same time the DSA is sent to the Bank's Board. The corresponding procedure of informing the Bank's Board applies when Fund requirements drive the timing of the DSA.

28. **Each institution can update the DSA for its own purposes if changes in assumptions are relatively minor.** The other institution has to be notified of the changes and given adequate time—at an absolute minimum three business days—to comment. When either institution believes that major changes are warranted (e.g. due to non-concessional borrowing episodes), consultation with the other will be required.

29. **LIC DSAs should be prepared as self-contained documents.** In particular, they should include a clear description of macroeconomic assumptions without referring to the Fund staff report to which they are a supplement. DSAs should however be concise, and a limit of 2000 words is suggested (excluding tables or any appendices). This practice will also help ensure consistency across the two institutions; the Bank now publishes LIC DSAs on a stand-alone basis and sends all LIC DSAs to its Board for information in this format.[19] (A suggested DSA outline can be found in Annex II).

[18] A new DSA would need to be available before the end of the second quarter of the calendar year in order to be reflected in the IDA allocation for the coming fiscal year.

[19] As of FY08 in the Bank, for all IDA-only countries the LIC DSA Board document will become a formal deliverable with associated code and budget norm range.

Box 3. DSA Process

As a first step, Bank and Fund country teams need to agree on a schedule for the preparation of DSAs for individual countries each calendar year. Once the DSA process has started, early consultations between Fund and Bank stakeholders are critical to avoid last minute requests for changes. In the Fund, the briefing stage provides an opportunity for early input from reviewing departments. Although the Bank does not have a briefing stage, the Bank country team will be responsible for liaising with the Economic Policy and Debt Department (PRMED) as necessary at that time (i.e., informing of timing and requesting any required technical support). Bank and Fund country teams should agree on the broad parameters of the DSA, including new borrowing, prior to the briefing stage. As a general rule, this agreement should be sought at least 90 business days ahead of the prospective Board meeting (see timeline below).

A preliminary joint DSA should be included in the Fund's brief. It should incorporate available new information and revised assumptions, so as to be consistent with the Fund's latest macroeconomic framework. Such an update is expected to involve limited extra work at the briefing stage. It is understood that the preliminary DSA included in the brief contains the broad parameters of a medium-to-long-term macro framework and is subject to change depending on the mission's findings. No Bank clearance of the preliminary DSA contained in briefs is required but any significant differences in view should be reported in the brief.

RECOMMENDED TIMELINE AND TASKS FOR JOINT FUND-BANK DSAs

DSA stage	Fund	Bank	Approx. Timing (in business days)
Pre-briefing paper	Fund team (desk or SPR economist) prepares DSA template and write-up in consultation with Bank counterpart economist; Mission chief approves the draft DSA	Bank team (country economist or PRMED) prepares DSA template and write-up in consultation with Fund counterpart economist; Lead Economist approves the draft DSA	(T-90) days
Department review of brief	Fund Team sends draft DSA as part of brief to SPR and other departments; the objective is to raise and resolve all major issues related to content, coverage, and broad assumptions at this time	Bank Team sends draft DSA to PRMED; the objective is to raise and resolve all major issues related to content, coverage, and broad assumptions at this time	(T-65) days
To management	Fund management clears the brief		(T-60) days
Mission	Fund team completes DSA preparation during mission with inputs/comments from the authorities	Bank team completes DSA work with Fund staff, with inputs/comments from the authorities (Bank participation in mission is encouraged)	(T-55) days
End of mission	If Bank country team has not been on mission, Fund team relays any changes to draft DSA	If Bank country team has not been on mission, it receives changes on draft DSA, templates and macro framework from Fund team	(T-45) days
Department review of staff report	Completed DSA sent to review departments alongside staff report	Completed DSA sent to PRMED and regional PREM Director for review	(T-25) days
To management	Fund team sends an Executive Summary to management that highlights DSA results, and raises DSA issues (if needed) in clearance note	Bank team sends full DSA to management alongside any other country document. PRMED clearance of DSA pending IMF clearance	(T-18) days
Board circulation	DSA transmitted to Board	DSA submitted by PRMVP to SECBO and transmitted to Board for information	(T-10) days
Board discussion	DSA published as Staff Report Supplement 1/	DSA published	T

1/ Publication is subject to the Fund's publication policy, including the requirement that the authorities consent to publication.

B. Division of Responsibilities between Fund and Bank Staff

30. **Bank and Fund staff should continue to cooperate closely in preparing joint DSAs, based on their respective areas of expertise.** The Fund takes the lead on medium-term macroeconomic projections (three to five years) developed with the member country, which will be the starting point for consultation with the Bank on the baseline scenario for the DSA (IMF and IDA, 2005). The Bank takes the lead on long-term growth prospects.[20] For the external sector DSA, Fund staff is responsible for debt-service projections for bilateral and commercial creditors and assumptions on new borrowing from these creditors, whereas the Bank staff provides debt-service projections for multilateral creditors together with assumptions on new multilateral borrowing based on current allocations.[21] With this input, Fund and Bank country teams should agree on a set of assumptions underlying the baseline scenario, collaborate on the design of alternative scenarios and stress tests, and consider additional country-specific factors. Once simulations have been performed (beyond the standard tests embodied in the template), the teams should review the findings and reach a common assessment of the country's risk of debt distress. All relevant data files should be shared across Bank and Fund teams but treated confidentially by both staffs.

31. **The output from the external sector DSA, together with Fund staff's fiscal projections, provide the basis for the public sector DSA.** While the public sector DSA does not affect directly the risk of debt distress rating, the Fund and Bank country teams should discuss if the output of the public sector DSA would lead to a different sustainability assessment than that under the external DSA and agree on how to reflect this situation in the DSA write-up.

C. Dispute Resolution

32. **While a common Bank-Fund assessment of the debt sustainability outlook should be sought in the largest possible number of cases, there may be cases of disagreement.** In such rare cases, country teams should first seek to resolve the disagreements at the working level before using the dispute resolution mechanism agreed to in 2005 (IMF and IDA, 2005):

- At the working level, country economists should discuss the basis for their disagreements and seek to determine whether the different viewpoints lead to a material difference in risk classification. If not, they should seek to accommodate differences. If material differences arise, the Fund mission chief and the Bank's regional PREM director should attempt to reach an agreement.

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[20] Long-term growth assumptions will typically not be based on detailed policy reforms assumed in the near-term. As a consequence, long-term growth rates need not be identical to near-term forecasts.

[21] Bank staff should where necessary obtain debt-service projections on outstanding Fund lending from the Fund country team.

- The mission chief and the regional director should, after consultation with their respective review departments (SPR in the Fund, PRMED in the Bank), seek a resolution within five working days. If they are unsuccessful, the matter should be elevated to the level of area department director at the Fund and vice president at the Bank to seek resolution, again within five working days. Failures to resolve differences at this level will cause the matter to be brought to the attention of the managements of the two institutions.
- The managements can, within five working days, either resolve the dispute or decide that the DSA document will present the different views of the staffs to the Boards of the two institutions. In the latter case, each institution will present its views in its own words.

D. Review Process

33. **LIC DSA documents prepared by Fund and Bank staff are subject to the regular review process.** Details of review and clearance, including timing, are given in Box 3. Any substantive changes by Fund management will be communicated to Bank staff at that time. On the Bank side, country teams should transmit a preliminary draft (corresponding to the briefing stage in the Fund) to PRMED for initial guidance. When complete, the DSA will be reviewed on a stand-alone basis by PRMED and the regional PREM director, who will have three days for review. Once any comments necessary for clearance are incorporated, the DSA will be sent by PRMED as a stand-alone document via PRMVP to SECBO for transmission to the Board for information.

34. **Each institution is expected to abide by the agreed timeline so as not to hold up the issuance of a DSA document for the other.** Any major disagreement should be brought to the attention of the other institution immediately. If comments are not received within the agreed timeframe despite efforts to seek the other side's input/comments, the front office of the Fund Area Department/Bank Region of the originating institution should contact that of the commenting institution and inform them of the missed deadline and try to work out a mutually agreeable timeframe to receive comments. *However, in the end, the institution that does not provide comments by the agreed timeline implicitly waives its right to comment.* These cases, if any, should be documented and brought to the attention of management in the Bank Region/PRMED and Fund Area Department/SPR.

35. **The final versions of the DSA files (external and fiscal templates) should be submitted to the SPR review box in the Fund and to PRMED in the Bank at the time the DSA (and staff report) is sent to the Fund's Executive Board or respective Executive Boards.** To avoid discrepancies between published tables and the electronic files, all electronic links to external files (fiscal, balance of payments etc.) should be broken.[22]

[22] The files should also be sent to the authorities.

V. ARRANGEMENTS FOR HIPCS

36. **There are important conceptual and methodological differences between the debt sustainability analysis under the HIPC Initiative and the LIC DSA** (IMF and IDA, 2005**)**. While both are driven by the objective of preventing excessive indebtedness, the HIPC DSA is a tool to calculate debt relief under the HIPC Initiative. The HIPC Initiative thresholds for the PV of debt-to-exports and the PV of debt-to-revenue ratios are uniform across countries; their denominators (exports and revenues) are derived on the basis of three-year backward-looking averages to limit the impact of volatility; and predetermined currency specific discount rates are used to calculate PVs within currencies, to avoid reliance on exchange rate projections. The LIC DSA is forward-looking, uses single-year denominators, incorporates exchange rate projections and a uniform 5 percent discount rate, and applies policy-dependent indicative thresholds.[23]

37. **The DSF should be applied to both HIPCs and non-HIPC low-income countries.** In addition, for HIPCs that have started the process under the Initiative (i.e., for HIPCs for which a preliminary HIPC document has been issued, and a HIPC DSA has been prepared) but have not reached the completion point, the following arrangements apply:

- The DSF remains the main tool for debt sustainability analysis and the LIC DSA should be updated annually. Selected debt indicators drawn from the HIPC DSA should be included in LIC DSA tables as a memorandum item (debt-service and debt-stock ratios).
- In addition to the HIPC DSA, decision and completion point documents should contain a LIC DSA as a supplement to the main document to be used for forward looking analysis and assessment.[24]

38. **When the HIPC DSA and the LIC DSA are included in the same document, both DSAs need to be based on consistent underlying assumptions regarding the baseline macroeconomic scenario and debt data.** The baseline macroeconomic scenarios, including assumptions on new borrowing, should generally be identical in the HIPC and LIC DSAs. Debt ratios and debt-service projections will however differ between the HIPC and LIC DSA given the different exchange rates and discount rates used. The write-up should explain the causes of significant differences in debt ratios by decomposing them into components attributable to: (i) different discount and exchange rates, and (ii) different exports (three-year averages versus current levels) used by the two frameworks.

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[23] More specifically, the discount rate is currently set at 5 percent. It will be adjusted by a full percentage point, whenever the U.S. dollar CIRR (six-months average) deviates from the prevailing discount rate by at least this amount for a consecutive period of six months.

[24] Further guidance on the relationship between DSAs using HIPC versus DSF methodologies will appear in the forthcoming HIPC Guidebook.

39. **HIPC Initiative and MDRI debt relief should be accounted for in the baseline or alternative scenario, depending on HIPC status.**[25] The LIC DSA should include the following baseline and alternative scenarios:

- For post-completion point countries, the LIC DSA should incorporate HIPC Initiative and MDRI relief in the baseline scenario. Debt-service projections used in the baseline scenario should take into account the specific mechanisms under which HIPC and MDRI relief is delivered (e.g., debt forgiveness or rescheduling).
- For countries in the interim period, the baseline scenario should assume HIPC interim relief (the risk rating should not be predicated on the country reaching completion point). In an alternative scenario, irrevocable HIPC and MDRI relief should be assumed beyond the expected completion point date. In this scenario, the PV indicators should only be affected by HIPC and MDRI debt relief beyond the expected completion point date. In years preceding the expected completion point date, the PV should be based on debt-service projections before completion point debt relief.
- For countries that have not yet reached the decision point but for which the Boards have reviewed the HIPC preliminary document, the baseline scenario should incorporate only traditional debt relief. For the alternative scenario, HIPC relief assumed to be delivered through debt rescheduling should be incorporated beyond the assumed decision point date. In this case, it should be noted that the estimates of the value of debt relief will only be approximate, since the actual HIPC debt reduction factor will depend on the decision point date.

VI. COMMUNICATIONS STRATEGY

40. **The effectiveness of the DSF ultimately depends on its broader use by borrowers and creditors.** The DSF should thus be seen as a tool for better communication and coordination between creditors and borrowers, and among creditors. This includes emerging creditors, some of which have a limited tradition of regular coordination and information sharing.

41. **Country teams should involve relevant MDBs, as appropriate and with the consent of the authorities where needed, in the early phases of the DSA process.** A separate note provides more detailed guidance on this issue.[26]

42. **The DSF is also a tool to facilitate country teams' dialogue with the authorities.** DSA assumptions and results should be thoroughly discussed with the authorities (preferably

[25] MDRI assistance should include any indicated assistance from regional development banks (e.g., the African Development Bank and the Inter-American Development Bank).

[26] The MDBs would typically include the AfDB, AsDB, IDB, and EBRD. Information sharing is subject to the Fund's policy on sharing confidential information and may require consent of the authorities' or third parties.

early in the Fund mission in cases where the DSA is being produced for an IMF Board document). The final DSA templates should be provided to the authorities. The DSF, combined with technical assistance, should help to build capacity in public debt management. Over time, borrowers can develop their own medium-term debt strategy to support development objectives while containing risks of debt distress and macroeconomic vulnerability.

43. **Following the Board meeting, country teams, in consultation with the authorities, are also encouraged to disseminate DSA results, if and when the authorities consent to this.**[27] This could take the form of a presentation in the context of regular contacts with the donor/creditor community (e.g. consultative group meetings), including emerging creditors. Both the Bank and the Fund maintain a dedicated website on published DSAs and relevant background material (http://www.imf.org/dsa and http://worldbank.org/debt). Wherever possible, staff should encourage the authorities to consent as early as possible to the publication of the DSA (for the Fund, the staff report to which the DSA is supplemented).

[27] To the extent that the DSA contains nonpublic third party information, consent of such third parties would in principle also be required for the DSA's dissemination. In practice, such a need may arise only rarely, because information received from third party is generally processed and aggregated to other information.

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ANNEX: DEBT DYNAMICS TEMPLATE FOR LOW-INCOME COUNTRIES USERS' GUIDE[28]

I. INTRODUCTION

44. **Assessing fiscal and external sustainability is an integral part of the Fund's work in both Article IV surveillance and the use of Fund resources and underpins IDA's allocation of its grants as well as informing the Bank's dialogue with the government on economic management.** The LIC DSA has been used since its inception in April 2005.[29] This user's guide provides practical guidance to country teams and country authorities on how to use the templates for conducting external and fiscal sustainability analyses in low-income countries.

45. **The analysis is conducted in a standardized way.** The template is set up for a 20-year projection period in light of the long maturity of concessional debt, and is part of the same overall macroeconomic framework. It is set up to cover two different types of debt: debt incurred externally by domestic residents (both public and private sectors); debt incurred by the public sector (either in gross or net terms), including domestic public debt. The template includes for each type of debt (external or public) a baseline scenario, a set of sensitivity tests, output tables, and a set of charts summarizing the results of the DSA.

II. THE TEMPLATE

46. **The template consists of** (i) a language sheet, (ii) a template navigator, (iii) two input sheets; (iv) four output tables—two for each type of debt; (v) two output figures; (vi) a range of worksheets that transform the input data into the information provided in the output tables; (vii) two worksheets that allow for customized scenarios for each type of debt, and (viii) a summary of the instructions laid out in more detail in this Annex.

A. The Navigator

47. **The navigator shows** all the information available throughout the template. The main sections are:

- *INPUT:* this section includes *Data Input, Input-Output Debt* and *Approach to Public Debt* with the corresponding drop-down menus.

- *SCENARIOS*: this section includes a series of boxes to open and navigate through scenarios worksheets for each type of debt. For the boxes to be displayed and

[28] The siginificant revisions to this annex reflect recent changes to the LIC DSA template.

[29] In the IMF, the framework for "countries with significant market access," covering all industrial and middle-income countries, has been applied for some time. The Bank also uses a distinct template for fiscal analysis in middle-income countries and has templates for other cases, such as resource-rich economies.

worksheets to be opened the user should click the blue arrow next to the reference "Open fiscal all" or "Open external all". If the user is working on only one of the approaches to debt sustainability (i.e., external or fiscal) then the scenarios corresponding to the other one can be closed by clicking on the red arrow next to the reference " Close fiscal all" or "Close external all".

- *OUTPUT*: this section includes a drop-down menu to navigate through the output tables and charts and a link to the Worksheet "*Output database*" which displays a summary of the information used and produced in the template.

48. For each section, the navigator redirects the user to relevant pieces of information by selecting from the dropdown menus, or clicking on a particular box. To get back to the navigator while working any worksheet in the template, find and click on the link "Return to Navigator" located in the top left corner.

B. Input worksheets

49. **The input sheets** (*"Data_input" and "Inp_Outp_debt"*) require information on the key macroeconomic series in the baseline scenario and assumptions regarding the terms of new borrowing. The required inputs are the cells shaded in *yellow* in the input sheets (the non-shaded cells are formulas automatically calculated). The analysis requires data on the total stock of existing debt on new borrowing terms by main creditors. The LIC DSA does not require loan-by-loan data.

50. ***Worksheet "Data input"***: This worksheet collects key macroeconomic series for the baseline scenario and qualitative features of each country. Only those areas shaded in yellow are to be populated, the rest will be calculated automatically. In the first two boxes qualitative information is included such as the debt distress rating, HIPC, MDRI, IMF-supported program, IDA status and the three-year moving average of the CPIA. Macroeconomic series are displayed in the data table: (i) those related to indebtedness such as the stock of total external and public debt, the associated debt service (including on new borrowing); (ii) those related to the external accounts such as exports, imports, current transfers, etc.; (iii) those related to public accounts, such as revenue, expenditure, grants; (iv) and data on the fundamentals of the economy such as nominal GDP, GDP deflator, etc.

51. Before working on the data table, the scale for the template needs to be selected in cell E17. When filling in information, special attention should be paid to those variables for which only historical data needs to be completed, namely public and publicly guaranteed external debt (stock and debt service) and concessional loans[30]. In formulating the baseline

[30] Projected concessional loans are computed based on new borrowing assumptions, i.e., the average concessionality of each lender.

scenario for the public debt sustainability analysis, the coverage of the public sector must be determined (e.g., central government, general government, nonfinancial public sector, etc.) and which debt concept (net or gross) is most appropriate for the country, taking into account country-specific institutional features and data availability.[31] The coverage and type of debt should be noted in the DSA write-up. The level of coverage should also be consistent across fiscal series, so that changes in debt stocks can be compared to fiscal flows. To facilitate this, data on contingent liabilities[32] should be reported as a separate item (if available), rather than as part of the debt stock. Likewise, if public debt is accounted on net terms, a separate line for public sector assets should be reported. To ensure that the coverage of series taken from (IMF) BOP files is consistent with the coverage of the public sector in the fiscal series, the series should be entered only on the External Debt disaggregation and it is automatically calculated on the Public Debt disaggregation.

52. ***Worksheet "Inp_Outp_debt"*:** In contrast to the "Data-input" sheet, the "Inp_Outp_debt" sheet focuses only on medium and long-term PPG debt. The coverage therefore differs from the debt-service concept in the "Data-input" sheet, which also includes external debt service on private sector debt, public debt service on domestic debt, and short-term debt.

53. The "Inp_Outp_debt" sheet is divided in four parts: (i) terms of new external and public borrowing; (ii) debt service on existing PPG external debt; (iii) amounts of new external PPG borrowing; and (iv) output – stock, debt service and PV of external PPG debt. Given that low-income countries primarily rely on concessional financing, the present value (PV)[33] of debt is a more informative measure of a country's effective debt burden. The first two boxes of this sheet show the main assumptions on the terms of new external and public borrowing.

- For external debt, the template accommodates various disaggregations of creditors and allows for different terms. To customize the template, enter the name of each creditor in the "Descriptor" cell and the information on its particular lending terms in the adjacent cells. The latter will subsequently be used to calculate the PV of new disbursements.

[31] The concept of "gross" debt is used by default in the public DSA.

[32] These may include government loan guarantees, the expected costs of bank recapitalization, or unfunded pension liabilities.

[33] The PV of debt is defined as the discounted value of all future debt-service payments due on the debt disbursed and outstanding at a given point in time.

- Assumptions on the terms of marginal public borrowing (additional financing resulting from the stress tests) are required for the public DSA. The template allows for dividing marginal borrowing between foreign-currency borrowing, domestic medium- and long-term borrowing, and domestic short-term borrowing. In addition, the interest rate and maturity structure for each type of marginal borrowing needs to be specified. The interest rates are specified in nominal terms for foreign-currency borrowing (assumed to be in U.S. dollars) and in real terms for domestic borrowing. The PV of public debt is calculated as the sum of the PV of external public debt plus the nominal value of public domestic debt (i.e., for domestic debt, the assumption is that the nominal interest rate equals the discount rate).

54. The user has to enter data on debt-service projections on existing outstanding external PPG debt by main creditor groups over the entire maturity period, **i.e., until all existing claims are paid off**, and projected disbursements by creditor over the projection period. For the purpose of debt-service ratios in the template, only debt service on existing and new (calculated in the template based on assumed borrowing terms) PPG external debt is needed. The PV of PPG external debt is then calculated based on projected debt service and new disbursements based on the terms of new borrowing.

55. The terms of the additional external financing resulting from the stress tests are set to coincide with the average terms assumed in the baseline, but could be adjusted, if warranted. The discount rate has been set at a uniform 5 percent, consistent with the proposal in IMF and IDA, 2004, and should not be altered. It will be adjusted whenever it deviates from the U.S. dollar CIRR (6-month average) by at least 100 basis points for a consecutive period of 6 months. Any changes to the discount rate will be reflected in the most recent version of the template, which will be posted on the website. The use of one discount rate for all external loans implies the need for explicit exchange-rate projections to convert the debt service on existing debt into U.S. dollars. The medium-term conversion should be done on the basis of WEO exchange rate assumptions.

C. Output tables and graphs

56. **Once the input sheets are populated, the template automatically runs the stress tests and produces the output tables and the panel charts.**

57. The tables *"Table Baseline External"* and *"Table Baseline Fiscal"* report the evolution of the nominal external and public debt-to-GDP ratio, respectively in the baseline scenario and, in each year, decomposes this evolution into its driving factors.

- For *"Table Baseline External"* those factors are (i) the non-interest current account deficit and its basic breakdown, (ii) non-debt creating capital inflows (net FDI), and (iii) endogenous debt dynamics. The latter is calculated using GDP growth, interest rates, and price and exchange rate movements (which are not shown for the projection

period in line with Fund convention).[34] The change in debt that is unexplained by these identifiable factors is included in a residual.[35] The table also presents the evolution of five external debt-burden indicators that are key under the framework. These are the PV of PPG external debt relative to GDP, exports, and revenues, and the debt service on PPG external debt relative to exports and revenues. Key macroeconomic assumptions underlying the baseline scenario when external debt sustainability is analyzed, how they compare with the country's historical averages, and the rate of debt accumulation—which would trigger a more thorough analysis if in excess of 5 percent—are also shown.

- For *"Table Baseline Fiscal"* those factors are, (i) the primary balance and its basic breakdown; (ii) endogenous debt dynamics which is calculated using GDP growth, interest rates, and currency appreciation/depreciation (which is not shown for the projection period in line with Fund convention); (iii) and other debt-creating/reducing flows, including privatization receipts and asset purchases (when debt is defined in gross terms), debt relief, or recognition of contingent liabilities.[36] The change in debt that is unexplained by these identified factors represents the residual. While a residual can occur due to, for example, cross-exchange rate variation, a large residual may indicate data errors and should be further analyzed. The table also presents several other debt burden indicators. These are the PV of debt-to-GDP ratio, the PV of contingent liabilities, gross financing need; the PV of debt-to-revenue ratio and debt-service-to-revenue ratio, and the primary deficit that stabilizes the debt-to-GDP ratio. The latter is defined as the difference between the actual primary deficit and the actual change in the public debt-to-GDP ratio. One should note that: (1) a negative number corresponds to a primary surplus and (2) the estimated primary deficit only stabilizes the PV ratio in the year in question, assuming that all previous years followed the path of the baseline scenario. Finally, the table shows the key macroeconomic assumptions in the baseline scenario and how they compare to the country's historical averages.

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[34] Fund staff can find the analytical presentation of the debt dynamics based on this breakdown in the guidance note for the template for middle-income and industrial countries or externally, at http://www.imf.org/DSA .

[35] The decomposition may show a substantial residual (due, for example, to depreciation of the US dollar against other currencies in which debt is held, debt relief, arrears accumulation or changes in international reserves), but a very large residual may indicate data errors. The source of large residuals should be understood and explained.

[36] For an analytical presentation of the debt dynamics based on this breakdown, see the technical appendix to E. Baldacci and K. Fletcher, 2004, "A Framework for Fiscal Debt Sustainability Analysis in Low-Income Countries," in Gupta, Sanjeev, Clements, Benedict, and Inchauste, Gabriela (eds.), *Helping Countries Develop— The Role of Fiscal Policy* (Washington: International Monetary Fund).

58. The table "*Stress Test External*" shows the sensitivity of the five key external debt-burden indicators to standardized shocks and alternative assumptions, specified below. The table "*Stress Test Fiscal*" shows the evolution of the PV of debt-to-GDP, PV of debt-to-revenue and debt-service-to-revenue ratios in the same fashion.

59. The template also produces a panel chart (*Worksheet "Panel Chart"*) that shows how the variables on external and public debt evolve in the baseline, the historical scenario (see below), and in the most extreme stress test.[37] For external debt, the rate of debt accumulation and the average grant element under the baseline is also shown. If the user designs a customized scenario, the debt dynamics resulting from that exercise will also be shown in the charts.

D. Sensitivity analyses

60. **The template includes a set of standardized sensitivity tests to assess the robustness of the sustainability indicators to changes in key assumptions and parameters.** It distinguishes between two "alternative scenarios" and six "bound tests" for the external debt and three "alternative scenarios" and five "bound tests" for the public debt. The debt dynamics under the alternative scenarios and bound tests are derived in separate worksheets and summarized in the output tables and panel chart (see below). In addition, for each approach to debt sustainability, customized scenarios can be constructed.

Alternative scenarios

61. **The alternative scenarios for the external and public DSAs present mechanical responses in debt burden indicators due to changes in critical variables, depending on the scenario.** They do not reflect a comprehensive and consistent alternative macroeconomic framework/scenario, and ignore the joint second round dynamic response of macroeconomic variables relevant for debt dynamics while also ignoring potential policy responses. To reflect an adjustment path or take account of the policy response to a specific hypothetical shock (e.g., second round effects of exports shrinkage), the user should develop an alternative baseline projection consistent with such scenario and rerun the template. Alternatively, one can make use of the customized scenario in the template (see below).

62. **Standard stress tests (alternative scenarios and bound tests) are calibrated using the average and standard deviations over the last 10 years of history**.

Alternative scenarios, external debt sustainability

63. **Historical Average Scenario (Worksheet "A1_ Historical"):** This scenario presents an alternative evolution of the debt ratio under the assumption that key variables are

[37] The most extreme stress test is defined as the test that results in the highest indicator after 10 years of projections. This works analogously for the key public debt-burden indicators.

at their respective historical averages throughout the projection period. This scenario provides indications about the extent of optimism in the baseline projections relative to the country's own historical performance.

64. **Level of concessionality (Worksheet "A2_ Financing"):** This scenario assumes that the interest rate on new borrowing is 200 basis points higher than in the baseline scenario.

Alternative scenarios, public debt sustainability

65. **Historical Average Scenario (Worksheet "A1_ historical"):** This scenario presents the evolution of the debt ratios under the assumption that key variables are at their historical averages throughout the projection period. This scenario provides indications about the extent of optimism in the baseline projections relative to the country's historical performance.

66. **Primary Balance Unchanged (Worksheet "A2_ PB unchanged")**: This scenario assumes that the primary balance is unchanged from the last actual observation, intending to replicate a "status quo".

67. **Lower long-run GDP growth (Worksheet "A3_LR growth")**: This scenario assumes that real GDP growth in all future years is lower than under the baseline by one standard deviation divided by the square root of the projection period. This scenario is intended to illustrate the effects of persistently lower-than-projected growth.

Bound tests

68. **The bound tests are standardized tests, akin to providing the upper bound of a confidence interval to the baseline projections.**[38] The sensitivity tests could be adjusted to take account of country-specific circumstances. Possible modifications may include the choice of the period over which the stress-test parameters are calibrated. The user may wish to adjust the historical data if it covers non-representative events such as a war or a particularly severe crisis that could distort the results. Changes to the parameters used in this scenario should be made in the worksheet *"Baseline"* and *"Baseline-fiscal"* Staff can also change bound tests to shock the baseline rather than the historical averages if they feel that the historical averages are excessively optimistic (for example, in cases where the current account deficit or the primary balance may have been rising over time, making the historical average excessively optimistic looking forward). Such changes should be justified in the write-up.

[38]The confidence interval corresponds, on average, to a 25 percent probability over a ten-year period. This probability is derived on the basis of stochastic simulations presented in Appendix III of IMF and IDA, 2004.

Bound tests, external debt sustainability

69. **The main assumptions are:** The first four tests assume respectively that real GDP growth (*Worksheet "B1_GDP"*), exports growth ("*B2_ Exports*"), inflation, measured by the increase in the U.S. dollar GDP deflator ("*B3_Deflato*r"), and net non-debt flows, including both FDI and current transfers ("*B4_non- debt flows"*), in each of the first two years, are one standard deviation below their historical average. Another test combines all four variables and assumes that in each of the first two years they are half a standard deviation below their historical average ("*B5_Combo*"). A fifth test assumes a one-time 30 percent depreciation of the domestic currency in the first year of the projection period.

Bound tests, public debt sustainability

70. **The main assumptions are:** The first two tests assume that real GDP growth (*Worksheet "B1_GDP"*) and the primary balance (*Worksheet* "*B2_ PB*") are one standard deviation below the historical average in the first two years of projection. Another test combines shocks to these two variables, assuming that they are one-half standard deviation below the historical average (*Worksheet* "*B3_combo*"). A fourth test *(Worksheet "B4_depreciation")* assumes a one-time 30 percent depreciation of the domestic currency (relative to the baseline) in the first year of the projection period. A fifth test (*Worksheet "B5_other flows")* assumes that debt increases by 10 percent of GDP in the first year of projection due to other debt-creating flows, such as a bank recapitalization or recognition of other contingent liabilities.

71. **It is worth noting that the shocks to GDP growth assume that revenues stay constant as a share of GDP** while expenditures stay constant in nominal terms. As a result, GDP shocks increase (decrease) the primary deficit (surplus), which partly explains why these shocks often have large effects. If the user feels that these assumptions are unreasonable for the country under analysis, the assumptions could be altered, although again this should be clearly noted and justified.

Customized scenario

72. **The customized scenario facilitates the design of more country-specific analysis, including alternative assumptions on commodity prices, the terms of new borrowing, the path of the primary balance, etc**. There is one for the external DSA and one for the public DSA. At the top of each worksheet "*Customized Scenario*" there is a box with user instructions. To display the results from this scenario in the output tables and in the charts, the Customized Scenario's status should be "ON". This is done by clicking on the blue box on the top right, otherwise switch it "OFF" by clicking on the red box below it.

Customized scenario, external debt sustainability

73. The variables that can be modified are displayed in rows 8 to 19, and the standardized table on debt dynamics reads directly from the information entered in these

rows. These variables are, exports, imports, official and private current transfers, net FDI, real GDP growth and the GDP deflator. However, special attention should be paid to overall consistency of the scenario (a check line for the current account deficit is included in line 12). All changes should be carefully noted and justified.

74. The worksheet also includes a default shock to either exports and imports, which accounts for changes in commodity prices for a net exporter or net importer country, respectively. To customize the intensity and persistence of the shock, a line on the shock profile is included (see user instructions in the worksheet "*Customized Scenario*"). Finally, the terms of new borrowing can be adjusted by modifying the average interest rate, maturity, and grace period in cells C23:C26, for example if a country plans to tap international markets.

Customized Scenario, Public Debt Sustainability

75. The variables that can be modified are shown in rows 8 to 15, and the standardized table on debt dynamics is feed directly from the information in these rows. The variables that can be modified are the revenues and grants, primary expenditure, real GDP growth, inflation, and a nominal depreciation of the exchange rate. While the standard stress tests already include a depreciation shock or primary balance shock, the customized scenario allows the user to specify a different path for these variables. However, the user has to make sure that the alternative scenario remains consistent (a check line for the primary balance is included in line 12). All changes should be carefully noted and justified.

76. In cases where net public debt is a more appropriate debt concept (e.g., large government deposits from oil revenues), the size and the path of public sector assets can be modified in line 11. Finally, the terms of new borrowing can be adjusted in cells A25:A28 and A33:A35 (average interest rate, maturity, and grace period). Likewise, the user can modify the composition of new public borrowing, namely external, MLT domestic, and short term domestic (cells A20:A22).