# Population and Climate Change

## A comprehensive approach to development can help build climate change resilience and adaptive capacity

Less developed countries are the least resilient to climate change impacts, with the poorest and most marginalized people within those countries at the greatest risk. Investments that improve infrastructure to enhance food and water security, together with investments in education, health, and gender equity can help build the resilience and adaptive capacity of vulnerable populations. Rapid population growth, however, can slow down the pace and magnify the cost of these advances. Greater educational and economic opportunities for girls and women are associated with many aspects of improved health and well-being, and are also associated with declining fertility. Expanding access to reproductive health care and contraception—especially in areas where women and men would like to be able to plan their families but have limited access to health services—can have a positive impact on building resilience and adaptive capacity. These objectives—contained within the Millennium Development Goals—carry multiple benefits for human health and well-being, and can be cost-effective components of national and international responses to climate change and its human impacts.



In many countries, large proportions of women lack access to reproductive health care and contraception

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#### Consumption patterns contribute to wide disparities in per capita greenhouse gas emissions

Individual contributions to climate change vary greatly throughout the world, with high-consuming lifestyles of individuals in industrialized countries generally resulting in much higher per capita emissions than individuals in less developed countries. Population growth, particularly in industrialized countries with high per capita emissions, increases overall consumption and can be a significant contributor to the growth of greenhouse gas emissions.



#### Population growth and other demographic factors affect the climate system

The growth of greenhouse gas emissions is linked to a range of factors, including economic growth, technological change, and human population trends. The world's population is likely to grow from 6.9 billion in 2010 to somewhere between 8.0 and 10.5 billion by 2050. In addition to growth, the distribution of the world's population, by country, urban/rural residence, household size, and age, are also connected to the growth of greenhouse gas emissions. The majority of population growth is occurring in areas that are already highly vulnerable to climate change, posing additional challenges to society's ability to adapt. The path of future population growth is uncertain, and can be affected by critical development initiatives related to gender equity and access to health services, including reproductive health care. Whether future population growth follows the low, medium, or high variant will have important implications for society's ability to address the climate crisis.



#### **Global Population Projections to 2050**

#### Areas of high population growth overlap with areas least resilient climate change impacts



Resilience to climate change can be determined by examining a society's *sensitivity* (how social and ecological systems could be negatively affected) and *adaptive capacity* (the ability of that society to cope with impacts while maintaining human welfare). By combining country-level measures of sensitivity and adaptive capacity, countries can be ranked according to their ability to recover from climate change impacts such as water scarcity, floods, extreme weather events, changes in agricultural production, and health effects. Population growth magnifies a country's vulnerability to climate change impacts and poses challenges for adaptive capacity. 90% of countries in the least resilient quartile are experiencing population growth rates above the global average.

In Bangladesh and China, populations in low elevation coastal zones grew at almost twice the national rate between 1990 and 2000, exposing a growing number of people to the impacts of extreme weather like cyclones and flooding.<sup>1</sup>

#### Growing populations increase pressure on forests



Forests act as 'sinks' for carbon dioxide by sequestering and storing the gas, and ultimately helping to mitigate climate change. The destruction of forests exacerbates climate change through both the loss of these carbon sinks and through emissions from overharvesting and burning, which currently accounts for about 20% of annual greenhouse gas emissions. In tandem with economic, political, and ecological processes, population growth is an important underlying cause of deforestation,<sup>3</sup> as a larger world population will require more land for food production and timber resources, putting additional pressure on the world's forests.

#### Food security is affected by climate change and population growth

Top To III Agriculturul 1100		
	Projected % change in agricultural production, 1990-2080	Annual population growth rate (%)
Angola	-37	2.7
Algeria	-35	1.5
Egypt	-34	1.8
Oman	-33	2.1
United Arab Emirates	-33	2.8
Cyprus	-33	1
Gabon	-32	1.8
Israel	-32	1.7
Congo	-31	1.9
Saudi Arabia	-30	2.1

**Top 10 in Agricultural Production Loss** 

Climate change is altering agricultural production patterns worldwide, increasing production in some areas and decreasing it in others. Many of the countries likely to experience net loss are those with populations directly dependent on agriculture and forests for livelihoods–many of whom are already food insecure due to poverty, environmental degradation, land scarcity, and other factors. Rapid population growth will amplify these challenges: under the medium variant projection of population growth, agricultural production loss and an increase in the prices of crops due to climate change will lead to an additional 90 to 125 million people at risk of hunger in the developing world by 2080.<sup>2</sup>

9 of the 10 countries that are expected to experience the greatest losses in agricultural production have population growth rates above the global average of 1.2%.

3. Geist HJ, and EF Lambin. 2002. "Proximate causes and underlying driving forces of tropical deforestation." BioScience 52(2):143-150.

<sup>1.</sup> McGranahan, G, D Balk, and B Anderson. 2007. "The rising tide: assessing the risks of climate change and human settlements in low elevation coastal zones." Environment and Urbanization 19:17-37.

<sup>2.</sup> Parry, ML, C Rosenzweig, and M Livermore. 2005. "Climate change, global food supply and risk of hunger." Philosophical Transactions of The Royal Society (B) 360: 2125-2138.

COUNTRY	Total Population, 2010 (milliono)	Population Growth Rate (%)	Projected P 2050 (millio	opulation, ns)		Total Fertility Rate	Contraceptive Use Among Married Women	Unmet Need for Family	Female Participation in Secondary
	(minions)		LOW VARIANT	MEDIUM VARIANT	HIGH VARIANT		(Modern) (%)	(%)	(%)
WORLD	6,908.7	1.2	7,958.8	9,150.0	10,461.1	2.6	56.1		—
AFRICA									
Algeria	35.4	1.5	43.1	49.6	56.7	2.4	52.0	24.6	50.5
Angola	19.0	2.7	37.2	42.3	47.7	5.8	4.5	—	46.0
Benin	9.2	3.2	19.4	22.0	24.7	5.5	6.1	27.2	35.0
Botswana	2.0	1.5	2.3	2.8	3.2	2.9	42.1	44.7	51.2
Burkina Faso	16.3	3.4	36.2	40.8	45.8	5.9	8.6	28.8	42.0
Burundi	8.5	2.9	13.0	14.8	16.8	4.7	8.5	29.4	42.4
Cameroon	20.0	2.3	31.9	36.7	42.0	4.7	12.5	20.2	44.0
Cape Verde	0.5	1.4	0.6	0.7	0.8	2.8	46.0	14.2	54.0
Central African Republic	4.0	1.9	0.0	7.0 27.9	0.0	4.8	8.0 1.7	10.2	21.0
Comerce	0.7	2.0	24.7	1.0	1 /	0.2	1.7	23.5	42.0
Congo	3.8	1.9	6.0	6.9	7.8	4.0	12.7	16.2	45.0
Congo Dem Ben of	67.8	2.8	130.0	147 5	166.2	6.1	5.8		35.0
Cote d'Ivoire	21.6	2.3	37.8	43.4	49.3	4.6	8.0	27.7	35.6
Diibouti	0.9	1.8	1.3	1.5	1.7	3.9	17.6	26.3	41.0
Egypt	84.5	1.8	111.6	129.5	149.3	2.9	56.5	10.3	47.3
Equatorial Guinea	0.7	2.6	1.3	1.4	1.6	5.4	6.1	_	36.4
Eritrea	5.2	3.1	9.5	10.8	12.2	4.7	5.1	27.0	41.0
Ethiopia	85.0	2.6	152.7	173.8	196.2	5.4	13.9	33.8	40.0
Gabon	1.5	1.8	2.1	2.5	2.8	3.4	11.8	28.0	46.3
The Gambia	1.8	2.7	3.3	3.8	4.3	5.1	12.7	—	48.0
Ghana	24.3	2.1	39.7	45.2	51.2	4.3	13.6	34.0	46.0
Guinea	10.3	2.3	21.1	24.0	27.0	5.5	5.7	21.2	35.0
Guinea-Bissau	1.6	2.2	3.1	3.6	4.0	5.7	6.1	—	35.5
Kenya	40.9	2.6	74.2	85.4	97.5	5.0	31.5	24.5	46.0
Lesotho	2.1	0.9	2.1	2.5	3.0	3.4	35.2	30.9	56.1
Liberia	4.1	4.1	7.7	8.8	10.0	5.1	10.3	35.6	42.0
Libya	6.5	2.0	8.6	9.8	11.1	2.7	25.6	38.6	53.0
Madagascar	20.1	2.7	37.2	42.7	48.7	4.8	16.7	23.6	48.9
Malawi	15.7	2.8	32.0	36.6	41.5	5.6	38.9	27.6	45.0
	13.3	2.4	24.9	28.3	31.8	5.5	6.9	28.5	39.0
Mauritania	3.4	2.4	1.2	1.4	0.9	4.0	5.1	22	40.0
Mayotto	0.2	2.6	0.3	0.4	0.4	1.0	40.7	3.3	45.4
Mayotte	32.4	1.0	36.6	42.6	49.2	2.4	54.8	10.0	46.0
Mozambique	23.4	2.3	38.3	44.1	50.5	5.1	11.8	18.4	42.0
Namibia	2.2	1.9	3.1	3.6	4.1	3.4	42.6	25.1	54.0
Niger	15.9	3.9	52.6	58.2	64.2	7.1	5.0	15.8	38.0
Nigeria	158.3	2.3	254.1	289.1	326.4	5.3	8.2	16.9	43.8
Reunion	0.8	1.3	0.9	1.1	1.3	2.4	63.5	—	—
Rwanda	10.3	2.7	19.5	22.1	24.8	5.4	10.3	37.9	48.0
Sao Tome and Principe	0.2	1.6	0.3	0.3	0.3	3.9	27.4	—	51.0
Senegal	12.9	2.6	22.8	26.1	29.6	5.0	10.3	31.6	43.0
Seychelles	0.1	0.5	0.1	0.1	0.1	—	—	—	49.9
Sierra Leone	5.8	2.7	10.9	12.4	14.1	5.2	4.3	—	41.0
Somalia	9.4	2.3	21.1	23.5	26.1	6.4	1.1	—	-
South Africa	50.5	1.0	47.5	56.8	67.1	2.6	60.3	13.8	51.0
Sugan	43.2	2.2	1.5	17	80.4 2.1	4.2	5.7	26.0	47.0
Swaziland	1.2	1.3	05.0	1.7 100 E	124.0	5.6	40.0	21.9	47.0
Togo	45.0	2.9	11 5	13.2	124.0	5.0	11.0	21.0	35.0
Tunisia	10.4	1.0	11.0	12.7	14.6	1.9	53.1	12.1	50.8
Uganda	33.8	3.3	80.6	91.3	102.7	6.4	17.9	40.6	44.5
Zambia	13.3	2.4	25.3	29.0	32.9	5.9	22.6	27.4	47.0
Zimbabwe	12.6	0.3	18.9	22.2	25.7	3.5	58.4	12.8	47.5
						0.0			

COUNTRY	Population Below International Poverty Line of \$1.25 Per Day	Resilience Quartile	Projected in Agricu Productio 1990 Base	l Change Itural on from eline (%)	CO <sub>2</sub> Emissions (Metric Tons)		Cars per 1,000 People	Forest Cover as % of Land	Total Forest Cover Annual %
	(%)		2020	2080	TOTAL	PER CAPITA			Change
WORLD	—	—	-2.4	-4.5	28,704,000,000	4.4	99.9	30.3	-0.2
AFRICA	7	0	0.7	05.0	100 745	4.0	05.4	1.0	1.0
Algeria	/	2	-2./	-35.3	132,/15	4.0	25.4	1.0	1.2
Angola Banin	54	4	-1.4	-37.0	10,582	0.6	17.7	47.4	-0.2
Benin	4/	4	-2.9	-20.5	3,109	0.4	0.7	21.3	-2.5
Botswana Burking Egge	57	4	-1.3	-23.0	4,770	2.0	27	21.1	-1.0
Durkina raso Purundi	97 91	4	-3.3	-20.9	100	0.1	3.7	5.9	-0.3
Cameroon	33	3	-2.0	-21.7	3 645	0.0	7.2	45.6	-1.0
Cape Verde	21	3	-5.4	-9.5	308	0.2	7.2 8.1	20.7	0.4
Central African Benublic	62	3	-35	-22 5	249	0.0	0.4	36.5	-0.1
Chad	62	4	-2.6	-22.5	396	0.0	1.5	9.5	-0.7
Comoros	46	•	_	_	88	0.1	18.0	2.9	-7.4
Congo	54	3	-2.3	-31.0	1.463	0.4	13.9	65.8	-0.1
Congo, Dem Rep of	59	•	0.0	-10.7	2,200	0.0	17.4	58.9	-0.2
Cote d'Ivoire	23	4	-1.3	-6.1	6.882	0.4	20.5	32.7	0.1
Diibouti	19	4	-5.3	-16.5	488	0.6	15.6	0.2	0.0
Equpt	2	3	-2.2	-33.9	166,800	2.2	22.8	0.1	2.6
Equatorial Guinea	_	2	0.0	-17.5	4,356	8.8	3.7	58.2	-0.9
Eritrea	_	4	0.0	-17.5	554	0.1	1.6	15.4	-0.3
Ethiopia	39	4	-1.6	-18.1	6,006	0.1	1.0	11.9	-1.1
Gabon	5	2	-2.9	-32.0	2,057	1.6	22.4	84.5	0.0
The Gambia	34	4	-3.9	-21.3	334	0.2	5.7	41.7	0.4
Ghana	30	3	-4.2	-8.9	9,240	0.4	5.1	24.2	-2.0
Guinea	70	4	-3.7	-21.9	1,360	0.1	2.1	27.4	-0.5
Guinea-Bissau	49	4	-3.6	-22.2	279	0.2	6.5	73.7	-0.5
Kenya	20	3	-0.03	-11.9	12,151	0.3	8.1	6.2	-0.3
Lesotho	43	4	-4.1	-27.3	—	—	6.6	0.3	2.7
Liberia	84	4	-2.1	-22.5	785	0.2	3.4	32.7	-1.8
Libya	—	2	-3.5	-28.6	55,495	9.2	166.9	0.1	0.0
Madagascar	68	4	-2.0	-21.6	2,834	0.1	4.4	22.1	-0.3
Malawi	74	4	-3.0	-22.2	1,049	0.1	2.9	36.2	-0.9
Mali	51	4	-2.0	-20.3	568	0.0	2.7	10.3	-0.8
Mauritania	21	4	-2.6	-23.6	1,665	0.5	8.0	0.3	-3.4
Mauritius	—	2	—		3,850	3.1	88.3	18.2	-0.5
Mayotte	-	-	—	—	—		—	—	—
Morocco	3	4	-2.3	-21.9	45,316	1.5	44.7	9.8	0.2
Mozambique	/5	4	-2.2	-23.1	2,039	0.1	0.3	24.6	-0.3
Namibia	49	3	-1.8	-22.2	2,831	1.4	41.6	9.3	-0.9
Niger	66	4	-2.0	-24.1	935	0.1	4.1	1.0	-1.0
Reunion	04	4	-0.3	-22.4	97,202	0.7	1.1	12.2	-3.3
Pwondo		_	-2 /	-21.3	796	0.1	22	19.5	-0.7
Sao Tome and Principe		4	-2.4	-21.5	103	0.7	2.5	28.4	0.0
Seneral	34	4	-4 1	-93	4 261	0.4	10.6	45.0	-0.5
Sevchelles	_	•	_	_	744	8.6	93.2	88.9	0.0
Sierra Leone	53	4	-3.9	-21.2	994	0.2	2.2	38.5	-0.7
Somalia	_	4	-3.2	-22.8	172	0.02	0.1	11.4	-1.0
South Africa	26	4	-2.7	-8.1	414,649	8.6	91.8	7.6	0.0
Sudan	_	4	-2.1	-23.3	10,813	0.3	9.9	28.4	-0.8
Swaziland	63	4	-2.5	-23.8	1,016	0.9	39.9	31.5	0.9
Tanzania	88	3	-2.5	-21.9	5,372	0.1	0.8	39.9	-1.1
Тодо	39	4	-3.8	-21.5	1,221	0.2	19.7	7.1	-4.5
Tunisia	3	3	-0.8	-23.9	23,126	2.3	59.8	6.8	1.9
Uganda	52	4	-2.2	-21.0	2,706	0.1	2.1	18.4	-2.2
Zambia	64	4	0.2	-13.6	2,471	0.2	17.0	57.1	-1.0
Zimbabwe	—	4	-0.1	-11.8	11,081	0.8	43.9	45.3	-1.7

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COUNTRY	Total Population, 2010 (milliono)	Population Growth Rate (%)	Projected P 2050 (millio	opulation, ns)		Total Fertility Rate	Contraceptive Use Among Married Wemen	Unmet Need for Family	Female Participation in Secondary
	(millions)		LOW VARIANT	MEDIUM VARIANT	HIGH VARIANT		(Modern) (%)	(%)	(%)
WORLD	6,908.7	1.2	7,958.8	9,150.0	10,461.1	2.6	56.1	—	—
ASIA									
Afghanistan	29.1	3.4	66.3	73.9	82.0	6.6	15.5	—	26.0
Armenia	3.1	0.2	2.6	3.0	3.5	1.7	19.5	13.3	49.8
Azerbaijan	8.9	1.1	9.1	10.6	12.2	2.2	11.9	11.5	47.9
Bahrain	0.8	2.1	1.1	1.3	1.4	2.3	30.6	—	50.2
Bangladesh	164.4	1.4	189.9	222.5	259.0	2.4	47.3	17.1	50.0
Bhutan	0.7	1.7	0.9	1.0	1.2	2.7	30.7	—	48.0
Brunei	0.4	1.9	0.6	0.7	0.8	2.1	—	—	49.2
Cambodia	15.1	1.6	20.4	23.8	27.5	3.0	27.2	25.1	44.0
China	1354.1	0.6	1237.0	1417.0	1617.5	1.8	86.2	—	48.0
Georgia	4.2	-1.1	2.8	3.3	3.8	1.6	26.6	16.4	48.9
India	1214.5	1.4	1387.6	1613.8	1865.4	2.8	48.5	12.8	42.6
Indonesia	232.5	1.2	248.2	288.1	332.1	2.2	57.5	8.6	49.0
Iran	75.1	1.2	83.5	97.0	112.1	1.8	55.9	—	47.2
Iraq	31.5	2.2	55.8	64.0	72.8	4.1	32.9	—	39.0
Israel	7.3	1.7	9.4	10.6	12.0	2.8	—	—	49.0
Japan	127.0	-0.1	90.2	101.7	114.2	1.3	44.4	—	48.9
Jordan	6.5	3.0	8.9	10.2	11.7	3.1	41.2	11.0	50.0
Kazakhstan	15.8	0.7	15.3	17.8	20.7	2.3	48.7	8.7	49.2
Korea, North (DPRK)	24.0	0.4	21.2	24.6	28.3	1.9	58.4	—	—
Korea, South (Rep.)	48.5	0.4	38.7	44.1	49.9	1.2	66.9	—	47.4
Kuwait	3.1	2.4	4.6	5.2	5.9	2.2	39.3	—	49.0
Kyrgyzstan	5.6	1.2	5.9	6.9	8.0	2.6	45.4	11.6	49.0
Laos	6.4	1.8	9.3	10.7	12.3	3.5	28.9	39.5	43.0
Lebanon	4.3	0.8	4.3	5.0	5.8	1.9	34.0	—	52.0
Malaysia	27.9	1.7	34.3	39.7	45.5	2.6	29.8	—	51.3
Maldives	0.3	1.4	0.4	0.5	0.5	2.1	34.0	37.0	50.0
Mongolia	2.7	1.2	3.0	3.4	4.0	2.0	60.6	4.6	52.0
Myanmar	50.5	0.9	54.8	63.4	72.8	2.3	32.8	19.1	50.0
Nepal	29.9	1.8	41.9	49.0	57.0	2.9	44.2	24.6	47.0
Oman	2.9	2.1	4.3	4.9	5.5	3.1	18.2	—	48.1
Pakistan	184.8	2.2	292.9	335.2	380.8	4.0	17.9	24.9	42.0
Palestinian Territories	4.4	3.2	9.0	10.3	11.6	5.1	38.9	—	50.2
Philippines	93.6	1.8	126.3	146.2	167.8	3.1	35.9	17.3	51.5
Qatar	1.5	10.7	2.1	2.3	2.5	2.4	32.3	—	50.0
Saudi Arabia	26.2	2.1	38.0	43.7	49.8	3.2	28.5	—	48.0
Singapore	4.8	2.5	4.7	5.2	5.8	1.3	53.0	—	48.0
Sri Lanka	20.4	0.9	18.7	21.7	25.1	2.3	49.6	8.0	49.0
Syria	22.5	3.3	32.0	36.9	42.2	3.3	42.6	30.6	48.0
Tajikistan	7.1	1.6	9.5	11.1	12.8	3.5	33.1	—	45.0
Thailand	68.1	0.7	63.4	73.4	84.3	1.8	70.1	23.0	51.0
Timor-Leste	1.2	3.3	2.9	3.2	3.6	6.5	8.6	3.8	49.0
Turkey	75.7	1.2	84.3	97.4	111.8	2.1	42.5	6.0	44.0
Turkmenistan	5.2	1.3	5.8	6.8	7.9	2.5	53.1	10.1	_
United Arab Emirates	4.7	2.8	7.5	8.3	9.1	1.9	23.6	—	49.0
Uzbekistan	27.8	1.1	31.3	36.4	42.3	2.3	59.3	13.7	48.6
Vietnam	89.0	1.1	96.6	111.7	128.3	2.1	60.4	4.8	50.0
Yemen	24.3	2.9	47.0	53.7	60.8	5.3	13.4	50.9	32.0

COUNTRY	Population Below International Poverty Line of \$1.25 Per Day	Resilience Quartile	Projected in Agricu Productio 1990 Bas 2020	d Change Iltural on from eline (%) 2080	CO <sub>2</sub> Emissions (Metric Tons) TOTAL	PER CAPITA	Cars per 1,000 People	Forest Cover as % of Land	Total Forest Cover Annual %
	(%)								Change
WORLD	—	—	-2.4	-4.5	28,704,000,000	4.4	99.9	30.3	-0.2
ASIA		4	2.6	00.7	607	0.00	0.4	1.0	0.1
Afgnanistan	_	4	-3.0	-28.7	097	0.03	9.4	1.3	-3.1
Armenia		3	0.0	4.7	4,371	1.5	0.4	10.0	-1.5
Azerbaijan	0	3	0.0	4.7	35,050	4.2	45.0	11.3	0.0
Banrain		2	-	_	21,292	28.8	322.0	0.0	_
Bangladesh	50	4	-3.1	-2.8	41,609	0.3	0.5	6.7	-0.3
Bhutan	26	2	-0.2	5.1	381	0.6	11.8	68.0	0.3
Brunei	-	2	-1.1	5.3	5,911	15.5	396.6	52.8	-0.7
Cambodia	40	3	-0.3	3.8	4,074	0.3	24.6	59.2	-2.0
China	16	3	-2.4	4.9	6,103,493	4.6	10.0	21.2	2.2
Georgia	13	3	0.0	-16.8	5,518	1.2	49.8	39.7	0.0
India	42	3	-3.4	-7.1	1,510,351	1.3	5.9	22.8	0.0
Indonesia	21	2	-2.1	-1.6	333,483	1.5	12.3	48.8	-2.0
Iran	1	3	-3.9	-28.2	466,976	6.6	29.9	6.8	0.0
Iraq		3	-3.6	-28.7	92,572	3.2	36.3	1.9	0.1
Israel	—	1	-3.8	-31.9	70,440	10.3	231.1	8.3	0.8
Japan	—	1	2.4	15.2	1,293,409	10.1	432.8	68.2	0.0
Jordan	0	2	-4.7	-28.1	20,724	3.6	67.0	0.9	0.0
Kazakhstan	3	3	0.0	-1.2	193,508	12.6	77.2	1.2	-0.2
Korea, North (DPRK)	—	3	2.8	15.3	84,799	3.6	—	51.4	-1.9
Korea, South (Rep.)	—	1	2.6	15.2	475,248	9.9	214.5	63.5	-0.1
Kuwait	—	1	-4.5	-28.0	86,599	31.2	325.7	0.3	2.7
Kyrgyzstan	22	3	0.0	4.7	5,566	1.1	37.7	4.5	0.3
Laos	44	3	-0.8	4.2	1,426	0.2	3.4	69.9	-0.5
Lebanon	—	2	-3.6	-28.5	15,330	3.8	298.5	13.3	0.8
Malaysia	1	2	-2.4	-1.5	187,865	7.2	222.0	63.6	-0.7
Maldives	—		—	—	869	2.9	5.1	3.0	0.0
Mongolia	22	4	0.1	8.6	9,442	3.6	25.8	6.5	-0.8
Myanmar	—	1	-4.3	-15.3	10,025	0.2	0.6	49.0	-1.4
Nepal	55	3	-4.0	-14.4	3,241	0.1	—	25.4	-1.4
Oman	—	2	-1.5	-33.0	41,378	16.3	97.1	0.0	0.0
Pakistan	23	3	-4.6	-25.3	142,659	0.9	7.0	2.5	-2.1
Palestinian Territories	—	—	—	—	2,985	0.8	—	—	0.0
Philippines	23	3	-1.7	-1.6	68,328	0.8	9.4	24.0	-2.1
Qatar	<u> </u>	1	-5.4	-24.2	46,193	56.2	377.0	0.0	—
Saudi Arabia	—	3	-2.8	-30.3	381,564	15.8	93.3	1.3	0.0
Singapore	<u> </u>		—	—	56,217	12.8	100.5	3.4	0.0
Sri Lanka	14	2	-5.2	-16.9	11,876	0.6	13.3	29.9	-1.5
Syria	—	3	-3.6	-29.4	68,460	3.5	11.9	2.5	1.3
Tajikistan	21	3	0.0	4.7	6,391	1.0	0.1	2.9	0.0
Thailand	0	2	0.8	6.1	272,521	4.3	28.2	28.4	-0.4
Timor-Leste	53		_	_	176	0.2	_	53.7	-1.3
Turkey	3	2	-1.1	8.7	269,452	3.6	66.5	13.2	0.2
Turkmenistan	25	4	0.0	4.7	44,103	9.0	_	8.8	0.0
United Arab Emirates	_	1	-1.5	-33.0	139,553	32.8	81.8	3.7	0.1
Uzbekistan	46	3	0.0	4.7	115,672	4.3	_	8.0	0.5
Vietnam	21	2	-0.9	4.6	106,132	1.2	_	39.7	2.0
Yemen	18	4	-3.5	-28.6	21,201	1.0	15.4	1.0	0.0

COUNTRY	Total Population, 2010 (millions)	Population Growth Rate (%)	Projected F 2050 (millio	opulation, ns)		Total Fertility Rate	Contraceptive Use Among Married Women	Unmet Need for Family Planning	Female Participation in Secondary School
			LOW VARIANT	MEDIUM VARIANT	HIGH VARIANT		(Modern) (%)	(%)	(%)
WORLD	6,908.7	1.2	7,958.8	9,150.0	10,461.1	2.6	56.1	—	—
CARIBBEAN									
Antigua & Barbuda	0.1	1.2	0.1	0.1	0.1	—	—	—	51.0
The Bahamas	0.3	1.2	0.4	0.5	0.5	2.0	—	—	50.1
Barbados	0.3	0.3	0.2	0.2	0.3	1.5	—	—	49.7
Cuba	11.2	0.02	8.5	9.7	11.2	1.5	71.6	—	49.0
Dominica	0.1	-0.3	0.1	0.1	0.1	—	—	—	50.0
Dominican Republic	10.2	1.4	11.4	13.4	15.7	2.7	60.0	10.9	54.2
Grenada	0.1	0.4	0.1	0.1	0.1	2.3	—	—	48.9
Haiti	10.2	1.6	13.4	15.5	17.7	3.5	24.8	37.5	—
Jamaica	2.7	0.5	2.2	2.7	3.2	2.4	66.0	14.2	50.1
Puerto Rico	4.0	0.4	3.6	4.1	4.7	1.8	72.2	—	—
St. Kitts & Nevis	0.1	1.3	0.1	0.1	0.1	—	—	—	54.5
St. Lucia	0.2	1.0	0.2	0.2	0.3	2.0	—	—	52.0
St. Vincent & the Grenadines	0.1	0.1	0.1	0.1	0.1	2.1	—	—	52.0
Trinidad & Tobago	1.3	0.4	1.1	1.3	1.5	1.6	33.2	32.5	51.4
<b>CENTRAL &amp; SOUTH AMERICA</b>									
Argentina	40.7	1.0	44.1	50.9	58.5	2.3	—	—	52.0
Belize	0.3	2.1	0.4	0.5	0.6	2.9	52.6	20.8	50.6
Bolivia	10.0	1.8	12.8	14.9	17.2	3.5	34.9	22.7	48.3
Brazil	195.4	1.0	187.0	218.5	254.6	1.9	70.3	7.3	51.6
Chile	17.1	1.0	17.9	20.7	23.7	1.9	57.9	—	50.0
Colombia	46.3	1.5	54.1	62.9	72.6	2.5	68.2	5.8	51.6
Costa Rica	4.6	1.4	5.5	6.4	7.3	2.0	70.7	—	50.5
Ecuador	13.8	1.1	15.4	18.0	20.9	2.6	58.0	5.0	49.0
El Salvador	6.2	0.4	6.7	7.9	9.2	2.3	61.0	8.9	49.6
French Guiana	0.2	2.7	0.4	0.5	0.5	3.3	—	—	50.3
Guatemala	14.4	2.5	23.7	27.5	31.7	4.2	34.4	23.1	48.0
Guyana	0.8	-0.1	0.5	0.6	0.7	2.3	33.6	—	49.0
Honduras	7.6	2.0	10.7	12.4	14.3	3.3	56.4	16.9	55.0
Nicaragua	5.8	1.3	6.9	8.1	9.5	2.8	69.8	14.6	52.0
Panama	3.5	1.6	4.4	5.1	5.9	2.6	—	—	50.7
Paraguay	6.5	1.8	8.5	9.9	11.4	3.1	60.6	6.6	49.8
Peru	29.5	1.2	34.4	39.8	45.6	2.6	47.6	8.1	50.0
Suriname	0.5	1.0	0.5	0.6	0.7	2.4	40.6	—	57.0
Uruguay	3.4	0.3	3.1	3.6	4.2	2.1	75.0	—	49.0
Venezuela	29.0	1.7	36.2	42.0	48.6	2.5	61.7	18.9	51.0

COUNTRY	Population Below International Poverty Line of \$1.25 Per Day (%)	Resilience Quartile	Projected in Agricu Productid 1990 Base 2020	l Change Itural on from eline (%) 2080	CO <sub>2</sub> Emissions (Metric Tons) TOTAL	PER CAPITA	Cars per 1,000 People	Forest Cover as % of Land	Total Forest Cover Annual % Change
WORLD CARIBBEAN	—	—	-2.4	-4.5	28,704,000,000	4.4	99.9	30.3	-0.2
Antigua & Barbuda	_	_	_	_	425	5.1	_	21.4	0.0
The Bahamas	_	_	_	_	2,138	6.5	162.0	51.5	0.0
Barbados	_	2	_	_	1,338	4.6	338.3	4.0	0.0
Cuba	_	2	-4.3	-1.1	29,627	2.6	16.0	24.7	2.2
Dominica	_	_	_	_	117	1.7	_	61.3	-0.6
Dominican Republic	5	3	-4.1	-1.0	20,357	2.1	28.6	28.4	0.0
Grenada	_	_	—	—	242	2.3		12.2	0.0
Haiti	55	4	-4.3	-3.4	1,811	0.2	4.4	3.8	-0.7
Jamaica	0	2	-3.5	-2.0	12,151	4.5	41.6	31.3	-0.1
Puerto Rico	—	—	-1.1	2.2	—	_	236.9	46.0	0.0
St. Kitts & Nevis	—	—	—	—	136	2.7	—	14.7	0.0
St. Lucia	21	—	—	—	381	2.3	98.9	27.9	0.0
St. Vincent & the Grenadines	—	—	—	—	198	1.7	107.0	27.4	0.8
Trinidad & Tobago	4	1	-3.4	-1.8	33,601	25.3	96.1	44.1	-0.2
<b>CENTRAL &amp; SOUTH AMERICA</b>									
Argentina	5	1	-0.4	-2.2	173,536	4.4	139.7	12.1	-0.4
Belize	—	2	-3.5	1.0	818	2.9	42.0	72.5	0.0
Bolivia	20	3	-0.2	-2.8	11,403	1.2	3.0	54.2	-0.5
Brazil	8	2	-3.5	0.4	352,524	1.9	136.6	57.2	-0.6
Chile	1	2	-2.9	-4.5	60,100	3.7	88.9	21.5	0.4
Colombia	15	2	-1.9	-2.4	63,422	1.4	43.4	58.5	-0.1
Costa Rica	2	3	-4.2	-0.04	7,854	1.8	102.7	46.8	0.1
Ecuador	10	2	-3.6	-5.9	31,328	2.4	47.3	39.2	-1.7
El Salvador	14	3	-1.8	-1.9	6,461	1.0	30.0	14.4	-1.7
French Guiana	—	—	-2.8	-24.9	876	4.4	—	91.8	0.0
Guatemala	12	3	-1.2	-1.8	11,766	0.9	52.2	36.3	-1.3
Guyana	8	3	-2.0	0.9	1,507	2.0	—	76.7	0.0
Honduras	22	3	-3.6	-2.5	7,194	1.0	51.9	41.5	-3.1
Nicaragua	16	3	-1.2	-1.7	4,334	0.8	15.7	42.7	-1.3
Panama	9	2	-5.1	-7.1	6,428	2.0	76.4	57.7	-0.1
Paraguay	9	3	-1.3	-1.6	3,986	0.7	51.9	46.5	-0.9
Peru	8	2	-2.1	-2.3	38,643	1.4	29.9	53.7	-0.1
Suriname	16	2	-4.5	-6.3	2,438	5.4	144.7	94.7	0.0
Uruguay	0	2	0.5	-1.0	6,864	2.1	149.6	8.6	1.3
Venezuela	18	1	0.2	0.5	171,593	6.3	68.1	54.1	-0.6

COUNTRY	Total Population, 2010 (millions)	Population Growth Rate (%)	Projected P 2050 (millio	opulation, ns)		Total Fertility Rate	Contraceptive Use Among Married Women	Unmet Need for Family Planning	Female Participation in Secondary School
			low Variant	MEDIUM VARIANT	HIGH VARIANT		(Modern) (%)	(%)	(%)
WORLD	6,908.7	1.2	7,958.8	9,150.0	10,461.1	2.6	56.1	—	
EUROPE									
Albania	3.2	0.4	2.8	3.3	3.8	1.9	7.9	1.2	48.3
Austria	8.4	0.4	7.6	8.5	9.6	1.4	46.8	—	48.0
Belarus	9.6	-0.5	6.3	7.3	8.4	1.3	56.5	—	49.0
Belgium	10.7	0.5	10.2	11.5	12.9	1.8	74.3	2.1	48.0
Bosnia and Herzegovina	3.8	-0.1	2.6	3.0	3.4	1.2	11.2	—	50.0
Bulgaria	7.5	-0.6	4.7	5.4	6.2	1.4	25.6	—	48.1
Croatia	4.4	-0.2	3.4	3.8	4.3	1.4	—	—	50.0
Cyprus	0.9	1.0	1.0	1.2	1.3	1.5	—	—	48.9
Czech Republic	10.4	0.4	9.1	10.3	11.6	1.4	62.6	8.0	49.5
Denmark	5.5	0.2	4.9	5.6	6.3	1.8	—	—	49.0
Estonia	1.3	-0.1	1.1	1.2	1.4	1.6	56.4	—	49.0
Finland	5.3	0.4	4.8	5.4	6.1	1.8		—	50.0
France	62.6	0.5	60.1	67.7	76.0	1.9	70.9	3.2	49.1
Germany	82.1	-0.1	62.6	70.5	79.2	1.3	65.6	—	48.3
Greece	11.2	0.2	9.7	10.9	12.3	1.4	42.3	—	47.0
Greenland	0.1	0.0	0.0	0.1	0.1	—	—		—
Hungary	10.0	-0.2	7.8	8.9	10.1	1.4	68.4	4.2	49.0
Iceland	0.3	2.1	0.4	0.4	0.5	2.1	—		50.5
Ireland	4.6	1.8	5.6	6.3	7.1	2.0	64.6	-	50.9
Italy	60.1	0.5	50.9	57.1	63.7	1.4	38.9	7.4	48.5
Latvia	2.2	-0.5	1.6	1.9	2.1	1.4	39.3	10.6	48.8
Liechtenstein	0.0	0.8	0.0	0.0	0.1	-	-	-	46.0
	3.3 0 E	-1.0	2.2	2.0	3.0	1.3	30.5	12.1	48.5
Luxembourg	0.5	1.2	0.7	0.7	0.8	1.7			50.2
Malta	2.0	0.1	1.0	1.9	2.1	1.4	3.7	_	40.1
Maldava	2.6	1.0	2.2	2.7	0.0	1.5	40.0	67	40.4 50.0
Monaço	0.0	0.3	0.0	0.0	0.0	1.5	43.0	0.7	18.4
Montenegro	0.6	0.0	0.5	0.6	0.0	16	17.2		
The Netherlands	16.7	0.0	15.4	17.4	19.6	1.0	65.0		48.0
Norway	4.9	0.9	5.3	5.9	6.7	1.9			48.0
Poland	38.0	-0.1	28.0	32.0	36.6	1.3	19.0		47.8
Portugal	10.7	0.3	8.9	10.0	11.2	1.4	62.9	_	51.0
Romania	21.2	-0.4	15.1	17.3	19.7	1.3	38.0	11.9	49.4
Russia	140.4	-0.4	100.5	116.1	133.5	1.4	53.3	_	48.0
Serbia	9.9	0.0	8.0	9.2	10.5	1.6	18.6	_	49.0
Slovakia	5.4	0.1	4.3	4.9	5.6	1.3	41.0	_	49.1
Slovenia	2.0	0.2	1.7	2.0	2.2	1.4	59.1		48.7
Spain	45.3	1.0	46.0	51.3	57.1	1.4	62.3	3.0	50.0
Sweden	9.3	0.5	9.4	10.6	11.9	1.9	64.8	_	49.0
Switzerland	7.6	0.4	7.6	8.5	9.6	1.5	77.5	_	47.3
Ukraine	45.4	-0.7	30.3	35.0	40.3	1.3	37.6	10.3	48.7
United Kingdom	61.9	0.5	63.9	72.4	81.5	1.8	82.0	_	49.0

COUNTRY	Population Below International Poverty Line of \$1.25 Per Day (%)	Resilience Quartile	Projected in Agricul Productio 1990 Base 2020	Change Itural on from eline (%) 2080	CO <sub>2</sub> Emissions (Metric Tons) TOTAL	PER CAPITA	Cars per 1,000 People	Forest Cover as % of Land	Total Forest Cover Annual % Change
WORLD			-24	-4.5	28 704 000 000	44	99.9	30.3	-0.2
EUROPE					20,701,000,000		00.0	00.0	0.2
Albania	1	2	0.4	14.9	4.301	1.4	47.1	29.0	0.6
Austria	_	1	0.1	13.8	71,834	8.6	501.2	46.7	0.1
Belarus	0	1	0.0	-12.9	68,849	7.1	167.6	38.0	0.1
Belgium	_	1	0.1	14.0	107,199	10.3	469.8	22.0	0.0
Bosnia and Herzegovina	0	1	0.0	-16.8	27,438	7.0	27.2	43.1	0.0
Bulgaria	0	2	-7.0	-21.5	48,085	6.3	295.2	32.8	1.4
Croatia	0	1	0.0	-16.8	23,683	5.2	291.0	38.2	0.1
Cyprus	_	1	-1.5	-33.0	7,788	9.2	392.9	18.9	0.2
Czech Republic	0	2	-6.8	-20.4	114,858	11.3	357.5	34.3	0.1
Denmark	—	1	3.2	18.2	53,944	9.9	359.7	11.8	0.6
Estonia	0	1	0.0	-16.8	17,523	13.1	320.8	53.9	0.4
Finland	—	1	-6.0	-24.1	66,693	12.7	433.5	73.9	0.0
France	—	1	0.6	15.0	383,148	6.2	494.6	28.3	0.3
Germany	—	1	0.2	13.8	805,090	9.7	545.5	31.7	0.0
Greece	—	1	-0.5	13.2	96,382	8.7	331.3	29.1	0.8
Greenland	—	—	—	—	565	9.8	—	0.0	—
Hungary	0	2	-7.1	-20.9	57,644	5.7	274.2	21.5	0.7
Iceland	—	—	-8.0	-25.1	2,215	7.4	577.4	0.5	3.9
Ireland	—	1	2.7	17.9	43,806	10.4	382.3	9.7	1.9
Italy	—	1	-0.7	12.1	474,148	8.1	545.0	33.9	1.1
Latvia	0	1	0.0	-16.8	7,462	3.3	279.6	47.4	0.4
Liechtenstein	—		—	—	—		—	43.1	0.0
Lithuania	0	1	0.0	-16.8	14,190	4.2	363.9	33.5	0.8
Luxembourg	—	—	0.0	9.3	11,312	24.5	641.2	33.5	0.0
Macedonia	0	2	0.0	9.3	10,875	5.3	138.5	35.8	0.0
Malta	—	2	—	—	2,548	6.3	519.7	1.1	—
Moldova	8	3	0.0	-16.8	7,821	2.0	59.6	10.0	0.2
Monaco	—	—	—	—	—	—	—	—	—
Montenegro	—	—	—	—	—	—	—	—	—
The Netherlands	—	1	0.01	13.9	168,513	10.3	382.9	10.8	0.3
Norway	—	1	-6.0	-24.1	40,220	8.6	423.8	30.7	0.2
Poland	0	2	-7.6	-19.7	318,219	8.3	294.4	30.0	0.3
Portugal	—	1	0.3	15.2	60,001	5.7	429.0	41.3	1.1
Romania	1	3	-7.1	-20.9	98,490	4.6	144.0	27.7	0.0
Russia	0	1	-5.6	-14.0	1,564,669	10.9	139.8	47.9	0.0
Serbia	—	2	—	—	—	—	—	—	—
Slovakia	0	2	0.0	-16.8	37,459	7.0	251.6	40.1	0.1
Slovenia	0	1	0.0	-16.8	15,173	7.6	445.9	62.8	0.4
Spain	—	1	-0.04	14.1	352,235	8.0	454.7	35.9	1.7
Sweden	—	1	-6.0	-24.1	50,875	5.6	455.0	66.9	0.0
Switzerland	—	1	-0.2	13.2	41,826	5.6	510.7	30.9	0.4
Ukraine	0	2	0.0	-2.7	319,158	6.9	114.2	16.5	0.1
United Kingdom	—	1	3.2	18.2	568,520	9.4	439.2	11.8	0.4

COUNTRY	Total Population, 2010 (millions)	Population Growth Rate (%)	Projected P 2050 (millio	opulation, ns)		Total Fertility Rate	Contraceptive Use Among Married Women (Modern)	Unmet Need for Family Planning (%)	Female Participation in Secondary School (%)
			LOW VARIANT	MEDIUM VARIANT	HIGH VARIANT		(%)		
WORLD	6,908.7	1.2	7,958.8	9,150.0	10,461.1	2.6	56.1	—	—
NORTH AMERICA									
Canada	33.9	1.0	39.8	44.4	49.5	1.6	73.3	<u> </u>	48.0
Mexico	110.6	1.0	110.1	129.0	150.1	2.2	66.5	19.5	51.5
United States	317.6	1.0	357.1	403.9	455.6	2.1	68.1	<u> </u>	48.7
OCEANIA									
Australia	21.5	1.1	25.6	28.7	32.2	1.8	63.9	—	48.0
Micronesia (Federated states of)	0.1	0.3	0.1	0.1	0.1	3.6	—	—	49.0
Fiji	0.9	0.6	0.8	0.9	1.1	2.8	—	—	51.0
Kiribati	0.1	1.6	0.1	0.2	0.2	_	31.1	—	52.0
Marshall Islands	0.1	2.2	0.1	0.1	0.1	—	—	—	49.0
Nauru	0.0	0.3	0.0	0.0	0.0		—	—	51.2
New Caledonia	0.3	1.5	0.3	0.4	0.4	2.1	—	—	51.6
New Zealand	4.3	0.9	4.7	5.3	6.0	2.0	71.4	—	49.0
Palau	0.0	0.4	0.0	0.0	0.0	—	29.7	—	50.0
Papua New Guinea	6.9	2.4	11.2	12.9	14.7	4.1	19.6	—	—
Samoa	0.2	-0.0	0.2	0.2	0.2	4.0	—	—	51.0
Solomon Islands	0.5	2.5	0.9	1.0	1.2	3.9	—	—	43.0
Tonga	0.1	0.5	0.1	0.1	0.1	4.0	—	—	48.0
Tuvalu	0.01	0.4	0.0	0.0	0.0	—	—	—	46.2
Vanuatu	0.2	2.5	0.4	0.5	0.5	4.0	28.0	—	45.0

COUNTRY	Population Below International Poverty Line of \$1.25 Per Day (%)	Resilience Quartile	Projected in Agricul Productio 1990 Base 2020	l Change Itural on from eline (%) 2080	CO, Emissions (Metric Tons) TOTAL	PER CAPITA	Cars per 1,000 People	Forest Cover as % of Land	Total Forest Cover Annual % Change
WORLD			-24	-4.5	28 704 000 000	44	99.9	30.3	-0.2
					20,701,000,000		00.0	00.0	0.2
Canada		1	3.9	14.6	544 680	16.7	561.3	33.6	0.0
Mexico	1	2	-4.5	-9.6	436 150	4 1	133.0	33.7	-0.4
United States	_	1	1.2	3.0	5.752.289	19.0	482.4	33.1	0.1
OCEANIA		•		0.0	0/102/200		10211		
Australia	_	1	-0.3	11.8	372.013	18.1	492.7	21.3	-0.1
Micronesia (Federated states of)	_		_	_	_	_	_	90.6	0.0
Fiji	_	_	_	_	1,610	1.9	38.7	54.7	0.0
Kiribati	_		_	—	29	0.3	_	3.0	0.0
Marshall Islands	_	_	_	_	92	1.6	_	—	
Nauru	—	—	—	—	143	14.1	—	—	
New Caledonia	_	_	_	—	2,941	12.4	—	39.2	0.0
New Zealand	—	1	-0.5	23.5	30,488	7.4	613.0	31.0	0.2
Palau	—	—	—	—	117	5.8	—	87.6	0.4
Papua New Guinea	36	1	-3.1	-1.6	4,620	0.7	6.7	65.0	-0.5
Samoa	—	—	—	—	158	0.9	—	60.4	0.0
Solomon Islands	—	—	—	—	180	0.4	—	77.6	-1.7
Tonga	—		—	—	132	1.3	11.7	5.0	0.0
Tuvalu	—	—	—	—	—	_	—	33.3	—
Vanuatu	—	—	—	—	92	0.4	23.1	36.1	0.0

#### ACKNOWLEDGMENTS

Kame Westerman and Kathleen Mogelgaard prepared this datasheet with the assistance and input from PAI staff and other colleagues. Thanks are due to Jennifer Bergeson-Lockwood, Elisha Dunn-Georgiou, Karen Hardee, Roberto Hinojosa, Jeffrey Locke, Elizabeth Leahy Madsen, and Clive Mutunga of PAI; Jason Bremner of the Population Reference Bureau: Gib Clarke of the Woodrow Wilson International Center for Scholars; Heather D'Agnes of the US Agency for International Development; Neil Datta of the European Parliamentary Forum on Population and Development; and Judy Oglethorpe of World Wildlife Fund. This publication was produced with the support of an anonymous donor and the United Nations Population Fund.

#### TERMS AND SOURCES Total Population

Projected de facto population in a country, area or region as of July 1, 2010 (Measure DHS, *Demographic and Health Surveys* for various countries; Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Contraceptive Use 2007*).

#### **Population Growth Rate**

Average exponential rate of growth of the population, 2005-2010 (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2008 Revision*).

#### **Projected Population in 2050**

To project the population until 2050, the United Nations Population Division uses assumptions regarding future trends in fertility, mortality and international migration (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2008 Revision*).

#### **Total Fertility Rate**

The average number of children a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality. It is expressed as children per woman (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The* 2008 Revision).

#### Contraceptive Use Among Married Women (Modern)

The percentage of women who are practicing, or whose sexual partners are practicing, a modern form of contraception. Figures in italics date from before 2000; others from 2000-2007 (Measure DHS, Demographic and Health Surveys for various countries; Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Contraceptive Use 2007).

#### **Unmet Need for Family Planning**

The percentage of women of reproductive age married or in union who are fecund, not using contraception and who report that they do not want any more children or wish to delay the next child.

Figures in italics date from before 2000; others from 2000-2007 (Measure DHS, *Demographic and Health Surveys* for various countries; Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Contraceptive Use 2007*)

#### Female Participation in Secondary School

Percentage of female participation in secondary school, all programs. Figures in italics date from before 2000; others from 2000-2003 (UNESCO, *Institute for Statistics Data Centre*).

#### Population Below International Poverty Line of \$1.25 Per Day

Percentage of population living on less than US\$1.25 per day at 2005 prices, adjusted for purchasing power parity. The new poverty threshold reflects revisions to purchasing power parity exchange rates based on the results of the 2005 International Comparison Program (UNICEF, *State of the World's Children 2009*).

#### **Resilience Quartile**

Based on the Vulnerability-Resilience Indicators Model (VRIM) index, countries for which data are available are grouped into four categories (1 = most resilient, 4 = least resilient). The VRIM index combines 17 physical, social, and economic indicators that assess the resilience of a society to anticipated climate change impacts (Malone, E L and A Brenkert. 2009. Vulnerability, sensitivity, and coping/adaptive capacity worldwide. In *The Distributional Effects of Climate Change: Social and Economic Implications*, M. Ruth and M. Ibarraran, eds. Elsevier Science, Dordrecht, pp 8-45).

### Projected Change in Agricultural Production from 1990 Baseline

Derived from Major Crop Modeling Study by the Goddard Institute for Space Studies and distributed by the Columbia University Center for International Earth Science Information Network (CIESIN). The implications of climate change for world crop yields of four grains (rice, corn, wheat, and soybeans), taking into account uncertainty in the level of climate change expected (under the B2 scenario of the Intergovernmental Panel on Climate Change), physiological effects of  $CO_2$  on plant growth, and different adaptive responses (CIESIN Agricultural Data, 2004).

#### CO<sub>2</sub> Emissions, Total and Per Capita

Total amount of carbon dioxide emitted by a country as a consequence of human (production and consumption) activities, including emissions from consumption of solid, liquid and gas fuels; cement production; and gas flaring (UN Statistics Division, *MDG Database*, using 2006 data from the Carbon Dioxide Information Analysis Center).

#### Cars per 1000 Population

Road motor vehicles intended for the carriage of passengers and designed to seat no more than nine people (including the driver) per 1000 members of a country's population. These numbers exclude buses, freight vehicles, and two-wheelers such as mopeds and motorcycles. Figures in italics date from before 2000; others from 2000-2003 (World Resources Institute, *Earth Trends Database*).

#### Forest Cover as a % of Land

Forest areas as a share of total land area, where land area is the total surface area of the country less the area covered by inland waters; includes both natural forests and forest plantations (2005 data from UN Statistics Division, *MDG Database*).

#### **Total Forest Cover Annual % Change**

Forest area is determined both by the presence of trees and the absence of other predominant land uses. Figures represent average annual percent change between 2000-2005 (World Resources Institute, *Earth Trends Database*).

*Note: World figures for CO<sub>2</sub> Emissions and Forest Cover were taken from The Millennium Development Goals Report, United Nations, 2009.*