

## Appendix—Food Security Model: Definition and Methodology

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The Food Security Assessment model used in this report was developed by USDA's Economic Research Service for use in projecting food consumption and access and food gaps (previously called food needs) in lower income countries through 2018. The reference to food is divided into three groups: grains, root crops, and a category called "other," which includes all other commodities consumed, thus covering 100 percent of food consumption. All of these commodities are expressed in grain equivalent.

Food security of a country is evaluated based on the gap between projected domestic food consumption (produced domestically plus imported minus nonfood use) and a consumption requirement. Like last year, we use total food aid data (cereal and noncereal food commodities) provided by the United Nations' World Food Programme (WFP). All food aid commodities were converted into grain equivalent based on calorie content to allow aggregation. For example: grain has roughly 3.5 calories per gram and tubers have about 1 calorie per gram. One ton of tubers, is therefore equivalent to 0.29 ton of grain (1 divided by 3.5), one ton of vegetable oil (8 calories per gram) is equivalent to 2.29 tons of grain (8 divided by 3.5).

It should be noted that while projection results will provide a baseline for the food security of the countries, results depend on assumptions and specifications of the model. Since the model is based on historical data, it implicitly assumes that the historical trend in key variables will continue in the future.

Two kinds of food gaps are estimated and projected:

1. The national average nutrition gap, where the objective is to maintain the daily caloric intake standards of 2,100 calories per capita per day. The caloric requirements (based on total share of grains, root crops, and "other") used in this assessment are those necessary to sustain life with minimum food-gathering activities.
2. The distribution gap, where the objective is to let each income group reach the caloric standard. Based on a methodology explained below, food availability by income group is calculated. If food availability in a given income group is lower than the caloric requirements, that difference is part of the distribution gap for this country.

This nutrition-based target assists in comparisons of relative well-being. Large nutrition-based needs mean additional food must be provided if improved nutrition levels are the main objective. The national average nutritional gap approach, however, fails to address inequalities of food distribution within a country. Those are addressed by the distribution gap.

## ***Structural framework for estimating and projecting food consumption in the aggregate and by income group***

**Projection of food availability**—The simulation framework used for projecting aggregate food availability is based on partial equilibrium recursive models of 70 lower income countries. The country models are synthetic, meaning that the parameters that are used are either cross-country estimates or are estimated by other studies. Each country model includes three commodity groups: grains, root crops and “other.” The production side of the grain and root crops are divided into yield and area response. Crop area is a function of 1-year lag return (real price times yield), while yield responds to input use. Commercial imports are assumed to be a function of domestic price, world commodity price, and foreign exchange availability. Food aid received by countries is assumed constant at the base level during the projection period. Foreign exchange availability is a key determinant of commercial food imports and is the sum of the value of export earnings and net flow of credit. Foreign exchange availability is assumed to be equal to foreign exchange use, meaning that foreign exchange reserve is assumed constant during the projection period. Countries are assumed to be price takers in the international market, meaning that world prices are exogenous in the model. However, producer prices are linked to the international market. The projection of consumption for the “other” commodities is simply based on a trend that follows the projected growth in supply of the food crops (grains plus root crops). Although this is a very simplistic approach, it represents an improvement from the previous assessments where the contribution by commodities to the diet, such as meat and dairy products, was overlooked. The plan is to enhance this aspect of the model in the future.

For the commodity group grains and root crops ( $c$ ), food consumption ( $FC$ ) is defined as domestic supply ( $DS$ ) minus nonfood use ( $NF$ ).  $n$  is country index and  $t$  is time index.

$$FC_{cnt} = DS_{cnt} - NF_{cnt} \quad (1)$$

Nonfood use is the sum of seed use ( $SD$ ), feed use ( $FD$ ), exports ( $EX$ ), and other uses ( $OU$ ).

$$NF_{cnt} = SD_{cnt} + FD_{cnt} + EX_{cnt} + OU_{cnt} \quad (2)$$

Domestic supply of a commodity group is the sum of domestic production ( $PR$ ) plus commercial imports ( $CI$ ), changes in stocks ( $CSTK$ ), and food aid ( $FA$ ).

$$DS_{cnt} = PR_{cnt} + CI_{cnt} + CSTK_{cnt} + FA_{cnt} \quad (3)$$

Production is generally determined by the area and yield response functions:

$$PR_{cnt} = AR_{cnt} * YL_{cnt} \quad (4)$$

$$YL_{cnt} = f(LB_{cnt}, FR_{cnt}, K_{cnt}, T_{cnt}) \quad (5)$$

$$RPY_{cnt} = YL_{cnt} * DP_{cnt} \quad (6)$$

$$RNPY_{cnt} = NYL_{cnt} * NDP_{cnt} \quad (7)$$

$$AR_{cnt} = f(AR_{cnt-1}, RPY_{cnt-1}, RNPY_{cnt-1}, Z_{cnt}) \quad (8)$$

where  $AR$  is area,  $YL$  is yield,  $LB$  is rural labor,  $FR$  is fertilizer use,  $K$  is an indicator of capital use,  $T$  is the indicator of technology change,  $DP$  is real domestic price,  $RPY$  is yield times real price,  $NDP$  is real domestic substitute price,  $NYL$  is yield of substitute commodity,  $RNPY$  is yield of substitute commodity times substitute price, and  $Z$  is exogenous policies.

The commercial import demand function is defined as:

$$CI_{cnt} = f(WPR_{ct}, NWPR_{ct}, FEX_{nt}, PR_{cnt}, M_{nt}) \quad (9)$$

where  $WPR$  is real world food price,  $NWPR$  is real world substitute price,  $FEX$  is real foreign exchange availability, and  $M$  is import restriction policies.

The real domestic price is defined as:

$$DP_{cnt} = f(DP_{cnt-1}, DS_{cnt}, NDS_{cnt}, GD_{nt}, EXR_{nt}) \quad (10)$$

where  $NDS$  is supply of substitute commodity,  $GD$  is real income, and  $EXR$  is real exchange rate.

**Estimations/projections of food consumption by income group**—Inadequate access to food is the most important cause of chronic food insecurity among developing countries and is related to income level. Estimates of food gaps at the aggregate or national level fail to take into account the distribution of food consumption among different income groups. Lack of consumption distribution data for the study countries is the key factor preventing estimation of food consumption by income group. An attempt was made to fill this information gap by using an indirect method of projecting calorie consumption by different income groups based on income distribution data.<sup>1</sup> It should be noted that this approach ignores the consumption substitution of different food groups by income class. The procedure uses the concept of the income/consumption relationship and allocates the total projected amount of available food among different income groups in each country (income distributions are assumed constant during the projection period).

<sup>1</sup>The method is similar to that used by Shlomo Reutlinger and Marcelo Selowsky in *Malnutrition and Poverty*, World Bank, 1978.

Assuming a declining consumption and income relationship (semi log functional form):

$$C = a + b \ln Y \quad (11)$$

$$C = C_o/P \quad (12)$$

$$P = P_1 + \dots + P_i \quad (13)$$

$$Y = Y_o/P \quad (14)$$

$i = 1 \text{ to } 5$

where  $C$  and  $Y$  are known average per capita food consumption (all commodities in grain equivalent) and per capita income (all quintiles),  $C_o$  is total food consumption,  $P$  is the total population,  $i$  is income quintile,  $a$  is the intercept,  $b$  is the consumption income propensity, and  $b/C$  is consumption income elasticity (point estimate elasticity is calculated for individual countries). To estimate per capita consumption by income group, the parameter  $b$  was estimated based on cross-country (70 lower income countries) data for per capita calorie consumption and income. The parameter  $a$  is estimated for each

country based on the known data for average per capita calorie consumption and per capita income.

### ***Data***

Historical supply and use data for 1990-2007 are from United Nations' Food and Agriculture Organization's FAOSTAT as of March 2009. Food aid data are from the United Nations' World Food Programme (WFP) for 1988-2007, and financial data are from the International Monetary Fund and World Bank. The base year data used for projections are the average for 2005-07, except export earnings, which are 2004-06.

#### ***Endogenous projection variables:***

*Production, area, yield, commercial imports, domestic producer prices, and food consumption.*

#### ***Exogenous projection variables:***

*Population*—data are medium United Nations population projections as of 2005.

*World price*—data are USDA/baseline projections.

*Stocks*—FAOSTAT data; assumed constant during the projection period.

*Seed use*—USDA data; projections are based on area projections using constant base seed/area ratio.

*Food exports*—FAOSTAT data, projections are either based on the population growth rate or extrapolation of historical trends.

*Inputs*—fertilizer and capital projections are, in general, an extrapolation of historical growth data from FAO.

*Agricultural labor*—projections are based on United Nations population projections, accounting for urbanization growth.

*Net foreign credit*—is assumed constant during the projection period.

*Value of exports*—projections are based on World Bank (*Global Economic Prospects and the Developing Countries*, various issues), International Monetary Fund (*World Economic Outlook*, various issues), or an extrapolation of historical growth.

*Export deflator or terms of trade*—World Bank (*Commodity Markets—Projection of Inflation Indices for Developed Countries*).

*Income*—projected based on World Bank report (*Global Economic Prospects and the Developing Countries*, various issues); or extrapolation of historical growth.

*Income distribution*—World Bank data; Income distributions are assumed constant during the projection period.

**List of countries and their food gaps in 2008**

	2008 food gaps		2008 food gaps	
	Nutrition <sup>1</sup>	Distribution <sup>2</sup>	Nutrition <sup>1</sup>	Distribution <sup>2</sup>
			<i>1,000 tons</i>	
Angola	0	84	Algeria	0
Benin	0	87	Egypt	0
Burkina Faso	0	54	Morocco	0
Burundi	323	433	Tunisia	0
Cameroon	107	507	<b>North Africa</b>	0
Cape Verde	22	28		
Central African Republic	162	289	Afghanistan	1,999
Chad	0	193	Bangladesh	0
Congo, Dem. Rep.	1,718	2,430	India	0
Côte d'Ivoire	0	379	Indonesia	0
Eritrea	248	291	Korea, Dem. Rep.	2,718
Ethiopia	0	976	Nepal	0
Gambia	60	88	Pakistan	0
Ghana	0	229	Philippines	0
Guinea	0	0	Sri Lanka	0
Guinea-Bissau	69	95	Vietnam	0
Kenya	826	1,350	<b>Asia</b>	4,716
Lesotho	45	107		
Liberia	91	171	Bolivia	0
Madagascar	0	98	Colombia	0
Malawi	0	24	Dominican Republic	0
Mali	0	21	Ecuador	0
Mauritania	0	51	El Salvador	0
Mozambique	0	322	Guatemala	0
Niger	0	522	Haiti	323
Nigeria	0	668	Honduras	0
Rwanda	196	255	Jamaica	0
Senegal	0	16	Nicaragua	0
Sierra Leone	0	236	Peru	0
Somalia	882	917	<b>Latin America and the Caribbean</b>	323
Sudan	0	313		
Swaziland	4	37	Armenia	0
Tanzania	0	569	Azerbaijan	0
Togo	0	118	Georgia	0
Uganda	0	471	Kazakhstan	0
Zambia	136	366	Kyrgyzstan	0
Zimbabwe	1,419	1,576	Tajikistan	53
<b>Sub-Saharan Africa</b>	<b>6,307</b>	<b>14,368</b>	Turkmenistan	0
			Uzbekistan	0
			<b>Commonwealth of Independent States</b>	53
			<b>Total</b>	<b>11,399</b>
				<b>24,407</b>

<sup>1</sup>Nutrition gap: gap between available food and food needed to support a per capita standard.

<sup>2</sup>Distribution gap: amount of food needed to raise consumption in each income quintile to the nutritional requirement.

Source: Economic Research Service.

**List of countries and their food gaps in 2018**

	2018 food gaps		2018 food gaps	
	Nutrition <sup>1</sup>	Distribution <sup>2</sup>	Nutrition <sup>1</sup>	Distribution <sup>2</sup>
			<i>1,000 tons</i>	
Angola	0	73	Algeria	0
Benin	24	223	Egypt	0
Burkina Faso	0	337	Morocco	0
Burundi	423	569	Tunisia	0
Cameroon	0	350	<b>North Africa</b>	0
Cape Verde	27	34		
Central African Republic	234	379	Afghanistan	1,639
Chad	61	435	Bangladesh	0
Congo, Dem. Rep.	2,368	3,328	India	0
Côte d'Ivoire	0	161	Indonesia	0
Eritrea	796	831	Korea, Dem. Rep.	1,108
Ethiopia	0	670	Nepal	0
Gambia	0	47	Pakistan	0
Ghana	0	123	Philippines	0
Guinea	0	19	Sri Lanka	0
Guinea-Bissau	51	98	Vietnam	0
Kenya	0	661	<b>Asia</b>	2,746
Lesotho	0	30		
Liberia	404	477	Bolivia	0
Madagascar	0	680	Colombia	0
Malawi	0	190	Dominican Rep.	0
Mali	0	278	Ecuador	0
Mauritania	130	169	El Salvador	0
Mozambique	0	262	Guatemala	0
Niger	1,143	1,619	Haiti	0
Nigeria	0	816	Honduras	0
Rwanda	403	467	Jamaica	0
Senegal	0	264	Nicaragua	0
Sierra Leone	0	430	Peru	0
Somalia	1,055	1,103	<b>Latin America and the Caribbean</b>	0
Sudan	0	155		1,429
Swaziland	0	12		
Tanzania	0	648	Armenia	0
Togo	85	208	Azerbaijan	0
Uganda	85	902	Georgia	0
Zambia	0	172	Kazakhstan	0
Zimbabwe	138	519	Kyrgyzstan	0
<b>Sub-Saharan Africa</b>	<b>7,428</b>	<b>17,738</b>	Tajikistan	0
			Turkmenistan	0
			Uzbekistan	0
			<b>Commonwealth of Independent States</b>	0
			<b>Total</b>	<b>10,174</b>
				<b>24,459</b>

<sup>1</sup>Nutrition gap: gap between available food and food needed to support a per capita nutritional standard.

<sup>2</sup>Distribution gap: amount of food needed to raise consumption in each income quintile to the nutritional requirement.

Source: USDA, Economic Research Service.

**Number of food-insecure people, 2008 and 2018**

	2008	2018		2008	2018
<i>Millions of people</i>					
<b>Asia</b>	379	296	<b>SSA</b>	385	483
Afghanistan	28	39	Cameroon	15	14
Bangladesh	32	38	CAR	4	5
India	237	135	Zaire	52	70
Indonesia	0	0	Burundi	9	11
Korea	28	31	Eritrea	5	7
Nepal	11	14	Ethiopia	51	43
Pakistan	33	40	Kenya	31	30
Philippines	9	0	Rwanda	8	13
Sri Lanka	0	0	Somalia	9	12
Viet Nam	0	0	Sudan	16	10
			Tanzania	25	31
<b>LAC</b>	48	52	Uganda	19	35
Bolivia	4	5	Angola	3	5
Colombia	9	10	Lesotho	2	1
Dominican R.	4	2	Madagascar	4	15
El Salvador	1	2	Malawi	3	7
Guatemala	5	10	Mozambique	13	10
Haiti	8	7	Swaziland	1	0
Honduras	4	5	Zambia	10	3
Jamaica	1	0	Zimbabwe	14	12
Nicaragua	3	3	Benin*	4	7
Ecuador	3	2	Burkina Faso	3	12
Peru	6	6	Cape Verde	1	1
			Chad	7	12
<b>North Africa</b>	0	0	Côte d'Ivoire	12	9
Algeria	0	0	Gambia	2	1
Egypt	0	0	Ghana	10	6
Morocco	0	0	Guinea	0	2
Tunisia	0	0	Guinea-Bissau	2	2
			Liberia	3	6
<b>CIS</b>	6	3	Mali	1	7
Armenia	0	0	Mauritania	2	4
Azerbaijan	0	0	Niger	9	21
Georgia	1	0	Nigeria	30	37
Kazakhstan	0	0	Senegal	3	9
Kyrgyzstan	0	0	Sierra Leone	2	4
Tajikistan	5	3	Togo	4	7
Turkmenistan	0	0			
Uzbekistan	0	0			
			<b>Grand total</b>	819	834

Source: USDA, Economic Research Service.

Appendix table 3

**Country indicators**

Region and country	Population, 2008 1,000	Population annual growth rate	Grain production		Root production annual growth rate, 1990-2007	Projected annual growth in supply, 2008-18
			Annual growth rate, 1990-2007	Coefficient of variation, 1990-2007		
			Percent			
<b>North Africa:</b>						
Algeria	34,372	1.5	4.0	47.1	5.2	0.7
Egypt	76,792	1.8	3.3	3.3	2.7	1.2
Morocco	31,613	1.2	0.2	49.3	3.2	1.9
Tunisia	10,437	1.1	0.4	42.3	3.6	1.4
<b>Central Africa:</b>						
Cameroon	18,893	2.0	3.7	8.6	3.4	2.1
Central African Rep.	4,427	1.8	6.0	10.3	1.1	1.3
Congo, Dem. Rep.	64,703	3.3	2.3	9.5	-1.1	3.0
<b>West Africa:</b>						
Benin	9,294	3.1	4.5	8.5	6.3	2.4
Burkina Faso	15,194	2.9	3.8	12.7	2.6	1.8
Cape Verde	542	2.3	0.1	71.5	0.2	2.4
Chad	11,060	2.9	5.8	18.2	1.3	2.1
Côte d'Ivoire	19,639	1.9	0.6	3.7	3.0	2.8
Gambia	1,750	2.7	6.7	16.7	1.9	3.6
Ghana	23,920	2.0	2.9	11.7	5.1	2.3
Guinea	9,605	2.2	5.3	4.9	3.1	1.3
Guinea-Bissau	1,746	3.0	0.5	14.9	3.5	3.7
Liberia	3,940	4.6	2.3	39.9	5.1	1.8
Mali	12,713	2.8	3.8	12.0	13.0	1.3
Mauritania	3,197	2.6	0.5	28.5	1.7	1.0
Niger	14,727	3.5	3.8	15.9	1.0	1.7
Nigeria	151,299	2.3	2.3	7.2	4.7	2.0
Senegal	12,672	2.5	0.9	18.5	11.7	1.1
Sierra Leone	5,938	2.1	2.6	39.3	6.0	1.0
Togo	6,755	2.7	3.5	6.6	2.7	2.2
<b>East Africa:</b>						
Burundi	8,643	3.2	-0.2	7.8	2.1	2.9
Eritrea <sup>1</sup>	4,989	3.3	4.6	72.8	-1.6	0.5
Ethiopia <sup>1</sup>	85,174	2.5	6.3	13.5	3.9	3.1
Kenya	38,546	2.7	1.3	10.4	2.5	3.4
Rwanda	10,031	2.8	3.2	27.1	6.2	2.6
Somalia	8,947	3.0	0.4	32.5	5.3	2.7
Sudan	39,440	2.2	3.3	28.5	5.4	2.4
Tanzania	41,441	2.5	2.4	12.2	0.1	2.4
Uganda	31,903	3.3	3.0	7.8	4.2	2.6

See footnotes at end of table.

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**Country indicators—Continued**

Region and country	Macroeconomic indicators					
	Per capita GNI, 2007	Per capita GDP annual growth, 2007	GDP annual growth, 2007	Export earnings annual growth, 2007	Official development assistance as a share of GNI, 2007	External debt Present value as a share of GNI, 2007
	<i>U.S. dollars</i>	<i>Percent</i>				
<b>North Africa:</b>						
Algeria	3,620	1.6	3.1	-0.6	0.3	4.1
Egypt	1,580	5.2	7.1	23.3	0.8	23.2
Morocco	2,290	1.5	2.7	5.2	1.5	27.4
Tunisia	3,210	5.3	6.3	8.5	0.9	60.8
<b>Central Africa:</b>						
Cameroon	1,050	1.5	3.5	-12.1	9.4	15.0
Central African Rep.	370	2.3	4.2	12.7	10.4	57.1
Congo, Dem. Rep.	140	3.5	6.5	9.9	14.2	142.9
<b>West Africa:</b>						
Benin	570	1.5	4.6	--	8.7	15.8
Burkina Faso	430	1.0	4.0	--	13.8	21.9
Cape Verde	2,430	4.6	6.9	13.8	11.8	43.2
Chad	540	-2.1	0.6	-19.2	5.7	29.1
Côte d'Ivoire	920	-0.2	1.7	-9.9	0.9	73.6
Gambia	320	3.6	6.3	6.7	12.1	122.7
Ghana	590	4.2	6.3	2.6	7.7	29.9
Guinea	400	-0.6	1.5	5.9	5.0	72.5
Guinea-Bissau	200	-0.3	2.7	5.1	35.4	213.6
Liberia	140	5.4	9.4	--	124.3	442.1
Mali	500	-0.2	2.8	3.4	15.4	30.6
Mauritania	840	-0.6	1.9	4.9	13.2	62.0
Niger	280	-0.1	3.2	--	12.8	23.0
Nigeria	920	3.6	5.9	--	1.4	6.1
Senegal	830	1.9	4.8	-1.8	7.6	23.3
Sierra Leone	260	4.9	6.8	--	32.9	21.4
Togo	360	-0.7	1.9	--	4.9	80.1
<b>East Africa:</b>						
Burundi	110	-0.3	3.6	--	49.5	154.6
Eritrea <sup>1</sup>	270	-1.8	1.3	-2.3	11.3	64.1
Ethiopia <sup>1</sup>	220	8.4	11.1	10.2	12.5	13.6
Kenya	640	4.2	7.0	6.0	5.3	30.2
Rwanda	320	3.0	6.0	--	21.5	14.9
Somalia	--	--	--	--	--	--
Sudan	950	7.7	10.2	33.6	5.0	46.1
Tanzania	410	4.5	7.1	--	17.4	31.1
Uganda	370	4.3	7.9	12.2	15.0	14.0

See footnotes at end of table.

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**Country indicators—Continued**

Region and country	Population, 2008 1,000	Population annual growth rate	Grain production		Root production annual growth rate, 1990-2007	Projected annual growth in supply, 2008-18
			Annual growth rate, 1990-2007	Coefficient of variation, 1990-2007		
			Percent			
<b>Southern Africa:</b>						
Angola	17,494	2.8	6.6	14.7	12.4	2.7
Lesotho	2,019	0.6	-1.9	40.0	4.0	3.9
Madagascar	20,194	2.7	2.6	9.4	0.8	1.5
Malawi	14,285	2.6	3.9	28.4	16.7	1.3
Mozambique	21,770	2.0	9.4	17.0	4.5	2.1
Swaziland	1,146	0.6	-1.4	27.0	1.4	1.8
Zambia	12,153	1.9	1.1	27.9	2.6	3.2
Zimbabwe <sup>3</sup>	13,500	1.0	-1.7	40.0	3.7	3.8
<b>Asia:</b>						
Afghanistan	28,137	3.9	3.0	21.6	1.8	3.8
Bangladesh	161,161	1.7	3.3	6.8	7.6	1.7
India	1,185,118	1.5	1.3	4.2	2.7	1.7
Indonesia	234,091	1.2	1.6	2.6	1.2	1.2
Korea, Dem. Rep.	27,972	1.0	-3.3	35.0	8.5	0.0
Nepal	28,743	2.0	2.4	4.6	6.1	2.0
Pakistan	167,074	1.9	2.9	4.9	5.7	1.9
Philippines	89,530	1.9	2.7	7.9	-0.7	2.7
Sri Lanka	19,393	0.5	1.7	9.2	-2.5	0.5
Vietnam	88,472	1.3	4.5	2.6	4.6	2.1
<b>Latin America and the Caribbean:</b>						
Bolivia	9,682	1.8	3.7	11.3	1.4	2.2
Colombia	46,690	1.3	1.0	14.7	-0.3	1.7
Dominican Republic	9,896	1.5	2.4	11.9	0.6	2.9
Ecuador	13,485	1.1	2.6	13.0	-0.5	2.1
El Salvador	6,948	1.4	0.5	9.3	-0.3	2.5
Guatemala	13,685	2.5	-1.1	9.9	6.1	1.5
Haiti	9,747	1.6	-0.4	8.8	-0.1	0.9
Honduras	7,245	2.0	-1.8	9.1	2.9	2.0
Jamaica	2,726	0.5	-4.9	24.1	-2.8	0.9
Nicaragua	5,681	1.3	4.8	11.7	4.9	1.9
Peru	28,235	1.2	6.3	8.9	5.7	2.0
<b>Commonwealth of Independent States<sup>2</sup></b>						
Armenia	2,999	-0.2	1.2	21.5	2.6	2.3
Azerbaijan	8,542	0.8	4.4	22.0	17.8	1.0
Georgia	4,369	-0.8	-0.8	23.0	0.6	2.9
Kazakhstan	15,537	0.7	-1.1	37.3	1.5	0.1
Kyrgyzstan	5,378	1.1	1.2	13.8	11.4	1.1
Tajikistan	6,853	1.5	9.0	18.5	13.4	1.6
Turkmenistan	5,028	1.3	12.5	21.7	17.9	3.3
Uzbekistan	27,768	1.5	8.6	9.3	6.0	1.7

See footnotes at end of table.

Continued—

Appendix table 3

**Country indicators—Continued**

Region and country	Macroeconomic indicators					
	Per capita GNI, 2005	Per capita GDP annual growth, 2005	GDP annual growth, 2005	Export earnings annual growth, 2005	Official development assistance as a share of GNI, 2005	External debt Present value as a share of GNI, 2005
	<i>U.S. dollars</i>	<i>Percent</i>				
<b>Southern Africa:</b>						
Angola	1,410	17.2	20.6	--	1.5	40.9
Angola	2,540	18.3	21.1	--	0.5	26.2
Lesotho	1,030	4.3	4.9	14.6	6.4	33.7
Madagascar	320	3.4	6.2	25.0	12.2	22.7
Malawi	250	5.2	7.9	-1.1	20.8	24.6
Mozambique	330	5.3	7.3	-8.2	25.2	44.3
Swaziland	2,560	2.8	3.5	-1.9	2.1	13.3
Zambia	770	4.0	6.0	21.2	10.5	27.9
Zimbabwe <sup>3</sup>	340	-6.0	-5.3	-3.4	11.7	133.4
<b>Asia:</b>						
Afghanistan	--	--	5.3	--	35.7	21.1
Bangladesh	470	4.7	6.4	13.0	2.0	29.9
India	950	7.6	9.1	7.5	0.1	18.9
Indonesia	1,650	5.1	6.3	8.0	0.2	33.9
Korea, Dem. Rep.	--	--	--	--	--	..
Nepal	350	1.5	3.2	--	5.7	35.0
Pakistan	860	3.7	6.0	2.3	1.5	28.0
Philippines	1,620	5.2	7.2	5.6	0.4	41.9
Sri Lanka	1,540	6.1	6.8	--	1.8	43.9
Vietnam	770	7.2	8.5	21.0	3.7	36.3
<b>Latin America and the Caribbean:</b>						
Bolivia	1,260	2.8	4.6	3.3	3.7	38.2
Colombia	4,100	6.2	7.5	11.4	0.4	22.5
Dominican Republic	3,560	7.3	8.5	7.6	0.4	29.7
Ecuador	3,110	1.6	2.6	-1.7	0.5	41.3
El Salvador	2,850	3.3	4.7	3.9	0.4	44.4
Guatemala	2,450	3.2	5.7	10.8	1.3	18.7
Haiti	520	1.4	3.2	--	11.4	26.1
Honduras	1,590	4.3	6.3	3.6	4.0	27.8
Jamaica	3,330	-7.7	-7.3	--	0.3	101.0
Nicaragua	990	2.6	3.9	9.7	14.9	60.7
Peru	3,410	7.6	8.9	6.2	0.3	32.6
<b>Commonwealth of Independent States<sup>2</sup></b>						
Armenia	2,630	13.8	13.8	-3.5	3.7	30.5
Azerbaijan	2,640	23.9	25.0	43.3	0.9	11.7
Georgia	2,120	13.3	12.4	9.8	3.7	21.7
Kazakhstan	5,020	7.7	8.9	9.0	0.2	103.7
Kyrgyzstan	610	7.3	8.2	25.3	7.4	65.0
Tajikistan	460	6.2	7.8	-1.3	6.1	34.0
Turkmenistan	--	--	--	--	0.2	5.9
Uzbekistan	730	7.9	9.5	32.4	0.7	17.3

Note: GDP = Gross Domestic Product; GNI = Gross National Income.

<sup>1</sup> Data start in 1993.

<sup>2</sup> Data start in 1992.

<sup>3</sup> Data is from 2005.

-- = data unavailable or not applicable due to inconsistent data set.

Source: Population = FAOSTAT, Macroeconomic indicators = World Development Indicators, 2009, World Development Report 2008, World Bank.