

APPENDIX II. REPUBLIC OF CONGO: DEBT SUSTAINABILITY ANALYSIS USING THE LOW-INCOME COUNTRY FRAMEWORK

Based on the joint IMF-World Bank debt sustainability framework for low-income countries (LICs), the risk of debt distress for Congo will be moderate. This is due to presumed debt relief under the enhanced HIPC Initiative, under which Congo's external and public debt burden indicators will improve significantly. Only under the most extreme scenario, would the debt indicators breach the relevant thresholds.²

I. BACKGROUND

1. **The LIC DSA differs from the HIPC DSA in four main ways:** (i) the discount rate for the LIC DSA is fixed at 4 percent, compared to the currency-specific 6-month averages of commercial interest reference rates for the HIPC DSA; (ii) the LIC DSA uses WEO exchange rate projections instead of the actual exchange rates at end-2008 used for the HIPC DSA; and (iii) exports used for various debt distress indicators in the LIC version are the latest annual projections rather than the three-year backward-looking average, and (iv) in the sensitivity analysis, the LIC DSA assumes that additional financing needs in the face of shocks are filled by new borrowing, while the HIPC DSA assumes that additional financing needs are provided from the accumulated oil wealth with no new borrowing.

2. **This DSA is based on the stock of debt at the end of 2008.** The previous full DSA, carried out during the 2008 Article IV consultation in November 2008, was based on the stock of debt at the end of 2007 and concluded that Congo's debt distress remained high.³

3. **It is estimated that at the end of 2008, total public debt including arrears was US\$ 6.6 billion—66 percent of GDP—down from the peak of US\$ 12 billion in 2004.** External debt amounted to US\$ 5.6 billion, 57 percent of GDP, of which Paris Club creditors accounted for about 61 percent, followed by non-London Club commercial creditors and non-Paris Club bilateral creditors at 13 percent and 10 percent, respectively. Domestic debt is relatively small, about 10 percent of GDP, and mostly consists of arrears of wages, pensions, and liabilities to public enterprises.

4. **Debt relief thus far substantially reduced external arrears, but they still stood at US\$ 939 million at the end of 2008; domestic arrears were US\$ 965 million.** Congo has made significant progress in pursuing debt relief across the board and reduced external arrears by 69 percent in 2004-08. The country has (i) concluded debt restructurings with the Paris Club in 2004, 2006, and 2008; (ii) obtained debt relief from London Club creditors in

² The three-year average of the CPIA index of Congo in 2006-2008 is 2.73. According to the LIC DSF, Congo is classified as a weak performer.

³ See IMF document EBS/08/125.

2007; (iii) settled a long-standing dispute with litigating creditors holding court-validated claims in 2008; and (iv) received debt reduction from various non-Paris Club bilateral creditors and non-London Club commercial creditors, mostly on HIPC-comparable terms. The remaining external arrears are with non-London Club commercial creditors, mainly suppliers (US\$ 694 million, or 73 percent of total external arrears) and non-Paris Club bilateral creditors (US\$ 245 million, or 26 percent). The government has also cut domestic arrears in half since 2004.

II. UNDERLYING DSA ASSUMPTIONS

5. This LIC DSA incorporates four revisions to the previous DSA:

- Global economic projections were aligned with the latest *World Economic Outlook* (WEO), although in both the current and the previous DSA the average oil price in 2009–14 was about the same at around US\$ 78 per barrel.
- The macroeconomic assumptions for Congo were revised as outlined in Box 2 (main text). Because of the global downturn, average real non-oil sector growth in 2009–14 was lowered from the previous 7.3 percent to 6.0 percent. Average real oil sector growth in the same period was raised from the previous 0.4 percent to 4.6 percent, mainly due to the prospects of new oil production from new fields.^{4,5} Major changes have also been made with regard to some components of the balance payments, reflecting the revisions in the authorities' data.
- This DSA uses the latest debt database, reconciled for the HIPC completion point DSA. Debt service projections were revised incorporating the full delivery of HIPC/MDRI debt relief expected at the completion point.
- The external borrowing assumption was revised incorporating newly contracted and prospective loans as described below.

6. **New external borrowing is in line with the PRGF concessionality requirement until 2019 (minimum grant element of at least 50 percent).** It is assumed that over the projection period Congo will receive loans from the French Development Agency (AFD), Arab Bank for Economic and Development in Africa (BADEA), China and the World Bank. Total loan from the AFD amounts to €29 million, which is projected to be disbursed in 2009.⁶

⁴ However, assumptions on future oil production remain conservative.

⁵ For example, FDI was revised upward by more accurately recording reinvestment of profits by oil companies and imports were revised downward by more accurately capturing oil sector-related goods and services.

⁶ The loan is for the Port Authority of Pointe Noire to finance the rehabilitation of the port's facilities. This loan, which precludes any loan guarantee from the government of Congo, forms part of a non-concessional external financing package amount to € 67.1 million. The other creditors include the European Investment Bank (EIB)

(continued)

Total from the BADEA amounts to US\$ 10 million, which is assumed to be disbursed in the period of 2010-2013. Total Chinese lending is equivalent to US\$ 1.6 billion, which is assumed to be disbursed until 2015 in line with the contract signed in 2008. IDA financing is on “hardened” terms since Congo passed the IDA-only income threshold in 2007. Disbursement is expected to start with US\$ 9 million in 2010 and US\$ 18 million in 2011, and to increase gradually thereafter. Lending terms for both the Chinese and IDA “hardened” loans meet the PRGF concessionality requirement. However, Congo is expected to graduate to IBRD status in 2019 and start borrowing from the IBRD thereafter.

7. **It is assumed that all external and domestic arrears remaining will be cleared by 2014 through repayment, cancellation and rescheduling.** Congo is committed to continuing its efforts to obtain HIPC-comparable debt relief from its remaining external creditors. It is therefore assumed that roughly a half of external arrears will be cancelled in 2010, and the rest rescheduled for repayment on various terms. Domestic arrears are projected to be repaid by 2014, which is incorporated in the government’s budget planning.

8. **As in the previous DSA, the external DSA is run on a gross basis and the public DSA is run on a net basis in order to examine the impact of oil wealth on debt indicators.** Net debt is defined as debt less liquid financial assets. For Congo, liquid financial assets are government deposits at the regional central bank, which mostly consist of oil savings.

III. EXTERNAL DEBT SUSTAINABILITY ANALYSIS

9. **In the baseline scenario, all debt indicators remain below the threshold for the entire projection period after the HIPC completion point (Figure 1).** Furthermore, despite the projected declining concessionality of new loans and lower oil revenues, all debt indicators trend downward as the size of new borrowing remains relatively small.

10. **The historical scenario appears less favorable than the baseline scenario in the medium term but more favorable in the long term.** In the historical scenario, most debt indicators stay above the baseline scenario until about 2020 because projected oil production, and therefore revenues and exports in the baseline scenario, is much higher than the historical level. In the long run, the situation reverses, and in the historical scenario most debt indicators stay below the baseline scenario.⁷

(€29 million) and the Central African States Development Bank (CASDB) (€9.1 million). Since subsequent loans from the EIB and CASDB have not formally contracted, this LIC DSA includes only the loan from the AFD. The Board on the first review under the PRGF provided a waiver for the non-concessionality of the AFD loan.

⁷ The historical scenario shows negative debt ratios over the projection period because oil production under the historical scenario is higher than the baseline after 2020. Under the design of the DSA template, the additional
(continued)

11. **Stress tests indicate Congo is still vulnerable to external shocks.** In the most extreme tests, most of debt indicators cross or stay above the threshold. Given its high dependency on the oil sector, Congo is very sensitive to changes in world commodity prices. This result is significantly different from that in the HIPC DSA because of different assumptions on new borrowing as described above.

IV. PUBLIC DEBT SUSTAINABILITY ANALYSIS

12. **The public DSA on a net basis paints a very different picture from the external DSA on a gross basis owing to Congo's oil wealth.** Most debt indicators for the public DSA on a net basis turn negative as oil savings accumulate rapidly over time (Figure 2). On a gross basis, however, the picture for public DSA is similar to that for external DSA because domestic debt will shrink to less than 0.3 percent of GDP by 2014, once the government pays back all domestic arrears.

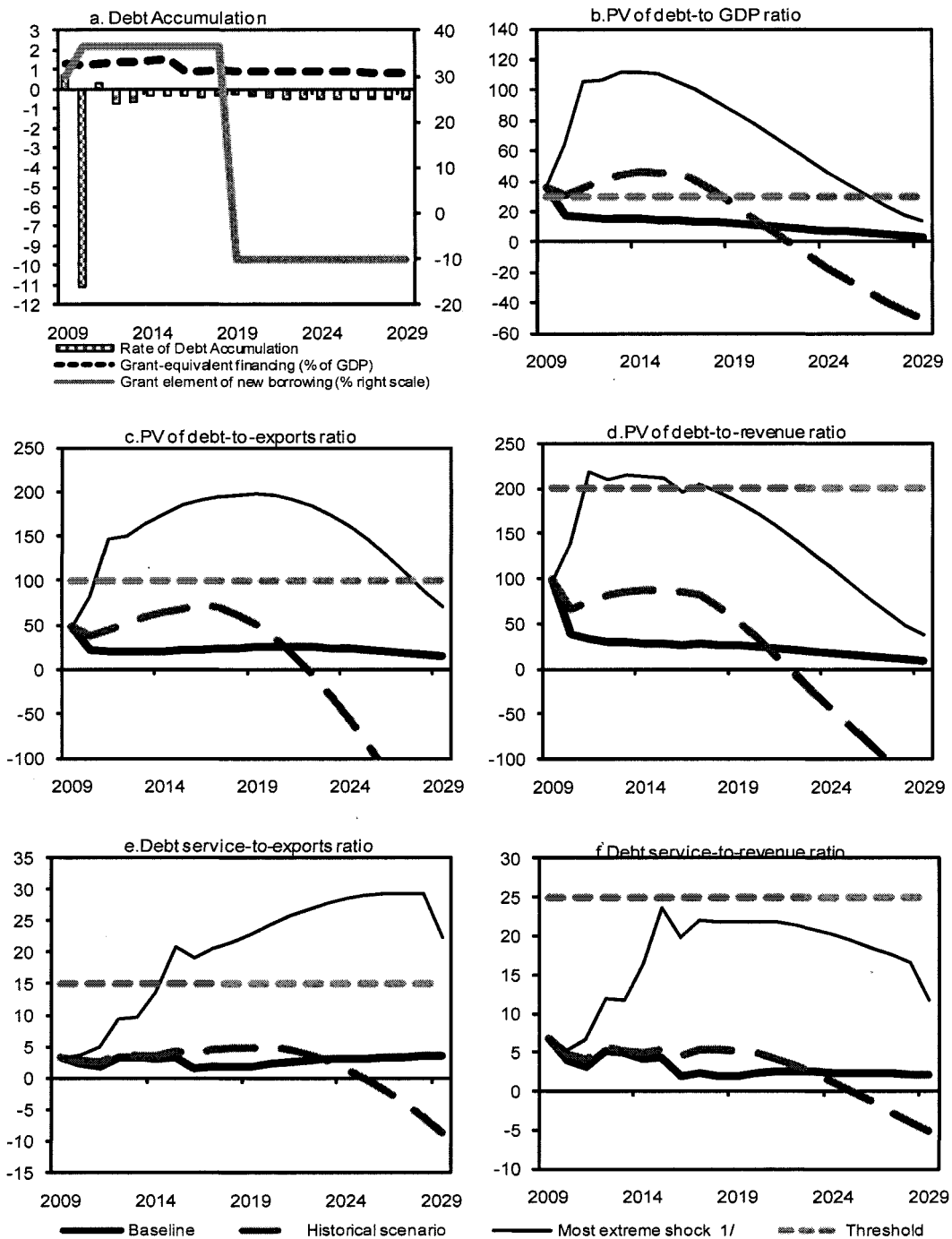
13. **Stress tests for public DSA on a net basis do not suggest any vulnerability.** Rapidly growing oil savings will be a strong buffer against shocks.

V. CONCLUSIONS

14. **Congo should be considered at moderate risk of debt distress based on the results of the external DSA.** The external DSA shows that in the baseline scenario debt indicators remain below the policy dependent thresholds, but increase when the country faces shocks. It is important that the government continues to strengthen debt management and maintain a conservative borrowing policy. At the same time, the government's commitment to maintain fiscal discipline and increase non-oil revenue, together with structural reform in key areas, would help to safeguard long-term debt sustainability.

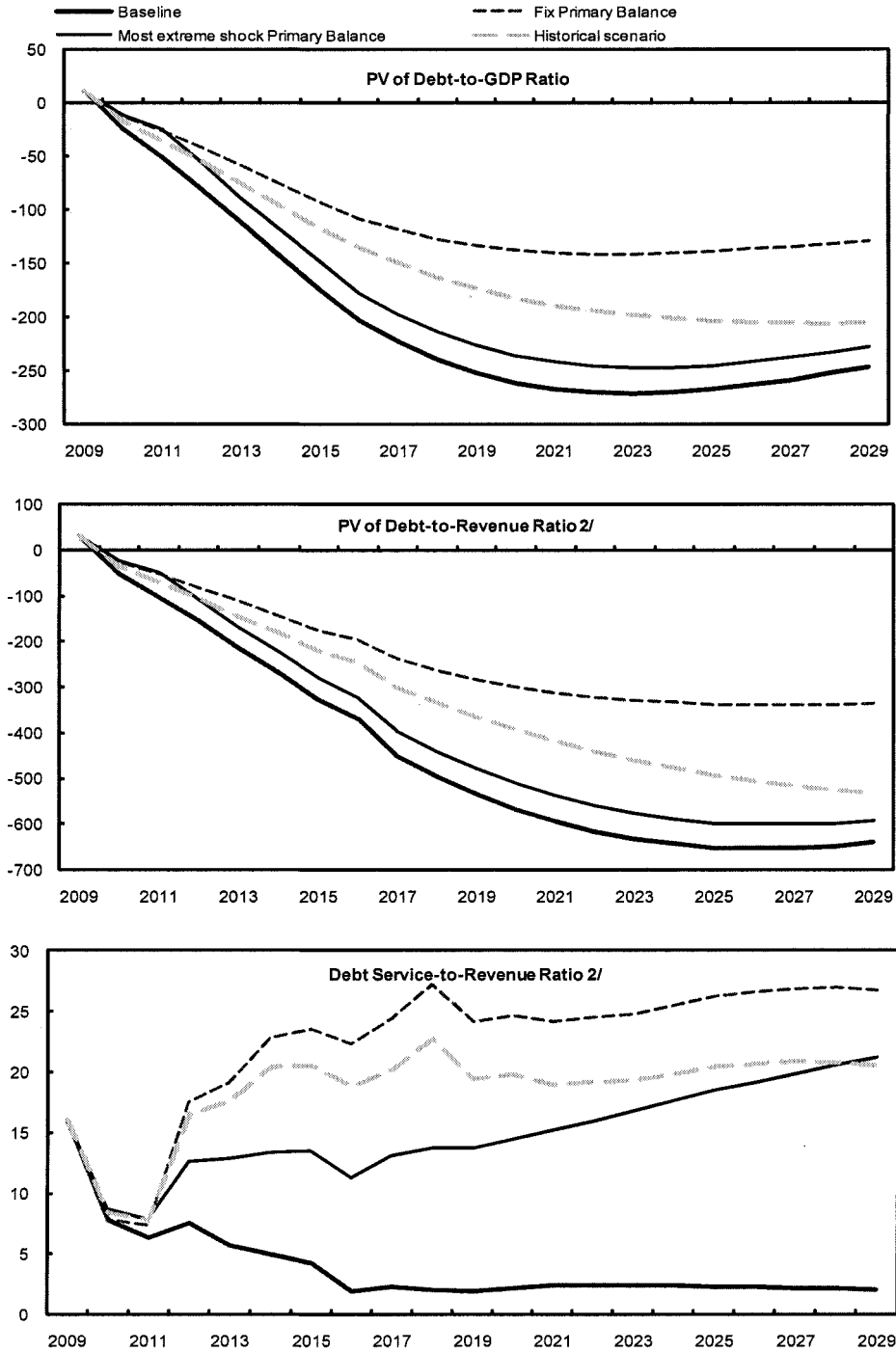
oil revenue is used to pay back debt and once it is expunged, oil wealth accumulates (i.e., shown in the figure as negative debt).

Figure 1. Republic of Congo: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2009-29 1/



Sources: Congolese authorities; and World Bank and Fund staff estimates and projections.
 1/ The most extreme stress test is the test that yields the highest ratio in 2019. In figure b. it corresponds to a Combination shock; in c. to a Exports shock; in d. to a Combination shock; in e. to a Exports shock and in picture f. to a Combination shock

Figure 2. Republic of Congo: Indicators of Public Debt Under Alternative Scenarios, 2009-2029



Sources: Congolese authorities; and World Bank and Fund staff estimates and projections.
 1/ The most extreme stress test is the test that yields the highest ratio in 2019.
 2/ Revenues are defined inclusive of grants.

Table 1. Republic of Congo: External Debt Sustainability Framework, Baseline Scenario, 2006-2029
(In percent of GDP, unless otherwise indicated)

	Actual				Projections									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2019	2029			
External debt (nominal) 1/	81.6	90.9	56.6	67.7	20.2	19.2	18.6	18.6	18.7	14.8	3.4			
o/w public and publicly guaranteed (PPG)	81.6	90.9	56.6	67.7	20.2	19.2	18.6	18.6	18.7	14.8	3.4			
Change in external debt	-26.7	9.3	-34.2	11.1	-47.5	-1.0	-0.6	0.1	0.1	-1.1	-0.8			
Identified net debt-creating flows	-48.8	-17.9	-48.1	-13.2	-30.2	-30.3	-31.2	-29.3	-28.5	-17.2	-5.8			
Non-interest current account deficit	-6.2	7.0	-0.1	13.7	-2.4	-6.3	-6.9	-6.3	-4.3	6.6	17.8			
Deficit in balance of goods and services	-36.0	-25.0	-27.2	-17.3	-30.8	-33.3	-31.4	-26.5	-22.0	0.9	21.1			
Exports	85.3	83.4	78.6	74.3	80.2	80.8	79.0	75.4	71.8	48.8	22.6			
Imports	49.4	58.4	51.4	57.0	49.4	47.5	47.6	48.9	49.8	49.7	43.7			
Net current transfers (negative = inflow)	0.5	0.4	0.3	0.3	0.0	-0.1	-0.1	-0.1	-0.1	0.0	0.2			
o/w official	0.0	-0.3	-0.3	-0.4	-0.5	-0.6	-0.7	-0.7	-0.8	0.0	-0.9			
Other current account flows (negative = net inflow)	30.3	31.6	26.9	30.7	28.4	28.2	24.6	24.1	17.7	5.5	-3.5			
Net FDI (negative = inflow)	-24.5	-28.0	-23.2	-22.7	-22.5	-24.3	-24.2	-24.1	-24.0	-23.2	-23.6			
Endogenous debt dynamics 2/	-19.1	3.1	-24.8	-4.2	-6.3	-0.7	-0.1	0.2	-0.2	-0.6	-0.1			
Contribution from nominal interest rate	3.9	2.2	1.5	1.2	0.6	0.5	0.4	0.4	0.3	0.1	0.1			
Contribution from real GDP growth	-5.3	1.3	-3.6	-5.4	-5.9	-1.2	-0.6	-0.2	-0.5	-0.7	-0.2			
Contribution from price and exchange rate changes	-17.6	-0.4	-22.7	...	...	...	...	...	...	...	...
Residual (3-4) 3/	22.1	27.2	13.9	24.3	-17.3	29.2	30.6	29.3	28.6	16.1	6.0			
o/w exceptional financing	-3.4	-52.0	-11.1	0.0	-29.1	0.0	0.0	0.0	0.0	0.0	0.0			
PV of external debt 4/	...	...	27.5	35.4	17.6	16.3	15.3	15.0	14.8	12.1	3.4	
In percent of exports	...	...	34.9	47.7	22.0	20.2	19.4	19.9	20.6	24.8	15.0	
PV of PPG external debt	...	...	27.6	36.4	17.6	16.3	15.3	15.0	14.8	12.1	3.4	
In percent of exports	...	...	34.9	47.7	22.0	20.2	19.4	19.9	20.6	24.8	15.0	
In percent of government revenues	...	...	63.6	99.0	37.7	33.7	30.3	29.1	28.2	26.2	9.0	
Debt service-to-exports ratio (in percent)	13.2	10.6	6.4	3.3	2.3	1.9	3.3	3.4	3.0	1.9	3.6			
PPG debt service-to-exports ratio (in percent)	13.2	10.6	6.4	3.3	2.3	1.9	3.3	3.4	3.0	1.9	3.6			
PPG debt service-to-revenue ratio (in percent)	25.3	20.6	8.3	6.8	4.0	3.2	5.2	4.9	4.2	2.0	2.1			
Total gross financing need (Billions of U.S. dollars)	-1.4	-0.9	-2.0	-0.6	-2.8	-3.7	-3.8	-3.5	-3.4	-2.2	-1.2			
Non-interest current account deficit that stabilizes debt ratio	21.5	-2.2	34.1	2.6	45.1	-4.2	-6.3	-5.3	-4.4	7.6	18.6			
Key macroeconomic assumptions														
Real GDP growth (in percent)	6.2	-1.6	5.6	7.6	12.1	6.6	2.9	1.1	2.5	4.3	4.8			
GDP deflator in US dollar terms (change in percent)	19.5	0.5	33.3	-25.8	25.1	3.5	-1.7	-3.3	-2.9	-0.9	2.2			
Effective interest rate (percent) 5/	4.5	2.7	2.3	1.6	1.2	2.8	2.3	1.9	1.5	0.9	2.1			
Growth of exports of G&S (US dollar terms, in percent)	30.6	-3.4	32.7	-24.5	51.4	11.1	-1.0	-6.8	-5.3	-4.8	0.6			
Growth of imports of G&S (US dollar terms, in percent)	34.3	17.0	23.8	-11.4	21.5	6.1	1.5	0.3	1.4	3.2	5.7			
Grant element of new public sector borrowing (in percent)	...	...	...	29.9	36.5	36.5	36.7	36.7	36.6	-9.9	-9.9
Government revenues (excluding grants, in percent of GDP)	44.3	42.7	51.3	35.8	46.8	48.3	50.7	51.6	52.4	46.3	37.5			
Aid flows (in Billions of US dollars) 7/	0.0	0.1	0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.2	0.3			
o/w Grants	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2			
o/w Concessional loans	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.3	0.3	0.0	0.0			
Grant-equivalent financing (in percent of GDP) 8/	...	...	...	1.4	1.3	1.4	1.5	1.5	1.6	1.0	0.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...	40.6	51.2	53.5	54.3	54.8	55.4	82.4	82.4
Memorandum items:														
Nominal GDP (Billions of US dollars)	7.7	7.7	10.8	8.6	12.1	13.3	13.5	13.2	13.1	14.1	25.0			
Nominal dollar GDP growth	26.9	-1.1	40.7	-20.2	40.3	10.3	1.2	-2.3	-0.5	3.4	7.1			
PV of PPG external debt (in Billions of US dollars)	...	...	3.0	3.0	2.1	2.2	2.1	2.0	1.9	1.7	0.8	
(PVt-PVt-1)/GDPT-1 (in percent)	...	...	0.8	0.8	-10.7	0.4	-0.8	-0.7	-0.3	-0.2	-0.5	

Sources: Congolese authorities; and World Bank and Fund staff estimates and projections.

1/ On a gross basis. Includes only public sector external debt.

2/ Derived as $[r - g - p(1+g)] / (1+g+p+g)$ times previous period debt ratio, with r = nominal interest rate; g = real GDP growth rate, and p = growth rate of GDP deflator in U.S. dollar

3/ Includes exceptional financing (i.e., changes in arrears and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution

from price and exchange rate changes. The main reason for the large residual is the large change in gross foreign assets coming from the accumulation of oil wealth.

4/ Assumes that PV of private sector debt is equivalent to its face value.

5/ Current-year interest payments divided by previous period debt stock.

6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).

Table 2. Republic of Congo: Public Sector Debt Sustainability Framework, Baseline Scenario, 2006-2029
(In percent of GDP, unless otherwise indicated)

	Actual			Estimate		Projections										
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2029
Public sector debt 1/	84.3	81.8	43.6	44.7	-21.7	-47.9	-77.4	-108.8	-139.3	-249.9	-245.9					
o/w foreign-currency denominated	81.6	90.9	56.6	67.7	20.2	19.2	18.5	18.6	18.7	14.8	3.4					
Change in public sector debt	-42.3	-2.5	-38.2	1.1	-66.4	-26.2	-29.5	-31.5	-30.4	-13.0	6.6					
Identified debt-creating flows	-55.2	-62.6	-51.7	-2.0	-65.9	-26.1	-29.4	-31.3	-30.0	-13.0	6.6					
Primary deficit	-20.9	-13.1	-27.6	-7.9	-25.3	-28.8	-30.9	-30.7	-30.3	-21.0	-10.3					
Revenue and grants	44.4	43.1	51.6	36.3	47.4	49.1	51.4	52.4	53.2	47.2	38.4					
of which: grants	0.1	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.8	1.0	0.9					
Primary (noninterest) expenditure	23.5	30.0	24.0	28.5	22.1	20.3	20.5	21.6	22.9	26.2	28.1					
Automatic debt dynamics	-30.8	2.5	-13.0	5.9	-11.5	2.7	1.5	-0.5	0.3	8.0	16.9					
Contribution from interest rate/growth differential	-8.3	1.5	-2.7	-6.4	-1.7	3.1	0.9	-1.6	-0.5	7.9	16.9					
of which: contribution from average real interest rate	-0.9	0.1	1.6	-3.3	3.2	1.7	-0.5	-2.4	-3.2	-2.0	5.4					
of which: contribution from real GDP growth	-7.4	1.4	-4.3	-3.1	-4.8	1.3	1.4	0.9	2.6	9.8	11.6					
Contribution from real exchange rate depreciation	-22.5	1.0	-10.3	12.3	-9.9	-0.4	0.7	1.0	0.8	...	...			
Other identified debt-creating flows	-3.4	-52.1	-11.1	0.0	-29.1	0.0	0.0	0.0	0.0	0.0	0.0					
Privatization receipts (negative)	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Recognition of implicit or contingent liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Debt relief (HIPC and other)	-3.4	-52.0	-11.1	0.0	-29.1	0.0	0.0	0.0	0.0	0.0	0.0					
Other (specify, e.g. bank recapitalization)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Residual, including asset changes	12.9	60.1	13.6	3.1	-0.5	-0.1	-0.2	-0.2	-0.4	0.0	0.0					
Other Sustainability Indicators																
PV of public sector debt	2.7	-9.1	16.7	11.5	-24.2	-50.7	-80.5	-112.4	-143.2	-252.6	-246.0					
o/w foreign-currency denominated	0.0	0.0	29.7	34.5	17.7	16.4	15.4	15.1	14.8	12.1	3.4					
o/w external	...	...	29.7	34.5	17.7	16.4	15.4	15.1	14.8	12.1	3.4					
PV of contingent liabilities (not included in public sector debt)	...	...	...	...	...	...	...	...	...	...	...
Gross financing need 2/	-6.5	-1.1	-20.4	-2.1	-21.6	-25.7	-27.0	-27.7	-27.7	-20.1	-9.5					
PV of public sector debt-to-revenue and grants ratio (in percent)	6.1	-21.0	32.3	31.6	-51.2	-103.3	-156.6	-214.5	-269.1	-534.8	-640.5					
PV of public sector debt-to-revenue ratio (in percent)	6.1	-21.2	32.5	32.1	-51.8	-104.8	-158.9	-217.8	-273.4	-546.2	-655.9					
o/w external 3/	...	...	57.9	96.3	37.7	33.8	30.4	29.3	28.2	26.2	9.0					
Debt service-to-revenue and grants ratio (in percent) 4/	32.4	27.7	14.1	16.0	7.8	6.3	7.6	5.7	4.9	2.0	2.1					
Debt service-to-revenue ratio (in percent) 4/	32.5	28.0	14.2	16.2	7.9	6.4	7.7	5.8	5.0	2.0	2.1					
Primary deficit that stabilizes the debt-to-GDP ratio	21.4	-10.6	10.5	-9.0	41.2	-2.6	-1.4	0.7	0.1	-8.0	-16.8					
Key macroeconomic and fiscal assumptions																
Real GDP growth (in percent)	6.2	-1.6	5.6	7.6	12.1	6.6	2.9	1.1	2.5	4.3	4.8					
Average nominal interest rate on forex debt (in percent)	4.5	2.7	2.3	1.6	1.2	2.8	2.3	1.9	1.5	0.9	2.1					
Average real interest rate on domestic debt (in percent)	-12.6	11.1	-16.8	27.8	-16.6	-3.8	...	...	...	...	...
Real exchange rate depreciation (in percent, + indicates depreciated)	-21.8	1.2	-11.9	23.3	...	...	...	...	...	...	...
Inflation rate (GDP deflator, in percent)	18.5	-7.9	24.1	-20.5	22.0	4.0	-0.9	-2.5	-2.4	-0.9	2.2					
Growth of real primary spending (deflated by GDP deflator, in percent)	0.2	0.3	-0.2	0.3	-0.1	0.0	0.0	0.1	0.1	0.1	0.1					
Grant element of new external borrowing (in percent)	...	...	...	29.9	36.5	36.5	36.7	36.7	36.6	-9.9	-9.9					

Sources: Congolese authorities; and World Bank and Fund staff estimates and projections.

1/Covers the central government on a net basis. The large negative numbers show the accumulation of oil wealth.

2/Gross financing need is defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.

3/Revenues excluding grants.

4/Debt service is defined as the sum of interest and amortization of medium and long-term debt.

5/Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

Table 3. Republic of Congo: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2006-2029 (In percent of GDP, unless otherwise indicated)

	Projections							2029
	2009	2010	2011	2012	2013	2014	2019	
PV of debt-to-GDP ratio								
Baseline	35	18	16	15	15	15	12	3
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	35	31	36	41	44	46	24	...
A2. New public sector loans on less favorable terms in 2009-2029 2	35	18	17	17	17	17	16	6
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	35	20	20	18	18	18	14	4
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	35	43	70	70	73	74	57	9
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	35	22	21	20	19	19	16	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-	35	34	49	49	51	51	40	7
B5. Combination of B1-B4 using one-half standard deviation shocks	35	65	106	106	111	112	86	14
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	35	23	21	20	20	19	16	4
PV of debt-to-exports ratio								
Baseline	48	22	20	19	20	21	26	15
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	48	38	45	52	59	64	50	...
A2. New public sector loans on less favorable terms in 2009-2029 2	48	23	21	21	22	24	31	28
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	48	22	20	19	20	21	26	15
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	48	81	146	150	165	174	197	71
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	48	22	20	19	20	21	26	15
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-	48	42	61	62	68	71	81	32
B5. Combination of B1-B4 using one-half standard deviation shocks	48	86	139	143	157	166	188	66
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	48	22	20	19	20	21	26	15
PV of debt-to-revenue ratio								
Baseline	99	38	34	30	29	28	26	9
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	99	66	75	81	86	88	53	...
A2. New public sector loans on less favorable terms in 2009-2029 2	99	39	36	33	33	33	33	17
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	99	42	40	36	35	34	31	11
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	99	91	144	138	142	141	123	25
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	99	47	44	39	38	36	34	12
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-	99	72	102	97	99	98	86	19
B5. Combination of B1-B4 using one-half standard deviation shocks	99	138	219	210	216	214	186	37
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	99	50	44	40	38	37	34	12
Debt service-to-exports ratio								
Baseline	3	2	2	3	3	3	2	4
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	3	3	2	4	3	4	5	...
A2. New public sector loans on less favorable terms in 2009-2029 2	3	2	2	3	4	3	3	4
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	3	2	2	3	3	3	2	4
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	3	4	5	9	10	14	23	22
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	3	2	2	3	3	3	2	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-	3	2	3	5	5	6	9	9
B5. Combination of B1-B4 using one-half standard deviation shocks	3	3	4	8	9	13	22	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	3	2	2	3	3	3	2	4
Debt service-to-revenue ratio								
Baseline	7	4	3	5	5	4	2	2
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2009-2029 1/	7	5	4	6	5	5	5	...
A2. New public sector loans on less favorable terms in 2009-2029 2	7	4	3	5	5	4	3	3
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2010-2011	7	5	4	6	6	5	2	3
B2. Export value growth at historical average minus one standard deviation in 2010-2011 3/	7	4	5	9	8	11	14	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2010-2011	7	5	4	7	6	5	3	3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2010-	7	4	4	7	7	8	10	6
B5. Combination of B1-B4 using one-half standard deviation shocks	7	5	7	12	12	16	22	12
B6. One-time 30 percent nominal depreciation relative to the baseline in 2010 5/	7	5	4	7	6	6	3	3
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	9	9	9	9	9	9	9	9

Sources: Country authorities; and Fund staff estimates and projections.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline., while grace and maturity periods are the same as in the b

3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

4/ Includes official and private transfers and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 4. Republic of Congo: Sensitivity Analysis for Key Indicators of Public Debt, 2006-2029
(In percent of GDP, unless otherwise indicated)

	Projections							
	2009	2010	2011	2012	2013	2014	2019	2029
PV of Debt-to-GDP Ratio								
Baseline	11	-24	-51	-81	-112	-143	-253	-246
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	11	-17	-35	-55	-76	-97	-173	-205
A2. Primary balance is unchanged from 2009	11	-12	-26	-42	-59	-76	-134	-129
A3. Permanently lower GDP growth 1/	11	-24	-50	-81	-113	-145	-259	-249
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-201	11	-23	-50	-80	-111	-142	-244	-212
B2. Primary balance is at historical average minus one standard deviations in 2010-201	11	-12	-24	-55	-88	-119	-227	-227
B3. Combination of B1-B2 using one half standard deviation shocks	11	-15	-31	-62	-94	-125	-227	-206
B4. One-time 30 percent real depreciation in 2010	11	-3	-32	-62	-94	-126	-236	-236
B5. 10 percent of GDP increase in other debt-creating flows in 2010	11	-17	-44	-75	-106	-137	-246	-241
PV of Debt-to-Revenue Ratio 2/								
Baseline	32	-51	-103	-157	-215	-269	-535	-640
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	32	-35	-71	-107	-144	-181	-367	-531
A2. Primary balance is unchanged from 2009	32	-26	-52	-81	-112	-142	-283	-336
A3. Permanently lower GDP growth 1/	32	-50	-103	-157	-216	-272	-547	-646
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-201	32	-48	-102	-155	-212	-266	-515	-550
B2. Primary balance is at historical average minus one standard deviations in 2010-201	32	-25	-50	-108	-168	-223	-480	-592
B3. Combination of B1-B2 using one half standard deviation shocks	32	-31	-64	-120	-180	-234	-480	-535
B4. One-time 30 percent real depreciation in 2010	32	-7	-65	-121	-180	-236	-500	-615
B5. 10 percent of GDP increase in other debt-creating flows in 2010	32	-36	-90	-145	-203	-258	-521	-628
Debt Service-to-Revenue Ratio 2/								
Baseline	16	8	6	8	6	5	2	2
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	16	8	8	16	18	20	19	21
A2. Primary balance is unchanged from 2009	16	8	7	18	19	23	24	27
A3. Permanently lower GDP growth 1/	16	8	6	8	6	6	5	12
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2010-201	16	9	8	13	13	13	14	21
B2. Primary balance is at historical average minus one standard deviations in 2010-201	16	8	7	18	19	9	4	6
B3. Combination of B1-B2 using one half standard deviation shocks	16	9	8	19	21	15	13	20
B4. One-time 30 percent real depreciation in 2010	16	9	8	10	8	7	4	4
B5. 10 percent of GDP increase in other debt-creating flows in 2010	16	8	7	13	6	7	2	3

Sources: Country authorities; and Fund staff estimates and projections.

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the square root of the length of the projection period.

2/ Revenues are defined inclusive of grants.