Assumptions underlying the resource estimates in chapter 17

Throughout, we have used the OECD/DAC deflator to rebase estimates to 2003 U.S. dollars.

Notes to table 17.1—Per capita MDG investment needs and MDG financing gaps

UN Millennium Project (forthcoming) contains a detailed description of the national needs assessments by the UN Millennium Project and explains the technical assumptions underlying the estimates for MDG investment needs and sources of financing. It also presents more detailed country-level results including a breakdown by operating and capital expenditures.

ODA for direct MDG support in 2002. This is calculated by subtracting the following items from net official development assistance: assistance for emergency and distress relief, food aid, and technical cooperation, and ODA channeled through NGOs (OECD/DAC 2004e). We assume that 75 percent of this residual assistance directly supports investments for achieving the Goals and add 40 percent of the ODA channeled through NGOs (see table 13.2).

Notes to table 17.2—Cofinancing the MDGs in low-income countries

MDG investment needs. We estimate aggregate MDG investment needs across low-income countries using a two-step approach. First, the unadjusted MDG investment need in each country is calculated. Second, we adjust for the relative price level in each country.

MDG investment needs cover the following areas: hunger and agriculture, primary education, secondary education, adult literacy, gender equality, health, water supply and sanitation, improving the lives of slum dwellers, energy services, and roads. To take into account the variation in per capita

investment needs across countries, we identified the key drivers of variation in the sample of five countries and used them to adjust for differences in needs across countries. For example, since health interventions will be more expensive in countries with high rates of HIV prevalence, higher per capita costs are assigned to countries that have high rates of HIV prevalence. Likewise, MDG investment needs in the road sector are driven largely by the current stock of paved roads, which is therefore used to scale costs. In other areas, such as primary education or water supply, cross-country variation is relatively low, so we assume uniform per capita MDG investment needs.

In the next step, MDG investment needs are adjusted to the relative price level in each country to account for differences in salaries, materials costs, and other prices. In the absence of sufficiently disaggregated price indicators that would allow a disaggregation of tradables and nontradables, the analysis focuses on changes in the overall level of prices. It is assumed that the adjusted cost of MDG investments scales linearly with a country's price level, defined as the ratio of GDP per capita expressed in international U.S. dollars to GDP per capita in purchasing power parity–adjusted dollars. The price level depends on GDP expressed in international dollars, according to

$$price(GDP_{USD}) = a * GDP_{USD} {}^{\wedge}b$$

The constants a and b have been estimated using 2002 GDP data for all countries (World Bank 2004c).

Domestic resource mobilization. We first project GDP per capita in 2006 by extrapolating the five-year average growth rate from 1997 to 2002 forward to 2006. It is assumed that as a result of the MDG investments, real per capita growth rates accelerate in regions that have experienced slow growth (table A3.1). Price levels are adjusted for each year as described above.

Government expenditures on the Goals in 2006 are estimated by income group and expressed as a percentage of GDP. We project that the share of national income devoted to public expenditures on social services and infrastructure rises with national income (table A3.2). In some countries where domestic resource mobilization in 2002 deviates substantially from the income group's average, these assumptions were modified.[1] As discussed in chapter 17,

Table A3.1 **Annual per capita GDP growth assumptions for 2006–15, by region** *Percent* *Source:* Authors' calculations.	Region	Projected growth in per capita GDP, 2006–15
	East Asia and Pacific	5.0
	Europe and Central Asia	3.2
	Latin America and the Caribbean	3.2
	Middle East and North Africa	3.2
	South Asia	5.0
	Sub-Saharan Africa	3.2

Table A3.2	2006	2015
Estimated government resource mobilization *Government expenditures for the MDGs as a share of GDP (percent)* *Source:* Authors' calculations. Least Developed Countries (per capita GDP less than $450)	5	9
Low-income countries (per capita GDP $450–$734)	7	11
Lower-middle-income countries (per capita GDP $735–$2,935)	9	13
Upper-middle- and high-income countries (per capita GDP greater than $2,935)	10	14

government resource mobilization is projected to rise by up to four percentage points of GDP between 2006 and 2015.

As in the country-level needs assessments, partial cost recovery from households is restricted to secondary education, water and sanitation, and energy services. We assume that people below the poverty line will not pay any user fees.

MDG financing gap. This is calculated by subtracting projected domestic resource mobilization from projected MDG investment needs. For 2002 we estimate that up to $12 billion was provided as ODA for direct MDG support. This amount does not include technical cooperation for capacity building or other investments that have not been estimated in the MDG needs assessments.

Notes to table 17.3—Estimated cost of meeting the MDGs in all countries

MDG support needs in low-income countries
MDG financing gap. Referenced from table 17.2.

Capacity building to achieve the Goals. As recommended by the OECD/DAC it is assumed that 60 percent of technical cooperation provided to low-income countries in 2002, or $5 billion, directly supports achieving the Goals—largely through capacity building (OECD/DAC 2004e). Also included in this line item is 60 percent of all ODA currently provided through NGOs. We estimate that to support the scaling up of MDG interventions, donor support for capacity building in low-income countries will need to rise by 50 percent to $7 billion. As described in the text, major human resource training efforts need to be prioritized in the scaling up of MDG interventions.

Grants in support of heavy debt burden. Countries that require official development assistance to meet the Goals, but that will graduate from assistance before 2015 ("graduating countries"), may nevertheless require grants to support the repayment of heavy debt burden. We assume that such grants will be

provided if a country's domestic resource mobilization is insufficient to finance debt service payments for nonconcessional loans in addition to all MDG-related expenditures.[2] We use a three-year average of debt repayments for 1999 to 2002 (World Bank 2004b) as a proxy for projected annual debt service payments for 2006 to 2015. Aggregate debt service payments will need to be reduced by an estimated $7 billion in 2006, falling to $1 billion by 2015, to ensure that all countries can finance MDG investments.

Debt relief. Based on the criterion for debt sustainability proposed in chapter 13, countries that require substantial ODA transfers to finance the Goals through 2015 are eligible for debt cancellation. Using Global Development Finance data, outstanding debt stocks for all "nongraduating countries" are estimated for 2002 to amount to $174 billion in concessional loans and $63 billion in nonconcessional loans (World Bank 2004b). Both stocks are assumed to have stayed constant through 2005 and to be canceled over the 10 years from 2006 to 2015. Under the rules of the OECD/DAC, only the cancellation of nonconcessional loans can be booked as debt relief that counts toward official development assistance. We make the simple assumption that the stock of nonconcessional debt is written down in equal installments of $6.3 billion a year.

Repayments of concessional loans. The 2002 flow of loan repayments is estimated on the basis of OECD/DAC data (2004a). We assume that loan repayments from all nongraduating countries that receive full debt cancellation will be set to zero since their domestic resource mobilization is too low to finance the MDG investments.

MDG support needs in middle-income countries
Direct support to government. Some middle-income countries with particularly severe pockets of poverty will likely have investment needs that cannot be financed through domestic resource mobilization alone. We suggest that $10 billion will be required in official development assistance for direct MDG support in these countries.

Capacity building to achieve the Goals. Technical cooperation for the Goals, estimated at 60 percent of total technical cooperation in 2002, will concentrate on assisting countries in regions that are currently underserved, such as urban slums or remote rural areas (OECD/DAC 2004e). Also included in this line item is assistance currently provided directly to NGOs. The budget for technical cooperation is expected to stay constant through 2015.

Repayments of concessional loans. Loan repayments by middle-income countries in 2002 are estimated on the basis of data from OECD/DAC (2004a). World Bank (2004b) data on outstanding loans suggests that middle-income

countries are unlikely to require outright debt relief to finance the Goals. Some countries will require a reduction in their loan service payments to make the investments necessary for meeting the Goals. Using the same approach as for low-income countries we estimate that repayments of concessional loans may need to be reduced by some $3 billion in 2006, compared with 2002, and only $0.2 billion by 2015.

MDG support needs at the international level
Regional cooperation and infrastructure. These needs are projected to require an extra $9 billion a year by 2015, in addition to investments financed through national budgets. The estimate of current assistance for regional cooperation and infrastructure is based on Birdsall (2004).

Funding for global research. Official development assistance for research in 2002 has been estimated by OECD/DAC (table A3.3) (OECD/DAC 2004e). They are expected to rise to $7 billion by 2015, focusing on public health, agriculture and natural resource management, low-cost and sustainable energy technologies, and adaptation to long-term climate change in developing countries. Projected investments in public health are based on recommendations by the WHO Commission on Macroeconomics and Health (2001). The remaining projections are made by the UN Millennium Project.

Implementing the Rio conventions. Current assistance for implementing the environment conventions agreed to in Rio in 1992 is estimated on the basis of OECD/DAC (2002). Unfortunately, few cost estimates exist for implementing these and other environmental agreements. We have included the cost of implementing the Desertification Convention based on UNEP (1991). The estimates have been revised downward by focusing on preventive and corrective measures and excluding the cost of rehabilitation. To limit the possibility of a double-counting of interventions included in the agricultural component of our national MDG needs assessments, we reduce the cost of preventive measures by 50 percent.

Table A3.3

Breakdown of funding for global research

2003 US$ billions

Note: Numbers in table may not sum to totals due to rounding.

Source: 2002 data based on OECD/DAC Secretariat, personal communication, 2004. Projections for public health from WHO 2001. All other projections are authors' calculations.

	2002	2006	2010	2015
Public health	0.3	2	4	4
Agriculture and natural resource management	0.4	1	1	1
Low-cost and sustainable energy technologies	0.1	1	1	1
Adaptation to long-term climate change in developing countries	0.1	1	1	1
Total	**1.0**	**5**	**7**	**7**

Other available cost data for the environment point to major discrepancies in the estimates. For example, the cost of maintaining biodiversity ranges from $23 billion to $45 billion a year depending on the source (Balmford and others 2002; Zhou 2003). Since neither cost estimate is underpinned by an operational strategy for maintaining biodiversity, we have not included the cost of biodiversity protection in the table. Likewise, no robust estimates exist for the cost of adaptation to climate change in developing countries.

Technical cooperation by international organizations. The 2002 ODA flows to UN agencies, funds, and programs are estimated at $5 billion, based on OECD/DAC (2004a). We assume that funding for these organizations will need to increase by 50 percent over the coming 10 years. The bulk of this funding will go toward improving the technical advisory capacities of the UN system and for providing extensive training programs.

Notes to table 17.4—Plausible ODA needs to meet the MDGs

Baseline ODA for the Goals in 2002. Equal to 2002 ODA for direct MDG support only, as in table 17.3.

Incremental MDG investment needs. Calculated as the difference between the estimated cost of meeting the Goals (as in table 17.3) and baseline assistance.

Adjustment for nonqualifying countries due to inadequate governance. To adjust for nonqualifying countries we construct an aggregate governance indicator by calculating the mean of five variables measuring control of corruption, government effectiveness, quality of institutions, regulatory quality, and the rule of law (Kaufmann, Kraay, and Mastruzzi 2003). We then make the simplified assumption that countries need to score within one standard deviation below the mean of this indicator to qualify for ODA for direct MDG support. Of course, actual decisions on whether MDG support can be provided at the scale necessary to achieve the Goals must be made case by case.

Based on this assumption, total ODA needs in 2006 will be reduced by approximately $21 billion to account for countries with inadequate governance. If no currently nonqualifying countries were to qualify for assistance by 2015, this adjustment factor would rise to $42 billion. It is assumed that a number of countries will improve their governance to qualify for ODA for direct MDG support, so that the adjustment factor rises to only $25 billion in 2015.

Reprogramming of existing ODA. It is assumed that 20 percent of the following ODA items can be reprogrammed toward the Goals in 2006: technical assistance not directed toward the Goals, development food aid, and other official development assistance that does not directly support the Goals. These items

amounted to $30 billion in 2002. We assume that by 2015, 30 percent can be reprogrammed toward supporting the Millennium Development Goals.

Emergency and distress relief. This is an integral part of financing the Goals. In 2002, emergency assistance amounted to $4 billion (OECD/DAC 2004a). Even if the Goals are met, the need for emergency assistance will rise since an important share of needs are not currently met.[3] In addition, rising population numbers and the effects of long-term climate change will increase the incidence and severity of natural disasters, as well as their impact. It is projected that total emergency assistance, excluding the cost of peacekeeping and security operations, will rise by 50 percent by 2015.

Other ODA. This line item contains all assistance not included elsewhere in the table. In particular, we account for the cost to bilateral agencies of effectively managing higher ODA flows. Data on operational and administrative costs to donors in 2002 are taken from OECD/DAC (2004d). We assume that the cost of managing incremental ODA amounts to 2 percent of the bilateral aid that is not channeled through multilateral organizations, estimated at 70 percent of total ODA volumes (OECD/DAC 2004e).

Percentage of OECD countries' GNI. We assume that the 2002 GNI of all OECD countries ($28 trillion in 2003 U.S. dollars) grows in real terms at 2 percent per capita per year to reach $36 trillion (in 2003 US dollars) in 2015.

ODA to Least Developed Countries. In reference to the Monterrey target for ODA to Least Developed Countries, we estimate total ODA needed for direct MDG support and MDG capacity building required for these countries. The estimates include the adjustment for nonqualifying countries due to inadequate governance.