

INTERNATIONAL DEVELOPMENT ASSOCIATION  
INTERNATIONAL MONETARY FUND

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

Prepared by the staffs of the International Development Association  
and the International Monetary Fund

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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
ECF	Extended Credit Facility
EDSS	Economic Data Sharing System
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GNI	Gross National Income
HIPC	Heavily Indebted Poor Countries
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
RCF	Rapid Credit Facility
SCF	Short-term Credit Facility
SPR	Strategy, Policy and Review Department (Fund)
PEFA	Public Expenditure and Financial Accountability
PPG	Public and Publicly-Guaranteed
PRGT	Poverty Reduction and Growth Trust
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<sup>1</sup>

- 1. The objective of the joint Bank-Fund 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.<sup>2</sup> 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.<sup>3</sup>
- 2. Fully elaborated joint Bank-Fund LIC DSAs are expected to be prepared once every three years for PRGT-eligible, IDA-only countries (Table 1), with short annual updates in interim years.**<sup>4</sup> For PRGT-eligible countries that are not IDA-only, Fund staff is expected to follow a similar schedule.<sup>5</sup> If the country has durable and significant access to market financing, Fund staff could conduct the DSA using the template designed for middle-income countries.<sup>6</sup> 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 PRGT-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, engage with the authorities in technical discussions during the preparation of DSAs, discuss the DSA results with key staff in the

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<sup>1</sup> This guidance note has been prepared jointly by the World Bank and the IMF staffs and updates the one prepared in October 2008 ([World Bank and IMF, 2008](#)) to reflect the conclusions of the 2009 review of the Debt Sustainability Framework ([World Bank and IMF, 2009](#)).

<sup>2</sup> The Executive Boards of the Bank and the Fund approved the debt sustainability framework (DSF) for low-income countries (LICs) in April 2005 ([World Bank and IMF, 2005](#)) and reviewed it in March 2006 ([World Bank and IMF, 2006a](#)), November 2006 ([World Bank and IMF, 2006b](#)) and August 2009.

<sup>3</sup> “DSF” refers to the framework for joint debt sustainability analyses in LICs. “DSA” refers to an analysis of debt sustainability in a particular country.

<sup>4</sup> This new rule will become effective only once the impact of the current economic and financial crisis dissipates. Until then, the requirement that a full joint DSA is expected to be prepared once a year remains in place ([World Bank and IMF, 2008](#)). This issue is discussed further in Section IV.A.

<sup>5</sup> The guidance provided in this note also applies to Fund-only LIC DSAs.

<sup>6</sup> See Section IV.B for a discussion of the criteria to determine durable and substantial market access.

Ministry of Finance, Central Bank, and other relevant government entities, and share the final DSA files with the relevant officials. Staff should also encourage the authorities to consent to the publication of the DSA. Following the Bank or Fund Board meetings at which DSAs are presented, and with consent of the authorities, country teams are encouraged to present the DSA findings to donors and other interested parties.

Table 1. PRGT-Eligible Countries According to IDA Status

Last update: October 1, 2009

IDA-only countries		Non-IDA-only countries
Afghanistan	Malawi	Albania 1/
Angola	Maldives	Armenia
Bangladesh	Mali	Azerbaijan
Benin	Mauritania	Bolivia
Bhutan	Moldova	Cape Verde
Burkina Faso	Mongolia	Dominica
Burundi	Mozambique	Georgia
Cambodia	Myanmar 2/	Grenada
Cameroon	Nepal	India
Central African Republic	Nicaragua	Pakistan
Chad	Niger	Papua New Guinea
Comoros	Nigeria	St. Lucia
Congo, Democratic Republic of	Rwanda	St. Vincent and the Grenadines
Congo, Republic of	Samoa	Uzbekistan
Côte d'Ivoire	São Tomé and Príncipe	Zimbabwe 2/
Djibouti	Senegal	
Eritrea	Sierra Leone	
Ethiopia	Solomon Islands	
Gambia, The	Somalia 2/	
Ghana	Sri Lanka	
Guinea	Sudan 2/	
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	
Madagascar		

1/ Albania is an IBRD country but PRGT eligible.

2/ Due to Zimbabwe's overdue financial obligations to the PRGT, it is currently not eligible to use PRGT resources. Myanmar, Somalia and Sudan are inactive from IDA's perspective due to overdue obligations to the World Bank.

4. **The Bank and Fund Boards have emphasized the importance of enhancing the flexibility of the DSF, while ensuring that it remains a reliable instrument to monitor the still significant risks to debt sustainability in many LICs.** This note fully reflects the broad guidance provided by the Boards during the last two reviews of the DSF.<sup>7</sup>

- At the 2006 review of the DSF, the Boards advised country teams 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.
- At the 2009 DSF review, the Boards noted the need for greater recognition of the impact of public investment on growth, and the role of remittances in assessing risks. The Boards also provided guidance on the appropriate scope of state-owned enterprise (SOE) debt to be captured in the DSF, the impact of the changes in quality of policies and institutions on country-specific indicative thresholds, the need to reflect more fully the authorities' views in DSAs, and on streamlining DSAs.

**Box 1. Main Changes from Previous Guidance**

- *Assessing more systematically the impact of public investment on growth.* The staffs should carefully and judiciously assess the impact of public investment on growth, including by considering the use of detailed empirical analyses where a scaling-up of public investment is ongoing or imminent, or where the conditions for such a scaling-up exist.
- *The determinants of long-term growth should be discussed in full DSA write-ups.*
- *Remittances.* The scope for considering remittances in assigning the risk rating has been expanded.
- *SOEs debt.* The circumstances in which an SOE's debt may be excluded from consideration in DSAs has been defined.
- *Greater inertia of policy capacity assessments.* Changes in three-year moving average CPIA scores lead to changes in policy capacity assessments only if they lead to a large breach of the cutoff, or if a breach is sustained for at least two years.
- *SDR Allocations.* Guidance on how countries' drawdown of SDR holdings should be treated in DSAs has been provided.
- *Streamlining DSAs.* Full DSAs would typically be required only once every three years, with short annual updates in the off-years.
- *Reflecting authorities' views.* Full DSA write-ups are now required to present systematically the authorities' views.
- *DSAs for countries with market access.* Guidance on circumstances under which it is appropriate to use the middle-income-country DSA template for LICs with market access has been provided.

<sup>7</sup> See [World Bank and IMF, 2006a](#), and [World Bank and IMF, 2009](#).

5. **The guidance note is structured as follows.** Section II covers analytical aspects of the DSA framework. Section III discusses DSA design and operational implications. Section IV discusses technical modalities for preparing DSAs including timing, information sharing, review and clearance, and the reflection of authorities' views. 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, Annex III contains detailed indicators to assess when an SOE's debt may be excluded from DSAs, Annex IV elaborates on the process of assessing a country's market access, and Annex V contains the derivation of the standard debt dynamics formula.

## 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);<sup>8</sup> (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;<sup>9</sup> 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),<sup>10</sup> and private external debt<sup>11</sup> in the external DSA and for total public sector debt including domestic debt (where possible including state-owned enterprises) in the public sector DSA.<sup>12,13</sup> The template is designed for a twenty-year projection period (in light of the long

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<sup>8</sup> The DSF uses the definition of public and publicly-guaranteed (PPG) external debt contained in the [External Debt Statistics: Guide for Compilers and Users](#). This is specified more fully in Section III.D below.

<sup>9</sup> An assessment of total public debt vulnerabilities is also required as part of the LIC DSA. However, the indicative debt-burden thresholds do not apply to total public debt, and the risk rating is based only on external public and publicly guaranteed debt (see Section III.C).

<sup>10</sup> Including debt owed by the central bank to the IMF, if any.

<sup>11</sup> 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.

<sup>12</sup> 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,

(continued)

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.<sup>14</sup> 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 also be adjusted, when appropriate, to take account of country-specific circumstances.<sup>15</sup>

**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, which captures 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.<sup>16</sup>

## B. Country-Specific Debt-Burden Thresholds

**9. The DSF uses policy-dependent external debt-burden thresholds 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

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domestically-issued debt or debt denominated in domestic currency can be is often used as a proxy for domestic debt (see section III.C).

<sup>13</sup> While the analysis generally focuses on medium and long-term debt, risks arising from a large stock of short-term debt should be discussed in the write-up.

<sup>14</sup> Since the inception of the DSF the discount rate had remained constant at 5 percent. In September 2009, it was lowered by 100 basis points to its present level of 4 percent.

<sup>15</sup> 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.

<sup>16</sup> See "[External Debt Statistics: Guide for Compilers and Users](#)", IMF, June 25, 2003 for a discussion of the merits of alternative indicators of debt sustainability.

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.<sup>17</sup> Table 2 shows the associated external debt-burden thresholds. As explained in Section C below, countries' risk classification depend on the indicative thresholds, and therefore on the CPIA score. To reduce variations in the risk of debt distress rating stemming from small annual fluctuations in the CPIA that do not represent a material change in countries' capacity to service their debt, the three-year moving average CPIA score should be used to determine a country's policy performance under the DSF.<sup>18</sup> In addition, for countries where, following the release of the new annual CPIA score, the updated three-year moving average CPIA rating breaches the applicable CPIA boundary, the country's performance category would change immediately only if the size of the breach exceeds 0.05. If the size of the breach is at or below 0.05, the country's performance category would change only if the breach is sustained for two consecutive years.

Table 2. Debt Burden Thresholds under the DSF  
(Applied to external public debt) 1/

	NPV of debt in percent of		Debt service in percent of	
	Exports	GDP Revenue	Exports	Revenue
Weak Policy (CPIA $\leq$ 3.25)	100	30	200	15
Medium Policy (3.25 < CPIA < 3.75)	150	40	250	20
Strong Policy (CPIA $\geq$ 3.75)	200	50	300	25

1/ CPIA measured as a three-year average.

### C. Debt Distress Risk

10. **Every joint Bank-Fund 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 as ([World Bank and IMF, 2005](#)):

<sup>17</sup> Based on a three-year average of the CPIA rating, an average score at or above 3.75 corresponds to strong performance; an average score higher than 3.25 and less than 3.75 reflects medium performance; and an average score at or below 3.25 corresponds to poor policy performance.

<sup>18</sup> Because CPIA scores are averages of 16 indicators of policy and institutional quality, the CPIA thresholds should not be used mechanically in country assessments ([World Bank and IMF, 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.<sup>19</sup>
- **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. Actual or impending debt restructuring negotiations, or the existence of arrears would generally suggest that a country is in debt distress.

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 staffs 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 remittance inflows (see Section III.E); 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.

### 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 other important issues such as the coverage of PPG debt in DSAs, the treatment of remittances and members'

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<sup>19</sup> Given the long maturity profiles of debt in many LICs, debt service is often backloaded. Thus, a steady increase in such ratios to near their thresholds could indicate the possibility of a breach of thresholds beyond the projection period.

SDR allocations, as well as 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.**<sup>20</sup> The principal mechanism for promoting realism in DSAs is to scrutinize baseline projections by: (i) subjecting them to *reality checks*; (ii) assessing judiciously the impact of public investment on growth; and (iii) undertaking “post-mortem” analyses of projections in the previous DSA. 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.
- **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.

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<sup>20</sup> 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.

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

### **Assessing the Impact of Public Investment on Growth**

16. **Fully elaborated DSA write-ups should include a discussion on the determinants of growth, including public investment.**<sup>21</sup> This discussion should cover the key assumptions, the analytical techniques used to underpin medium-term growth projections, and the main conclusions. In many cases, the use of simple techniques, such as growth accounting, would be appropriate. Subject to relevance and availability, the indicators listed in Box 2 should also be considered for the analysis of the link between debt-financed public investment and growth.<sup>22, 23</sup>

17. **The use of complex and resource intensive methodologies would generally be expected only in specific circumstances.** Assessing the impact of a scaling-up of public investment on growth poses significant analytical challenges,<sup>24, 25</sup> and a number of methodologies may be considered to address them. Where feasible, general equilibrium models could be used to provide a consistent way to analyze the complex interlinkages between public investment and growth.<sup>26</sup> Alternatively, growth diagnostic studies or detailed micro-level studies of countries' economic characteristics (including infrastructural shortcomings) could also inform an assessment of the impact of public investment on growth. Staffs would be expected to consider utilizing these more complex and resource intensive analytical techniques only where a scaling-up of public investment is ongoing or imminent, or

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<sup>21</sup> Such a discussion would not be expected in the short annual updates of DSAs.

<sup>22</sup> See also, Box 6 and Annex 2 of [World Bank and IMF, 2009](#), and Appendix 3 of [World Bank and IMF, 2006a](#).

<sup>23</sup> For an example of country-specific public investment modeling within the framework of financial programming, see [Estache and Munoz, 2007](#).

<sup>24</sup> Specifically, a significant scaling-up of public investment could bring about structural changes in the economy that makes historical experience a less reliable guide for assessing the impact of public investment on growth.

<sup>25</sup> A large number of recent studies suggest a positive relationship between public investment and growth but fall short of providing unambiguous results on the size of the impact of such investment on growth. [World Bank and IMF, 2009](#) contains a survey of the recent literature on the public investment and growth nexus.

<sup>26</sup> As indicated in paragraph 23 of [World Bank and IMF, 2009](#), such models offer a synthetic representation of the inter- and intra-temporal tradeoffs faced by policy makers, ensure consistency in the analysis, can capture aspects of the analysis such as macroeconomic absorptive capacity constraints (private investment crowding out, Dutch disease, etc), and can be calibrated to simulate country-specific factors.

where high macroeconomic and public financial management capacity or efforts to improve the investment environment make scaling-up feasible.

### **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. While relevance and availability will vary by country, 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. These could be used not only to provide a snapshot of the existing institutional constraints, but also to evaluate ongoing efforts to alleviate such constraints, as measured by improvements in these and other indices over time.
- Level and growth rates of public investment
- The government's ability to capture returns on 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

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

- Prolonged growth accelerations are rare.
- 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. Cases of large *upfront* borrowing—that has been found to significantly increase the likelihood of debt distress—require even more attention. 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.

## B. Treatment of Remittances

20. **From a debt sustainability perspective, remittances share similar characteristics with other variables that affect capacity to repay (exports and GDP).** Remittances and exports both enhance the foreign exchange available to a country. Although in some countries remittances may be largely used to finance imports, in many instances exports may also be associated with large import requirements. Remittances also ease domestic resource constraints in much the same way as changes in domestically generated production (GDP). In recent years, remittances have emerged as a significant inflow of foreign exchange for many LICs.<sup>27</sup>

21. **However, the lack of a suitably long and comprehensive data series has prevented the formal inclusion of remittances in the DSF.** Remittances were not included in the initial

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<sup>27</sup> In the sample of PRGT-eligible and IDA-eligible countries covered in [World Bank and IMF, 2009](#), excluding outliers (10 percent of sample with very high/low remittances), the sample average of remittances was approximately 14 percent of exports and 5 percent of GDP respectively.

estimation of the empirical model underlying the DSF,<sup>28</sup> and the recent review concluded that data issues precluded formal inclusion at this stage as well. Only GDP, exports of goods and services, and government revenues are explicitly used in the DSF as proxies for the country's capacity to repay.

**22. Consequently, to operationalize the approach described in the 2009 DSF review Board paper to take better account of remittances in the determination of a country's risk of debt distress, the following procedure should be followed.** Specifically, a more favorable rating could be envisaged if the conditions below are satisfied.

- Workers' remittances represent a reliable source of foreign exchange.<sup>29</sup> In this regard, they should not have exhibited large volatility or a structural decline in the recent past. The same considerations should also apply for the projections.<sup>30</sup>
- Breaches of thresholds under the baseline or stress tests (i.e. before taking account of remittances) are not very protracted.<sup>31</sup>
- The modified debt burden indicators—the PV of external debt and external debt service as ratios to the sum of exports and gross remittances, and to the sum of gross domestic product and gross remittances, respectively—are significantly lower than the DSF thresholds applicable to the corresponding debt burden indicator.<sup>32</sup> In the absence of a formal re-estimation of the framework, a rule-of-thumb could be to use modified thresholds that are 10 percent lower than the applicable DSF thresholds.<sup>33, 34</sup>

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<sup>28</sup> See [World Bank and IMF, 2004b](#), and [Kraay and Nehru, 2004](#).

<sup>29</sup> In the [Balance of Payments Manual \(6<sup>th</sup> edition\)](#), workers' remittances are referred to as "personal transfers".

<sup>30</sup> Significant remittances to LICs are a relatively recent phenomenon and, notwithstanding some recent studies that indicate remittances are more stable than some other inflows, caution dictates that they be considered for the purpose of influencing the rating only if there is a high degree of confidence that such inflows would continue into the future. Indeed, remittance inflows into a number of LICs have experienced a sharp decline during the 2008–09 financial crisis.

<sup>31</sup> A benchmark for the maximum permissible length of the breach of the thresholds could be 10 years starting from the current year, i.e. half of the projection period.

<sup>32</sup> Since in some LICs the repatriation of income by expatriate workers may represent a significant outflow, and net remittances may differ significantly from gross remittances, the DSA write-up should indicate where this may be the case.

<sup>33</sup> As indicated in [World Bank and IMF, 2009](#), a reestimation of the DSF thresholds incorporating remittances into the framework would result in lower thresholds applying to the remittance-modified debt indicators.

<sup>34</sup> For a country facing a DSF threshold of 150 percent of exports for its PV of debt, this would imply that the remittance modified debt indicator should not exceed 135 percent. Similarly, where the DSF threshold is 40 percent of GDP, the remittance modified indicator should not exceed 36 percent of GDP.

- Using the remittance-modified debt indicators, a country's risk rating could be moved from high to moderate if under the baseline scenario the debt ratios were below the modified thresholds. A change in the risk rating from moderate to low could be considered if the remittance-modified debt indicators under both the baseline and alternative scenarios were below the modified thresholds. A two-step change in the risk rating, from high to low, is not permitted based on the remittance-modified indicators.
- A change in the rating based on these considerations should be fully documented in the DSA write-up.

### C. Treatment of Domestic Debt

23. **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.

24. **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.<sup>35</sup> Domestic debt data should seek to cover the liabilities of the broader public sector, including the central government, local governments, state-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.

25. **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.

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<sup>35</sup> As indicated in footnote 12, the residency criterion is sometimes difficult to apply. In those cases, domestically-issued debt is often used as a proxy for domestic debt.

- **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.*

#### D. Treatment of State-Owned Enterprise Debt in External DSAs

26. **The coverage of external DSAs in the DSF is public and publicly-guaranteed (PPG) external debt, as defined in the *External Debt Statistics: Guide for Compilers and Users*.** Specifically, PPG external debt comprises: (i) external debt of the public sector, defined as central, regional and local governments, central bank, and public enterprises—the latter subsumes all enterprises that the government controls, such as by owning more than half of the voting shares—and (ii) private sector debt guaranteed by the public sector.<sup>36</sup>

27. **Removing an SOE's external debt from external DSAs can be considered, if the company can borrow externally without a public guarantee and its operations pose a limited fiscal risk.**<sup>37</sup> The case for such exclusions, which should be explicitly described in DSA write-ups, should be based on the following:

- For each enterprise whose debt is proposed to be removed from DSAs, staff would collect available information as regards its managerial independence; relations with the government; the periodicity of audits; publication of comprehensive annual reports and protection of shareholders' rights; financial indices and sustainability; and other risk factors. A detailed list of indicators is available in Annex III.
- In line with earlier work done by staff, and acknowledging that comprehensive information on SOEs may not be readily available in LICs, two criteria would be binding in the determination of fiscal risks: An enterprise should be normally judged

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<sup>36</sup> While ownership by the government of at least 50 percent of the shares guarantees its control over the enterprise, such control may exist even when it owns a smaller proportion of the total share capital of the company. In the text below, the term SOE is used interchangeably to refer to such public enterprises.

<sup>37</sup> If an SOE is judged to meet these conditions, its external debt would be excluded from the external DSA, and its total debt from the public DSA.

to pose a high fiscal risk if it carries out uncompensated quasi-fiscal activities or if it has negative operating balances.

- By contrast, enterprises could be deemed to have a low fiscal risk even if they do not meet all the criteria noted in Annex III, or when not all information on these criteria is available. For example, such a judgment could be based on SOEs' financial strength or their track record.

28. **The decision to remove an SOE's debt from PPG external debt is simplified in cases where there is an IMF-supported program.** Under such circumstances, the technical memorandum of understanding would specify any exclusion of SOEs for the purpose of the external debt limits.<sup>38</sup> The same exclusions would be expected to apply in the DSA.

### E. Treatment of Debt Held by Private External Creditors

29. **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) contingent liabilities for the government resulting from balance sheet effects in the domestic financial system, as sovereigns' increased access to international capital markets may exacerbate domestic financial institutions tendency to invest in riskier assets.

30. **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.**<sup>39</sup> 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;<sup>40</sup> and (iii) weaknesses in the financial sector that may give rise

<sup>38</sup> See [IMF, 2009b](#) for a description of new guidelines on debt limits in Fund-supported programs.

<sup>39</sup> The IMF's Financial Sector Indicators database (<http://fsi.imf.org/>) regularly disseminates information on these indicators.

<sup>40</sup> 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).

to systemic problems. Where these factors are significant, they should be explained and taken into account in the sustainability assessment.

31. **In relevant cases, country teams should discuss with the authorities any policies that could help alleviate these risks.**<sup>41</sup> 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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<sup>41</sup> 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
<b>Indicators of public sector stock imbalances (solvency risk)</b>		
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	✓	
<i>Of which:</i> External	✓	
<i>Of which:</i> Foreign currency denominated	✓	
<i>Of which:</i> Foreign currency linked		✓
<i>Of which:</i> Indexed to the CPI		✓
Primary deficit that stabilizes public sector debt-to-GDP	✓	
<b>Indicators of external sector stock imbalances (solvency risk)</b>		
PV of external debt-to-GDP (exports)	✓	
External debt-to-GDP	✓	
Non-interest external current account deficit that stabilizes external debt-to-GDP	✓	
<b>Indicators of public sector flow imbalances (liquidity, rollover risks)</b>		
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		✓
<b>Indicators of external sector flow imbalances (external liquidity, rollover risks)</b>		
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		✓
<b>Indicators of financial system soundness</b>		
Regulatory capital-to-risk-weighted 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.

## F. Treatment of SDR Allocations

32. **Against the backdrop of the global financial crisis, the IMF has proceeded with a US\$250 billion general allocation of special drawing rights (SDRs).**<sup>42</sup> The allocation involves two elements: an increase in the member's *allocation* of SDRs (liabilities) and a matching increase in its *holdings* of SDRs (assets). This has, together with the concurrent "special allocation", led to a very significant increase in members' allocations and holdings of SDRs. The Board has also asked that the debt sustainability implications of members' use of their SDR holdings be systematically assessed in DSAs.<sup>43</sup>

33. **A country's SDR allocation should not be included in the *nominal* stock of gross external debt in DSAs.** This is because members are generally under no obligation to reconstitute their SDR holdings.<sup>44</sup> Country conventions regarding the recording of SDR allocations should be explicitly noted in DSA write-ups, especially where such conventions differ from their treatment in the DSA.

34. **Instead, the aim of DSAs should be to capture the net interest payments that arise when SDR holdings are below a participant's SDR allocation.**<sup>45</sup> In such a case, the net interest payments will be positive, as the interest paid on the SDR allocation will exceed the interest received on the reduced holdings of SDRs. This will impact the magnitude of debt service and the PV of PPG debt, and hence, all of the debt indicators that are formally assessed under the LIC DSF.

## G. Operational Implications

35. **LIC DSAs have operational implications for both IDA and the Fund, as well as for some other multilaterals, including the African Development Bank (AfDB).**

- LIC DSAs form the basis for determining the grant/loan mix in IDA allocations. 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

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<sup>42</sup> In addition, the Fourth Amendment of the Fund's Articles of Agreement has recently become effective, and made available to some SDR Department participants a special allocation of up to an additional SDR 21.5 billion (US\$33 billion).

<sup>43</sup> See [IMF, 2009a](#).

<sup>44</sup> Reconstitution obligations can arise at the time of liquidation of the Special Drawing Rights Department, termination of participation, or if the Fund were to adopt rules requiring reconstitution. Such rules establishing reconstitution requirements were in place until 1981.

<sup>45</sup> Since members are currently under no obligation to reconstitute their holdings, staff should not at this time incorporate any schedule of reconstitution of SDR holdings.

50/50 blend of grants and traditional credits, and countries at low risk continue to receive 100 percent credit financing on standard IDA terms.<sup>46</sup>

- In addition, LIC DSAs inform IDA's decisions regarding its Non-Concessional Borrowing Policy (NCBP).<sup>47</sup> Specifically, the NCBP acknowledges that, under certain circumstances, nonconcessional loans can be part of a financing mix that helps promote economic growth, and waivers to non-concessional debt limits can be considered based on, among other criteria, the country's debt sustainability outlook as assessed under the DSF.
- The design of debt limits in Fund-supported programs is systematically related to the assessment of countries' debt vulnerabilities in LIC DSAs ([IMF, 2009b](#) and [Supplement 1](#)).<sup>48</sup>
- In order to protect members' debt sustainability, the determination of the level of access to the Fund's concessional resources needs to take account of a recent assessment of the country's debt vulnerabilities based on a LIC DSA.<sup>49</sup> In such DSAs, forward-looking debt and debt service indicators should include all projected disbursements, including from the Fund.<sup>50</sup>
- When the risk of debt distress classification shifts to a higher level, staff should comprehensively reassess the recommended debt accumulation strategy.

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<sup>46</sup> 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.

<sup>47</sup> For details on IDA's NCBP please refer to <http://go.worldbank.org/FYMWR5Y892>. A revised guidance note to reflect recent changes to the policy is under preparation.

<sup>48</sup> The guidance note for the new debt-limits policy [IMF, 2009c](#) contains details on how the policy should be applied.

<sup>49</sup> A DSA update is required for financing requests (augmentation or new arrangement) under any of the three concessional facilities (Extended Credit Facility, Short-term Credit Facility, and Rapid Credit Facility) that would, (i) involve exceptional access; and/or (ii) bring total access in excess of 80 percent of quota, based on past scheduled (not necessarily drawn) and future scheduled disbursements in any 24-month period; and/or (iii) involves a member rated as being at high risk of debt distress, or in debt distress. For all other requests for new arrangements or augmentations a new DSA is recommended, but not required, unless (i) a recent DSA is not available; or (ii) macroeconomic conditions have deteriorated significantly since the last DSA. Financing requests of less than 10 percent of quota do not require an updated DSA.

<sup>50</sup> In some cases, it may be appropriate to present an alternative scenario in the DSA that excludes Fund financial support (and other possible financing and policies that are tied to Fund financing). In particular, this might be the case if (i) Fund financing is large in relation to key economic indicators; or, (ii) the country has a high risk of debt distress or is in debt distress; or, (iii) the debt risk rating is downgraded relative to the previous DSA. In any event, for countries with a high risk of debt distress (or in debt distress), and where Fund financing exceeds 40 percent of quota per year, the DSA should include an explicit discussion of the contribution of Fund financial support to the evolution of debt burden indicators.

#### IV. MODALITIES FOR PREPARING DSAs

##### A. Frequency and Presentation

36. **Full joint Bank-Fund LIC DSAs are expected to be prepared once every three years for PRGT-eligible IDA-only countries.** In the intermediate years, short annual updates are expected to be produced.<sup>51</sup> However, if macroeconomic conditions since the last full DSA have significantly changed, or if needed in order to satisfy other Bank-Fund requirements, a full DSA may have to be produced before three years since the last full DSA have elapsed.<sup>52</sup> Any change in circumstances that warrants a change in the risk rating would require a full DSA.

37. **Each calendar year, Bank and Fund 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, all Country Assistance Strategies include a discussion on debt sustainability, along with a detailed debt sustainability annex when necessary. In countries where debt sustainability is not an issue, it is noted explicitly in the CAS. DSAs are also required for IDA allocation purposes.<sup>53</sup> 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.

38. **Each institution can update the DSA for its own purposes if changes in assumptions are relatively minor.**<sup>54</sup> 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.

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<sup>51</sup> This rule will become effective only once the impact of the 2008/09 economic and financial crisis dissipates.

<sup>52</sup> In this case, the three-year period before the next full DSA becomes due would restart from this date.

<sup>53</sup> 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.

<sup>54</sup> For example, in the event of an urgent request for access augmentation, or if the last joint DSA was prepared very recently, unilateral updates by Fund staff could be considered provided that they do not lead to a change in the risk rating. Similarly, unilateral updates by Bank staff can be undertaken for IDA allocation purposes.

### Box 3. DSA Process

As a first step, Bank and Fund country teams need to agree on a schedule for the preparation of DSAs (full DSAs or updates) for individual countries each calendar year. Once the DSA process has started, early consultations between Bank and Fund stakeholders are critical to avoid last minute requests for changes. In the Fund, the policy consultation stage provides an opportunity for early input from reviewing departments. Although the Bank does not have a similar 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 p 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 Policy Note (PN). 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 policy consultation stage. It is understood that the preliminary DSA included in the PN 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 PNs is required but any significant differences in view should be reported in the PN.

Approx. Timing (in business days)	DSA Stage	Fund	Bank
(T-90) days	Draft Policy Note (on Bank side preliminary DSA draft)	Fund team (desk or SPR economist) begins to prepare the DSA template and write-up in consultation with Bank counterpart economist; Mission chief approves the draft DSA; Informal contact from AD to alert reviewing departments regarding issues on which cross-country analyses would be useful	Bank team (country economist or PRMED economist for priority countries) begins to prepare the DSA template and write-up in consultation with the Fund counterpart economist and the WB economist from the Region; Bank team discusses sectoral issues with bank sector specialists and a preliminary meeting is held between the Bank and Fund teams to discuss the macroeconomic assumptions (minutes recorded); regional lead economist or sector manager approves the draft DSA.
(T-64) days	Department Review of Draft Policy Note/preliminary DSA draft	At least three days before the PCM, Fund Team sends a draft DSA as part of Policy Note 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; Circulate draft Policy Note and background materials to reviewing departments	Bank team sends draft DSA to PRMED for preliminary comments; the objective is to raise and resolve all major issues related to content, coverage, and broad assumptions at this time (allow three days for review)
(T-61) days	Policy Consultation Meeting/PRMED and Regional preliminary comments	Policy Consultation Meeting (usually 2 - 3 weeks before the mission)	PRMED provides comments on the preliminary draft to the WB country economist
(allow 1 day for review and sign-off)	Department Review of Revised Policy Note/PRMED revised preliminary review	Circulate revised Policy Note (including DSA) to SPR; copy other reviewing divisions - allow 1 day for review and clearance	Together with Fund staff, WB country economist provides revised draft to PRMED for review
(allow 3 days for clearance)	Revised Policy Note to Management	Fund Management clears the revised Policy Note	
(T-46) days	Mission	Fund team completes DSA preparation during mission with input and comments from the authorities	Bank team completes DSA preparation with Fund staff with input and comments from the authorities (Bank participation in missions is encouraged)
(T-36) 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, a meeting is held between the Bank and Fund teams to discuss the changes to macroeconomic projections (minutes recorded) and the Bank team receives the revised draft DSA, templates, and macro framework from Fund team (detailed/linked real, monetary, fiscal, and BoP sector tables).
(T-16) days	Department Review of Staff Report/DSA formal clearance	Completed DSA sent to review departments alongside Staff Report (allow 3 days for review)	Prior to formal clearance, regional sector manager approves DSA. Completed DSA sent to PRMED Director and regional PREM Director for formal clearance (allow 3 days for review)
(T-13) days	Staff Report to Management	Fund team sends an Executive Summary to management that highlights DSA results, and raises DSA issues (if needed) in clearance note (allow 3 days for review)	PRMED and PREM Directors clear DSA. Bank team sends full DSA to management (if applicable) alongside any other country documents.
(T-10) days	Circulation of Staff Report to Board	DSA sent to Board with Staff Report	DSA submitted by PRMED to SECBO and sent to Board for information
T	Board Meeting	DSA subsequently published (given authorities approval) as a supplement to the Staff Report	DSA published after authorities' approval received by Bank or Fund staff

39. **LIC DSAs should be prepared as self-contained documents.**<sup>55</sup> 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 (4–5 pages excluding tables or any appendices). A full DSA outline is contained in Annex II. LIC DSA updates (between full DSAs) would be significantly lighter exercises and consist of a short write up and the usual set of tables and charts. The write-up, which would usually be no longer than one page, would include a summary paragraph on the debt distress rating and cover important changes, if any, from the previous DSA.

### B. DSAs for Countries with Market Access

40. **When a PRGT-eligible country that is not IDA-only has durable and substantial market access, the template for middle-income countries may be used to undertake the DSA.**<sup>56</sup> For such countries, there would be no formal risk rating and the assessment of debt vulnerabilities would have to be judgmental.

41. **There are several elements in assessing whether a country has market access on this basis.** Specifically, the existence of such capacity would normally be evidenced by the sovereign's capacity to access international financial markets on a durable and substantial basis, as measured under one of two alternative tests. Under the first test, the existence of such capacity would normally be evidenced by public sector issuance or guaranteeing of external bonds or by disbursements under public and publicly guaranteed external commercial loans in international markets during at least three of the last five years (for which data are available), in a cumulative amount over that period equivalent to at least 100 percent of the country's Fund quota at the time of the assessment. As an alternative, a country could also be deemed to meet the market access criterion if there were convincing evidence that the sovereign could have tapped international markets on a durable and substantial basis, even though the scale or duration of actual public sector borrowing fell short of the specified thresholds. This would be a case-specific assessment, considering such relevant factors as the volume and terms of recent actual borrowing in international markets and the sovereign credit rating.<sup>57</sup> (See Annex IV for further details on the market access criterion.)

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<sup>55</sup> 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.

<sup>56</sup> An assessment that a country has durable and substantial market-access would need to be made each time before a DSA is conducted using the middle-income country template.

<sup>57</sup> As noted in Annex IV, both tests of the market access criterion would take into account bonds/loans issued/contracted or guaranteed by non-sovereign public sector debtors, where such a debtor's ability to access international markets is assessed to be an indicator of the sovereign's creditworthiness.

### C. Division of Responsibilities between Bank and Fund Staff

42. **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 (World Bank and IMF, 2005). The Bank takes the lead on long-term growth prospects and, where needed, on assessing the investment-growth nexus.<sup>58</sup> 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.<sup>59</sup> With this input, Bank and Fund 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.

43. **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 Bank and Fund 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.

### D. Dispute Resolution

44. **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 (World Bank and IMF, 2005):

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<sup>58</sup> 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.

<sup>59</sup> Bank staff should where necessary obtain debt-service projections on outstanding Fund lending from the Fund country team.

- 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.
- 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.

#### **E. Review Process**

45. **LIC DSA documents prepared by Bank and Fund staffs are subject to the regular review process.** Details of review and clearance, including timing, are given in Box 3. Notably, in the Fund, it is important for draft updated DSAs to be sent for review at the policy note stage to allow for constructive feedback, including on the design of debt limits in Fund-supported programs. 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.

46. **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.

47. **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.<sup>60</sup>

#### F. Reflecting the Authorities’ Views

48. **Full DSAs should reflect the authorities’ views, and to the extent possible, the authorities should be involved in the preparation of DSAs.** The DSA assumptions and results should be thoroughly discussed with the authorities and the final DSA templates provided to them. A systematic presentation of the authorities’ views would be desirable for DSAs to achieve their objectives—to inform program design, inform broader policy dialogues with the authorities and their creditors, and enhance country ownership. This could be done in a separate short section. In addition, should the authorities’ views differ significantly from those of staffs, resources permitting, alternative scenarios may be prepared in the DSA based on assumptions provided by the authorities.

#### V. ARRANGEMENTS FOR HIPC

49. **There are important conceptual and methodological differences between the debt sustainability analysis under the HIPC Initiative and the LIC DSA (World Bank and IMF, 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 discount rate, and applies policy-dependent indicative thresholds.<sup>61</sup>

50. **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:

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<sup>60</sup> The files should also be sent to the authorities.

<sup>61</sup> The mechanism for adjusting the discount rate is discussed in paragraph 7 above.

- 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.

51. **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.

52. **HIPC Initiative and MDRI debt relief should be accounted for in the baseline or alternative scenario, depending on HIPC status.**<sup>62</sup> 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

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<sup>62</sup> MDRI assistance should include any indicated assistance from regional development banks (e.g., the African Development Bank and the Inter-American Development Bank).

approximate, since the actual HIPC debt reduction factor will depend on the decision point date.

## VI. COMMUNICATIONS STRATEGY

53. **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. 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.

54. **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.<sup>63</sup>

55. **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.**<sup>64</sup> 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://worldbank.org/debt> and <http://www.imf.org/dsa>). 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).

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<sup>63</sup> 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.

<sup>64</sup> 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 I: DEBT DYNAMICS TEMPLATE FOR LOW-INCOME COUNTRIES USERS' GUIDE

### I. INTRODUCTION

56. **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.<sup>65</sup> 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.

57. **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

58. **The template consists of:** (i) a language sheet, (ii) a template navigator, (iii) four input sheets; (iv) five output tables; (v) four 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

59. **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 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

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<sup>65</sup> 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.

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.

60. 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**

61. **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.

62. **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.

63. 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<sup>66</sup>. In formulating the baseline 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

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<sup>66</sup> Projected concessional loans are computed based on new borrowing assumptions, i.e., the average concessionality of each lender.

country-specific institutional features and data availability.<sup>67/68</sup> 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<sup>69</sup> 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.

64. **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.

65. 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)<sup>70</sup> 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.
- Assumptions on the terms of marginal public borrowing (additional financing resulting from the stress tests) are required for the public DSA. The template allows

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<sup>67</sup> Fund staff can find more guidance on coverage issues in FAD's memorandum to management of April 8, 2003, "Selected Accounting and Reporting Issues Related to Fiscal Statistics."

<sup>68</sup> The concept of "gross" debt is used by default in the public DSA.

<sup>69</sup> These may include government loan guarantees, the expected costs of bank recapitalization, or unfunded pension liabilities.

<sup>70</sup> 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.

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).

66. 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.

67. 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 [World Bank and IMF, 2004b](#), 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 six 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.

68. **Worksheet “SDR”:** This worksheet is designed to estimate the impact of the net use of the SDR allocation on a country’s debt sustainability outlook. Total SDR allocation and total SDR holdings should be entered in billions of USD in the specified cells. If the SDR allocation exceeds SDR holdings, then the member has to pay interest on its net use of SDRs.<sup>71</sup> Given that members are under no obligation to reconstitute their holdings, PV calculations only consider the future flow of interest payments.

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<sup>71</sup> The interest payments associated with the net use of SDRs are calculated using: (i) the net use of SDRs; and (ii) a projection of the SDR interest rate. Over the projection period, an estimate of the SDR interest rate is constructed using a projection of exchange rates, short-term deposit rates as well as current SDR weights. Note that short-term deposit rates are used instead of the usual 3-month T-bill rates (for more information, please see: [http://www.imf.org/external/np/fin/data/sdr\\_ir.aspx](http://www.imf.org/external/np/fin/data/sdr_ir.aspx)). After the end of the WEO projection year, the interest and exchange rates are assumed to remain constant.

69. **Worksheet “PV targets”:** The Fund’s policy on debt limits moved away from a single design for concessionality requirements toward a menu of options.<sup>72</sup> The new approach reflects the diversity of situations in LICs, in particular with regard to the extent of debt vulnerabilities and macroeconomic and public financial management capacity. The PV targets worksheet is designed to assist teams in setting and monitoring debt limits for higher-capacity countries (PV or average concessionality targets). The worksheet allows for setting and monitoring debt limits on a disbursement or contracting basis.<sup>73</sup> Debt limits set on a disbursement basis are based on information taken directly from the ‘Inp\_Outp\_Debt’ worksheet. To monitor the disbursement-based targets, the user needs to populate the PV targets worksheet with the appropriate loan disbursement information. Debt limits set on a contracting basis are based on the terms and conditions of debt expected to be contracted in the upcoming year. Debt limits set on a contracting basis should be consistent with the information used for the general disbursements in the Inp\_Outp\_debt worksheet. To monitor the contracting-based targets, the user needs to populate the PV targets worksheet with the appropriate loan contract information.

### C. Output tables and graphs

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

71. 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). The change in debt that is unexplained by these identifiable factors is included in a residual.<sup>74</sup> 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. The debt burden indicators based on exports and GDP are also presented in terms of the sum of exports and gross

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<sup>72</sup> See [IMF, 2009b](#).

<sup>73</sup> For both options, the user must input exchange rate assumptions.

<sup>74</sup> 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.

remittances, and the sum of GDP and gross remittances. 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—that 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.<sup>75</sup> 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.

72. 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 External – remit*” shows a similar analysis as “*Stress Test External*”, but the debt burden indicators for which the measure of repayment capacity is GDP and exports are augmented by gross remittances. 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.

73. The template also produces two panel charts (*Worksheet “Panel Chart”*) that show how PPG external debt and total public debt evolve in the baseline, an historical scenario (see below), and in the most extreme stress test.<sup>76</sup> For external debt, the rate of debt accumulation

<sup>75</sup> The analytical presentation of the public debt dynamics can be found in Annex V.

<sup>76</sup> 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.

and the average grant element under the baseline is also shown.<sup>77</sup> The template also produces two additional panel charts (*Worksheet “Panel Chart – remit”*) that include the impact of gross remittances on external debt burden indicators based on GDP and exports.

#### D. Sensitivity analyses

74. **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

75. **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).

76. **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

77. **Historical Average Scenario (Worksheet “A1\_Historical”):** This scenario presents an alternative evolution of the debt ratio under the assumption that key variables are 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.

78. **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.

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<sup>77</sup> If the user designs a customized scenario, the debt dynamics resulting from that exercise will also be shown in the charts.

### Alternative scenarios, public debt sustainability

79. **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.

80. **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”.

81. **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

82. **The bound tests are standardized tests, akin to providing the upper bound of a confidence interval to the baseline projections.**<sup>78</sup> 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.

### Bound tests, external debt sustainability

83. **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\_Deflator*”), 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

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<sup>78</sup> 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 [World Bank and IMF, 2004b](#).

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**

84. **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.

85. **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**

86. **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**

87. 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.

88. 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**

89. 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.

90. 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).

## ANNEX II: DSA OUTLINE TEMPLATE

Country teams are encouraged to follow the DSA outline below for full DSAs.

### COUNTRY—DEBT SUSTAINABILITY ANALYSIS UNDER THE DEBT SUSTAINABILITY FRAMEWORK FOR LOW INCOME COUNTRIES

*Based on the external LIC DSA, [country's] risk of debt distress is [...] (or [country] is in debt distress). The public DSA suggests that [country's] overall public sector debt dynamics are sustainable (unsustainable) in light of the current size and the evolution of the domestic debt stock.<sup>79</sup>*

#### I. BACKGROUND

- Evolution of public and publicly guaranteed external and total public debt over the past years.
- Evolution of private external debt if relevant.
- Composition of PPG external debt (multilateral, bilateral, commercial). Which type of creditor contributed to the change in debt over the past years?
- Debt relief and rescheduling (Paris Club, HIPC, MDRI).
- Structure of public domestic debt (creditors, fixed/variable interest rate, forex denominated or linked).

#### II. UNDERLYING DSA ASSUMPTIONS

- Explanation of differences of assumptions and outcomes of key macroeconomic variables comparing the previous with the current DSA.
- Projected debt ratios versus outcomes. Explain forecast errors denominator (growth, export, revenue) and numerator new borrowing, fiscal/current account deficits).
- Did assumed growth dividends on debt-financed investments materialize?
- To what extent have projections been revised?

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<sup>79</sup> The DSA has been produced jointly by Bank and Fund staffs, in consultation with regional MDB staff [name relevant MDBs]. The fiscal year for [country] is [date]–[date].

**Box 1 summarizes the medium-term macroeconomic framework underlying the DSA.**

### **Baseline Macroeconomic Assumptions**

**Real GDP growth:** Justify baseline growth assumptions in relation to historical average

**Inflation:** Measured by the GDP deflator

**Current account balance:** Including exports and imports growth and share of GDP, trade balance, services, remittances

**Government balances:** Including government revenues, non-interest expenditure, primary deficit

**External assistance and scaling up:** Including grants and terms of new external borrowing (level of concessionality)

**Domestic borrowing:** Public domestic debt

**Real Interest rates:** On domestic currency debt

## **III. EXTERNAL DSA**

### **A. Baseline**

- Does baseline rely on high growth rates, substantially higher than history? If so, what is the justification for it?
- Does baseline assume a significant improvement in the terms, such that, absent this improvement, the evolution of debt indicators would be significantly worse? If so, what is the underlying rationale?
- Does the country experience increased private external capital flows into sovereign debt instruments that may give rise to liquidity risks and sectoral imbalances? If so, provide additional vulnerability analysis.

### **B. Alternative Scenarios and Stress Tests**

- Justify large differences between baseline and historical scenario.
- Include an alternative “high-investment, low-growth” scenario in cases where projected growth dividends are associated with large upfront borrowing (5 percent of GDP or more in PV terms).
- Include country-specific scenario where applicable.

#### **IV. PUBLIC DSA**

##### **A. Baseline**

- As external DSA tailored to total public debt, i.e., discuss the evolution of total public debt linked to fiscal deficits.

##### **B. Alternative Scenarios and Stress Tests**

- As external DSA tailored to total public debt, i.e., discuss the evolution of total public debt under stress and alternative scenarios

#### **V. DEBT DISTRESS CLASSIFICATION AND CONCLUSIONS**

It is the staffs' view [country] should be considered at [...] risk of debt distress (in debt distress) based on external debt burden indicators. The public DSA suggests that [country's] overall public sector debt dynamics are sustainable (unsustainable) in light of the current size and the evolution of the domestic debt stock.

- What factors contributed to the chosen risk rating (growth, exports, and revenues)? Did it change from the previous DSA and if so why?
- Based on baseline and alternative scenarios, and stress tests.
- Based on contingent liabilities in public sector DSA.
- Are there any debt management issues?
- Need for prudent macro policies to rein in/maintain debt ratios.
- Further staff recommendations on an appropriate borrowing strategy (pillar three of the DSF).
- Was the DSA and its underlying assumptions discussed with the authorities (building capacity and foster ownership)?

### ANNEX III: INDICATORS FOR THE EXCLUSION OF SOES

The following indicators are intended to help guide the decision to exclude a particular SOE:

- **Managerial independence, including pricing and employment policies.** Relevant criteria include: i) cost-covering price setting for non-tradables; ii) average prices within 10 percent of the international benchmark for producers of tradables; and iii) a tariff setting regime compatible with the long-term sustainability of the SOE in regulated sectors, which is comparable to private firms in the sector. Employment policies should be independent of civil service laws and should not be subject to intervention by the government in wage setting and hiring, except when clearly justified to address specific risks.
- **Relations with the government,** including: (i) the absence of direct or indirect subsidies, on-lending by the government and/or explicit or implicit loan guarantees that go beyond those given to private enterprises; (ii) the absence of quasi-fiscal activities such as uncompensated functions or absorbed costs which are not directly related to the SOE's business objective and/or substituted for government spending (e.g. subsidies to the public given directly by the SOE compensated with government transfers); (iii) the nature of the regulatory and tax regimes, wherein the SOE should be subjected to the same standards as private firms in the industry; and (iv) a high frequency of profit transfers from the SOE to the central budget.
- **Periodic audits.** There should be periodic audits carried out and published by a reputable private accounting firm applying international standards. A major international firm should ideally audit large public enterprises.
- **Publication of comprehensive annual reports and protection of shareholders' rights.** Published annual reports should include i) audited balance sheets; ii) profit and loss statements; iii) off-balance sheet liabilities; iv) levels and changes in the enterprise's overall activity; v) employment and investment; and vi) comparisons against other firms in the industry and international benchmarks. Moreover, the governance structure should allow for the appropriate protection of minority shareholder rights.
- **Financial conditions and sustainability.** Relevant indicators include: i) market access, including industry-wide comparable costs of debt and borrowing rates comparable to private firms without a government loan guarantee; ii) less-than-full leveraging entailing a debt-to-asset ratio comparable to the industry average; iii) profitability, defined as operating balance to assets ratio, or defined as a positive ratio and higher than the average cost of debt in cases where there is no relevant comparator; and iv) records and evaluations of past investments, demonstrating an

average rate of return at least equivalent to that required by cost-benefit analyses to approve new projects.

- **Absence of other risk factors** including, but not limited to, vulnerabilities stemming from i) contingent liabilities relative to its operating balance; ii) currency mismatches between the SOE's main sources of revenue and its debt; and iii) the importance of the public enterprise, as defined by size (e.g. debt service, employment, customer base, sales) and/or function (e.g. the provision of essential inputs or services).

#### ANNEX IV: MARKET ACCESS BY LOW-INCOME COUNTRIES

This annex presents a definition of market access, considering its operational features, and then applies the definition to available and comparable cross-country data.

##### **A Definition of Market Access:**

The proposed definition of LIC market access is based on the following pillars:

- **Voluntary:** A market access measure should capture only voluntary access to financial markets by a low-income sovereign. This is important since many LICs frequently rely on their domestic banks for funding their financial needs. If such bank borrowing is directed, then it often does not reflect the voluntary aspect of market access.<sup>80</sup> Domestic bond issuance may suffer from similar limitations.<sup>81</sup> The proposed definition of LIC market access therefore focuses on public and publicly guaranteed external bond issuance and external commercial loans. Public bonds and commercial loans refer to obligations of a public debtor, which includes the sovereign (national government), as well as other public borrowers (including political subdivisions, agencies of the national government or of political subdivisions, autonomous public bodies, as well as public corporations) whose ability to borrow is assessed to be an indicator of the sovereign's creditworthiness. Publicly guaranteed bonds and commercial loans refer to obligations of a private debtor that is guaranteed for repayment by a public debtor. "External bonds" are those issued in international capital markets. External commercial loans refer to commercial loans contracted with nonresidents by residents of an economy. External bonds and commercial loans issued or contracted in markets that are not integrated with broader international markets do not qualify.
- **Durability and Size:** The sustainability of market access over a short period can be limited even for mature emerging market economies. Therefore, to ensure that the measure give some sense of the durability of market access, it is important that the measure take into consideration bond issuance over the medium term (e.g., over a time horizon of five years) and that countries have established some record of continued market access (i.e., accessed markets more than once in recent periods). The measure also needs to capture whether market access is sufficiently large, on some comparable cross-country measure. Accordingly, it is proposed to measure market access relative to Fund quota, which provides a measure of a country's economic size.

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<sup>80</sup> [See Gelos, Sahay and Sandleris, 2004](#)

<sup>81</sup> Furthermore, domestic borrowing by the government can also have the adverse effect of crowding out the private sector.

### Estimated Statistic of Market Access:

Based on the definition above of market access, and using available data for the 2003-2007, the following observations can be made:<sup>82</sup>

- A few LICs have tapped external bond markets since 2003—with an even smaller subset of countries issuing bonds multiple times (Grenada, India, and Pakistan). Two countries have issued only one external bond (Vietnam in 2005 and Sri Lanka in 2007).
- Angola, Maldives, Sri Lanka, Vietnam, and a number of ECCU member countries have obtained external commercial loans over these years.
- For many of these countries, market access is fairly small (e.g., below 10 percent of the Fund quota on average during 2003–07).
- Angola, Sri Lanka and Pakistan have accessed the international financial markets in four or five of the recent (pre-crisis) years (2003-07), with cumulative access exceeding their present quota in the Fund.
- While India has significant access to international capital markets, in particular through the State Bank of India (amounting to 35 percent of quota, since 2003), actual access over 2003–07 remained below 100 percent of quota.<sup>83</sup> India’s market access is confirmed, however, by its investment grade sovereign credit rating.
- *The evidence shows that Angola, India, Sri Lanka, and Pakistan have maintained regular market access in recent (pre-crisis) years (2003–2007) in line with the proposed conditions for duration and magnitude.*

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<sup>82</sup> For cross-country comparison, the disbursement data (1990–2007) of external bond and commercial loans are drawn from the Global Development Finance (GDF) database. The results concerning countries that meet the market access criterion have been confirmed based on additional available information.

<sup>83</sup> Comparable data on India are not available in the GDF database.

Market Access, Public and Publicly Guaranteed External Bond and Commercial Loan Disbursements  
(In percent of IMF quota)

	2000	2001	2002	2003	2004	2005	2006	2007	Average (2003-07)	Credit Rating
Angola	272.6	289.2	299.8	407.4	446.5	789.7	132.7	1064.1	568.1	-
Sri Lanka	8.2	2.2	16.1	17.9	9.2	22.6	20.5	117	37.4	B+
Pakistan	-	21.5	6.9	-	31.4	40.6	51.3	47.4	42.7	B-/B3

Source: GDF Database

## ANNEX V: DEBT DYNAMICS

This annex presents the analytical derivation of the evolution of the public debt-to-GDP ratio, also known as the debt dynamics.

### *The level of domestic debt*

The low-income countries (LIC) debt sustainability framework (DSF) is based on a general and flexible identity characterizing the evolution of the stock of public debt. Within the DSF, public debt includes obligations of the central, regional and local governments. In its most basic form, the evolution of public debt can be characterized in the following way:

$$D_{t+1} = (1 + i_{t+1}) * D_t - (T_{t+1} + G_{t+1} - S_{t+1}) + O_{t+1} + RES_{t+1} \quad (1)$$

Where subscripts refer to time periods and

$D_{t+1}$  is total public debt denominated in local currency (LC).

$i_{t+1}$  is the effective nominal interest rate on debt.

$T_{t+1}$  is total public-sector revenues in local currency (LC).

$G_{t+1}$  is total grants to the public sector in local currency (LC).

$S_{t+1}$  is public expenditures excluding interest and amortization payments in local currency (LC).

$O_{t+1}$  is other identified debt-creating flows. These are flows having an impact on the level of debt that are not captured by the public sector fiscal balance. They include items such as: (i) privatization receipts; (ii) recognition of contingent liabilities; (iii) HIPC debt relief; and (iv) other specific items such as bank recapitalization.

$RES_{t+1}$  is a residual ensuring that the identity holds. In order to minimize the residual the user should ensure that there is consistency between the definition of the stock and flow variables.

Dividing public debt into external and domestic debt (short and long term), the identity underpinning the DSA can be represented in the following form:

$$D_{t+1} = \underbrace{\frac{e_{t+1}}{e_t} * (1 + i_{t+1}^f) * D_t^f + (1 + i_{t+1}^{std}) * D_t^{std} + (1 + i_{t+1}^{ltd}) * D_t^{ltd}}_{\text{Obligations associated with the stock of debt from the previous period}} - \underbrace{(T_{t+1} + G_{t+1} - S_{t+1})}_{\text{Primary Fiscal Balance}} + \underbrace{O_{t+1} + RES_{t+1}}_{\text{Other one-time factors}} \quad (2)$$

where superscript “*f*”, “*std*”, “*ltd*” refer to external debt, short-term domestic debt and long-term domestic debt, respectively.

- $D_t^f$  is external debt denominated in local currency (LC).  
 $D_t^{std}$  is short-term domestic debt denominated in local currency (1 year or less).  
 $D_t^{ltd}$  is long-term domestic debt denominated in local currency (more than 1 year).  
 $e_{t+1}$  is the nominal exchange rate (LC/USD).  
 $i_{t+1}^f$  is the nominal interest rate on external debt.  
 $i_{t+1}^{std}$  is the nominal interest rate on short-term domestic debt.  
 $i_{t+1}^{ltd}$  is the nominal interest rate on long-term domestic debt.

$\frac{e_{t+1}}{e_t} * (1 + i_{t+1}^f) * D_t^f$  represents the obligations associated with the stock of external debt from the previous period (including interest payments), revalued using the current exchange rate.

$(1 + i_{t+1}^{std}) * D_t^{std}$  represents the obligations associated with the stock of short-term domestic debt from the previous period (including interest payments).

$(1 + i_{t+1}^{ltd}) * D_t^{ltd}$  represents the obligations associated with the stock of long-term domestic debt from the previous period (including interest payments).

$T_{t+1} + G_{t+1} - S_{t+1}$  represents the primary balance, which excludes interest payments. A primary deficit (surplus) adds (reduces) to the value of the public sector debt.

Alternatively, equation (2) can be restated in terms of real interest rates ( $r$ ), inflation ( $\pi$ ) and the real exchange rate ( $\varepsilon$ ).<sup>84</sup> For simplification, domestic debt ( $D^d$ ) is no longer decomposed into short and long term debt and the primary balance (PB) is no longer decomposed into taxes (T), grants (G) and expenditures (S). The basis for the decomposition of the change in the debt-to-GDP ratio – the debt dynamic – is as follows:

$$D_{t+1} = (1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) * (1 + \pi_{t+1}^f) * D_t^f + (1 + r_{t+1}^d) * (1 + \pi_{t+1}^d) * D_t^d - PB_{t+1} + O_{t+1} + RES_{t+1} \quad (3)$$

Where,

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<sup>84</sup> The real interest rate is defined as  $r = i - \pi - i \pi$ , which can be approximated by  $r \approx i - \pi$ .

$$1 + \varepsilon_{t+1} = \frac{e_{t+1}}{e_t} \left( \frac{1 + \pi_{t+1}^f}{1 + \pi_{t+1}^d} \right) \quad (4)$$

### The debt-to-GDP ratio and the debt dynamic

In order to measure the debt burden, it is appropriate to scale the stock of debt by a measure of repayment capacity. In turn, the measure of repayment capacity can be expressed in different ways: GDP, exports of goods and non-factor services, or government revenues. Because the template focuses on the evolution of the debt-to-GDP ratio, this section presents only the decomposition of this ratio.<sup>85</sup>

Dividing equation (3) by GDP (Y) in period t+1, yields the following expression:

$$\frac{D_{t+1}}{Y_{t+1}} = (1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) * (1 + \pi_{t+1}^d) * \frac{D_t^f}{Y_{t+1}} + (1 + r_{t+1}^d) * (1 + \pi_{t+1}^d) * \frac{D_t^d}{Y_{t+1}} - \frac{PB_{t+1}}{Y_{t+1}} + \frac{O_{t+1}}{Y_{t+1}} + \frac{RES_{t+1}}{Y_{t+1}} \quad (4)$$

Using small caps to express contemporaneous ratios:

$$d_{t+1} = (1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) * (1 + \pi_{t+1}^d) * \frac{D_t^f}{Y_{t+1}} + (1 + r_{t+1}^d) * (1 + \pi_{t+1}^d) * \frac{D_t^d}{Y_{t+1}} - pb_{t+1} + o_{t+1} + res_{t+1} \quad (5)$$

Let  $Y_{t+1} = (1 + g_{t+1}) * (1 + \pi_{t+1}^d) * Y_t$ , where g is the real growth rate of the economy, we can further define the previous expression:

$$d_{t+1} = \frac{(1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) * (1 + \pi_{t+1}^d) * D_t^f}{(1 + g_{t+1}) * (1 + \pi_{t+1}^d) * Y_t} + \frac{(1 + r_{t+1}^d) * (1 + \pi_{t+1}^d) * D_t^d}{(1 + g_{t+1}) * (1 + \pi_{t+1}^d) * Y_t} - pb_{t+1} + o_{t+1} + res_{t+1} \quad (6)$$

Canceling out the contribution of domestic inflation yields:

$$d_{t+1} = \frac{(1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f)}{(1 + g_{t+1})} * d_t^f + \frac{(1 + r_{t+1}^d)}{(1 + g_{t+1})} d_t^d - pb_{t+1} + o_{t+1} + res_{t+1} \quad (7)$$

With  $d_t = d_t^f + d_t^d$  and deducting  $d_t$  from both sides, the change in the debt-to-GDP ratio (the debt dynamic) is therefore:

<sup>85</sup> A similar decomposition can be made in terms of exports or government revenues.

$$d_{t+1} - d_t = \frac{(1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f)}{(1 + g_{t+1})} * d_t^f + \frac{(1 + r_{t+1}^d)}{(1 + g_{t+1})} d_t^d - pb_{t+1} + o_{t+1} + res_{t+1} - (d_t^f + d_t^d) \quad (8)$$

$$d_{t+1} - d_t = \frac{(1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f)}{(1 + g_{t+1})} * d_t^f - \frac{(1 + g_{t+1})}{(1 + g_{t+1})} * d_t^f + \frac{(1 + r_{t+1}^d)}{(1 + g_{t+1})} d_t^d - \frac{(1 + g_{t+1})}{(1 + g_{t+1})} * d_t^d + B \quad (9)$$

where  $B = -pb_{t+1} + o_{t+1} + res_{t+1}$

Isolating  $\frac{1}{(1 + g_{t+1})}$  and grouping together the effects of the interest rates, exchange rate and growth yields:

$$d_{t+1} - d_t = \left( \frac{1}{(1 + g_{t+1})} \right) * \left( [(1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) - (1 + g_{t+1})] * d_t^f + [(1 + r_{t+1}^d) - (1 + g_{t+1})] * d_t^d \right) + B$$

$$d_{t+1} - d_t = \left( \frac{1}{(1 + g_{t+1})} \right) * \left( [(1 + r_{t+1}^f) d_t^f + (1 + r_{t+1}^d) * d_t^d] + [\varepsilon_{t+1} * (1 + r_{t+1}^f)] * d_t^f - (1 + g_{t+1}) * (d_t^f + d_t^d) \right) + B$$

$$d_{t+1} - d_t = \left( \frac{1}{(1 + g_{t+1})} \right) * \left( d_t * \left[ (1 + r_{t+1}^f) \frac{d_t^f}{d_t} + (1 + r_{t+1}^d) * \frac{d_t^d}{d_t} \right] + [\varepsilon_{t+1} * (1 + r_{t+1}^f)] * d_t^f - (1 + g_{t+1}) * d_t \right) + B$$

$$d_{t+1} - d_t = \left( \frac{1}{1 + g_{t+1}} \right) * \left( d_t^d * (1 + r_{t+1}^d) - d_t^d * (1 + g_{t+1}) + d_t^f * (1 + \varepsilon_{t+1}) * (1 + r_{t+1}^f) - d_t^f * (1 + g_{t+1}) \right) + B$$

$$d_{t+1} - d_t = \left( \frac{1}{1 + g_{t+1}} \right) * \left( d_t^d * (1 + r_{t+1}^d) + d_t^f * (1 + r_{t+1}^f) - d_t^d * (1 + g_{t+1}) - d_t^f * (1 + g_{t+1}) + d_t^f * \varepsilon_{t+1} * (1 + r_{t+1}^f) \right) + B$$

$$d_{t+1} - d_t = \left( \frac{1}{1 + g_{t+1}} \right) * \left( d_t * \left[ (1 + r_{t+1}^d) \frac{d_t^d}{d_t} + (1 + r_{t+1}^f) * \frac{d_t^f}{d_t} \right] - d_t * (1 + g_{t+1}) + d_t^f * \varepsilon_{t+1} * (1 + r_{t+1}^f) \right) + B$$

Contribution of  
the average  
real interest  
rate

Contribution of  
real GDP  
growth

Contribution  
of the real  
exchange  
rate