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SECOND REVIEW UNDER THE EXTENDED CREDIT FACILITY ARRANGEMENT, AND REQUESTS FOR WAIVERS OF NONOBSERVANCE OF PERFORMANCE CRITERIA AND FOR MODIFICATION OF PERFORMANCE CRITERIA—DEBT SUSTAINABILITY ANALYSIS UPDATE

Approved By
David Robinson and Luis Cubeddu (IMF) and John Panzer (IDA)

Prepared by the Staffs of the International Monetary Fund and the International Development Association.

This Debt Sustainability Analysis (DSA) updates the previous one which was conducted at the time of the HIPC completion point in April 2015 (IMF Country Report No. 15/124). It reflects a new macroeconomic and financing outlook that incorporates information on the recent rescheduling of two oil sales' advances, further deterioration in the security and oil price shocks, and changes in the domestic financing landscape. Although the rescheduling operation implies some improvement in the medium-term outlook for external debt obligations, the risk of debt distress remains high as repayment capacity is affected by the low oil prices. The performance of several debt ratios deteriorates over the short term compared to the previous DSA, mainly due to the downward revision of fiscal revenues, but the long-term dynamics remain broadly unchanged. The persistent challenges on debt sustainability underscore the need for continued prudent fiscal management and economic diversification.[1]

[1] Chad's average CPIA over 2012-14 is estimated at 2.5. This corresponds to a weak policy performance under the Debt Sustainability Framework for Low-Income Countries (LIC-DSA).

UNDERLYING ASSUMPTIONS

1. **This DSA update incorporates three main changes in assumptions relative to the previous DSA**.[2]

- First, the persistent decline in oil prices and the deterioration of security conditions have led to further downward adjustments in fiscal revenue and expenditure projections. The oil prices assumed in the DSA have been revised in line with the latest WEO assumptions, which imply a much lower fiscal oil revenue path over the medium term. The resulting primary spending cuts adversely impact overall GDP growth, especially in the short to medium term. The higher regional security threats have also had a negative effect on economic activity, due to the disruption of cross-border flows. In this context, there are substantial changes in the outlook for the medium-term fiscal primary balance, the external current account dynamics, and non-oil growth (Text Table 1). In 2016, the DSA also incorporates the assumption of exceptional receipts from the government's sale of a 10 percent equity stake in oil sector fields, which will generate about 5.5 percent of non-oil GDP.[3]

- Second, a rescheduling agreement with Glencore consolidating the two non-concessional oil sales' advance operations has now been concluded, and the update reflects the new terms. The rescheduling agreement implies an increase in the original debt's net present value, but significantly improves Chad's debt service profile over the medium term by better matching debt service to the anticipated path of oil receipts.

- Finally, revised domestic financing assumptions include: (i) an increase in the placement of domestic debt instruments from 2015 onwards, and (ii) a one-off source of exceptional financing for 2015 in the form of BEAC's statutory and extraordinary advances. The BEAC advances have a maturity of 10 years, a grace period of 3 years, and an interest rate equivalent to BEAC's rediscount rate. Their amortization schedule will therefore coincide with the projected recovery in oil revenue in 2018-22.

[2] See Appendix II of Chad's IMF Country Report No. 15/124: Joint Bank-Fund Debt Sustainability Analysis Under the Debt Sustainability Framework for Low-Income Countries, IDA and IMF, April 10, 2015, Washington D.C., https://www.imf.org/external/pubs/ft/scr/2015/cr15124.pdf.

[3] The receipts from this equity sale are included in the balance of payments in the form of foreign direct investment.

Text Table 1. Chad: Changes to Macroeconomic Assumptions

	2015	2016	2017	2015-19	2020-34
Real GDP growth					
Previous DSA	7.6	4.9	8.3	6.2	3.4
Current DSA	3.8	2.5	5.2	4.7	3.0
Non-oil GDP growth					
Previous DSA	2.1	4.4	4.9	4.2	4.7
Current DSA	-1.5	1.9	3.1	2.3	4.3
Total revenue and grants (% of non-oil GDP)					
Previous DSA	21.5	23.5	25.2	27.7	27.1
Current DSA	16.7	17.1	19.4	20.5	24.3
Oil revenue (%of non-oil GDP)					
Previous DSA	8.1	10.4	11.6	14.0	9.1
Current DSA	5.1	4.5	7.3	8.1	8.0
Non-oil primary balance (% of non-oil GDP)					
Previous DSA	-8.4	-7.4	-8.0	-10.1	-7.7
Current DSA	-9.7	-10.1	-8.0	-9.0	-6.3
Exports of goods and services (% of GDP)					
Previous DSA	27.5	30.1	34.6	32.4	23.6
Current DSA	24.9	25.8	29.4	30.0	24.2

Sources: Chadian authorities and IMF Staff estimates.

EXTERNAL DSA

2. **The results indicate that the risk of external debt distress remains high, with a slight deterioration in the debt service profile over the short to medium term** (Table 1, Figure 1). Under the baseline scenario, two of the external debt indicators exceed their respective thresholds in the short-run. The small breach of the PV of debt-to-revenue ratio in 2015 is due to the substantial reduction in fiscal oil revenue. The breach for the debt service-to-revenue ratio in 2016, which was also observed in the previous DSA but appears exacerbated in the current DSA, is explained by the continued underperformance of oil revenue and the high debt service payments falling due in 2016 (under the rescheduled oil advances). However, over the long term, the debt ratios stabilize to levels similar to the previous DSA. The stress tests indicate that external debt is especially vulnerable to high exchange rate depreciation and poor export performance, in particular over the short-term.

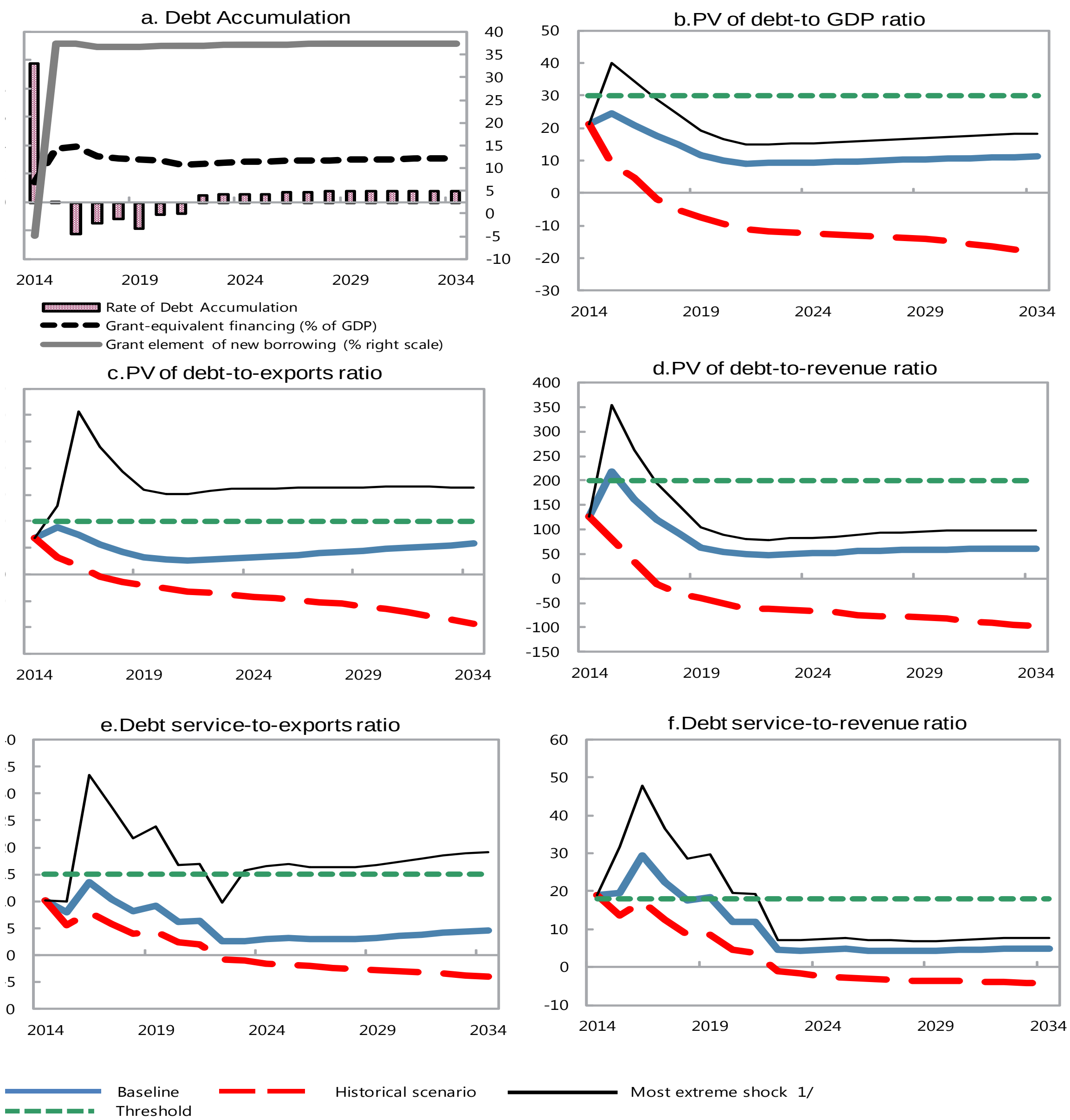
PUBLIC DSA

3. **The assessment of Chad's overall risk of debt sustainability does not change when domestic debt is included in the analysis** (Tables 2 and 3, Figure 2). Despite the upward revision of domestic debt issuance, the public debt indicators continue to be driven by the external debt component. Under the baseline projection, the PV of debt-to-GDP ratio rises close to the threshold in 2015, reflecting the BEAC advances and the increased issuance of debt securities in the regional market, but then gradually declines. Meanwhile, as stated in the previous DSA, the stress tests underscore the sustainability risks related to exchange rate depreciation and lack of fiscal adjustment. These vulnerabilities emphasize the importance of prudent fiscal management in the face of volatile oil revenues.

CONCLUSION

4. **While Chad remains at high risk of external debt distress, the persistence of oil and security shocks has worsened some debt ratios in the short term**. Despite the negative impact of the deterioration in the two external shocks, the updated DSA's baseline projections remain consistent with medium- and long-term debt sustainability. However, in the short term (2015-17), Chad's repayment capacity has been negatively affected by lower oil revenues, in spite of the rescheduling of oil sales' advances. The persistence of risks coming from external shocks stresses the need for diversifying the economy to minimize the dependence on the oil sector for repayment capacity. Further improvement in fiscal and debt management is also required. In this respect, the effective functioning of the recently revamped inter-ministerial debt coordination units will be important for strengthening the capacity to record and monitor public debt. In addition, the government will start issuing annual debt management reports since 2016, and will undertake institutional improvements in the management of spending arrears in line with recent Fund TA recommendations.

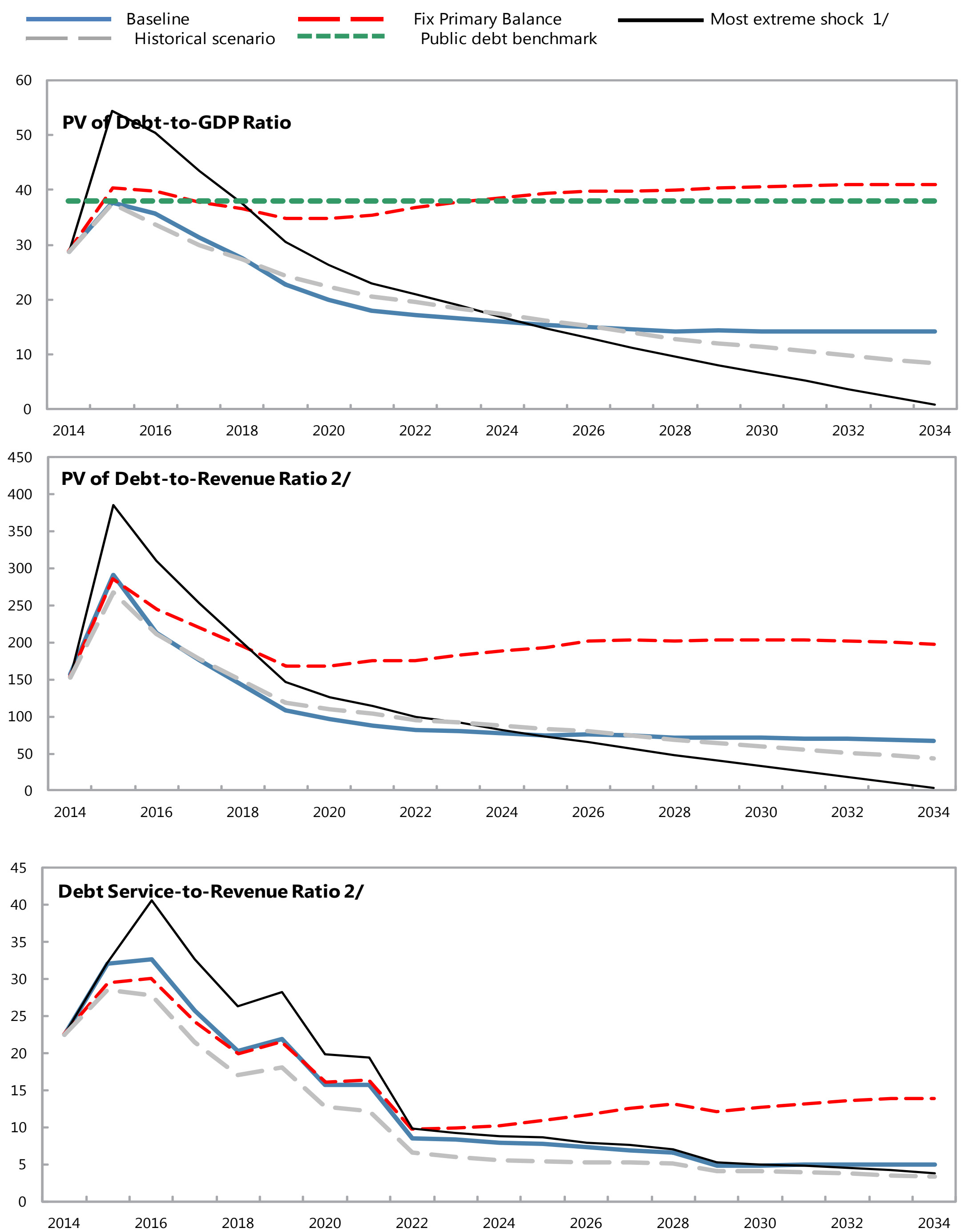
Figure 1. Chad: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2014 – 34[1/]



Sources: Country authorities; and staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio on or before 2024. In figure b. it corresponds to a One-time depreciation shock; in c. to a Exports shock; in d. to a One-time depreciation shock; in e. to a Exports shock and in figure f. to a One-time depreciation shock

Figure 2. Chad: Indicators of Public Debt Under Alternative Scenarios, 2014-34 1/



Sources: Country authorities; and staff estimates and projections.
1/ The most extreme stress test is the test that yields the highest ratio on or before 2024.
2/ Revenues are defined inclusive of grants.

Table 1 .Chad: External Debt Sustainability Framework, Baseline Scenario, 2011-34 1/

(In percent of GDP, unless otherwise indicated)

	Actual											Historical 6/	Standard 6/	Projections									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average	Deviation	2014	2015	2016	2017	2018	2019	2014-2019 Average	2024	2034	2020-2034 Average
External debt (nominal) 1/	120.9	77.3	67.3	55.8	48.4	47.3	47.8	44.5	41.9	39.0	37.6			47.7	46.6	42.1	37.1	33.1	28.5		23.9	22.1	
of which: public and publicly guaranteed (PPG)	120.9	77.3	67.3	55.8	48.4	47.3	47.8	44.5	41.9	39.0	37.6			47.7	46.6	42.1	37.1	33.1	28.5		23.9	22.1	
Change in external debt	...	-43.6	-10.0	-11.5	-7.4	-1.2	0.5	-3.2	-2.6	-2.9	-1.4			10.1	-1.0	-4.5	-5.0	-4.0	-4.6		-0.3	-0.2	
Identified net debt-creating flows	...	-43.9	-36.4	-19.2	-16.1	-17.7	8.4	-2.5	-4.3	3.3	3.4			1.3	3.6	-2.0	1.8	-1.3	-2.8		-0.3	1.8	
Non-interest current account deficit	42.5	14.3	-1.7	-5.1	-8.7	-4.1	8.7	8.6	5.3	8.4	8.9	3.5	7.7	8.3	9.7	6.6	7.1	3.4	0.8		1.4	3.0	2.1
Deficit in balance of goods and services	32.5	7.7	-10.1	1.2	-3.2	-1.8	12.5	11.3	7.3	10.7	9.7			12.6	14.9	12.2	9.8	4.6	0.7		1.8	4.6	
Exports	21.5	45.6	48.0	47.6	44.5	42.7	35.4	37.9	40.7	38.3	33.5			31.5	27.6	28.6	32.0	35.4	37.2		29.2	19.6	
Imports	54.0	53.3	37.9	48.8	41.3	40.8	47.9	49.1	48.0	49.0	43.2			44.1	42.5	40.8	41.8	40.0	37.9		31.0	24.2	
Net current transfers (negative = inflow)	-3.2	-4.4	-5.0	-2.9	-6.8	-4.5	-7.5	-5.6	-4.3	-4.4	-5.1	-5.1	1.3	-7.9	-6.3	-6.1	-5.2	-4.9	-4.6		-4.2	-3.3	-3.9
of which: official	-2.4	-2.8	-1.6	-0.8	-0.8	-0.8	-0.8	-0.4	-0.3	-0.9	-1.5			-4.4	-2.4	-2.2	-1.5	-1.5	-1.3		-1.3	-1.4	
Other current account flows (negative = net inflow)	13.2	11.1	13.5	-3.4	1.4	2.2	3.7	3.0	2.3	2.1	4.2			3.6	1.1	0.6	2.5	3.7	4.7		3.8	1.8	
Net FDI (negative = inflow)	-32.8	-13.1	-16.1	-7.7	0.0	-5.8	-6.6	-5.2	-4.5	-4.7	-4.0	-6.8	4.6	-5.2	-5.3	-8.7	-4.2	-3.4	-2.3		-1.2	-0.7	-1.2
Endogenous debt dynamics 2/	...	-45.2	-18.7	-6.4	-7.4	-7.8	6.2	-5.9	-5.1	-0.4	-1.4			-1.8	-0.8	0.1	-1.1	-1.3	-1.3		-0.5	-0.5	
Contribution from nominal interest rate	...	0.7	0.6	0.6	0.4	0.4	0.5	0.4	0.3	0.3	0.3			0.6	1.5	1.2	0.9	0.7	0.5		0.2	0.2	
Contribution from real GDP growth	...	-25.2	-4.6	-0.4	-1.6	-1.2	-2.2	-5.6	0.0	-3.7	-2.1			-2.4	-2.2	-1.1	-2.0	-2.0	-1.8		-0.6	-0.7	
Contribution from price and exchange rate changes	...	-20.7	-14.6	-6.6	-6.3	-6.9	8.0	-0.6	-5.4	3.0	0.4			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	...	0.3	26.4	7.7	8.8	16.5	-7.9	-0.7	1.7	-6.2	-4.9			8.8	-4.6	-2.5	-6.8	-2.7	-1.8		-0.1	-2.0	
of which: exceptional financing	...	-0.2	0.0	0.3	-0.5	0.1	0.0	0.0	0.0	0.0	0.0			0.0	-0.8	-0.8	-0.6	-0.3	-0.3		-0.2	-0.1	
PV of external debt 4/	...	...	...	...	...	...	...	...	...	...	11.2			21.4	24.6	21.0	17.6	14.9	11.8		9.5	11.2	
In percent of exports	...	...	...	...	...	...	...	...	...	...	33.5			67.8	89.1	73.6	55.1	42.2	31.6		32.5	57.4	
PV of PPG external debt	...	...	...	...	...	...	...	...	...	...	11.2			21.4	24.6	21.0	17.6	14.9	11.8		9.5	11.2	
In percent of exports	...	...	...	...	...	...	...	...	...	...	33.5			67.8	89.1	73.6	55.1	42.2	31.6		32.5	57.4	
In percent of government revenues	...	...	...	...	...	...	...	...	...	...	60.4			126.6	217.8	160.8	119.2	90.6	63.5		51.3	60.2	
Debt service-to-exports ratio (in percent)	20.3	6.0	4.3	3.8	3.5	3.1	4.1	3.4	2.7	2.9	3.1			10.2	8.0	13.4	10.4	8.2	9.1		2.9	4.5	
PPG debt service-to-exports ratio (in percent)	20.3	6.0	4.3	3.8	3.5	3.1	4.1	3.4	2.7	2.9	3.1			10.2	8.0	13.4	10.4	8.2	9.1		2.9	4.5	
PPG debt service-to-revenue ratio (in percent)	...	36.2	24.7	12.7	8.5	6.1	11.9	6.7	4.8	5.0	5.7			19.1	19.5	29.4	22.4	17.5	18.3		4.6	4.8	
Total gross financing need (Billions of U.S. dollars)	...	...	...	...	-0.6	-0.9	0.3	0.5	0.2	0.6	0.8			0.9	0.7	0.2	0.8	0.4	0.3		0.2	1.2	
Non-interest current account deficit that stabilizes debt ratio	...	57.9	8.3	6.4	-1.3	-3.0	8.2	11.8	7.9	11.3	10.3			-1.8	10.7	11.2	12.1	7.4	5.4		1.7	3.2	
Key macroeconomic assumptions																							
Real GDP growth (in percent)	14.7	33.6	7.9	0.6	3.3	3.1	4.2	13.5	0.1	8.9	5.7	8.1	9.8	6.9	3.8	2.5	5.2	5.8	6.0	5.0	2.7	3.3	3.0
GDP deflator in US dollar terms (change in percent)	19.8	20.7	23.3	10.9	12.8	16.7	-14.4	1.4	13.9	-6.6	-1.0	7.7	12.4	0.7	-22.1	3.4	5.7	4.6	4.7	-0.5	2.3	2.7	2.4
Effective interest rate (percent) 5/	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.1	1.7	2.5	2.7	2.4	2.1	1.7	2.2	0.7	0.9	0.8
Growth of exports of G&S (US dollar terms, in percent)	164.4	241.5	40.0	10.7	8.9	15.3	-26.1	23.3	22.3	-4.1	-8.6	32.3	75.8	1.4	-29.2	9.6	24.4	22.4	16.8	7.6	0.1	2.6	1.0
Growth of imports of G&S (US dollar terms, in percent)	-23.1	59.0	-5.4	43.6	-1.3	18.9	4.5	18.1	11.3	3.8	-7.7	14.5	21.7	9.9	-22.1	1.6	13.9	6.0	5.1	2.4	0.8	4.4	2.3
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	...	...	...	...	...	...	...	...	-4.8	37.4	37.3	36.7	36.7	36.8	30.0	37.1	37.5	37.3
Government revenues (excluding grants, in percent of GDP)	...	7.5	8.3	14.4	18.5	21.3	12.3	18.9	23.2	21.8	18.5			16.9	11.3	13.1	14.8	16.5	18.5		18.5	18.6	18.2
Aid flows (in Billions of US dollars) 7/	...	0.1	0.2	0.1	0.2	0.2	0.4	0.3	0.3	0.5	0.4			0.3	0.4	0.5	0.4	0.5	0.5		0.6	1.2	
of which: Grants	...	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.3			0.3	0.4	0.4	0.3	0.4	0.4		0.5	0.9	
of which: Concessional loans	...	...	...	...	0.1	0.0	0.1	0.1	0.1	0.1	0.1			0.1	0.1	0.0	0.1	0.1	0.1		0.1	0.3	
Grant-equivalent financing (in percent of GDP) 8/	...	...	...	...	...	...	...	...	...	...	...			1.5	3.8	3.9	3.2	3.1	3.0		2.8	3.1	2.9
Grant-equivalent financing (in percent of external financing) 8/	...	...	...	...	...	...	...	...	...	...	...			11.3	78.2	86.7	75.6	74.2	74.0		74.6	73.5	74.3
Memorandum items:																							
Nominal GDP (Billions of US dollars)	3.1	5.0	6.7	7.4	8.7	10.4	9.3	10.7	12.2	12.4	13.0			13.9	11.3	11.9	13.3	14.7	16.3		20.7	36.1	
Nominal dollar GDP growth	...	61.2	33.1	11.6	16.5	20.2	-10.8	15.1	14.0	1.7	4.7			7.7	-19.2	5.9	11.2	10.7	11.0	4.5	5.0	6.0	5.5
PV of PPG external debt (in Billions of US dollars)											1.5			2.8	2.8	2.5	2.3	2.2	1.9		2.0	4.1	
(PVt-PVt-1)/GDPt-1 (in percent)														9.8	0.1	-2.2	-1.5	-1.1	-1.8	0.5	0.6	0.8	0.5
Gross workers' remittances (Billions of US dollars)	...	...	...	...	...	...	...	...	...	...	...			...	...	...	...	...	...		...	...	
PV of PPG external debt (in percent of GDP + remittances)									...	...	11.2			21.4	24.6	21.0	17.6	14.9	11.8		9.5	11.2	
PV of PPG external debt (in percent of exports + remittances)									...	...	33.5			67.8	89.1	73.6	55.1	42.2	31.6		32.5	57.4	
Debt service of PPG external debt (in percent of exports + remittances)									...	...	3.1			10.2	8.0	13.4	10.4	8.2	9.1		2.9	4.5	

Sources: Country authorities; and staff estimates and projections.

1/ Includes both public and private sector external debt.

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

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.

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. Chad: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2014-34

(In percent)

			Projections					
	2014	2015	2016	2017	2018	2019	**2024**	2034
PV of debt-to GDP ratio								
Baseline	21	25	21	18	15	12	**9**	11
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2014-2034 1/	21	9	5	-2	-5	-7	**-12**	-18
A2. New public sector loans on less favorable terms in 2014-2034 2	21	25	22	19	17	15	**15**	20
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2015-2016	21	26	23	19	16	13	**10**	12
B2. Export value growth at historical average minus one standard deviation in 2015-2016 3/	21	28	36	32	28	24	**19**	13
B3. US dollar GDP deflator at historical average minus one standard deviation in 2015-2016	21	20	19	16	13	10	**8**	10
B4. Net non-debt creating flows at historical average minus one standard deviation in 2015-2016 4/	21	28	31	27	24	20	**16**	12
B5. Combination of B1-B4 using one-half standard deviation shocks	21	14	11	9	7	5	**4**	8
B6. One-time 30 percent nominal depreciation relative to the baseline in 2015 5/	21	40	34	29	24	19	**15**	18
PV of debt-to-exports ratio								
Baseline	68	89	74	55	42	32	**32**	57
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2014-2034 1/	68	33	16	-6	-14	-20	**-42**	-93
A2. New public sector loans on less favorable terms in 2014-2034 2	68	90	78	61	49	39	**50**	103
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2015-2016	68	89	74	55	42	32	**32**	58
B2. Export value growth at historical average minus one standard deviation in 2015-2016 3/	68	128	307	241	194	158	**162**	162
B3. US dollar GDP deflator at historical average minus one standard deviation in 2015-2016	68	89	74	55	42	32	**32**	58
B4. Net non-debt creating flows at historical average minus one standard deviation in 2015-2016 4/	68	103	108	84	67	54	**55**	63
B5. Combination of B1-B4 using one-half standard deviation shocks	68	50	44	31	23	15	**16**	47
B6. One-time 30 percent nominal depreciation relative to the baseline in 2015 5/	68	89	74	55	42	32	**32**	58
PV of debt-to-revenue ratio								
Baseline	127	218	161	119	91	64	**51**	60
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2014-2034 1/	127	80	35	-12	-31	-40	**-67**	-97
A2. New public sector loans on less favorable terms in 2014-2034 2	127	221	169	131	105	79	**79**	109
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2015-2016	127	229	177	131	100	70	**56**	67
B2. Export value growth at historical average minus one standard deviation in 2015-2016 3/	127	250	276	215	171	131	**105**	70
B3. US dollar GDP deflator at historical average minus one standard deviation in 2015-2016	127	177	142	106	80	56	**45**	53
B4. Net non-debt creating flows at historical average minus one standard deviation in 2015-2016 4/	127	252	237	182	143	108	**86**	67
B5. Combination of B1-B4 using one-half standard deviation shocks	127	126	87	61	43	27	**23**	45
B6. One-time 30 percent nominal depreciation relative to the baseline in 2015 5/	127	353	262	194	147	104	**83**	98

Table 2. Chad: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2014-34 (concluded)

(In percent)

	Projections							
	2014	2015	2016	2017	2018	2019	**2024**	2034
Debt service-to-exports ratio								
Baseline	10	8	13	10	8	9	**3**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2014-2034 1/	10	6	8	6	4	4	**-2**	-4
A2. New public sector loans on less favorable terms in 2014-2034 2	10	8	4	3	2	4	**1**	3
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2015-2016	10	8	13	10	8	9	**3**	5
B2. Export value growth at historical average minus one standard deviation in 2015-2016 3/	10	10	33	27	22	24	**16**	19
B3. US dollar GDP deflator at historical average minus one standard deviation in 2015-2016	10	8	13	10	8	9	**3**	5
B4. Net non-debt creating flows at historical average minus one standard deviation in 2015-2016 4/	10	8	14	11	9	10	**5**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	10	6	11	9	7	8	**1**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2015 5/	10	8	13	10	8	9	**3**	5
Debt service-to-revenue ratio								
Baseline	19	20	29	22	18	18	**5**	5
A. Alternative Scenarios								
A1. Key variables at their historical averages in 2014-2034 1/	19	14	17	12	9	9	**-2**	-4
A2. New public sector loans on less favorable terms in 2014-2034 2	19	20	8	6	5	8	**2**	3
B. Bound Tests								
B1. Real GDP growth at historical average minus one standard deviation in 2015-2016	19	21	32	25	19	20	**5**	5
B2. Export value growth at historical average minus one standard deviation in 2015-2016 3/	19	20	30	25	19	20	**11**	8
B3. US dollar GDP deflator at historical average minus one standard deviation in 2015-2016	19	16	26	20	15	16	**4**	4
B4. Net non-debt creating flows at historical average minus one standard deviation in 2015-2016 4/	19	20	30	24	19	19	**9**	7
B5. Combination of B1-B4 using one-half standard deviation shocks	19	15	22	17	13	14	**2**	3
B6. One-time 30 percent nominal depreciation relative to the baseline in 2015 5/	19	32	48	36	28	30	**8**	8
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	33	33	33	33	33	33	**33**	33

Sources: Country authorities; and 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 baseline.
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 3. Chad: Public Sector Debt Sustainability Framework, Baseline Scenario, 2011-34

(In percent of GDP, unless otherwise indicated)

	Actual			Average 5/	Standard Deviation 5/	Estimate	Projections									
	2011	2012	2013			2014	2015	2016	2017	2018	2019	2014-19 Average		2024	2034	2020-34 Average
Public sector debt 1/	49.6	47.1	46.5			55.1	59.7	56.7	50.7	45.6	39.4	51.2		30.4	25.0	27.6
of which: foreign-currency denominated	41.9	39.0	37.6			47.7	46.6	42.1	37.1	33.1	28.5			23.9	22.1	
Change in public sector debt	-0.3	-2.5	-0.6			8.6	4.6	-3.0	-6.0	-5.1	-6.2			-1.0	-0.3	
Identified debt-creating flows	-3.5	-2.4	-1.7			-1.8	3.7	-6.2	-5.5	-5.7	-6.9			-2.0	-0.7	
Primary deficit 6/	-2.7	-1.1	1.5	0.1	3.9	2.3	1.4	-0.2	-2.1	-2.8	-3.1	-0.8		-0.6	0.5	-0.2
Revenue and grants	24.8	24.4	20.8			18.9	14.5	16.6	17.4	19.0	20.9			20.8	21.1	
of which: grants	1.6	2.7	2.3			2.0	3.2	3.5	2.6	2.5	2.4			2.3	2.4	
Primary (noninterest) expenditure	22.1	23.3	22.3			21.1	15.8	16.4	15.3	16.2	17.8			20.2	21.6	
Automatic debt dynamics	-0.8	-1.3	-2.7			0.4	2.7	-1.2	-3.0	-2.6	-3.5			-1.2	-1.1	
Contribution from interest rate/growth differential	-1.3	-6.5	1.1			-2.5	-5.3	-0.9	-2.9	-2.6	-2.9			-1.0	-1.1	
of which: contribution from average real interest rate	-1.3	-2.4	3.6			0.5	-3.3	0.6	-0.1	0.2	-0.3			-0.2	-0.3	
of which: contribution from real GDP growth	0.0	-4.0	-2.5			-3.0	-2.0	-1.4	-2.8	-2.8	-2.6			-0.8	-0.8	
Contribution from real exchange rate depreciation	0.6	5.2	-3.8			3.0	7.9	-0.4	-0.1	-0.1	-0.5			...	...	
Other identified debt-creating flows	0.0	-0.1	-0.5			-4.4	-0.3	-4.7	-0.4	-0.3	-0.3			-0.2	-0.1	
Privatization receipts (negative)	0.0	-0.1	0.0			-4.0	0.0	-4.3	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)	0.0	0.0	-0.5			-0.4	-0.3	-0.4	-0.4	-0.3	-0.3			-0.2	-0.1	
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	3.2	-0.1	1.1			10.3	0.8	3.2	-0.5	0.6	0.7			1.0	0.4	
Other Sustainability Indicators																
PV of public sector debt	...	...	20.1			28.8	37.6	35.6	31.3	27.4	22.7			16.0	14.1	
of which: foreign-currency denominated	...	...	11.2			21.4	24.6	21.0	17.6	14.9	11.8			9.5	11.2	
of which: external	...	...	11.2			21.4	24.6	21.0	17.6	14.9	11.8			9.5	11.2	
PV of contingent liabilities (not included in public sector debt)	...	...	...			...	...	...	...	...	...			...	...	
Gross financing need 2/	-1.6	0.7	3.9			6.5	6.0	5.2	2.4	1.1	1.4			1.0	1.5	
PV of public sector debt-to-revenue and grants ratio (in percent)	...	...	96.8			152.7	260.3	214.2	179.7	144.7	108.4			76.9	67.0	
PV of public sector debt-to-revenue ratio (in percent)	...	...	108.6			170.5	333.0	272.3	211.6	166.4	122.5			86.3	75.8	
of which: external 3/	...	...	60.4			126.6	217.8	160.8	119.2	90.6	63.5			51.3	60.2	
Debt service-to-revenue and grants ratio (in percent) 4/	4.5	7.4	11.6			22.5	32.1	32.6	25.7	20.3	21.9			7.9	4.9	
Debt service-to-revenue ratio (in percent) 4/	4.8	8.3	13.0			25.1	41.1	41.5	30.2	23.4	24.7			8.9	5.6	
Primary deficit that stabilizes the debt-to-GDP ratio	-2.4	1.4	2.1			-6.3	-3.2	2.7	3.9	2.3	3.0			0.4	0.8	
Key macroeconomic and fiscal assumptions																
Real GDP growth (in percent)	0.1	8.9	5.7	8.1	9.8	6.9	3.8	2.5	5.2	5.8	6.0	5.0		2.7	3.3	3.0
Average nominal interest rate on forex debt (in percent)	0.9	0.8	0.8	0.9	0.1	1.7	2.5	2.7	2.4	2.1	1.7	2.2		0.7	0.9	0.8
Average real interest rate on domestic debt (in percent)	...	8.7	5.6	7.1	2.2	1.1	4.0	3.7	2.3	2.8	0.8	2.5		2.2	2.3	2.2
Real exchange rate depreciation (in percent, + indicates depreciation)	1.3	14.6	-9.4	0.5	14.9	8.4	...	...	...	...	...	...		...	...	...
Inflation rate (GDP deflator, in percent)	2.5	-4.0	-1.9	0.7	4.0	3.2	3.7	2.3	2.6	1.9	3.7	2.9		2.9	2.9	2.9
Growth of real primary spending (deflated by GDP deflator, in percent)	-2.7	21.3	-1.3	2.3	7.7	-1.2	-30.2	6.8	0.1	13.7	16.6	1.0		2.1	4.0	3.9
Grant element of new external borrowing (in percent)	...	...	...	...	...	-4.8	37.4	37.3	36.7	36.7	36.8	30.0		37.1	37.5	...

Sources: Country authorities; and staff estimates and projections.

1/ [Indicate coverage of public sector, e.g., general government or nonfinancial public sector. Also whether net or gross debt is used.]

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.

6/ The primary deficit in the DSA grosses up oil revenue and debt service on the oil sales advances (in contrast to the fiscal tables in the Staff Report)

Table 4. Chad: Sensitivity Analysis for Key Indicators of Public Debt 2014-34

		Projections						
	2014	2015	2016	2017	2018	2019	2024	2034
PV of Debt-to-GDP Ratio								
Baseline	29	38	36	31	27	23	16	14
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	29	37	34	30	27	24	17	8
A2. Primary balance is unchanged from 2014	29	40	40	38	37	35	39	41
A3. Permanently lower GDP growth 1/	29	40	38	34	30	26	26	55
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2015-2016	29	42	41	36	32	27	20	15
B2. Primary balance is at historical average minus one standard deviations in 2015-2016	29	42	42	36	31	26	14	0
B3. Combination of B1-B2 using one half standard deviation shocks	29	41	40	34	29	23	12	-1
B4. One-time 30 percent real depreciation in 2015	29	55	50	44	37	31	17	1
B5. 10 percent of GDP increase in other debt-creating flows in 2015	29	45	42	37	32	26	14	0
PV of Debt-to-Revenue Ratio 2/								
Baseline	157	290	213	176	142	108	77	67
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	153	267	211	177	147	119	87	43
A2. Primary balance is unchanged from 2014	153	286	244	220	195	167	188	197
A3. Permanently lower GDP growth 1/	153	281	231	194	158	123	125	250
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2015-2016	153	291	246	206	166	127	98	70
B2. Primary balance is at historical average minus one standard deviations in 2015-2016	153	294	259	212	167	124	69	1
B3. Combination of B1-B2 using one half standard deviation shocks	153	286	243	198	154	113	59	-6
B4. One-time 30 percent real depreciation in 2015	153	386	310	253	199	147	82	4
B5. 10 percent of GDP increase in other debt-creating flows in 2015	153	321	259	213	168	124	69	1
Debt Service-to-Revenue Ratio 2/								
Baseline	23	32	33	26	20	22	8	5
A. Alternative scenarios								
A1. Real GDP growth and primary balance are at historical averages	23	29	28	21	17	18	6	3
A2. Primary balance is unchanged from 2014	23	29	30	24	20	22	10	14
A3. Permanently lower GDP growth 1/	23	30	31	25	20	22	9	12
B. Bound tests								
B1. Real GDP growth is at historical average minus one standard deviations in 2015-2016	23	31	32	26	21	22	8	5
B2. Primary balance is at historical average minus one standard deviations in 2015-2016	23	29	30	25	20	21	8	2
B3. Combination of B1-B2 using one half standard deviation shocks	23	30	30	24	19	21	7	1
B4. One-time 30 percent real depreciation in 2015	23	32	41	33	26	28	9	4
B5. 10 percent of GDP increase in other debt-creating flows in 2015	23	29	31	25	20	21	9	2

Sources: Country authorities; and 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.