

# **ASIAN DEVELOPMENT BANK**

**South Asia Department**

## **AFGHANISTAN DEBT SUSTAINABILITY ANALYSIS**

**Working Paper**

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## **ABBREVIATIONS**

ADB	Asian Development Bank
CIRR	Commercial Interest Reference Rate
GDP	gross domestic product
HIPC	heavily indebted poor country
IDA	International Development Association
IFI	international financial institution
IMF	International Monetary Fund
LDC	least developed country
NGO	nongovernment organization
NPV	net present value
ODA	official development assistance
OECD	Organization for Economic Cooperation and Development
SDR	special drawing right

## **NOTE**

In this report, "\$" refers to US dollars.

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## I. INTRODUCTION AND SUMMARY

1. Afghanistan has taken first steps to borrow internationally. This note presents Asian Development Bank's (ADB) staff assessment of Afghanistan's external debt sustainability indicating the amount Afghanistan could borrow over the medium term (2002—2025) to finance large investments required for reconstruction and development without exceeding heavily indebted poor country (HIPC) threshold of critical ratios.<sup>1</sup> The analysis is carried out under alternative assumptions about gross domestic product (GDP) growth, exports, government revenue, and debt forgiveness.

2. ADB's experience with other postconflict countries suggests that total investment requirements for reconstruction and development are higher than initial estimates and that expectation of large amount of assistance of grants is usually not materialized.<sup>2</sup> Since November 2001, funding agencies have provided substantial humanitarian relief support through UN agencies and nongovernment organizations (NGOs) to Afghanistan on pure grant basis. Only limited grant financing has been available for reconstruction and development. The Government is very keen to start major reconstruction work. This has been difficult with bilateral development aid, which tends to be fragmented, tied, and small scale. While the Government continues to mobilize grant financing,<sup>3</sup> resumption of concessional lending by international financial institutions (IFIs) to Afghanistan will be an essential part of global support for reconstruction and development. IFIs can provide only a small share of their assistance in the form of grants.<sup>4</sup>

3. After considerable reflection, in December 2002, the Government decided to borrow from ADB \$150 million for a Postconflict Multisector Program loan to support key policy and institutional reforms, which would underpin future reconstruction efforts. The loan terms were more favorable than normal ADF loans. These reform measures opened the door for the Government to negotiate with the International Development Association (IDA) and ADB two other loans on highly concessional terms.<sup>5</sup> It is essential to ensure that appropriate amounts are borrowed at appropriate time and on appropriate terms, and that these funds are utilized effectively to have maximum impact on GDP, exports and revenue so as to make debt burden sustainable over the medium term.

4. The analysis is based on ADB's available information, consultation with other IFIs, and projections on the likely restructuring of the existing debt, new borrowing, and macroeconomic scenarios. The available information is still sketchy. Furthermore, the analysis presumes some

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<sup>1</sup> Under HIPC initiative, a country's debt burden is considered unsustainable if the (a) present value of debt to exports ratio > 150%, (b) present value of debt to revenue ratio > 250% for open economies (exports/GDP ratio  $\geq$  30%) with a heavy fiscal burden (revenue/GDP ratio  $\geq$  15%), and (c) debt service to exports ratio > 15% (an upper limit of 20% is also used).

<sup>2</sup> ADB has committed relatively large sums to the reconstruction of postconflict developing member countries (DMCs) such as Cambodia (\$122.7 million), Philippines (\$192 million), Solomon Islands (\$10.5 million), Sri Lanka (\$84 million), Tajikistan (\$28.6 million), and Timor-Leste (\$8.7 million). These were mostly loans on highly concessional terms except for Timor-Leste, which decided not to borrow externally.

<sup>3</sup> The Government has had some success in obtaining bilateral assistance for rehabilitation of infrastructure from European Union, Germany, India, Japan, Pakistan, Saudi Arabia, and United States.

<sup>4</sup> IDA provided \$100 million and ADB \$37 million in grants to Afghanistan in 2002.

<sup>5</sup> The two loans are \$150 million from ADB and \$108 million from IDA to finance rehabilitation of transport infrastructure. The International Monetary Fund (IMF) is considering initiating Poverty Reduction Growth Facility (PRGF) operations in 2003 with a possible \$64 million loan.

political and institutional context: an improvement in the security situation, the Government's committed efforts to sound economic policy management, and revenue streamlining. Results presented here should be treated with caution, as relevant factors must be closely monitored to update all assumptions in the future analysis.<sup>6</sup>

5. The analysis concludes that external debt sustainability of Afghanistan depends primarily on assumptions regarding treatment of existing stock of debt and macroeconomic growth. With generous restructuring of existing debt and strong-to-moderate growth, Afghanistan can sustain the level of borrowings planned by IFIs over the medium term of about \$325 million annually in 2002—2010, \$313 million in 2011—2015 and \$260 million a year thereafter (Table 1 and Attachment 1). The security situation will have to be stabilized. The Government will have to continue with policy and institutional reforms and implement sectoral strategies recommended by comprehensive needs assessment to achieve strong-to-moderate growth.

6. Specific findings of the analysis include the following:

- With appropriate policy and institutional reforms, and implementation of sector-specific strategies, Afghanistan can achieve much higher rates of GDP growth, exports, and revenue than usually assumed by analysts. If revival of economic activities, especially trade, commerce, and construction in Kabul and other major cities, together with improved agricultural performance with better rains are any indication, Afghanistan will experience a strong rebound effect in early years from a very low base of a war-ravaged economy. The growth rates will decline in later years, but are likely to stabilize above the historical trend due to technology effect, better harnessing of natural resources particularly hydrocarbon resources, improved governance, structural transformation of the economy, and greater regional integration and policy harmonization with neighboring countries. This pattern is assumed to prevail under both strong and moderate growth scenarios. ADB's strong growth scenarios imply annual real GDP growth of 15% in 2003—2005, 12% in 2006—2010 and 8% thereafter. ADB's moderate growth scenarios on the other hand imply annual real GDP growth of about 9% in 2003, 8.5% in 2004—2005, and 7% thereafter.<sup>7</sup>
- Notwithstanding data limitation, the estimated debt level of Afghanistan in 2002 is high.<sup>8</sup> With no debt forgiveness and rescheduling of bilateral debt in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003, the NPV of existing debt to exports will be well in excess of the HIPC threshold of 150% over the next decade (Table 2). The same would be true to NPV of debt to revenue ratios and debt service to export in the foreseeable future (Scenarios 1a and 3a). The situation improves with partial or total debt forgiveness.<sup>9</sup>

<sup>6</sup> World Bank and other IFI staff have reviewed earlier drafts and their comments were incorporated to the extent possible. The World Bank shared its initial analysis with ADB using roughly similar assumptions regarding the level of existing debt and projected borrowings and terms. There are some differences in debt forgiveness assumptions and net present value (NPV) calculation. The major difference however is in projection of macroeconomic scenarios. ADB analysis is based on more robust growth than IDA.

<sup>7</sup> Corresponding figures for IDA are lower.

<sup>8</sup> As at end-2002 Afghanistan's public and publicly guaranteed debt to bilateral and multilateral lenders is estimated at \$2,444.8 million. Other than the IFIs analyzed above, information on debt is very sketchy and most records in Afghanistan seem to have been destroyed or lost. Figures used here come from IFIs.

<sup>9</sup> Under partial debt forgiveness, total outstanding official development assistance (ODA) is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Total debt forgiveness implies that outstanding ODA and non-ODA Russian and commercial debt is forgiven.

**Table 1. Afghanistan's Projected Borrowing 2002—2025**

(\$ million)

Year	ADB <sup>1</sup>	IDA <sup>2</sup>	IMF <sup>3</sup>	Non-IFI <sup>4</sup>	Total
2002	165	0	0	0	165
2003	150	142	64	0	356
2004	200	142	0	20	362
2005	200	142	0	20	362
2006	150	142	64	20	376
2007	150	156	0	20	326
2008	150	156	0	20	326
2009	150	156	0	20	326
2010	150	156	0	20	326
2011	150	156	0	20	326
2012	150	156	0	20	326
2013	150	156	0	20	326
2014	150	156	0	20	326
2015	120	120	0	20	260
2016	120	120	0	20	260
2017	120	120	0	20	260
2018	120	120	0	20	260
2019	120	120	0	20	260
2020	120	120	0	20	260
2021	120	120	0	20	260
2022	120	120	0	20	260
2023	120	120	0	20	260
2024	120	120	0	20	260
2025	120	120	0	20	260

Source: ADB, World Bank, and IMF.

Notes:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charges over a 10-year grace period. The capitalized amount of 2002 program loan is \$165 million. ADB Board of Directors has approved a loan of \$150 million in 2003. As for future borrowings, the projected amounts are \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. Normally, ADF loan terms for program loan include 24 years maturity, including an 8-year grace period, 1% interest rate charge during the grace period and 1.5% during the amortization period. ADF loan terms for project loans on the other hand, include 32 years maturity including an 8-year grace period, 1% interest rate charge during the grace period and 1.5% during the amortization period. ADB Board of Directors agreed to further soften ADF loan terms for Afghanistan on an exceptional basis: 40 years maturity, including a 10-year grace period, 1% interest rate charge during both grace and amortization periods. Interest payment is capitalized during the grace period. For 2002 program loan, amortization is at 2% from 11<sup>th</sup> to 20<sup>th</sup> year and 4% from 21<sup>st</sup> to 40<sup>th</sup> year. All other loans are amortized equally from 11<sup>th</sup> to 40<sup>th</sup> year. These terms are to apply to both program and project loans. There is no commitment fee associated with ADF-financed loans. For 2002 program loan, \$100 million or 67% disbursed under first tranche in year 1 and 33% under second tranche in year 2. Project loan for 2003 will be disbursed over 4 years at the rate of 5%, 40%, 50% and 5% respectively. Project loans for 2004—2025 will be disbursed over 8 years at the rate of 5%, 10%, 15%, 15%, 20%, 15%, 12%, and 8%, respectively.

<sup>2</sup> Borrowings from IDA are projected at IDA loan terms, and repayment and disbursement conditions, which are shown in the table below.

Loan terms			Disbursement			
Repayment period	40			2003—2004	2005—2007	2008—2025
Grace period	10		Quick disbursement	50,000,000	50,000,000	0
Interest rate			Annual disbursement (%)	33	20	20
Grace period	0.75%					
Amortization period	0.75%					
Repayment schedule						
Year 1—10	0%					
Year 11—20	2%					
Year 21—40	4%					

<sup>3</sup> It is assumed that Afghanistan will enter into a 3-year arrangement with IMF under PRGF in 2003 of SDR49 million (30% of quota or \$64 million), disbursed over 3 years beginning in mid-2003, and a successor PRGF arrangement beginning in mid-2006 of SDR49 million (30% of quota or \$64 million) with the same disbursement profile. Repayment is made after 5-year grace period and is made over 5 years. Loan terms and repayment and disbursement conditions are shown in the table below.

Loan terms			Disbursement	
Repayment period	10			2003—2025
Grace period	5		Annual disbursement (%)	33
Interest rate				
Grace period	0.5%			
Amortization period	0.5%			
Repayment schedule				
Year 1—5	0%			
Year 6—10	20%			

<sup>4</sup> Non-IFI loans assumed to include 30 years maturity with 10 years grace period and 1% interest per annum. Amortization is in equal installments.

**Table 2. External Debt Sustainability Indicators (No Debt Forgiveness Scenarios)**

Year	Scenario 1a					Scenario 3a				
	No debt forgiveness, strong growth					No debt forgiveness, moderate growth				
	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports
2002		473	1183	27	3		473	1183	27	3
2003	15.0	470	665	26	25	9.1	475	665	27	25
2004	15.0	405	494	24	22	8.5	426	563	27	23
2005	15.0	317	383	23	18	8.5	356	505	27	19
2006	12.0	273	317	22	14	7.0	321	445	27	15
2007	12.0	244	261	21	11	7.0	294	389	27	13
2008	12.0	230	219	19	9	7.0	277	343	26	11
2009	12.0	209	178	18	16	7.0	253	296	25	19
2010	12.0	190	147	16	14	7.0	231	257	24	17
2011	8.0	175	128	15	12	7.0	211	226	23	15
2012	8.0	163	111	14	11	7.0	193	199	22	14
2013	8.0	154	97	13	10	7.0	176	176	21	12
2014	8.0	145	85	13	9	7.0	161	157	20	10
2015	8.0	136	75	12	8	7.0	145	139	19	9
2025	8.0	63	35	6	5	7.0	87	71	9	6
Averages										
2008—2010	12.0	209	181	18	13	7.0	254	299	25	16
2011—2015	8.0	155	99	14	10	7.0	177	179	21	12
2016—2020	8.0	110	61	10	7	7.0	122	116	15	8
2021—2025	8.0	75	41	7	5	7.0	97	83	11	7

Source: ADB staff estimates.

- Even if total debt forgiveness were not achieved, a strong growth performance would bring debt sustainability within the reach of Afghanistan in 5 years (Scenario 1). NPV of debt to exports ratio would dip below HIPC threshold of 150% in 2008 and remain so during the projection period, improving as time passes (Tables 3 and 4). The outcome is predicated on strong growth of exports linked to strong growth of GDP. NPV of debt to revenue ratio will fall below 250% in 2004 and decline further to reach 35% in 2025. Debt service to exports ratio never exceeds 10% and NPV of debt to GDP remain at 13% or less during the projection period. In this scenario, new borrowings are set at levels currently planned by ADB, IDA, and IMF (Table 1).
- Debt sustainability would not be an issue over the medium term should bilateral lenders, including commercial lenders agree to forgive all debt and Afghanistan is able to achieve strong growth rates for GDP, exports, and revenue (Scenario 2). Afghanistan could make full use of planned lending pipelines of ADB, IDA, and IMF. NPV of debt to exports and revenue, as well as debt service to exports ratio, remain well below HIPC threshold levels throughout the projection period (Tables 3 and 5). NPV of debt to exports ratio would not exceed 113% and NPV of exports to revenue 137% in 2002—2025. Debt service to exports ratio does not exceed 4%, while NPV of debt to GDP ratio remains at 10% or less.
- The planned lending levels of IFIs would not be sustainable in the coming decade if outstanding bilateral debts were only partially forgiven under a moderate growth regime (Scenario 3). The NPV of debt to exports ratio would remain above the HIPC threshold level of 150% until 2011 and NPV of debt to revenue ratios above 250% until 2006 (Tables 3 and 6). Debt to exports ratio however would not exceed HIPC threshold level during the projection period. NPV of debt to GDP ratios are higher than other scenarios but below 18% throughout the period under consideration.
- Even a moderate growth scenario would enable Afghanistan to borrow safely at levels planned by IFIs should funding agencies agree to forgive all bilateral debts (Scenario 4). All three ratios, NPV of debt to exports and revenue, and debt service to exports would remain well below HIPC threshold levels (Tables 3 and 7). NPV of debt to GDP ratio will be less than 16% during the projection period.
- With given debt forgiveness assumption and unchanged grant element of debt contracted, a higher level of debt is sustainable under strong than moderate growth (Appendixes 1—4 and Attachment 1). The implicit sustainable levels of borrowing under Scenario 1 (partial debt forgiveness, strong growth) are significantly lower than what has already been committed by IFIs in 2002 and 2003, slightly lower than planned in 2004 but much higher (average borrowing of \$853 million a year) beginning in 2007. With more restrained borrowing in the early years, NPV of debt to exports ratio would not have exceeded HIPC threshold of 150% after 2003. NPV of debt to revenue would be less than 211% after 2003 and debt to exports ratio will remain below 10% during the projection period. Sustainable levels of borrowing under Scenario 3 (partial debt forgiveness, moderate growth) are significantly lower, annual average of about \$561 million in 2007—2025 or 34% lower than Scenario 1. Total debt forgiveness

**Table 3. Afghanistan: External Debt Sustainability Indicators 2002—2025**

Year	Scenario 1					Scenario 2					Scenario 3					Scenario 4				
	Partial debt forgiveness, strong growth					Total debt forgiveness, strong growth					Partial debt forgiveness, moderate growth					Total debt forgiveness, moderate growth				
	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports	Real GDP growth rate	NPV of external debt as % of exports	NPV of external debt as % of revenue	NPV of external debt as % of GDP	Debt service as % of exports
2002		176	439	10	1		49	122	3	0		176	439	10	1		49	122	3	0
2003	15.0	208	294	11	10	15.0	96	135	5	4	9.1	209	294	12	10	9.1	96	135	6	4
2004	15.0	200	244	12	9	15.0	112	137	7	4	8.5	210	278	13	9	8.5	119	157	8	4
2005	15.0	171	206	12	8	15.0	108	131	8	3	8.5	192	272	14	8	8.5	122	173	9	3
2006	12.0	160	185	13	6	12.0	111	129	9	3	7.0	188	260	16	7	7.0	131	181	11	3
2007	12.0	150	161	13	5	12.0	110	118	9	2	7.0	181	239	17	6	7.0	133	176	12	3
2008	12.0	148	141	13	4	12.0	113	108	10	2	7.0	179	221	17	5	7.0	137	169	13	2
2009	12.0	141	121	12	7	12.0	113	96	10	3	7.0	172	200	17	9	7.0	137	160	14	4
2010	12.0	135	105	11	6	12.0	111	86	9	3	7.0	164	183	17	7	7.0	136	151	14	3
2011	8.0	130	94	11	5	8.0	110	80	10	3	7.0	157	167	17	7	7.0	133	142	14	3
2012	8.0	125	85	11	6	8.0	109	74	10	3	7.0	148	153	17	7	7.0	129	133	14	4
2013	8.0	122	77	11	5	8.0	109	68	10	3	7.0	140	140	16	6	7.0	124	124	1	3
2014	8.0	119	70	10	4	8.0	108	63	9	3	7.0	132	129	16	5	7.0	119	117	15	3
2015	8.0	114	63	10	5	8.0	105	58	9	3	7.0	122	117	16	5	7.0	112	108	14	3
2025	8.0	63	35	6	4	8.0	63	35	6	3	7.0	87	71	9	5	7.0	87	71	9	4
Averages																				
2008—2010	12.0	141	122	12	6	12.0	112	97	10	3	7.0	171	201	17	7	7.0	136	160	14	3
2011—2015	8.0	122	78	11	5	8.0	108	69	9	3	7.0	140	141	16	6	7.0	124	125	14	3
2016—2020	8.0	98	54	9	4	8.0	93	51	8	3	7.0	109	104	14	5	7.0	104	98	13	4
2021—2025	8.0	73	40	6	4	8.0	72	40	6	3	7.0	94	81	11	5	7.0	93	80	11	4

Source: ADB staff estimates.

Note:

<sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.

<sup>2</sup> Key assumptions underlying scenarios: All scenarios assume that security situation stabilizes. Other assumptions are

- GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. GDP growth is 15% in 2003—2005, 12% in 2006—2010, and 8% thereafter under strong growth; and 9.1% in 2003, 8.5% in 2004—2005, and 7% thereafter under moderate growth.

- All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.

- World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
- Growth of exports linked to GDP growth through export elasticity. Export elasticity are adjusted upward under moderate growth to compensate for shortfall in domestic demand.
- Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 15.9% in 2015 and stabilize under strong growth and to reach 13.3% in 2015 and stabilize under moderate growth.
- Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
- Partial debt forgiveness is assumed under scenarios 1 and 3. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January—June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
- Total debt forgiveness is envisaged under scenarios 2 and 4. Total outstanding ODA and non-ODA Russian and commercial debt is forgiven.
- Scenarios 1 and 2 assume that government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment thereby setting the stage for a strong growth of GDP, exports and revenue. Scenarios 3 and 4 assume slow implementation of reforms and hence slower growth than scenarios 1 and 2.
- Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Table 4. Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 1)**

Year												Debt Sustainability Indicators			
	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	66.7	55.6	0.0	317.1	439.4	506.9	2.9	4,405.4	100.0	250.0	250.0	10	439	176	1
2003	122.1	103.6	44.5	316.9	587.2	678.6	26.6	5,162.6	200.0	348.8	282.9	11	294	208	10
2004	198.4	153.4	46.6	326.4	724.7	889.2	27.6	6,067.7	297.3	489.5	362.8	12	244	200	9
2005	278.6	204.2	48.7	336.2	867.7	1,151.4	28.9	7,131.4	420.8	686.8	508.4	12	206	171	8
2006	345.2	256.8	95.5	346.3	1,043.8	1,366.2	30.0	8,162.9	563.2	786.2	654.2	13	185	160	6
2007	415.3	316.6	99.9	356.7	1,188.6	1,588.6	31.0	9,343.6	738.1	899.9	791.0	13	161	150	5
2008	489.1	378.1	104.5	367.5	1,339.3	1,823.6	31.9	10,695.0	951.9	1,030.1	905.4	13	141	148	4
2009	566.8	442.0	96.6	360.3	1,465.7	2,059.0	64.1	12,242.0	1212.0	1,179.1	1,036.3	12	121	141	7
2010	648.6	508.3	88.3	353.4	1,598.6	2,321.7	64.2	14,012.6	1527.4	1,349.6	1,186.2	11	105	135	6
2011	734.6	577.0	79.6	347.0	1,738.3	2,606.7	64.4	15,466.6	1840.5	1,489.6	1,339.4	11	94	130	5
2012	825.2	648.2	57.8	341.1	1,872.2	2,884.9	77.4	17,071.4	2202.2	1,644.2	1,494.5	11	85	125	6
2013	915.5	729.0	35.0	335.6	2,015.1	3,162.9	75.6	18,842.7	2619.1	1,814.8	1,649.5	11	77	122	5
2014	1,004.2	810.0	23.8	330.6	2,168.6	3,444.8	73.3	20,797.8	3098.9	2,003.1	1,820.7	10	70	119	4
2015	1,078.7	878.1	12.2	325.2	2,294.3	3,707.7	85.4	22,955.8	3650.0	2,210.9	2,009.6	10	63	114	5
2025	1648.2	1532.2		228.4	3,408.8	5,967.6	183.5	61,608.4	9795.7	5,933.7	5,393.4	6	35	63	4

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 1: All scenarios assume that security situation stabilizes. Other assumptions are
- GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 1 projects strong GDP growth of 15% in 2003—2005, 12% in 2006—2010, and 8% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports —\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 15.9% in 2015 and stabilize under strong growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Partial debt forgiveness is assumed under Scenario 1. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January—June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Table 5. Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 2)**

(\$ million)

Year	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	Debt Sustainability Indicators			
												NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	66.7	55.6	0.0	0.0	122.3	185.8	0.5	4,405.4	100.0	250.0	250.0	3	122	49	0
2003	122.1	103.6	44.5	0.0	270.3	357.5	9.8	5,162.6	200.0	348.8	282.9	5	135	96	4
2004	198.4	153.4	46.6	9.7	408.1	568.1	10.8	6,067.7	297.3	489.5	362.8	7	137	112	4
2005	278.6	204.2	48.7	19.8	551.3	830.3	12.1	7,131.4	420.8	686.8	508.4	8	131	108	3
2006	345.2	256.8	95.5	30.1	727.6	1,045.1	13.2	8,162.9	563.2	786.2	654.2	9	129	111	3
2007	415.3	316.6	99.9	40.8	872.6	1,267.5	14.2	9,343.6	738.1	899.9	791.0	9	118	110	2
2008	489.1	378.1	104.5	51.9	1,023.6	1,502.5	15.1	10,695.0	951.9	1,030.1	905.4	10	108	113	2
2009	566.8	442.0	96.6	63.3	1,168.7	1,756.8	29.0	12,242.0	1,212.0	1,179.1	1,036.3	10	96	113	3
2010	648.6	508.3	88.3	75.2	1,320.3	2,038.4	30.0	14,012.6	1,527.4	1,349.6	1,186.2	9	86	111	3
2011	734.6	577.0	79.6	87.4	1,478.6	2,342.3	31.2	15,466.6	1,840.5	1,489.6	1,339.4	10	80	110	3
2012	825.2	648.2	57.8	100.1	1,631.3	2,639.3	45.2	17,071.4	2,202.2	1,644.2	1,494.5	10	74	109	3
2013	915.5	729.0	35.0	113.3	1,792.7	2,936.2	44.3	18,842.7	2,619.1	1,814.8	1,649.5	10	68	109	3
2014	1,004.2	810.0	23.8	126.9	1,964.9	3,237.0	43.1	20,797.8	3,098.9	2,003.1	1,820.7	9	63	108	3
2015	1,078.7	878.1	12.2	140.1	2,109.2	3,518.8	56.2	22,955.8	3,650.0	2,210.9	2,009.6	9	58	105	3
2025	1,648.2	1,532.2		228.4	3,408.8	5,967.6	164.1	61,608.4	9,795.7	5,933.7	5,393.4	6	35	63	3

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 2: All scenarios assume that security situation stabilizes. Other assumptions are
  - GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 2 projects strong GDP growth of 15% in 2003—2005, 12% in 2006—2010, and 8% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 15.9% in 2015 and stabilize under strong growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Total debt forgiveness is envisaged under which total outstanding ODA and non-ODA Russian and commercial debt is forgiven.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Table 6. Afghanistan: External debt sustainability indicators 2002 - 2025 (Scenario 3)**

Year	Debt Sustainability Indicators														
	NPV of existing and 2002–2025 debt to ADB	NPV of existing and 2002–2025 debt to IDA	NPV of existing and 2002–2025 debt to IMF	NPV of existing and 2002–2025 debt to non-IFIs	Total NPV of existing and 2002–2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	66.7	55.6	0.0	317.1	439.4	506.9	2.9	4,405.4	100.0	250.0	250.0	10	439	176	1
2003	122.1	103.6	44.5	316.9	587.2	678.6	26.6	4,897.2	200.0	340.9	280.3	12	294	209	10
2004	198.4	153.4	46.6	326.4	724.7	889.2	27.6	5,429.6	260.6	442.1	344.4	13	278	210	9
2005	278.6	204.2	48.7	336.2	867.7	1,151.4	28.9	6,019.9	319.1	573.5	452.2	14	272	192	8
2006	345.2	256.8	95.5	346.3	1,043.8	1,366.2	30.0	6,583.0	401.6	653.7	556.4	16	260	188	7
2007	415.3	316.6	99.9	356.7	1,188.6	1,588.6	31.0	7,198.8	496.7	745.3	657.5	17	239	181	6
2008	489.1	378.1	104.5	367.5	1,339.3	1,823.6	31.9	7,872.2	606.2	849.6	749.5	17	221	179	5
2009	566.8	442.0	96.6	360.3	1,465.7	2,059.0	64.1	8,608.6	731.7	968.5	854.5	17	200	172	9
2010	648.6	508.3	88.3	353.4	1,598.6	2,321.7	64.2	9,413.8	875.5	1,104.1	974.1	17	183	164	7
2011	734.6	577.0	79.6	347.0	1,738.3	2,606.7	64.4	10,294.4	1,039.7	1,258.7	1,110.5	17	167	157	7
2012	825.2	648.2	57.8	341.1	1,872.2	2,884.9	77.4	11,257.3	1,227.0	1,434.9	1,265.9	17	153	148	7
2013	915.5	729.0	35.0	335.6	2,015.1	3,162.9	75.6	12,310.3	1,440.3	1,635.8	1,443.2	16	140	140	6
2014	1,004.2	810.0	23.8	330.6	2,168.6	3,444.8	73.3	13,461.8	1,682.7	1,864.8	1,645.2	16	129	132	5
2015	1,078.7	878.1	12.2	325.2	2,294.3	3,707.7	85.4	14,721.0	1,957.9	2,125.9	1,875.5	16	117	122	5
2025	1,648.2	1,532.2		228.4	3,408.8	5,967.6	183.5	35,998.5	4,787.8	4,182.0	3,914.4	9	71	87	5

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 3: All scenarios assume that security situation stabilizes. Other assumptions are
- GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 3 projects moderate GDP growth of 9.1% in 2003, 8.5% in 2004–2005, and 7% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January–June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity. Export elasticity are adjusted upward under moderate growth to compensate for shortfall in domestic demand.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 13.3% in 2015 and stabilize under moderate growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Partial debt forgiveness is assumed under Scenario 3. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January–June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004–2005, \$150 million in 2006–2014, and \$120 million in 2015–2025. IDA—\$142 million in 2003–2006, \$156 million in 2007–2014, and \$120 million in 2015–2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Table 7. Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 4)**

(\$ million)												Debt Sustainability Indicators			
Year	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3- year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	66.7	55.6	0.0	0.0	122.3	185.8	0.5	4,405.4	100.0	250.0	250.0	3	122	49	0
2003	122.1	103.6	44.5	0.0	270.3	357.5	9.8	4,897.2	200.0	340.9	280.3	6	135	96	4
2004	198.4	153.4	46.6	9.7	408.1	568.1	10.8	5,429.6	260.6	442.1	344.4	8	157	119	4
2005	278.6	204.2	48.7	19.8	551.3	830.3	12.1	6,019.9	319.1	573.5	452.2	9	173	122	3
2006	345.2	256.8	95.5	30.1	727.6	1,045.1	13.2	6,583.0	401.6	653.7	556.4	11	181	131	3
2007	415.3	316.6	99.9	40.8	872.6	1,267.5	14.2	7,198.8	496.7	745.3	657.5	12	176	133	3
2008	489.1	378.1	104.5	51.9	1,023.6	1,502.5	15.1	7,872.2	606.2	849.6	749.5	13	169	137	2
2009	566.8	442.0	96.6	63.3	1,168.7	1,756.8	29.0	8,608.6	731.7	968.5	854.5	14	160	137	4
2010	648.6	508.3	88.3	75.2	1,320.3	2,038.4	30.0	9,413.8	875.5	1,104.1	974.1	14	151	136	3
2011	734.6	577.0	79.6	87.4	1,478.6	2,342.3	31.2	10,294.4	1,039.7	1,258.7	1,110.5	14	142	133	3
2012	825.2	648.2	57.8	100.1	1,631.3	2,639.3	45.2	11,257.3	1,227.0	1,434.9	1,265.9	14	133	129	4
2013	915.5	729.0	35.0	113.3	1,792.7	2,936.2	44.3	12,310.3	1,440.3	1,635.8	1,443.2	15	124	124	3
2014	1,004.2	810.0	23.8	126.9	1,964.9	3,237.0	43.1	13,461.8	1,682.7	1,864.8	1,645.2	15	117	119	3
2015	1,078.7	878.1	12.2	140.1	2,109.2	3,518.8	56.2	14,721.0	1,957.9	2,125.9	1,875.5	14	108	112	3
2025	1,648.2	1,532.2		228.4	3,408.8	5,967.6	164.1	35,998.5	4,787.8	4,182.0	3,914.4	9	71	87	4

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 2: All scenarios assume that security situation stabilizes. Other assumptions are
  - GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 4 projects moderate GDP growth of 9.1% in 2003, 8.5% in 2004—2005, and 7% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity. Export elasticity are adjusted upward under moderate growth to compensate for shortfall in domestic demand.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 13.3% in 2015 and stabilize under moderate growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Total debt forgiveness is envisaged under which total outstanding ODA and non-ODA Russian and commercial debt is forgiven.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

opens the door for substantially higher levels of sustainable borrowing than currently planned by IFIs under both strong and moderate growth scenarios, an average of \$836 million and \$551 million, respectively in 2007—2025. Sustainable levels are also much higher than IFIs lending pipeline in 2003—2005 periods under strong growth while these are slightly lower in 2004—2005 under moderate growth. One important result is that debt forgiveness would allow Afghanistan to borrow more in earlier years to undertake higher levels of much needed reconstruction investments.

- Achievement of debt sustainability is more sensitive to both GDP and export shock. A 20% negative export shock is applied to Scenario 3 (Scenario 5), which is the most adverse scenario among the four discussed so far. Export decline would reduce sustainable borrowing levels to an annual average of \$373 million in 2002—2025 (Appendix 5).

## II. THE MODEL—FRAMEWORK AND ASSUMPTIONS

7. A simple projection model was used to analyze the impact of current and future borrowings by Afghanistan on debt sustainability. The model analyzes how the current planned levels of lending by IFIs (ADB, IDA and IMF) would impact on its future debt sustainability over the period 2002—2025. In addition, sustainable levels of borrowing under different assumptions on growth and debt forgiveness are calculated. It is an interlinked spreadsheet model.<sup>10</sup> The model has three linked components consisting of a (a) minimal macroeconomic framework with US dollar as an accounting unit throughout, which is used to project GDP growth over the period 2002—2025 based on estimated GDP and its composition for 2002, and the evolution of sectoral growth elasticity during the projection period; (b) sub-model to project future growth of exports and revenue based on estimated current levels and future export elasticity and GDP to revenue ratios; and (c) sub-model to calculate indicators of debt sustainability, as well as sustainable levels of borrowing based on assumptions for (i) estimated current level of external debt, (ii) debt forgiveness, especially the treatment of non-ODA Russian debt, and (iii) the levels and terms of external borrowing from IFIs and bilateral lenders. No attempt was made to model monetary variables such as exchange rate and domestic inflation. Total investment requirements are exogenous to the model. The share of investment financing not obtained through borrowing is assumed to be available on a grant basis.

### Assumptions for Existing Debt and New Borrowing

8. Existing debt to IFIs. After clearance of arrears, debts outstanding to IDA and ADB are about \$70 million, and \$16 million, respectively. IMF does not have any outstanding debt. Available information does not provide amounts owed to the Islamic Development Bank (IsDB). Overall, the outstanding debt to IFIs should be within \$86 million (Table 8). The spreadsheet model incorporates IDA's and ADB's repayments schedule on their existing debts after clearance of their arrears.

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<sup>10</sup> The spreadsheet structure is transparent and the file is available upon request.

**Table 8. Estimates of External Public and Publicly Guaranteed Debt Outstanding, 2002  
(\$ million)**

Source	Outstanding debt
External public and publicly guaranteed debt	2,444.8
Official bilateral <sup>1</sup>	2,318.9
Multilateral	85.8
Commercial	40.0
Official Development Assistance (ODA)	432.3
Non-ODA	1,926.6
Soviet Union	1,886.6
Others	40.0
Official bilateral debt and commercial	2,359.0
Official	2,318.9
Soviet Union total claim	9,433.0
Soviet Union claim discounted at 80% (Paris Club condition)	1,886.6
Other bilateral and commercial	472.4
Other bilateral (ODA)	432.3
Paris Club members (excluding USA) ODA and commercial	173.1
Paris Club members (excluding USA) ODA	133.0
Non-Paris Club	299.3
Debt (in 1991)	169.3
Saudi Arabia	29.6
Czech and Slovak Republics	90.2
China	13.2
Yugoslavia	0.4
Bulgaria	35.9
Interest arrears accrued to non-Paris Club creditors since 1991 (at 7%)	130.0
Commercial	40.0
Multilateral	85.8
IDA	70.0
ADB <sup>2</sup>	15.8
IMF <sup>3</sup>	0.0

Source: IMF, World Bank and ADB

<sup>1</sup> Total debt obligation of Afghanistan to non-IFI lenders consists of ODA and non-ODA loans. ODA is estimated at \$432.3 million. Of this, Paris Club members (excluding USA) account for \$133 million including accumulated interest arrears. The balance of \$299.3 million is owed to non-Paris Club members such as Bulgaria, People's Republic of China, Czech Republic, Saudi Arabia, Slovak Republic, and Yugoslavia. The \$299.3 million include principal amount of \$169.3 million and \$130 million in accumulated interest arrears since 1991 at 7%. Non-ODA commercial loan is estimated at \$40 million. Total Russian claim, which is all non-ODA, is placed at Rub. 9433 million, including Rub. 8.5 billion in principal and interest arrears, as of 2002, valued at one to one with the United States dollar. Under the agreement on Russia's participation in the Paris Club as a creditor, Afghanistan would be eligible for an upfront discount of 80% prior to any future concessional rescheduling. The discounted value is \$1886.6 million. Total non-ODA debt is estimated at \$1926.6 million (\$1886.6 million of Russian debt plus \$40 million in commercial debt). It is assumed that the entire amount of \$432.3 million ODA would be forgiven while the non-ODA \$1926.6 million would be eligible for a Paris Club rescheduling in 2003 on Naples "stock" terms (1 January 2003 is assumed cut-off date). The debt reduction option involves 67% of claims being cancelled and the remainder \$642.2 million rescheduled at a market rate (5.23 %—the OECD CIRR for the SDR during January—June 2002), with a maturity of 23 years including 6 years grace, and progressive payments thereafter. Here payments are assumed equal. It is further assumed that Russia and commercial creditors would agree to forgive 50% of the rescheduled amount under partial debt forgiveness thereby reducing the outstanding official bilateral and commercial debt to \$321.1 million.

<sup>2</sup> ADB has four ADF loans to Afghanistan. Total principal outstanding as of 31 August 2002 was US\$29.9 million equivalent, consisting of Japanese Yen, US Dollar and Euro. As of the same date, total overdue loan service payments of Afghanistan in US dollar equivalent amounted to US\$17.6 million, of which US\$14.0 million represented principal and US\$3.6 million represented service charges. The US dollar equivalent of the remaining principal outstanding to be repaid from 1 Jan 2003 to 15 July 2016 amounts to US\$15.8 million. Projected by using ADB's exchange rates as of 31 August 2002.

<sup>3</sup> MF does not have any outstanding debt.

9. Existing debt to bilateral lenders.<sup>11</sup> Total debt obligation of Afghanistan to non-IFI lenders consists of ODA and non-ODA loans. ODA is estimated at \$432.3 million in 2002 (Table 8). Of this, Paris Club members (excluding the United States) account for \$133 million including accumulated interest arrears. The balance of \$299.3 million is owed to non-Paris Club members such as Bulgaria, People's Republic of China, Czech Republic, Saudi Arabia, Slovak Republic, and Yugoslavia. The \$299.3 million includes principal amounts of \$169.3 million and \$130 million in accumulated interest arrears since 1991 at 7%. Non-ODA commercial loan is estimated at \$40 million. In this analysis it is assumed that the total ODA of \$432.3 million is forgiven under both partial and total debt forgiveness. The \$40 million commercial loan is forgiven under the total debt forgiveness but is rescheduled on Naples "stock" terms in 2003 under the partial debt forgiveness, which is explained in the following paragraph.

10. Existing debt to Russia. Total Russian claim, which is all non-ODA, is placed at ruble (Rub.) 9,433 million, including Rub.8.5 billion in principal and interest arrears, as of 2002, valued at one-to-one with dollars (Table 8). Under the agreement on Russia's participation in the Paris Club as a creditor, Afghanistan would be eligible for an upfront discount of 80% prior to any future concessional rescheduling. The discounted value is \$1,886.6 million. Total non-ODA debt is estimated at \$1,926.6 million (\$1,886.6 million of Russian debt plus \$40 million in commercial debt). It is assumed that the non-ODA \$1,926.6 million would be eligible for a Paris Club rescheduling in 2003 on Naples "stock" terms (1 January 2003 is assumed cut-off date). The debt reduction option involves 67% of claims being cancelled and the remainder \$642.2 million rescheduled at a market rate (5.23 %—the Organization for Economic Cooperation and Development (OECD) Commercial Interest Reference Rates (CIRR) for the special drawing rights (SDR) during January—June 2002), with a maturity of 23 years, including 6 years grace, and progressive payments thereafter. Here, payments are assumed equal. It is further assumed that Russia and commercial lenders would agree to forgive 50% of the rescheduled amount under the partial debt forgiveness, thereby reducing the outstanding official bilateral and commercial debt to \$321.1 million.

11. New borrowings from IFIs. New ADB lending in 2002 is estimated at \$150 million for a program loan plus interest capitalization over the grace period, \$150 million investment loan in 2003, \$200 million annually in 2004—2005 and \$150 million a year thereafter (Table 1). The total amount of interest charge (1% per annum) during the 10-year grace period on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charges over a 10-year grace period. The capitalized amount of 2002 program loan is \$165 million. ADB Board of Directors approved a loan of \$150 million in June 2003. Normally, Asian Development Fund (ADF) loan terms for program loan include 24 years maturity, including an 8-year grace period, 1% interest rate charge during the grace period, and 1.5% during the amortization period. ADF loan terms for project loans on the other hand, include 32 years maturity, including an 8-year grace period, 1% interest rate charge during the grace period, and 1.5% during the amortization period. ADB Board of Directors agreed to further soften ADF loan terms for Afghanistan on an exceptional basis: 40 years maturity, including a 10-year grace period, 1% interest rate charge during both grace and amortization periods. Interest payment is capitalized during the grace period. For 2002 program loan, amortization is at 2% from 11<sup>th</sup> to 20<sup>th</sup> year and 4% from 21<sup>st</sup> to 40<sup>th</sup> year. All other loans

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<sup>11</sup> Other than the IFIs analyzed above, information on debt is very sketchy and most records in Afghanistan seem to have been destroyed or lost. Figures come from IFIs, Paris Club (excluding Russia), the IMF's 1991 Recent Economic Developments and a table prepared by the Central Bank.

are amortized equally from 11<sup>th</sup> to 40<sup>th</sup> year. These terms are to apply to both program and project loans. There is no commitment fee associated with ADF-financed loans. For 2002 Program loan, \$100 million or 67% were disbursed under first tranche in year 1 and 33% under second tranche in year 2. Project loans for other years were disbursed over 8 years. Project loan for 2003 will be disbursed over 4 years at the rate of 5%, 40%, 50%, and 5%, respectively. Project loans for 2004—2025 will be disbursed over 8 years at the rate of 5%, 10%, 15%, 15%, 20%, 15%, 12%, and 8%, respectively. The grant element of ADB lending is calculated at 60% discounted at 5.23%.

12. The new IDA lending is assumed to be \$142 million per annum in 2003—2004, \$156 million per annum in 2007—2014, and \$120 million a year thereafter (Table 1).<sup>12</sup> Of these amounts, during the first 5 years, there would be quick disbursing funds of \$50 million per year. The disbursement profile for investment operations is assumed to be 3 years for operations initiated in 2003—2004, and 5 years thereafter. IDA loan terms include 40 years maturity, including a 10-year grace period, 0.75% interest rate charge during grace and amortization periods. Amortization is at 2% from 11<sup>th</sup> to 20<sup>th</sup> year and 4% from 21<sup>st</sup> to 40<sup>th</sup> year. The grant element of IDA lending is calculated at 59% discounted at 5.23%.

13. The size of IsDB's planned lending level is unknown but assumed to be small enough to be subsumed in the combined IDA/ADB lending scenario.

14. It is assumed that Afghanistan will enter into a 3-year arrangement with IMF under PRGF in 2003 of SDR49 million (30% of quota or \$64 million), disbursed over 3 years beginning in mid-2003, and a successor PRGF arrangement beginning in mid-2006 of SDR49 million (30% of quota or \$64 million), with the same disbursement profile. Repayment is made after a 5-year grace period and is made over 5 years (Table 1). The grant element of the PRGF is calculated at 30% discounted at 5.23%.

15. New borrowings from non-IFI bilateral lenders. While much of IFIs' lending will include adjustment lending in the initial reconstruction period, bilateral lending will be limited to investment lending and is assumed to be at \$20 million level annually starting in 2004 (Table 1). This projection is based on Cambodia's experience in which less than \$10 million was borrowed from bilateral lenders during 1990s. The terms of the loans are assumed to be 30 years maturity with 10 years grace period, and an interest rate of 1%.<sup>13</sup> The grant element of bilateral lending is calculated at 52% discounted at 5.23%.

16. In sum, the analysis assumes total IFI lending in the amount of \$356 million in 2003, \$362 million per annum in 2004—2005, \$376 million in 2006, \$326 million per annum in 2007—2014, going down to \$260 million a year thereafter (Table 1). This is considered a high level of concessional resources, and these figures may be well in excess of what would actually be available to Afghanistan.

<sup>12</sup> In the spreadsheet analysis, World Bank's fiscal year (July–June) is approximated by the calendar year so as not to affect the summary debt ratios in the medium term.

<sup>13</sup> These are JBIC terms applied to current least developed countries (LDCs).

## Macroeconomic Assumptions

### Strong Growth Scenario

17. The macroeconomic scenarios assume a reasonable improvement in the security situation, the Government's commitment to sound economic management, and a reasonable progress in revenue streamlining and centralization. In 2004, there will be a democratically elected government and political environment will be conducive to sound economic management and private sector investment activities.

18. The available GDP estimates tend to range from \$4-6 billion, while the Ministry of Finance puts it at \$4 billion for 2002. Based on available recent data on agricultural production, ADB puts the GDP estimate for 2002 at about \$4.4 billion (Table 9). With the estimated population of 26.4 million, per capita GDP in 2002 is about \$167.

19. The 2002 GDP is assumed to be composed of 70% agriculture, 10% industry and 20% services. Macroeconomic projections are based on assumed growth elasticity by sector and exogenously derived agricultural growth rates (tables 10 and 11) that would be realized should the strategic recommendations of the comprehensive needs assessment undertaken by UNDP, World Bank, and ADB in collaboration with other partners, were to be implemented. Agricultural growth rates and assumed elasticity gives the rate of GDP growth from which growth rates of other sectors are determined by applying sector-specific elasticity. Value added of industry sector and electricity and gas subsector were calculated as residuals to close the model. The elasticity estimates were derived from sketchy historical data for Afghanistan and postconflict experiences of comparable countries. Adjustments to future elasticity were made on the basis of experiences of other countries as well as likely structural changes of the Afghan economy. While GDP growth will be driven mainly by agricultural growth in the short and medium term, growth elasticity for industry and services would be much higher than agriculture and the economy would transform away from current high share of agriculture in total value added.

20. Two growth assumptions are explored to assess implications for Afghanistan's debt sustainability: a scenario of strong economic growth (scenarios 1 and 2) and a moderate growth scenario (scenarios 3 and 4). Under both scenarios, rapid transformation of the economy is envisaged. The strong growth scenario is based on agricultural growth of 5% per annum in 2003—2005, 4.8% per annum in 2006—2010, and 3.2% a year thereafter (Table 10). By 2025, GDP composition is projected to change to 19% agriculture, 38% industry, and 43% services under strong growth. This scenario translates into the GDP growth rates of 15% in 2003—2005, 12% in 2006—2010, and 8% a year thereafter (Table 9). The economy rebounds to the 1998 level (estimated at \$6.74 billion) by 2005. The quick rebound in the first few years is likely considering the current devastated economic base. While a direct comparison is not warranted, Timor-Leste's economy is estimated to have grown over 15% in the two immediate postconflict years. The assumed long-run growth rate is higher than the experience of Cambodia whose economy has grown at 5—6% during 1990s and early 2000s. Compared with Cambodia, which lost a large portion of productive human capital during the conflict years, Afghanistan may be in a relatively advantageous position with human resources ready to contribute to economic development. Historically, the Afghans were strong in trade and commerce, which they are able

**Table 9. GDP, Exports and Revenue Projections 2002—2025 (\$ million)**

<b>Scenarios 1 and 2</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>GDP Projections</b>								
GDP	4,405	5,066	5,826	6,700	11,808	17,350	25,493	37,458
Real GDP growth (annual average)		<b>15.00</b>	<b>15.00</b>	<b>15.00</b>	<b>12.00</b>	<b>8.00</b>	<b>8.00</b>	<b>8.00</b>
Nominal GDP growth (annual average)		17.19	17.53	17.53	14.46	10.38	10.38	10.38
US inflation (annual average)		1.90	2.20	2.20	2.20	2.20	2.20	2.20
Nominal GDP	4,405	5,163	6,068	7,131	14,013	22,956	37,607	61,608
<b>Export Projections</b>								
Export elasticity		2.30	2.30	2.30	1.00	1.00	1.00	1.00
Export growth (annual average)		39.53	40.32	40.32	14.46	10.38	10.38	10.38
Exports	250	349	490	687	1,350	2,211	3,622	5,934
Export/GDP	<b>5.67</b>	<b>6.89</b>	<b>8.40</b>	<b>10.25</b>	<b>11.43</b>	<b>12.74</b>	<b>14.21</b>	<b>15.84</b>
<b>Revenue Projections</b>								
Revenue as % of GDP	<b>2.27</b>	<b>3.95</b>	<b>4.90</b>	<b>5.90</b>	<b>10.90</b>	<b>15.90</b>	<b>15.90</b>	<b>15.90</b>
Total revenue	100	200	297	421	1,527	3,650	5,979	9,796
Revenue growth (annual average)		100.00	48.66	41.52	29.41	19.03	10.38	10.38
<b>Scenarios 3 and 4</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>GDP Projections</b>								
GDP	4,405	4,806	5,214	5,656	7,933	11,126	15,605	21,887
Real GDP growth (annual average)		<b>9.09</b>	<b>8.48</b>	<b>8.48</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>
Nominal GDP growth (annual average)		11.16	10.87	10.87	9.35	9.35	9.35	9.35
US inflation (annual average)		1.90	2.20	2.20	2.20	2.20	2.20	2.20
Nominal GDP	4,405	4,897	5,430	6,020	9,414	14,721	23,020	35,999
<b>Export Projections</b>								
Export elasticity		3.26	2.73	2.73	1.50	1.50	0.75	0.75
Export growth (annual average)		36.36	29.70	29.70	14.00	14.00	7.00	7.00
Exports	250	341	442	573	1,104	2,126	2,982	4,182
Export/GDP	<b>5.67</b>	<b>7.09</b>	<b>8.48</b>	<b>10.14</b>	<b>13.92</b>	<b>19.11</b>	<b>19.11</b>	<b>19.11</b>
<b>Revenue Projections</b>								
Revenue as % of GDP	<b>2.27</b>	<b>4.16</b>	<b>4.80</b>	<b>5.30</b>	<b>9.30</b>	<b>13.30</b>	<b>13.30</b>	<b>13.30</b>
Total revenue	100	200	261	319	875	1,958	3,062	4,788
Revenue growth (annual average)		100.00	30.31	22.42	22.37	17.46	9.35	9.35

Source: ADB staff estimates.

**Table 10. Growth parameters—Scenarios 1 and 2**

Afghanistan growth elasticity assumptions 2003—2025: Scenarios 1 and 2

Sector	2003	2004	2005	2005—2010	2010—2015	2015—2020	2020—2025
Agriculture	0.33	0.33	0.33	0.40	0.40	0.40	0.40
Industry	4.71	3.21	2.53	1.63	1.18	1.17	1.14
Mining and Quarrying	2.60	2.60	2.60	2.25	2.00	1.50	1.50
Manufacturing	3.00	2.50	2.50	1.75	1.50	1.50	1.50
Electricity and Gas	17.54	6.75	4.41	2.13	0.75	0.65	0.04
Construction	5.00	3.00	2.00	1.25	1.00	1.00	1.00
Services	1.48	1.46	1.43	1.45	1.47	1.29	1.20
Trade, Restaurants, and Hotels	1.10	1.10	0.90	0.90	0.70	0.70	0.70
Transport and Communications	3.00	2.60	2.60	2.20	2.00	1.50	1.25
Finance and Real Estate	1.00	2.00	3.00	3.00	3.00	3.00	3.00
Other Services	1.00	1.00	1.00	1.00	1.00	1.00	1.00
GDP at 2002 prices	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Afghanistan sectoral growth profile 2003—2025: Scenarios 1 and 2 (annual % growth)

Sector	2003	2004	2005	2005—2010	2010—2015	2015—2020	2020—2025
Agriculture	5.00	5.00	5.00	4.80	3.20	3.20	3.20
Industry	70.61	48.19	37.93	19.50	9.45	9.38	9.09
Mining and Quarrying	39.00	39.00	39.00	27.00	16.00	12.00	12.00
Manufacturing	45.00	37.50	37.50	21.00	12.00	12.00	12.00
Electricity and Gas	263.10	101.21	66.11	25.54	5.97	5.21	0.29
Construction	75.01	45.00	30.00	15.00	8.00	8.00	8.00
Services	22.20	21.91	21.45	17.37	11.74	10.30	9.62
Trade, Restaurants, and Hotels	16.50	16.50	13.50	10.80	5.60	5.60	5.60
Transport and Communications	45.00	39.00	39.00	26.40	16.00	12.00	10.00
Finance and Real Estate	15.00	30.00	45.00	36.00	24.00	24.00	24.00
Other Services	15.00	15.00	15.00	12.00	8.00	8.00	8.00
GDP at 2002 prices	15.00	15.00	15.00	12.00	8.00	8.00	8.00

Afghanistan sector composition of GDP 2003—2025: Scenarios 1 and 2 (% distribution)

Sector	2003	2004	2005	2010	2015	2020	2025
Agriculture	63.91	58.35	53.28	38.22	30.45	24.26	19.32
Industry	14.84	19.12	22.93	31.71	33.89	36.11	37.98
Mining and Quarrying	0.60	0.73	0.88	1.66	2.37	2.84	3.40
Manufacturing	5.04	6.03	7.21	10.61	12.73	15.27	18.31
Electricity and Gas	1.58	2.76	3.99	7.06	6.42	5.63	3.89
Construction	7.61	9.59	10.85	12.38	12.38	12.38	12.38
Services	21.25	22.53	23.79	30.08	35.66	39.63	42.69
Trade, Restaurants, and Hotels	10.13	10.26	10.13	9.60	8.58	7.67	6.85
Transport and Communications	5.42	6.55	7.92	14.50	20.73	24.86	27.25
Finance and Real Estate	0.10	0.11	0.14	0.38	0.75	1.50	2.99
Other Services	5.60	5.60	5.60	5.60	5.60	5.60	5.60
GDP at 2002 prices	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: ADB staff estimates.

**Table 11. Growth Parameters—Scenarios 3 and 4**

Afghanistan growth elasticity assumptions 2003—2025: Scenarios 3 and 4

Sector	2003	2004	2005	2005—2010	2010—2015	2015—2020	2020—2025
Agriculture	0.33	0.33	0.33	0.40	0.40	0.40	0.40
Industry	3.72	3.73	3.06	2.03	1.62	1.34	1.15
Mining and Quarrying	2.00	1.50	1.50	1.50	1.50	1.50	1.50
Manufacturing	2.00	1.50	1.50	1.50	1.50	1.50	1.50
Electricity and Gas	26.34	15.32	6.58	1.82	1.50	1.45	1.06
Construction	3.00	2.50	2.50	2.50	1.75	1.20	1.00
Services	1.99	1.50	1.50	1.50	1.37	1.36	1.36
Trade, Restaurants, and Hotels	2.00	1.50	1.50	1.50	1.50	1.45	1.25
Transport and Communications	2.60	1.50	1.50	1.50	1.50	1.50	1.20
Finance and Real Estate	1.50	1.50	1.50	1.50	1.50	1.50	1.40
Other Services	1.50	1.50	1.50	1.50	1.00	1.00	1.00
GDP at 2002 prices	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Afghanistan sectoral growth profile 2003—2025: Scenarios 3 and 4 (annual % growth)

Sector	2003	2004	2005	2005—2010	2010—2015	2015—2020	2020—2025
Agriculture	3.00	2.80	2.80	2.80	2.80	2.80	2.80
Industry	33.79	31.63	26.00	14.23	11.37	9.38	8.07
Mining and Quarrying	18.18	12.73	12.73	10.50	10.50	10.50	10.50
Manufacturing	18.18	12.73	12.73	10.50	10.50	10.50	10.50
Electricity and Gas	239.45	129.95	55.84	12.77	10.53	10.17	7.43
Construction	27.27	21.21	21.21	17.50	12.25	8.40	7.00
Services	18.06	12.73	12.73	10.50	9.60	9.52	9.49
Trade, Restaurants, and Hotels	18.18	12.73	12.73	10.50	10.50	10.15	10.00
Transport and Communications	23.64	12.73	12.73	10.50	10.50	10.50	9.60
Finance and Real Estate	13.64	12.73	12.73	10.50	10.50	10.50	11.20
Other Services	13.64	12.73	12.73	10.50	7.00	7.00	8.00
GDP at 2002 prices	9.09	8.48	8.48	7.00	7.00	7.00	7.00

Afghanistan sector composition of GDP 2003—2025: Scenarios 3 and 4 (% distribution)

Sector	2003	2004	2005	2010	2015	2020	2025
Agriculture	66.09	62.63	59.35	48.58	39.76	32.55	26.64
Industry	12.26	14.88	17.28	23.97	29.28	32.68	34.35
Mining and Quarrying	0.54	0.56	0.58	0.69	0.81	0.95	1.11
Manufacturing	4.33	4.50	4.68	5.50	6.46	7.58	8.91
Electricity and Gas	1.56	3.30	4.74	6.16	7.25	8.39	8.56
Construction	5.83	6.52	7.28	11.63	14.78	15.77	15.77
Services	21.64	22.49	23.37	27.45	30.95	34.77	39.01
Trade, Restaurants, and Hotels	10.83	11.26	11.70	13.74	16.14	18.66	21.42
Transport and Communications	4.87	5.06	5.26	6.18	7.26	8.53	9.62
Finance and Real Estate	0.10	0.11	0.11	0.13	0.16	0.18	0.22
Other Services	5.83	6.06	6.30	7.40	7.40	7.40	7.75
GDP at 2002 prices	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: ADB staff estimates .

to carry out under very adverse circumstances. There are strong signs of quick revival of these activities in Afghanistan. The initial growth would also be accompanied by industrial growth led by infrastructure rehabilitation, construction materials production, and increasing productive activities assumed by returning refugees and accelerated growth of the services sector. After the rebound period, as the investment environment gradually improves, the medium-to-long-term growth would be led by manufacturing and mining subsectors, which is induced by improved infrastructure, foreign direct investments, and domestic assets, increasingly emerging and utilized for investment and continued growth of the services sector.

21. Official exports (excluding reexports) are estimated at \$130 million in 2002.<sup>14</sup> Considering a significant level of unofficial trade flows evidenced elsewhere, it is assumed that the total indigenous exports (excluding reexports) would be about \$250 million in 2002 under both scenarios, which amounts to only 5.7% of GDP (Table 9). Under strong growth, export elasticity with respect to GDP is assumed to start from 2.3% in 2003 and gradually levels off to 1%, which is estimated to be the level in early 1990s.<sup>15</sup> This translates into exports growing gradually toward 15.8% of GDP in 2025. The assumed pace of export growth is far milder than what Cambodia experienced: its exports went from 6% of GDP in 1990 to around 20% in mid-1990s, and then exceeded 40% in 2001.<sup>16</sup>

22. According to Afghanistan's ordinary budget, general government revenues are estimated at \$100 million for FY2002 and \$200 million for FY2003.<sup>17</sup> These amount to only 2.3% and 4% of GDP. An early indication is that customs revenue will comprise probably 90% of the total revenue in 2002. Under strong economic growth, revenue collection is assumed to recover gradually toward 6% of GDP in 2005, 16% in 2015, and stabilize at that level thereafter (Table 9). It is assumed that revenue collection would be fully centralized by 2007 as the newly elected government gains fiscal control in provinces. The scenario here is comparable to Cambodia's experience: 3.5% in 1990, 8.4% in 1995, and 11% in 2000.<sup>18</sup> The ratio of revenue between direct taxes to indirect and other taxes is assumed to shift gradually from currently estimated 10:90 ratio to 30:70 ratio by 2025.

### **Moderate Growth Scenario**

23. The moderate scenario (scenarios 3 and 4) still assumes (i) a reasonable improvement in the security situation, but a modest economic management performance; and (ii) a slower streamlining of revenue collection, but a stronger emphasis on export expansion to compensate for shortfall in domestic demand.

24. Agricultural growth is assumed to be slower than in the strong growth scenario, 3% in 2003 and 2.8% annually thereafter (Table 11). Therefore, the transformation away from the agriculture dependence would be slower. By 2025, GDP will be composed of 27% agriculture, 34% industry and 39% services. This scenario translates into the GDP growth rates of 9% in 2003, 8.5% per annum in 2004—2005, and 7% a year thereafter. In essence, this scenario assumes a slow pickup of the economy from the current devastated state (a slow supply response to the reconstruction investments) and slow revival of domestic demand. Moderate growth of the type projected is possible only if exports are emphasized. Therefore, export

<sup>14</sup> World Bank, *Afghanistan's International Trade Relations with Neighboring Countries* (2001).

<sup>15</sup> Long-term export growth could include gas export and transmission fees, while no specific speculation is embedded in the projection.

<sup>16</sup> Source: ADB Key Indicators 2002.

<sup>17</sup> Ministry of Finance, Government of Afghanistan.

<sup>18</sup> Source: ADB Key Indicators 2002

elasticity is assumed to start from a higher level, 3.3% in 2003, 2.7% in 2004—2005, 1.5% in 2006—2015 and thereafter 0.75% (Table 9). This translates into exports growing gradually toward 7% of GDP in 2025, which is still lower than strong growth scenario. Correspondingly, revenue collection is assumed to increase more slowly toward 9% of GDP in 2010, and 13% thereafter. The ratio of revenue between direct taxes to indirect and other taxes is assumed to shift more slowly from currently estimated 10:90 ratio to 25:75 ratio by 2025.

25. A variation of Scenario 3 is calculated to analyze additional impact of negative export shock of 20% reduction in export growth over the projection period (Scenario 5).

### III. ANALYSIS AND INTERPRETATION OF DEBT SUSTAINABILITY

#### Debt Sustainability Scenarios

26. In this analysis, debt sustainability scenarios have been developed under alternative growth and debt forgiveness assumptions. Each scenario shows impact of current planned lending by IFIs over the period 2002—2025 on Afghanistan's debt sustainability. A variation is worked out for each scenario to indicate approximately the sustainable levels of borrowing under given assumptions. This is achieved by calibrating average IFI lending levels to a point from where any upward variation would make debt ratios exceed HIPC threshold. One also has to keep in view how much of total concessional lending by IFI could be allocated to Afghanistan beyond postconflict years. In Scenario 1, it is assumed that debt is partially forgiven, economy rebounds strongly and sustains relatively high growth rates, and borrowing is limited to highly concessional loans from IFIs at levels currently planned. Scenario 2 examines the impact of total debt forgiveness under strong growth. In scenarios 3 and 4, the implications of planned lending by IFIs and moderate growth, under partial and total debt forgiveness, are examined. Scenario 5 considers the impact of 20% reduction of exports growth on the outcome of Scenario 3.

#### Debt Sustainability Indicators

27. Based on the above assumptions, the following debt indicators were calculated year by year:

Indicator 1: present value of debt as percentage of GDP,

Indicator 2: present value of debt as percentage of revenue,

Indicator 3: present value of debt as percentage of exports, and

Indicator 4: debt service as percentage of exports.

All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included. Annual average US inflation rates of 1.9% in 2003 and 2% thereafter is applied to calculate nominal growth of GDP, exports and revenue flows every year. Revenues are general government revenues. Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.

28. Under the first scenario (partial debt forgiveness, strong growth, and borrowing at levels proposed by IFIs on very concessional terms), the debt burden associated with the proposed lending by IFIs is sustainable from 2008. After 2002, NPV of debt to export ratio declines from a high of 208% in 2003 to 150% in 2007 (Table 4 and Figure 1). In the following years, the ratio declines gradually to a comfortable 63% in 2025. The ratio of debt service to revenue follows a pattern similar to NPV of debt to exports ratio but fall below the HIPC threshold earlier in 2004, going down to a low of 35% in 2025 (Table 4 and Figure 2). Except in 2003 when all past liability kicks in after arrears clearance, debt service remains below 10% of exports throughout the projection period (Table 4 and Figure 3). Under this scenario, with downward adjustment of lending during the period 2002—2004, an average annual lending level of \$726 million by IFIs on very concessional terms could be sustained in 2002—2025 (Appendix 1 and Attachment 1). Due to the cumulative effect of exiting debt, the NPV of debt to export ratio for 2002 under Scenario 1 would be above 150% even with no borrowing in that year.

29. Scenario 2 (total debt forgiveness, strong growth, and borrowing at levels proposed by IFIs on very concessional terms) illustrates how important is the debt forgiveness assumption for debt sustainability. Under this scenario, all debt sustainability indicators are below the HIPC threshold levels during the projection period (Table 5 and Figures 1—3). From low levels in 2002 and 2003, NPV of debt to exports ratio reaches 112% in 2004 and, thereafter, gradually goes down to 63% in 2025. NPV of debt to revenue ratio never exceeds 137% and debt service remains at 4% or less of exports during the period under consideration. This scenario could sustain a relatively high level of concessional borrowing from IFIs, close to \$500 million a year in 2003—2010, and over \$800 million a year thereafter giving an average annual lending level of \$739 million in 2002—2025 (Appendix 2 and Attachment 1).

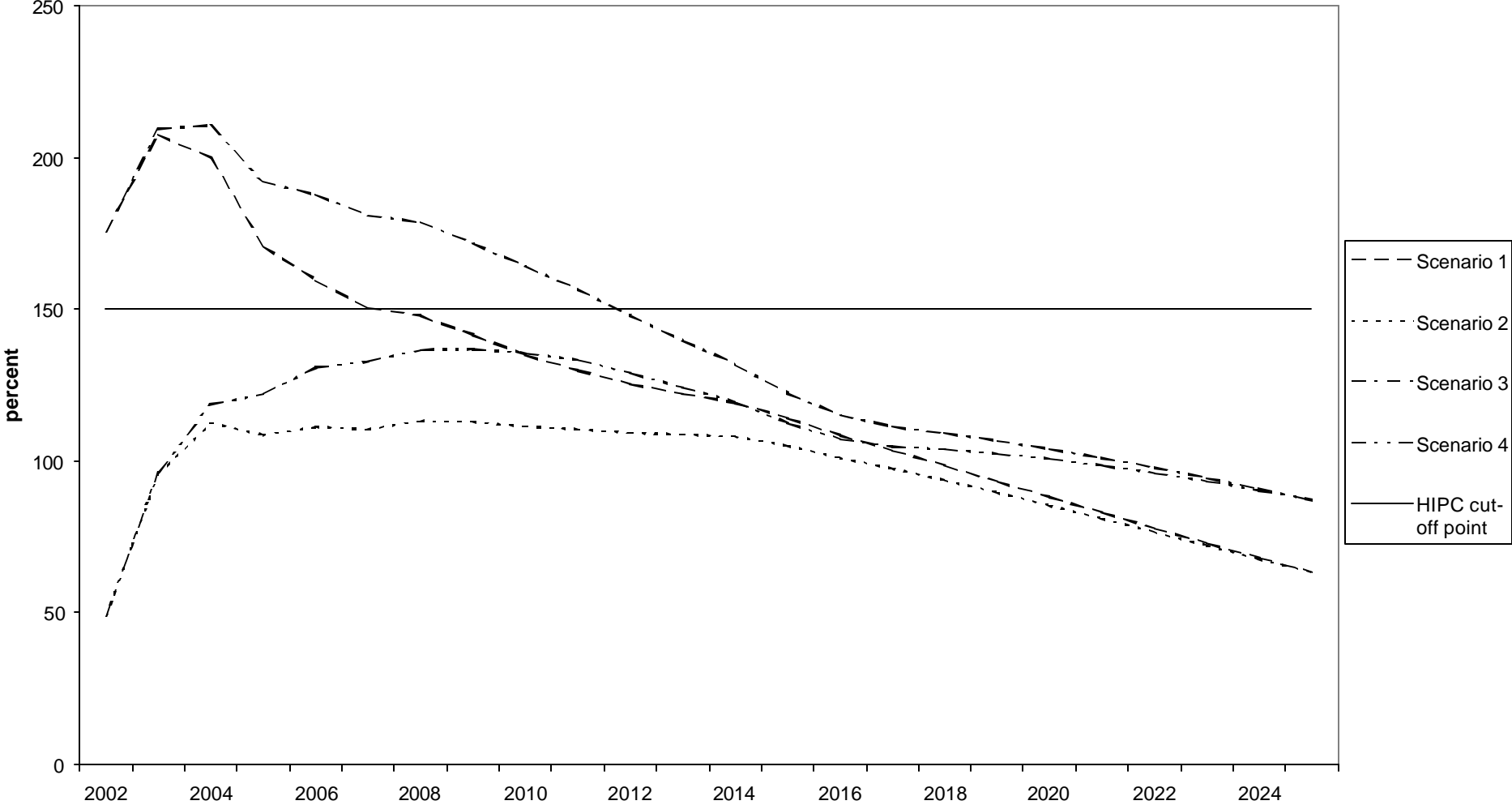
30. Scenario 3 (partial debt forgiveness, moderate growth, and borrowing at levels proposed by IFIs on very concessional terms) shows sensitivity of debt sustainability to growth assumptions. Current planned lending of IFIs, even on very concessional terms is not sustainable until 2012 when NPV of debt to exports ratio falls below 150% (Table 6 and Figure 1). In most of the earlier years the ratio is well above this level. NPV of debt to revenue ratio is above 200% prior to 2007 and then declines to 71% in 2025 (Table 6 and Figure 2). Debt service remains at 10% or less of exports during the period under consideration (Table 6 and Figure 3). This scenario could sustain only about \$490 million in annual lending in 2002—2025 by IFIs on highly concessional terms. In earlier years, sustainable IFI lending are much lower than those planned. As in Scenario 1, due to the cumulative effect of exiting debt, the NPV of debt to export ratio for 2002 under Scenario 1 would be above 150% even with no borrowing in that year (Appendix 3 and Attachment 1).

31. Scenario 4 (total debt forgiveness, moderate growth, and borrowing at levels proposed by IFIs on very concessional terms) illustrates how important is the debt forgiveness assumption for debt sustainability even in situation of moderate growth. Under this scenario all debt sustainability indicators are below the HIPC threshold levels during the projection period although the NPV of debt to export ratios are well above 110% in 2004—2015, and NPV of debt to revenue ratio is above 120% in 2002—2013 (Table 7 and Figures 1—3). Debt service remains at 4% or less of exports during the period under consideration. NPV of debt to exports reaches 87% and NPV of debt to revenue 71% in 2025. This scenario could sustain an annual average lending level of concessional borrowing from IFIs of \$503 million in 2002—2025. As expected, sustainable lending is lower than Scenario 2 in all years showing the impact of lower growth (Appendix 4 and Attachment 1).

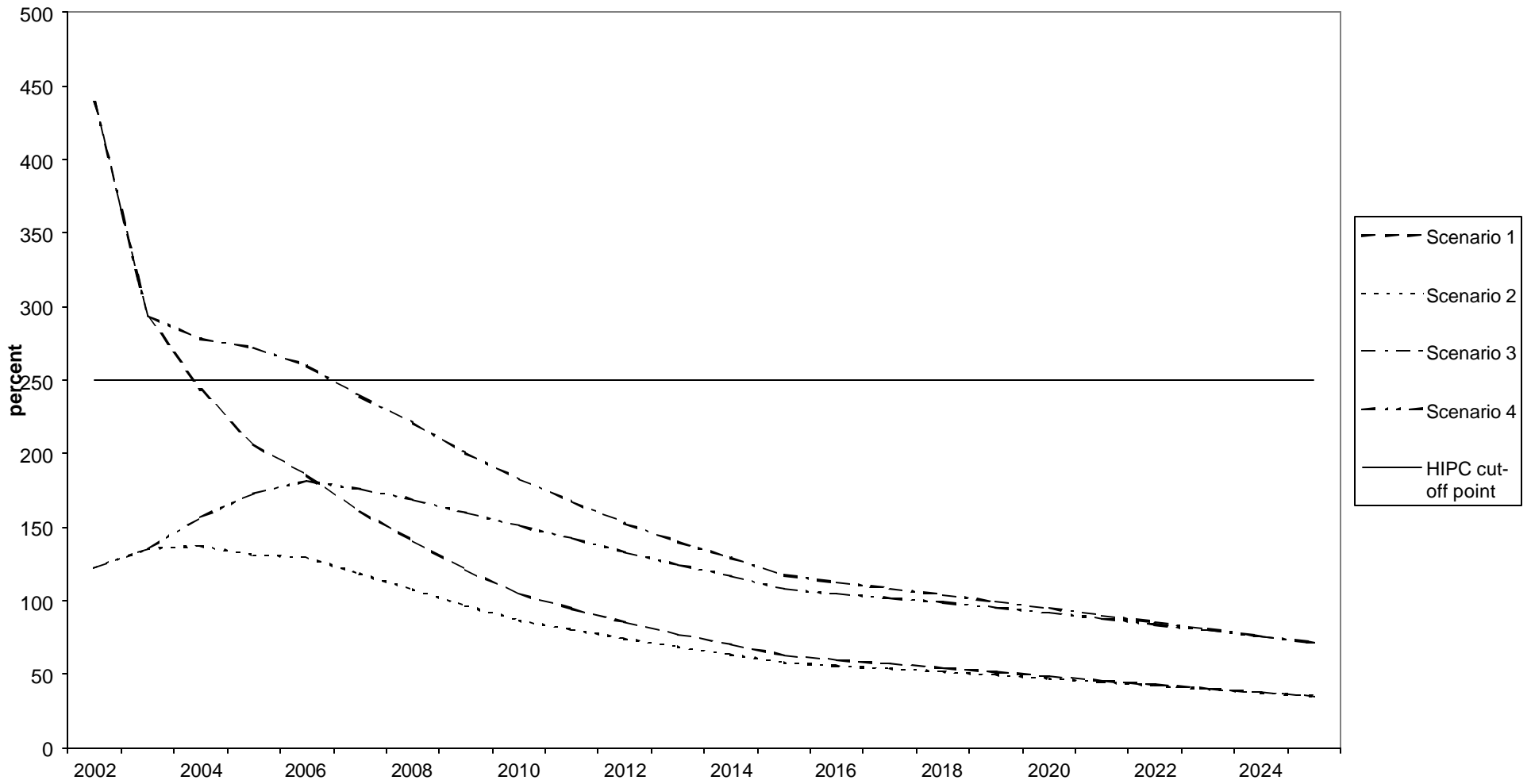
32. Scenario 5 (partial debt forgiveness, moderate growth, export shock of 20% reduction in growth of exports over Scenario 3, and borrowing at levels proposed by IFIs on very concessional terms) illustrates the impact of export variation on sustainable borrowing of Scenario 3. Under this scenario, the sustainable borrowing is lower than Scenario 3 throughout the projection period (Appendix 5 and Attachment 1). This scenario could sustain an annual average lending level of concessional borrowing from IFIs of only \$331 million in 2002—2025.

33. The results of analysis of debt sustainability indicators depend very much on the assumptions made on macroeconomic scenarios and debt rescheduling arrangements. While precise conclusions cannot be drawn from the preliminary analysis, general implications are: (i) achievement of debt sustainability will probably require debt relief that goes beyond the normal terms of debt restructuring; (ii) debt indicators appear to worsen in the initial period, the duration of which depends on the macro scenario, before leading to a robust improving trend; and (iii) debt sustainability is sensitive to positive or negative shocks to output and export growth. The macroeconomic situation needs close monitoring over the medium term before it can be said with any degree of certainty whether the Afghan economy is on a desired path. Of course, stability in the security situation and government commitment to sound macroeconomic management are the prerequisites to debt sustainability.

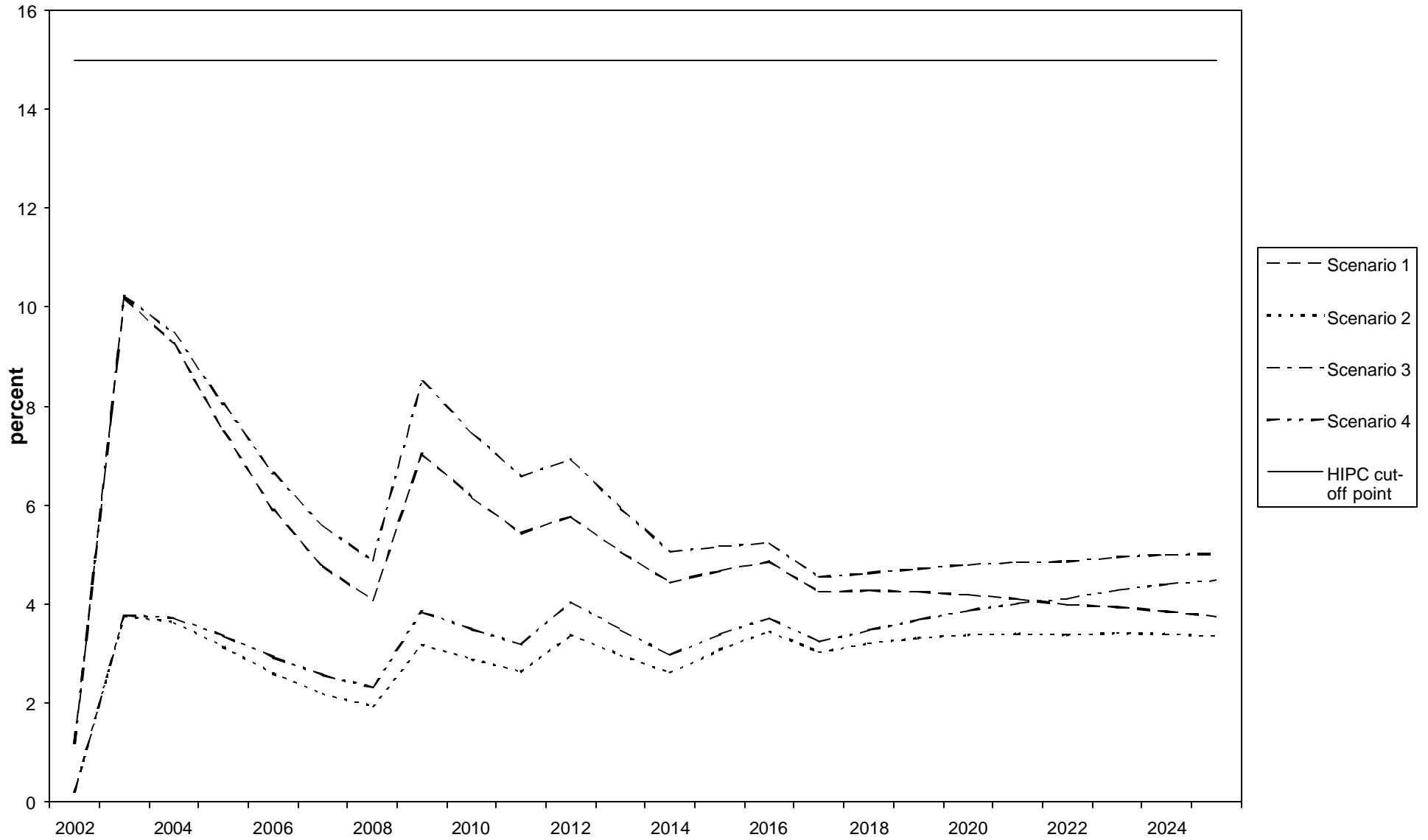
**Figure 1. NPV of Debt to Exports Ratio**



**Figure 2. NPV of Debt to Revenue Ratio**



**Figure 3. Debt Service to Exports Ratio**



## Afghanistan's Projected Borrowings 2002—2025 (Scenario 1—sustainable borrowing)

(\$ million)

Year	ADB <sup>1</sup>	IDA	IMF	Non-IFI	Total
	Loan Amount				
2002	0	0	0	0	0
2003	48	40	16	0	104
2004	176	150	0	10	336
2005	277	270	0	40	587
2006	266	225	32	10	533
2007	266	230		10	506
2008	200	180		10	390
2009	261	200		20	481
2010	261	250		30	541
2011	234	250		30	514
2012	277	250		20	547
2013	234	220		20	474
2014	234	220		20	474
2015	277	260		30	567
2016	341	340		50	731
2017	341	340		50	731
2018	405	370		50	825
2019	447	420		50	917
2020	511	480		50	1,041
2021	586	550		50	1,186
2022	639	600		50	1,289
2023	692	650		50	1,392
2024	772	725		50	1,547
2025	825	775		100	1,700

Note:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charge over a 10-year grace period.

## Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 1—sustainable borrowing)

(\$ million)

Year													Debt Sustainability Indicators			
	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports	
2002	12.1	55.6	-	317.1	384.8	406.9	2.9	4,405.4	100.0	250.0	250.0	9	385	154	1	
2003	28.4	65.8	11.1	316.9	422.3	456.0	26.1	5,162.6	200.0	348.8	282.9	8	211	149	9	
2004	91.1	111.7	11.7	326.6	541.1	558.9	26.7	6,067.7	297.3	489.5	362.8	9	182	149	7	
2005	193.1	207.9	12.2	346.0	759.2	775.2	28.1	7,131.4	420.8	686.8	508.4	11	180	149	6	
2006	296.6	291.6	35.0	351.4	974.5	1,016.2	29.4	8,162.9	563.2	786.2	654.2	12	173	149	4	
2007	405.6	380.2	36.6	356.9	1,179.4	1,296.4	30.7	9,343.6	738.1	899.9	791.0	13	160	149	4	
2008	496.7	453.5	38.3	362.6	1,351.1	1,606.2	31.9	10,695.0	951.9	1,030.1	905.4	13	142	149	4	
2009	614.2	536.5	36.9	355.0	1,542.7	1,973.7	55.1	12,242.0	1,212.0	1,179.1	1,036.3	13	127	149	5	
2010	738.0	640.7	35.4	352.7	1,766.8	2,387.4	55.8	14,012.6	1,527.4	1,349.6	1,186.2	13	116	149	5	
2011	858.7	748.8	33.9	350.9	1,992.3	2,839.4	56.6	15,466.6	1,840.5	1,489.6	1,339.4	13	108	149	4	
2012	1,000.9	861.0	25.9	344.9	2,232.6	3,293.5	63.8	17,071.4	2,202.2	1,644.2	1,494.5	13	101	149	4	
2013	1,135.4	973.3	17.5	339.3	2,465.4	3,764.6	57.7	18,842.7	2,619.1	1,814.8	1,649.5	13	94	149	3	
2014	1,274.9	1,088.9	11.9	334.2	2,709.9	4,241.3	58.8	20,797.8	3,098.9	2,003.1	1,820.7	13	87	149	3	
2015	1,429.7	1,220.3	6.1	332.5	2,988.7	4,719.3	71.9	22,955.8	3,650.0	2,210.9	2,009.6	13	82	149	4	
2025	3,971.4	3,643.7		413.3	8,028.3	11,136.4	252.4	61,608.4	9,795.7	5,933.7	5,393.4	13	82	149	5	

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 1: All scenarios assume that security situation stabilizes. Other assumptions are
  - GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 1 projects strong GDP growth of 15% in 2003—2005, 12% in 2006—2010, and 8% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 15.9% in 2015 and stabilize under strong growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Partial debt forgiveness is assumed under Scenario 1. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January—June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Afghanistan's Projected Borrowings 2002—2025**  
**(Scenario 2—sustainable borrowing)**

(\$ million)

Year	ADB <sup>1</sup>	IDA	IMF	Non-IFI	Total
	Loan Amount				
2002	167	100	0	0	267
2003	163	142	64	20	389
2004	213	200	0	20	433
2005	415	225	0	20	660
2006	213	200	64	20	497
2007	213	200		20	433
2008	213	200		20	433
2009	213	200		20	433
2010	266	250		20	536
2011	266	250		20	536
2012	240	200		20	460
2013	240	200		20	460
2014	240	200		20	460
2015	266	250		20	536
2016	346	325		20	691
2017	373	350		20	743
2018	399	375		20	794
2019	453	425		20	898
2020	506	475		20	1,001
2021	586	550		20	1,156
2022	639	600		20	1,259
2023	719	675		20	1,414
2024	799	750		20	1,569
2025	852	800		20	1,672

Note:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charge over a 10-year grace period.

## Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 2—sustainable borrowing)

(\$ million)

Year	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	Debt Sustainability Indicators			
												NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	67.4	55.6	-	-	123.0	187.2	0.5	4,405.4	100.0	250.0	250.0	3	123	49	0
2003	127.6	103.6	44.5	-	275.7	360.1	9.8	5,162.6	200.0	348.8	282.9	5	138	97	3
2004	208.7	172.4	46.6	9.7	437.5	576.2	10.8	6,067.7	297.3	489.5	362.8	7	147	121	3
2005	366.1	254.3	48.7	19.8	688.9	891.8	12.3	7,131.4	420.8	686.8	508.4	10	164	136	2
2006	459.8	330.1	95.5	30.1	915.4	1,180.0	13.8	8,162.9	563.2	786.2	654.2	11	163	140	2
2007	558.3	408.8	99.9	40.8	1,107.9	1,481.0	15.1	9,343.6	738.1	899.9	791.0	12	150	140	2
2008	662.0	490.0	104.5	51.9	1,308.4	1,813.2	16.4	10,695.0	951.9	1,030.1	905.4	12	137	145	2
2009	771.2	574.2	96.6	63.3	1,505.2	2,192.5	30.6	12,242.0	1,212.0	1,179.1	1,036.3	12	124	145	3
2010	905.0	679.6	88.3	75.2	1,748.1	2,605.8	32.1	14,012.6	1,527.4	1,349.6	1,186.2	12	114	147	3
2011	1,045.8	789.1	79.6	87.4	2,001.9	3,056.6	33.8	15,466.6	1,840.5	1,489.6	1,339.4	13	109	149	3
2012	1,184.5	884.4	57.8	100.1	2,226.9	3,505.8	48.2	17,071.4	2,202.2	1,644.2	1,494.5	13	101	149	3
2013	1,325.5	990.1	35.0	113.3	2,463.9	3,949.1	47.9	18,842.7	2,619.1	1,814.8	1,649.5	13	94	149	3
2014	1,466.9	1,096.8	23.8	126.9	2,714.5	4,402.9	47.7	20,797.8	3,098.9	2,003.1	1,820.7	13	88	149	3
2015	1,616.6	1,221.8	12.2	140.1	2,990.6	4,850.4	63.0	22,955.8	3,650.0	2,210.9	2,009.6	13	82	149	3
2025	4,158.4	3,655.4		228.4	8,042.1	11,794.4	246.5	61,608.4	9,795.7	5,933.7	5,393.4	13	82	149	5

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 2: All scenarios assume that security situation stabilizes. Other assumptions are
  - GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 2 projects strong GDP growth of 15% in 2003—2005, 12% in 2006—2010, and 8% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 15.9% in 2015 and stabilize under strong growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Total debt forgiveness is envisaged under which total outstanding ODA and non-ODA Russian and commercial debt is forgiven.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Afghanistan's Projected Borrowings 2002—2025**  
**(Scenario 3—sustainable borrowing)**

(\$ million)

Year	ADB <sup>1</sup>	IDA	IMF	Non-IFI	Total
	Loan amount				
2002	0	0	0	0	0
2003	45	28	16	0	89
2004	160	110	0	10	270
2005	181	150	0	20	331
2006	192	156	64	20	412
2007	181	170		20	351
2008	150	156		20	306
2009	192	180		20	372
2010	224	210		20	434
2011	266	225		20	491
2012	298	260		20	558
2013	309	290		20	599
2014	346	325		20	671
2015	399	375		20	774
2016	373	350		20	723
2017	293	250		20	543
2018	213	175		20	388
2019	240	200		20	440
2020	266	225		20	491
2021	293	275		20	568
2022	320	300		20	620
2023	346	325		20	671
2024	405	380		20	785
2025	453	425		20	878

Note:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charge over a 10-year grace period.

## Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 3—sustainable borrowing)

(\$ million)

Year	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	Debt Sustainability Indicators			
												NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	12.1	55.6	-	317.1	384.8	406.9	2.9	4,405.4	100.0	250.0	250.0	9	385	154	1
2003	27.4	61.6	11.1	316.9	417.0	444.5	26.0	4,897.2	200.0	340.9	280.3	9	208	149	9
2004	84.3	92.8	11.7	323.2	511.9	514.1	26.4	5,429.6	260.6	442.1	344.4	9	196	149	8
2005	151.8	144.6	12.2	332.9	641.5	665.7	27.2	6,019.9	319.1	573.5	452.2	11	201	142	6
2006	226.7	200.6	57.2	342.8	827.3	861.3	28.3	6,583.0	401.6	653.7	556.4	13	206	149	5
2007	301.6	263.8	60.0	353.1	978.5	1,085.4	29.4	7,198.8	496.7	745.3	657.5	14	197	149	4
2008	369.5	323.8	62.7	363.6	1,119.7	1,323.4	30.3	7,872.2	606.2	849.6	749.5	14	185	149	4
2009	455.8	394.8	62.4	356.2	1,269.2	1,580.7	53.1	8,608.6	731.7	968.5	854.5	15	173	149	6
2010	557.9	479.4	62.1	349.2	1,448.5	1,883.8	53.4	9,413.8	875.5	1,104.1	974.1	15	165	149	5
2011	680.6	572.6	61.7	342.5	1,657.5	2,232.8	53.8	10,294.4	1,039.7	1,258.7	1,110.5	16	159	149	5
2012	821.1	681.9	48.7	336.3	1,888.0	2,610.0	67.3	11,257.3	1,227.0	1,434.9	1,265.9	17	154	149	5
2013	972.7	813.2	35.0	330.6	2,151.5	3,040.1	61.1	12,310.3	1,440.3	1,635.8	1,443.2	17	149	149	4
2014	1,143.6	961.6	23.8	325.4	2,454.5	3,522.4	62.0	13,461.8	1,682.7	1,864.8	1,645.2	18	146	149	4
2015	1,336.0	1,131.6	12.2	319.7	2,799.5	4,057.2	72.9	14,721.0	1,957.9	2,125.9	1,875.5	19	143	149	4
2025	2,986.7	2,617.1		225.3	5,829.1	8,486.4	222.3	35,998.5	4,787.8	4,182.0	3,914.4	16	122	149	6

Source: ADB staff estimates.

Note:

<sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.

<sup>2</sup> Key assumptions underlying Scenario 3: All scenarios assume that security situation stabilizes. Other assumptions are

- GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 3 projects moderate GDP growth of 9.1% in 2003, 8.5% in 2004—2005, and 7% a year thereafter.
- All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
- World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
- Growth of exports linked to GDP growth through export elasticity. Export elasticity are adjusted upward under moderate growth to compensate for shortfall in domestic demand.
- Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 13.3% in 2015 and stabilize under moderate growth.
- Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
- Partial debt forgiveness is assumed under Scenario 3. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January—June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
- Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
- Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Afghanistan's Projected Borrowings 2002—2025**  
**(Scenario 4—sustainable borrowing)**

(\$ million)

Year	ADB <sup>1</sup>	IDA	IMF	Non-IFI	Total
Loan amount					
2002	121	100	0	0	221
2003	169	142	64	0	375
2004	160	142	0	10	302
2005	160	142	0	20	302
2006	160	200	58	20	417
2007	213	200		20	413
2008	213	200		20	413
2009	213	200		20	413
2010	213	200		20	413
2011	213	200		20	413
2012	266	225		20	491
2013	293	275		20	568
2014	320	300		20	620
2015	373	350		20	723
2016	346	325		20	671
2017	240	225		20	465
2018	213	200		20	413
2019	213	200		20	413
2020	266	230		20	496
2021	266	230		20	496
2022	320	300		20	620
2023	346	325		20	671
2024	373	350		20	723
2025	533	500		20	1,033

Note:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charge over a 10-year grace period.

## Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 4—sustainable borrowing)

(\$ million)

Year													Debt Sustainability Indicators			
	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports	
2002	52.1	55.6	-	-	107.8	159.2	0.5	4,405.4	100.0	250.0	250.0	2	108	43	0	
2003	113.5	103.6	44.5	-	261.6	308.1	9.7	4,897.2	200.0	340.9	280.3	5	131	93	3	
2004	174.9	153.4	46.6	6.6	381.5	523.3	10.7	5,429.6	260.6	442.1	344.4	7	146	111	3	
2005	239.6	204.2	48.7	16.4	509.0	788.0	12.0	6,019.9	319.1	573.5	452.2	8	160	113	3	
2006	307.6	277.9	91.0	26.6	703.2	1,003.7	13.2	6,583.0	401.6	653.7	556.4	11	175	126	2	
2007	398.2	354.6	95.3	37.1	885.2	1,236.6	14.4	7,198.8	496.7	745.3	657.5	12	178	135	2	
2008	493.6	433.7	99.6	48.0	1,075.0	1,495.2	15.5	7,872.2	606.2	849.6	749.5	14	177	143	2	
2009	593.9	515.9	91.5	59.3	1,260.5	1,792.9	29.6	8,608.6	731.7	968.5	854.5	15	172	148	3	
2010	699.5	601.0	83.0	70.9	1,454.3	2,139.1	31.0	9,413.8	875.5	1,104.1	974.1	15	166	149	3	
2011	810.6	689.2	74.0	82.9	1,656.8	2,519.0	32.5	10,294.4	1,039.7	1,258.7	1,110.5	16	159	149	3	
2012	946.5	789.7	53.2	95.4	1,884.8	2,914.2	45.6	11,257.3	1,227.0	1,434.9	1,265.9	17	154	149	4	
2013	1,095.4	919.1	31.5	108.3	2,154.2	3,342.1	43.9	12,310.3	1,440.3	1,635.8	1,443.2	17	150	149	3	
2014	1,254.3	1,059.7	21.5	121.7	2,457.1	3,809.6	43.6	13,461.8	1,682.7	1,864.8	1,645.2	18	146	149	3	
2015	1,434.2	1,221.1	11.0	134.6	2,800.8	4,315.3	55.8	14,721.0	1,957.9	2,125.9	1,875.5	19	143	149	3	
2025	2,916.2	2,677.3		225.3	5,818.8	8,481.1	217.0	35,998.5	4,787.8	4,182.0	3,914.4	16	122	149	6	

Source: ADB staff estimates.

Note:

- <sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.
- <sup>2</sup> Key assumptions underlying Scenario 2: All scenarios assume that security situation stabilizes. Other assumptions are
  - GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 4 projects moderate GDP growth of 9.1% in 2003, 8.5% in 2004—2005, and 7% a year thereafter.
  - All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
  - World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
  - Growth of exports linked to GDP growth through export elasticity. Export elasticity are adjusted upward under moderate growth to compensate for shortfall in domestic demand.
  - Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 13.3% in 2015 and stabilize under moderate growth.
  - Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
  - Total debt forgiveness is envisaged under which total outstanding ODA and non-ODA Russian and commercial debt is forgiven.
  - Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment.
  - Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Afghanistan's Projected Borrowings 2002—2025**  
**(Scenario 5—sustainable borrowing)**

(\$ million)

Year	ADB <sup>1</sup>	IDA	IMF	Non-IFI	Total
Loan amount					
2002	0	0	0	0	0
2003	33	30	8	0	71
2004	120	105	0	0	225
2005	160	150	0	20	310
2006	117	100	32	20	249
2007	120	112		20	232
2008	107	100		10	207
2009	120	145		20	265
2010	120	165		20	285
2011	120	160		20	280
2012	160	180		20	340
2013	160	180		20	340
2014	192	180		20	372
2015	234	200		20	434
2016	213	200		20	413
2017	128	170		10	298
2018	117	110		10	227
2019	120	110		20	230
2020	128	150		20	278
2021	213	200		20	413
2022	266	250		20	516
2023	320	300		20	620
2024	320	300		20	620
2025	373	350		20	723

Note:

<sup>1</sup> The total amount of interest charge (1% per annum) during the grace period (10 years) on the disbursed amount will be capitalized and charged to the loan account. Loan amount is disbursed amount plus the total interest charge over a 10-year grace period.

## Afghanistan: External Debt Sustainability Indicators 2002—2025 (Scenario 5—sustainable borrowing)

(\$ million)

Year	Debt Sustainability Indicators														
	NPV of existing and 2002—2025 debt to ADB	NPV of existing and 2002—2025 debt to IDA	NPV of existing and 2002—2025 debt to IMF	NPV of existing and 2002—2025 debt to non-IFIs	Total NPV of existing and 2002—2025 debt	Debt outstanding	Annual debt service	Nominal GDP	Revenue	Nominal exports	Nominal exports (3-year moving average)	NPV of external debt as % of GDP	NPV of external debt as % of revenue	NPV of external debt as % of exports	Debt service as % of exports
2002	12.1	55.6	-	317.1	384.8	406.9	2.9	4,405.4	100.0	250.0	250.0	9	385	154	1
2003	23.0	62.2	5.6	316.9	407.6	432.9	25.9	4,897.2	200.0	322.7	274.2	8	204	149	9
2004	65.5	92.1	5.8	320.1	483.5	495.0	26.3	5,429.6	260.6	399.4	324.0	9	186	149	8
2005	124.5	143.9	6.1	329.5	604.0	631.9	27.1	6,019.9	319.1	494.3	405.5	10	189	149	7
2006	171.4	179.5	28.6	339.3	718.8	792.3	28.0	6,583.0	401.6	549.6	481.1	11	179	149	6
2007	221.7	220.8	30.0	349.4	821.9	964.2	28.9	7,198.8	496.7	611.2	551.7	11	165	149	5
2008	269.9	258.6	31.3	354.9	914.8	1,118.5	29.4	7,872.2	606.2	679.7	613.5	12	151	149	5
2009	325.5	314.2	31.2	347.1	1,018.0	1,299.5	50.3	8,608.6	731.7	755.8	682.2	12	139	149	7
2010	383.9	379.3	31.0	339.7	1,134.0	1,505.4	50.2	9,413.8	875.5	840.4	758.6	12	130	149	7
2011	445.4	445.1	30.9	332.7	1,254.1	1,742.4	50.3	10,294.4	1,039.7	934.6	843.6	12	121	149	6
2012	524.3	520.6	24.3	326.1	1,395.3	1,997.5	56.9	11,257.3	1,227.0	1,039.2	938.1	12	114	149	6
2013	607.4	605.7	17.5	319.9	1,550.5	2,278.4	50.3	12,310.3	1,440.3	1,155.6	1,043.1	13	108	149	5
2014	704.7	693.5	11.9	314.2	1,724.3	2,574.7	51.2	13,461.8	1,682.7	1,285.1	1,160.0	13	102	149	4
2015	817.7	789.6	6.1	308.0	1,921.5	2,882.6	59.4	14,721.0	1,957.9	1,429.0	1,289.9	13	98	149	5
2025	1,437.1	1,843.8		204.8	3,485.7	5,896.7	154.2	35,998.5	4,787.8	2,464.1	2,335.8	10	73	149	7

Source: ADB staff estimates.

Note:

<sup>1</sup> HIPC cut off points are 150% for NPV of debt to exports ratio, 15% for debt service as % of exports (upper limit 20%) and 250% for NPV of debt to revenue ratio for open economies with heavy fiscal burden.

<sup>2</sup> Key assumptions underlying Scenario 3: All scenarios assume that security situation stabilizes. Other assumptions are

- GDP projections are based on exogenous agricultural growth rates and assumed growth elasticity by sector derived from historical data and comparable postconflict experiences. Scenario 3 projects moderate GDP growth of 9.1% in 2003, 8.5% in 2004—2005, and 7% a year thereafter.
- All debt indicators refer to public and publicly guaranteed debt. The NPV is calculated using a discount rate of 5.23%, which is the January—June 2002 SDR CIRR. The NPV of debt to exports ratio is based on a 3-year average of exports; the debt service ratio is based on current exports. No reexports included.
- World Bank trade study suggests 2002 exports—\$130 million, which is probably an underestimate given what is known of truck movement across the border from Afghanistan and the reported revenue collected by local warlords from vehicles crossing both ways across the border. Here, 2002 exports = \$250 million not counting export of illegal drugs and arms.
- Growth of exports linked to GDP growth through export elasticity. In this Scenario, projected exports are assumed to be 20% less than Scenario 3.
- Revenues are general government revenues. Figures for 2002 and 2003 are from the ordinary budget. After 2003, revenue to GDP ratio is increased to reach 13.3% in 2015 and stabilize under moderate growth.
- Repayment of existing \$15.8 million ADB debt is taken from ADB sources. Repayment of existing \$70 million IDA debt is based on a 10-year repayment period and 0.75% interest rate.
- Partial debt forgiveness is assumed under Scenario 3. Total outstanding ODA is forgiven and a part of non-ODA Russian and commercial debt is forgiven. Russian total claims are first discounted at 80% under the agreement on Russia's participation in the Paris Club as a creditor. The discounted Russian debt plus commercial loans are rescheduled in 2003 on Naples "stock" terms with a cut-off date of 1 January 2003 allowing 67% of claims being cancelled. It is assumed that Russia and commercial lenders would forgive 50% of this amount. The remainder would be rescheduled at a market rate of 5.23%, which is the OECD CIRR for the SDR during January—June 2002, and with a maturity period of 23 years, 6 years grace period, and repayment in equal installments.
- Government introduces necessary policy and institutional reforms and implements recommendations of sectoral comprehensive needs assessment. Projected borrowings: ADB—\$165 million in 2002, \$150 million in 2003, \$200 million in 2004—2005, \$150 million in 2006—2014, and \$120 million in 2015—2025. IDA—\$142 million in 2003—2006, \$156 million in 2007—2014, and \$120 million in 2015—2025. IMF—\$64 million in 2003 and \$64 million in 2006.

**Sustainable Borrowing Under Alternative Scenarios (\$ million)**

<b>Year</b>	<b>Average Borrowing</b>	<b>Year</b>	<b>Average Borrowing</b>
Scenario 1—sustainable borrowing		Scenario 2—sustainable borrowing	
2002—2025	726	2002—2025	739
2002—2010	386	2002—2010	454
2011—2015	515	2011—2015	490
2016—2020	849	2016—2020	825
2021—2025	1,423	2021—2025	1,414
2007—2025	853	2007-2025	836
Scenario 3—sustainable borrowing		Scenario 4—sustainable borrowing	
2002—2025	490	2002—2025	503
2002—2010	285	2002—2010	363
2011—2015	619	2011—2015	563
2016—2020	517	2016—2020	492
2021—2025	704	2021—2025	708
2007—2025	561	2007—2025	551
Scenario 5—sustainable borrowing		IFIs planned lending	
2002—2025	331	2002—2025	295
2002—2010	205	2002—2010	325
2011—2015	353	2011—2015	313
2016—2020	289	2016—2020	260
2021—2025	578	2021—2025	260
2007—2025	373	2007—2025	286

Source: Table 1 and Appendix 1 through 5.