

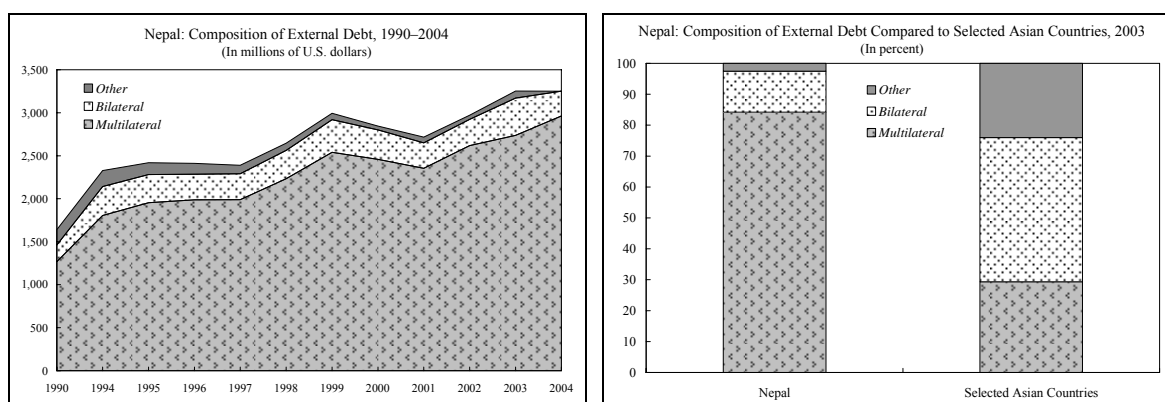
## Nepal: Joint Bank-Fund Debt Sustainability Analysis

*Public debt dynamics are assessed using the Low Income Country Debt Sustainability Analysis (LIC-DSA) framework. The DSA was conducted jointly with the World Bank. Based on the external LIC-DSA, Nepal's external debt dynamics are subject to a high risk of debt distress.*

### I. LOW INCOME COUNTRY-DEBT SUSTAINABILITY ANALYSIS (LIC-DSA)<sup>1</sup>

#### A. Size and Composition of Public and Publicly Guaranteed (PPG) Debt

1. Nepal's total public debt is estimated at 61 percent of GDP at end-2004, of which roughly 75 percent is external debt. External debt doubled between 1990 and 2004, reflecting budget support and project finance from multilateral institutions, mostly IDA and the AsDB. At end-2004, nominal external debt stood at around US\$3¼ billion, of which 90 percent was owed to multilateral institutions. By comparison, multilateral debt accounted for 29 percent of total external debt in selected Asian economies. The composition of Nepal's debt implies a high degree of concessionality, with an average grant element of close to 50 percent.



#### B. Assumptions

##### 2. Baseline projections of PPG debt are based on the following key assumptions:

- **Real sector:** Real GDP growth is projected to rise gradually from 3 percent in 2005/06 and stabilize at 5½ percent after 2009/10, in line with growth rates observed in the early 1990s. Inflation is projected at 5 percent. The nominal interest rate on domestic debt is expected to average 7 percent during 2005/06–2009/10, and 6 percent thereafter. The exchange rate is projected to depreciate against the dollar, in line with movements in the Indian rupee to which the Nepalese rupee is pegged.

<sup>1</sup> The LIC-DSA produces different results from calculations under the enhanced HIPC Initiative because of different methodologies.

- **Fiscal sector:** The revenue-to-GDP ratio is projected to rise from 13 percent in 2004/05 to 13¾ percent by 2007/08, assuming some increase in the VAT rate and improved tax collection. The expenditure-to-GDP ratio rises from 16 percent in 2004/05 to 18½ percent in 2007/08, and stabilizes thereafter. The growth of real primary spending is projected to average 7 percent during 2005/06–09/10 (5¼ percent during 2010/11–2024/25).
- **External sector:** Exports of goods and services are projected to average 6¾ percent over the projection period. Imports of goods and services are expected to rebound in line with economic activity following the decline in 2004/05, averaging 7¼ percent. The noninterest current account balance is projected to deteriorate from a surplus of 6 percent of GDP in 2004/05 to a deficit of 1¼ percent of GDP by 2024/25. Scheduled debt service on existing external debt increases from around US\$120 million in 2004/05 to US\$125 million in 2024/25. New financing is assumed to be moderate during the next three years, but rising gradually from US\$170 million in 2005/06 to US\$370 million by 2009/10. The grant element of new borrowing is assumed to average around 45 percent during 2004/05–2009/10 and 40 percent thereafter.

### C. Baseline

#### PPG external debt

3. **A key feature of the LIC–DSA framework is that it compares debt burden indicators to indicative policy-based thresholds.** The thresholds are based on the empirical finding that low-income countries with stronger policies and institutions tend to have a higher debt carrying capacity. At end-2004, Nepal's NPV of debt-to-exports ratio is estimated at 172 percent (the relevant policy–based indicative threshold is 150 percent). The ratio is projected to fall to 148 percent by 2009/10 and 83 percent by 2024/25. Other relevant indicators remain below the thresholds throughout the projection period.

	Indicative Thresholds 1/	Nepal 2004/05
NPV of debt, in percent of		
Exports	150	172
GDP	40	28
Revenues	250	213
Debt service, in percent of		
Exports	20	9
Revenues	30	12

1/ Shows indicative policy dependent thresholds under the joint IMF-World Bank low-income country debt sustainability framework for a medium policy performer.

4. **In the baseline scenario, debt burden ratios are projected to fall between 2004/05 and 2024/25** (Table II.1). The NPV of external public debt-to-GDP (28 percent to 15 percent) NPV of external public debt-to-exports (172 percent to 83 percent); external public debt service-to-exports ratio (10 percent to 8 percent); and external public debt service to revenues (213 percent to 109 percent).<sup>2</sup>

<sup>2</sup> Given the high concessionality of external debt, the debt service-to-exports ratio is low, and at levels similar to most HIPCs after full HIPC debt relief. The ratio reflects debt service on existing debt and debt service on projected disbursements.

## **Total Public Debt**

5. Domestic debt accounts for about 25 percent of total public debt. Under the baseline scenario, the NPV of public debt-to-GDP ratio declines from 44 percent at end-2004/05 to 30 percent by 2024/25 (Table II.3; Figure II.2). Over the same period, the NPV of public debt-to-revenue ratio falls from 292 percent to 190 percent, and the public debt service-to-revenue ratio decreases from 23 percent to 16 percent.

### **D. Sensitivity Analysis**

6. **Stress tests suggest that Nepal's debt profile is susceptible to shocks.**

- **Total public debt:** Following an extreme shock—a one-time 30 percent real depreciation in 2005/06 which leads to the highest level of NPV of debt-to-GDP 10 years after the shock—the NPV ratio peaks at around 54 percent in 2005/06 and falls to about 33 percent in 2024/25. The debt service to revenue ratio peaks in 2008/09 at 28 percent converging to the baseline level of 16 percent in 2024/25.
- **External debt:** Following an export shock—defined as export value growth at historical levels minus one standard deviation in the first two years of the shock—the NPV of debt-to-exports ratio increases significantly, peaking at 333 percent in the last year of the shock. The debt service-to-exports ratio peaks at 19 percent in 2014/15. These results are driven by Nepal's recent volatile export performance. The combined shocks scenario has a similar effect, primarily based on the export component of the shock. Under a low growth scenario (3 percent), the NPV of external debt-to-GDP ratio would be higher by 7 percent of GDP by 2024/25 relative to the baseline.

### **E. Staff Assessment**

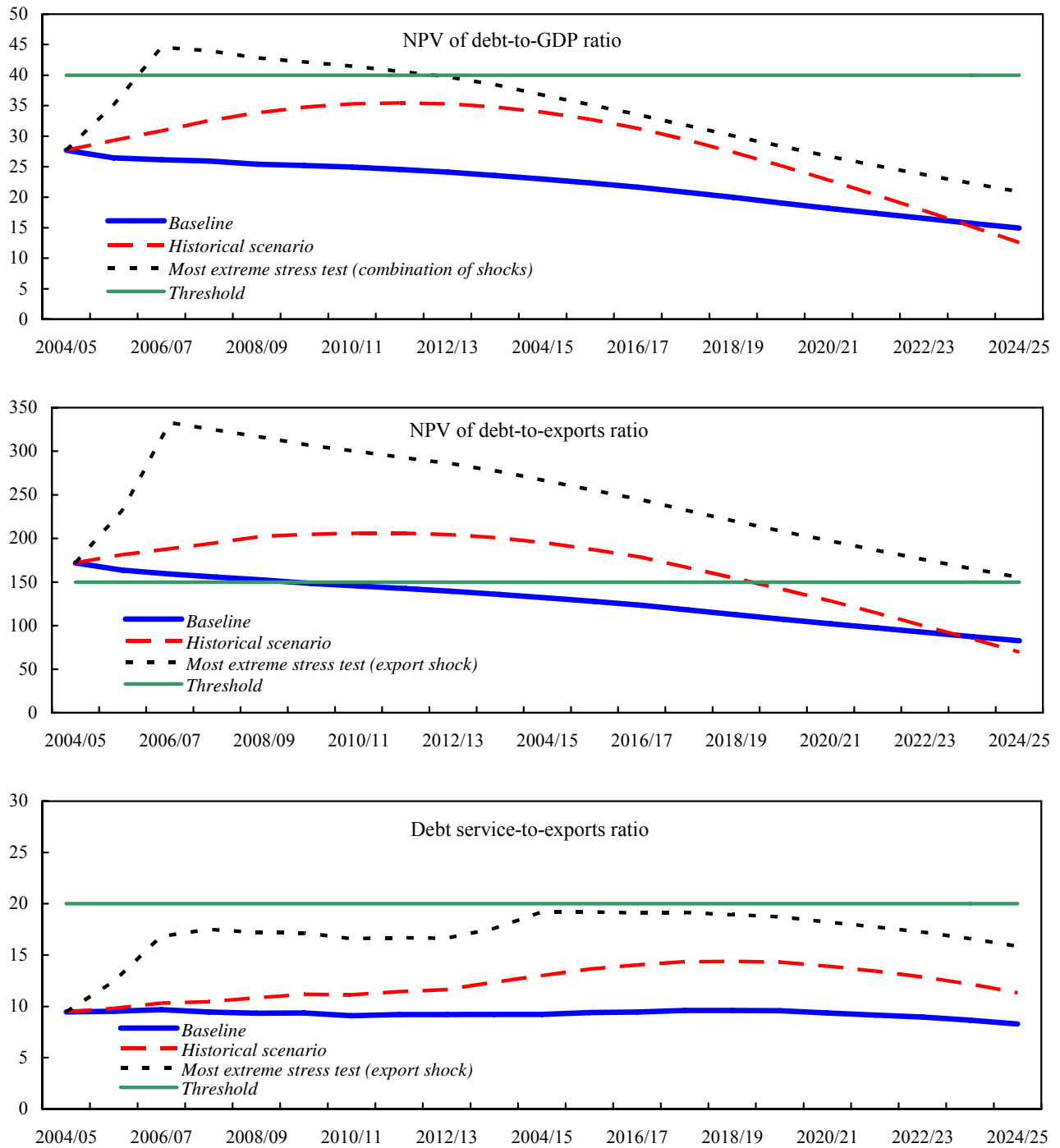
7. **Based on the LIC-DSA, staffs conclude that Nepal's external debt dynamics are subject to a high risk of distress.** The sensitivity analyses underscore the need to implement sound macroeconomic policies and reforms, including toward achieving higher export growth, while maintaining efforts to raise revenue. Those factors combined with foreign financing at favorable terms—preferably through grants—would help Nepal make progress toward achieving its MDGs while containing risks to debt sustainability.

## **II. ENHANCED HIPC AND MULTILATERAL DEBT RELIEF (MDR) INITIATIVES**

8. **Nepal was recently deemed to be potentially eligible—on a preliminary basis—for HIPC relief under the extended sunset clause.** This determination was based on an estimated end-2004 NPV of debt-to-exports ratio (around 200 percent after traditional debt relief; the enhanced HIPC threshold is 150 percent). If Nepal's eligibility is confirmed in early 2006, it could receive relief under the enhanced HIPC Initiative and MDRI.

Figure II.1. Nepal: Indicators of Public and Publicly Guaranteed External Debt Under Alternative Scenarios, 2005–2025

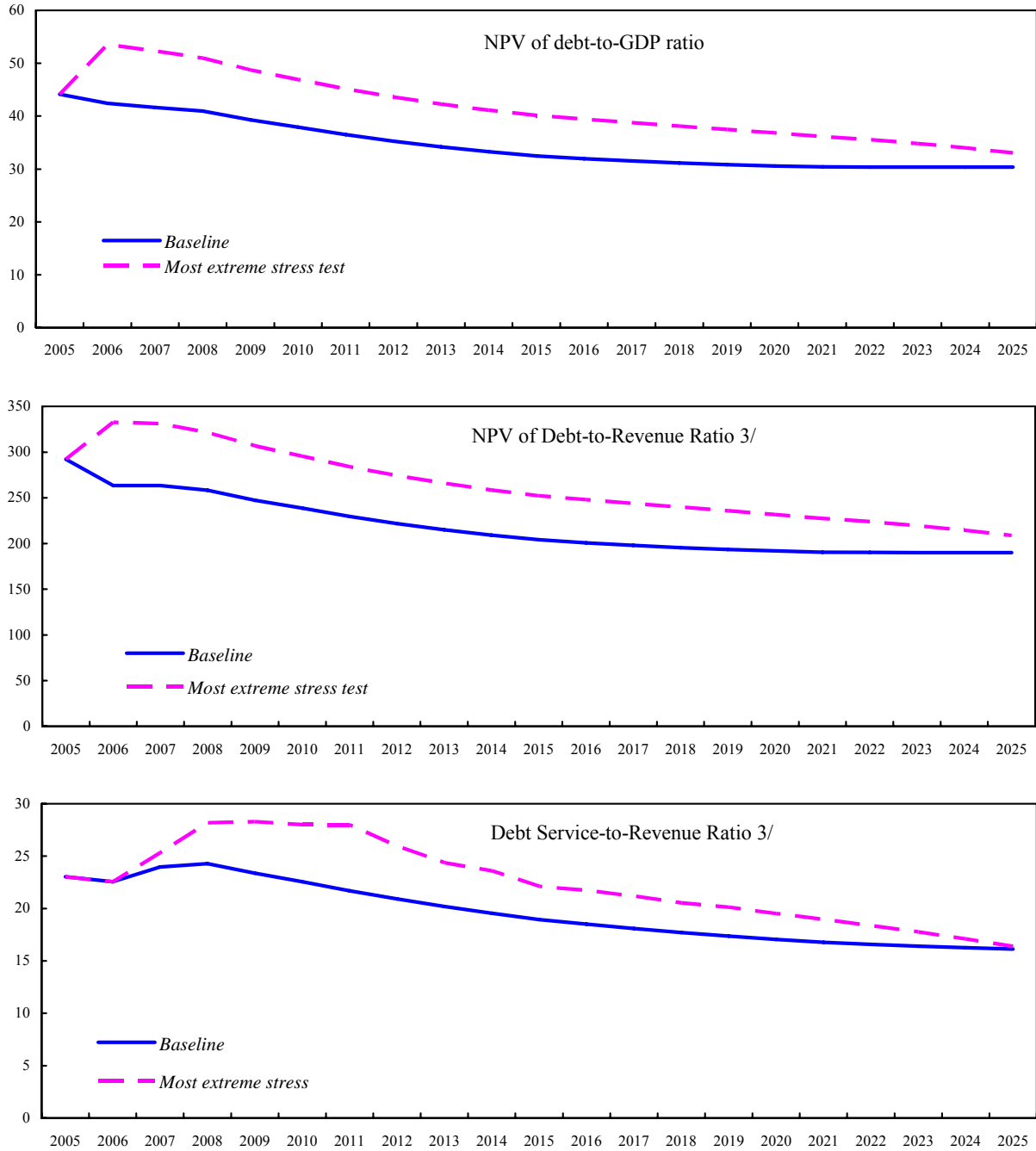
(In percent)



Source: Staff projections and simulations.

Figure II.2. Nepal: Indicators of Public Debt Under Alternative Scenarios, 2005–2025 1/ 2/

(In percent)



Source: Staff projections and simulations.

1/ Most extreme stress test is test that yields highest ratio in 2015.

2/ 2005 refers to fiscal year 2004/05.

3/ Revenue including grants.

Table II.1. Nepal: External Debt Sustainability Framework, Baseline Scenario, 2001/02–2024/25 1/

(In percent of GDP, unless otherwise indicated)

	Actual			Historical Average 6/	Standard Deviation 6/	Estimate 2004/05	Projections						2010/11-2024/25 Average		
	2001/02	2002/03	2003/04				2004/05-2009/10					2014/15		2024/25	
							Average	2014/15	2024/25						
External debt (nominal) 1/	52.7	52.6	51.0			47.1	44.5	43.6	43.1	42.0	41.4		36.6	24.5	
Of which : public and publicly guaranteed (PPG)	50.5	49.3	48.1			44.4	41.8	40.8	40.2	39.1	38.4		33.5	21.3	
Change in external debt	3.0	-0.2	-1.6			-3.9	-2.5	-0.9	-0.5	-1.1	-0.6		-1.1	-1.1	
Identified net debt-creating flows	-4.2	-5.5	-9.9			-6.7	-6.1	-5.8	-5.8	-5.4	-4.9		-3.1	-0.4	
Non-interest current account deficit	-4.9	-3.0	-3.4	-1.8	3.3	-5.9	-5.0	-4.7	-4.4	-3.8	-3.1	-4.5	-1.2	1.1	-0.5
Deficit in balance of goods and services	13.8	13.8	13.7			13.2	13.7	16.4	16.7	16.8	16.6		14.8	11.7	
Exports	16.8	16.9	18.0			16.1	16.1	16.4	16.7	16.7	17.0		17.4	18.1	
Imports	30.6	30.7	31.7			29.3	29.9	32.8	33.3	33.5	33.6		32.2	29.8	
Net current transfers (negative = inflow)	-15.9	-16.5	-17.0	-12.4	4.0	-18.4	-18.0	-17.9	-17.8	-17.4	-16.7	-17.7	-13.3	-8.6	-11.8
Other current account flows (negative = net inflow)	-2.7	-0.3	-0.1			-0.8	-0.7	-3.2	-3.2	-3.1	-3.1		-2.7	-2.0	
Net FDI (negative = inflow)	0.1	-0.2	0.0	-0.1	0.2	0.0	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.4	-0.5	-0.4
Endogenous debt dynamics 2/	0.7	-2.3	-6.4			-0.8	-0.9	-0.9	-1.2	-1.4	-1.5		-1.5	-1.0	
Contribution from nominal interest rate	0.4	0.4	0.5			0.4	0.4	0.4	0.4	0.4	0.4		0.4	0.3	
Contribution from real GDP growth	0.3	-1.7	-1.5			-1.2	-1.3	-1.3	-1.6	-1.8	-2.0		-1.9	-1.3	
Contribution from price and exchange rate changes	-0.1	-1.0	-5.3			...	...	...	...	...	...		...	...	
Residual (3-4) 3/	7.1	5.3	8.3			2.8	3.6	4.9	5.3	4.3	4.3		1.9	-0.7	
Of which : exceptional financing	0.0	0.0	0.0			0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
NPV of external debt 4/	...	...	32.5			30.4	29.1	28.9	28.8	28.4	28.2		26.1	18.1	
In percent of exports	...	...	180.8			188.8	180.5	176.4	173.0	169.8	166.2		149.6	100.2	
NPV of PPG external debt	...	...	29.6			27.7	26.4	26.1	25.9	25.4	25.2		23.0	15.0	
In percent of exports	...	...	164.8			172.0	163.7	159.3	155.7	152.1	148.4		131.7	82.8	
Debt service-to-exports ratio (in percent)	9.4	9.6	9.7			9.5	9.5	9.7	9.5	9.3	9.4		9.2	8.3	
PPG debt service-to-exports ratio (in percent)	9.4	9.6	9.7			9.5	9.5	9.7	9.5	9.3	9.4		9.2	8.3	
Total gross financing need (in billions of U.S. dollars)	-0.2	-0.1	-0.1			-0.3	-0.3	-0.3	-0.3	-0.2	-0.2		0.0	0.6	
Non-interest current account deficit that stabilizes debt ratio	-7.8	-2.8	-1.9			-2.0	-2.5	-3.8	-3.8	-2.7	-2.5		-0.1	2.2	
Key macroeconomic assumptions															
Real GDP growth (in percent)	-0.6	3.4	3.4	3.9	2.0	2.5	3.0	3.0	4.0	4.5	5.0	3.7	5.5	5.5	
GDP deflator in U.S. dollar terms (change in percent)	0.1	2.0	11.3	1.4	4.7	6.2	5.4	2.4	2.3	3.5	2.0	3.6	1.7	0.7	
Effective interest rate (in percent) 5/	0.8	0.9	1.0	1.1	0.3	0.9	0.9	1.0	1.0	1.0	1.1	1.0	1.3	1.3	
Growth of exports of G&S (U.S. dollar terms, in percent)	-19.4	6.0	22.2	6.2	22.6	-2.4	8.8	7.2	8.1	8.4	8.8	6.5	7.7	6.7	
Growth of imports of goods and services (U.S. dollar terms, in percent)	-14.4	6.0	18.7	6.1	15.1	0.8	10.5	15.9	8.1	8.6	7.5	8.6	6.1	5.6	
Grant element of new public sector borrowing (in percent)	...	...	...	...	...	48.4	42.7	41.3	42.9	40.8	38.9	42.5	36.8	35.1	
Memorandum item:															
Nominal GDP (in billions of U.S. dollars)	5.6	5.9	6.8			7.4	8.0	8.4	9.0	9.7	10.4		14.7	27.7	

Source: Staff simulations.

1/ Includes both public and private sector external debt.

2/ Derived as  $[r - g - \rho(1+g)] / (1+g+\rho+g\rho)$  times previous period debt ratio, with  $r$  = nominal interest rate;  $g$  = real GDP growth rate, and  $\rho$  = 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 NPV 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.

Table II.2. Nepal: Sensitivity Analyses for Key Indicators of Public and Publicly Guaranteed External Debt, 2005–25  
(In percent)

	Estimate	Projections						
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2014/15	2024/25
NPV of Debt-to-GDP Ratio								
Baseline	28	26	26	26	25	25	23	15
A. Alternative scenarios								
A1. Key variables at their historical averages in 2005/06–2024/25 1/	28	29	31	33	34	35	34	13
A2. New public sector loans on less favorable terms in 2005/06–2024/25 2/	28	27	27	28	28	28	29	24
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2005/06–2006/07	28	27	27	26	26	26	23	15
B2. Export value growth at historical average minus one standard deviation in 2005/06–2006/07 3/	28	29	33	32	32	31	28	17
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2005/06–2006/07	28	29	30	30	29	29	27	17
B4. Net nondebt creating flows at historical average minus one standard deviation in 2005/06–2006/07 4/	28	33	39	38	37	37	32	18
B5. Combination of B1-B4 using one-half standard deviation shocks	28	35	45	44	43	42	37	21
B6. One-time 30 percent nominal depreciation relative to the baseline in 2005/06 5/	28	37	37	36	36	35	32	21
NPV of Debt-to-Exports Ratio								
Baseline	172	164	159	156	152	148	132	83
A. Alternative scenarios								
A1. Key variables at their historical averages in 2005/06–2024/25 1/	172	182	188	195	203	205	195	70
A2. New public sector loans on less favorable terms in 2005/06–2024/25 2/	172	167	166	167	168	168	166	131
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2005/06–2006/07	172	164	159	156	152	148	132	83
B2. Export value growth at historical average minus one standard deviation in 2005/06–2006/07 3/	172	232	333	324	316	307	266	155
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2005/06–2006/07	172	164	159	156	152	148	132	83
B4. Net nondebt creating flows at historical average minus one standard deviation in 2005/06–2006/07 4/	172	203	236	229	222	216	184	102
B5. Combination of B1-B4 using one-half standard deviation shocks	172	235	320	311	302	292	248	136
B6. One-time 30 percent nominal depreciation relative to the baseline in 2005/06 5/	172	164	159	156	152	148	132	83
Debt Service Ratio								
Baseline	9	10	10	9	9	9	9	8
A. Alternative scenarios								
A1. Key variables at their historical averages in 2005/06–2024/25 1/	9	10	10	10	11	11	13	11
A2. New public sector loans on less favorable terms in 2005/06–2024/25 2/	9	10	10	10	10	10	10	11
B. Bound tests								
B1. Real GDP growth at historical average minus one standard deviation in 2005/06–2006/07	9	10	10	9	9	9	9	8
B2. Export value growth at historical average minus one standard deviation in 2005/06–2006/07 3/	9	12	17	18	17	17	19	16
B3. U.S. dollar GDP deflator at historical average minus one standard deviation in 2005/06–2006/07	9	10	10	9	9	9	9	8
B4. Net nondebt creating flows at historical average minus one standard deviation in 2005/06–2006/07 4/	9	10	11	11	11	11	14	11
B5. Combination of B1-B4 using one-half standard deviation shocks	9	11	14	15	15	15	18	14
B6. One-time 30 percent nominal depreciation relative to the baseline in 2005/06 5/	9	10	10	9	9	9	9	8
Memorandum item:								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	36	36	36	36	36	36	36	36

Source: Staff projections and simulations.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and nondebt 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 II.3. Nepal: Sensitivity Analysis for Key Indicators of Public Debt, 2005–2025

	Estimate 2005	Projections										
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2025
NPV of Debt-to-GDP Ratio												
Baseline	44	42	42	41	39	38	36	35	34	33	32	30
A. Alternative scenarios												
A1. Real GDP growth and primary balance are at historical averages	44	44	45	45	44	44	44	44	44	44	44	44
A2. Primary balance is unchanged from 2004	44	42	40	38	35	33	30	27	25	23	21	6
A3. Permanently lower GDP growth 1/	44	43	42	42	40	39	39	38	38	37	37	40
B. Bound tests												
B1. Real GDP growth is at historical average minus one standard deviations in 2006/07	44	43	43	42	41	40	39	38	37	36	36	32
B2. Primary balance is at historical average minus one standard deviations in 2006/07	44	46	48	47	45	44	42	41	40	39	38	31
B3. Combination of B1-B2 using one half standard deviation shocks	44	45	47	46	44	42	41	40	39	38	37	30
B4. One-time 30 percent real depreciation in 2006	44	54	52	51	49	47	45	44	42	41	40	33
B5. 10 percent of GDP increase in other debt-creating flows in 2006	44	42	42	41	39	38	37	36	35	34	33	32
NPV of Debt-to-Revenue Ratio 2/												
Baseline	292	263	264	258	247	239	230	222	215	209	204	190
A. Alternative scenarios												
A1. Real GDP growth and primary balance are at historical averages	292	275	282	283	280	280	279	278	276	275	273	269
A2. Primary balance is unchanged from 2004	292	262	256	242	221	205	188	173	158	144	131	40
A3. Permanently lower GDP growth 1/	292	265	266	263	253	248	242	238	235	233	232	248
B. Bound tests												
B1. Real GDP growth is at historical average minus one standard deviations in 2006/07	292	266	271	267	256	249	242	237	232	228	224	201
B2. Primary balance is at historical average minus one standard deviations in 2006/07	292	285	303	297	284	275	266	258	251	244	239	198
B3. Combination of B1-B2 using one half standard deviation shocks	292	281	295	289	276	267	258	250	244	238	232	192
B4. One-time 30 percent real depreciation in 2006	292	333	331	321	307	295	284	274	266	259	252	209
B5. 10 percent of GDP increase in other debt-creating flows in 2006	292	263	264	258	248	241	232	225	219	214	209	200
Debt Service-to-Revenue Ratio 2/												
Baseline	23	23	24	24	23	23	22	21	20	20	19	16
A. Alternative scenarios												
A1. Real GDP growth and primary balance are at historical averages	23	22	24	26	26	26	26	24	22	21	19	16
A2. Primary balance is unchanged from 2004	23	23	24	24	22	21	20	18	16	15	13	3
A3. Permanently lower GDP growth 1/	23	23	24	25	24	24	24	24	23	23	22	21
B. Bound tests												
B1. Real GDP growth is at historical average minus one standard deviations in 2006/07	23	23	24	25	24	24	25	24	23	23	21	17
B2. Primary balance is at historical average minus one standard deviations in 2006/07	23	23	25	28	28	28	28	26	24	24	22	16
B3. Combination of B1-B2 using one half standard deviation shocks	23	23	25	27	27	27	27	25	24	23	22	16
B4. One-time 30 percent real depreciation in 2006	23	23	25	26	27	25	25	25	24	23	22	16
B5. 10 percent of GDP increase in other debt-creating flows in 2006	23	23	24	24	26	23	24	23	22	21	20	16

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 20 (i.e., the length of the projection period).

2/ Revenues are defined inclusive of grants.