



EVERY WOMAN

EVERY CHILD

FINANCIAL ESTIMATES  
IN THE GLOBAL STRATEGY

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Global Strategy for Women's and Children's Health



BACKGROUND PAPER FOR THE GLOBAL STRATEGY  
FOR WOMEN'S AND CHILDREN'S HEALTH:

## FINANCIAL ESTIMATES IN THE GLOBAL STRATEGY

SEPTEMBER 10, 2010

### INTRODUCTION

This background paper explains the methodology and rationale behind the financial estimates reported in the United Nations Secretary-General's Global Strategy for Women's and Children's Health. A Finance Working Group (FWG) was convened and tasked by the United Nations Secretary-General to provide guidance on the costs to achieve the Millennium Development Goals (MDGs) related to the health of women and children, the outcomes and outputs that could be expected from this additional money and the availability of resources. The FWG included members from China, the Canadian International Development Agency (CIDA), the GAVI Alliance, Norway, Rwanda, Tanzania, the United Nations Fund for Population Activities (UNFPA), the United Nations Children's Fund (UNICEF), the World Bank and the World Health Organization (WHO).

This background paper discusses three main classes of financial estimate:

1. **Cost estimates of the additional funding required** to achieve the health MDGs (including for women's and children's health)
2. **Outcomes and impact estimates** associated with meeting the additional funding targets
3. **Estimates of country funds** to bridge the financial gap

All of the estimates provided in the Global Strategy refer to the additional funding needed for the 49 lowest-income countries<sup>1</sup> from 2011 to 2015. By additional funding, we mean funding needed on top of the funding available in 2008 – either official donations or national expenditure.

## 1. ESTIMATES OF ADDITIONAL FUNDING FOR WOMEN'S AND CHILDREN'S HEALTH

Our estimates are based on the work and methodology used by Working Group 1 of the Taskforce on Innovative International Financing for Health Systems (the Taskforce)<sup>2</sup> convened in 2009 by UK Prime Minister Gordon Brown and World Bank President Robert Zoellick. The objective of this working group was to identify the constraints to scaling up and estimating the associated additional costs required to accelerate progress towards meeting the health MDGs in the 49 lowest-income countries by 2015. The final report is available online.<sup>3</sup>

Working Group 1 was co-chaired by Anne Mills (Head, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine) and Julio Frenk (Dean, Harvard School of Public Health). Contributions were made by The Global Fund; the BRAC Health Programme; the Partnership for Maternal, Newborn and Child Health (PMNCH); the Norwegian Agency for Development Cooperation (NORAD); the International Monetary Fund (IMF); the Organisation for Economic Co-operation and Development (OECD); UNFPA; the German Federal Ministry for Economic Cooperation and Development (BMZ); the Institute of Health Metrics and Evaluation (IHME); the government of Rwanda; the Public Health Foundation of India; the government of Uganda; and the Bill and Melinda Gates Foundation.

The analytical work used two scale-up approaches:

1. A normative approach developed by WHO, with significant contributions from a range of partners including WHO technical departments; the Futures Institute; UNFPA; the Joint United Nations Programme on HIV and AIDS (UNAIDS); and the United States Agency for International Development (USAID)
2. The Marginal Budgeting for Bottlenecks (MBB) methodology developed by the World Bank, UNICEF, UNFPA and PMNCH

For the Global Strategy, we updated estimates made by the Taskforce and Working Group 1 for the 2011-2015 period, using the methodology described above. They have served as the basis for the estimates of the funding gap for the Global Strategy, and for the G8 Muskoka Initiative: Maternal, Newborn and Under-Five Child Health. Specifically, we adjusted the original Taskforce Working Group 1 cost and impact estimates in two ways:

- We amended cost estimates from the original investment timeframe of seven years (2009-2015) to correspond to a shorter period of scale-up (2011-2015). In addition, we updated the expected health impact estimates associated with the adjusted

intervention scale-up for the same period. The scope remained the same: the 49 lowest-income countries and health MDGs 1c, 4, 5 and 6

- We estimated the portion of additional funding most directly relevant to women’s and children’s health. We also allocated a share of the overall additional health systems costs to the scale-up for the health of women and children. (Note that the estimates of the Taskforce Working Group 1 were on additional costs to achieve health-related MDGs. These additional costs include MDG 1c, MDG 4, MDG 5 and MDG 6 for both men and women)

We describe below: a) the underlying methodology used by the Taskforce Working Group 1; b) how we have shortened the timeframe; c) how we allocated a portion of these costs to women’s and children’s health.

#### **a) The Taskforce Working Group 1 methodology**

The Taskforce Working Group 1 estimated the additional financing needed by considering the interventions and health-system support required to accelerate achievement of the health MDGs in the 49 lowest-income countries from 2009 to 2015 (MDG 1c: halve the proportion of people who suffer from hunger; MDG 4: reduce child mortality; MDG 5: improve maternal health; MDG 6: combat HIV/AIDS, malaria and other diseases).

There is no fixed or agreed-upon path that countries must follow to scale up services, because countries are very diverse and follow diverse paths. To account for the differences, two analyses were undertaken to provide a range of costs and impacts. They were based on different assumptions for the approach taken to scaling up interventions, services and health systems strengthening, and the speed at which it would happen:

1. Scale-up 1 – based on the normative approach developed by the World Health Organization (WHO) in collaboration with partners (Futures Institute and USAID/DELIVER project and UNFPA)
2. Scale-up 2 – based on the Marginal Budgeting for Bottlenecks (MBB) positive approach developed by the World Bank and UNICEF, UNFPA and PMNCH

The normative approach evaluates the amount of resources required to scale up country health systems to a level that is considered “best practice” by experts and practitioners. It is based on reaching universal coverage and utilizing proven interventions<sup>4</sup> to accelerate progress towards the health MDGs by 2015. It is termed “normative” costing because the costs respond to the technical requirements of scaling up established by the various technical programs.



The MBB methodology focuses on the critical constraints (bottlenecks) on existing health systems for scaling up the same set of proven interventions, and then identifies strategies to overcome them. It estimates the related health outcomes, and the costs of achievable measures to strengthen health systems and increase coverage levels in specific country contexts. The MBB approach presents three implementation scenarios:

- Maximum scenario – reaching the health MDGs and beyond
- Medium scenario – reaching the health MDGs (4, 5 and 6) and contributing substantially to MDGs 1 and 7
- Minimum scenario – focusing on the highest-impact and lowest-cost interventions and strategies to accelerate progress towards the neglected MDGs, namely 4 and 5

The FWG agreed to use the median of the normative approach and the MBB medium scenario to communicate the size of the funding gap, which ensured there would be one number for advocacy purposes. The Taskforce Working Group 1 estimated costs in constant 2005 US dollars and the FWG used the same 2005 baseline. This allowed for a consistent analysis, but potentially underestimated the real cost in current dollars.

The Taskforce Working Group 1 costs include two main categories of costs;<sup>5</sup> namely the health systems costs and the direct programmatic costs:

- Health systems costs include: human resources; infrastructure; transport and equipment; supply chain and logistics; health information systems; governance accreditation and regulation; and health financing
- Programmatic and disease costs include: management of childhood illness; immunization; maternal health; family planning; HIV/AIDS; Tuberculosis; Malaria; and essential drugs (for non-communicable diseases, maternal health and parasitic diseases). Water, sanitation and nutrition are also included in programmatic costs in the MBB approach and are not reflected in the normative approach

More details on the methodology are available in the report from Taskforce Working Group 1. In particular, Annex 6 on page 66 describes the methodology and Appendix 1 (page 80) and Appendix 2 (page 82) describe in detail the particular interventions included in the WHO normative approach and the MBB approach.

## **b) Updates to the Taskforce Working Group 1 cost estimates to achieve the health-related MDGs**

The major update made by the FWG to the Taskforce Working Group 1 estimates was to shorten the timeframe for scale up by two years – from 2009-2015 to 2011-2015. We assumed that limited progress had been achieved in 2009 (especially for many capital investments) and that little could be achieved in 2010 because the year was already more than half over. The following section presents the methodology for updating the capital costs and the recurring costs, and the revised estimates for 2011-2015. Estimates from the WHO normative approach and the MBB medium scenario were recalculated using the same methodology described below.

### ***i. Capital costs***

We redistributed the total capital costs to fit into the remaining five-year scale-up plan. This assumption is feasible for capital investments that can be bought. For the production of human resources, it implies that the existing health-profession schools in the country can increase their output to produce the same number of health professionals by 2015 as originally calculated by the Taskforce Working Group 1.

We examined the original costs for the Taskforce Working Group 1 to identify the overall scale-up pattern envisioned for 2011-2015 for aggregate capital costs. Next, we redistributed the capital costs originally estimated for the first two years (2009-2010) to years 2011-2015. We did this for all capital inputs but not for insecticide-treated bednets (ITNs). The redistributed capital costs follow the same relative scale-up curve for years 2011-2015 as the original capital costs. The total estimated capital cost for the five-year period is slightly lower than the total amount estimated for the seven-year period due to leaving out the ITN cost in 2009-2010.

- **Health system capital cost.** We identified capital costs for each health system component as initially modelled for the first two years (2009-2010) and redistributed these to the five years 2011-2015
- **Disease program capital costs.** We identified program-specific capital costs for the programs related to the health of women and children, initially modelled for the first two years (2009-2010), and redistributed these to the five years 2011-2015 (except for ITNs).

### ***ii. Recurrent costs***

On the other hand, we assumed recurrent costs for consumable interventions and medicines between 2011 and 2015 would remain as originally estimated. This assumed

that intervention coverage would be scaled up directly from the 2008 to the 2011 level. This is considered an ambitious assumption, but is realistic because the scale-up curves for many interventions were slow in the first years and more rapid in later years.

### *iii. Revised estimates*

Costs presented here are incremental to current spending and are expressed in billions, in constant 2005 US dollars. The average required amount per capita in 2015 (US\$27) is similar to that in the analysis by the Taskforce. However, investment needs in 2011-2014 are greater than in the original estimate, due to the need to catch up on missed capital investments in 2009-2010.

**Table 1: Adjusted estimated additional costs for strengthening health systems to scale up health services in the 49 low est-income countries (in 2005 \$US billions)<sup>6</sup>**

US\$ Billion	2011	2012	2013	2014	2015	2011-2015
<b>Programs and diseases</b>						
Management of childhood illness	0.31	0.43	0.55	0.65	0.78	2.73
Immunization	0.66	0.83	1.11	1.13	1.31	5.04
Maternal health	0.90	1.13	1.53	1.92	2.36	7.83
Family planning	1.09	1.03	0.97	0.93	0.88	4.89
HIV/AIDS	1.24	1.68	2.26	2.63	3.07	10.88
TB	0.44	0.45	0.50	0.56	0.68	2.63
Malaria	0.92	1.52	1.14	2.07	1.46	7.11
Essential drugs (NCD, MH, Parasitic diseases)	0.42	0.55	0.68	0.92	1.59	4.16
Water and sanitation	0.02	0.04	0.05	0.12	0.13	0.34
Nutrition	0.24	0.22	0.24	0.31	0.36	1.36
<b>Subtotal</b>	<b>6.23</b>	<b>7.87</b>	<b>9.02</b>	<b>11.24</b>	<b>12.60</b>	<b>46.96</b>
<b>Health systems strengthening</b>						
Human resources	5.01	6.63	7.67	9.28	11.52	40.11
Infrastructure, transport and equipment	12.41	13.63	11.57	11.13	10.96	59.69
Supply chain and logistics	1.22	1.63	1.96	2.61	2.65	10.07
Health information systems	0.25	0.41	0.44	0.50	0.62	2.22
Governance, accreditation, and regulation	0.75	0.86	0.94	1.15	1.26	4.94
Health financing	0.44	0.68	0.89	1.48	1.77	5.26
<b>Subtotal</b>	<b>20.08</b>	<b>23.84</b>	<b>23.46</b>	<b>26.13</b>	<b>28.77</b>	<b>122.28</b>
<b>Total</b>	<b>26.31</b>	<b>31.71</b>	<b>32.48</b>	<b>37.37</b>	<b>41.37</b>	<b>169.25</b>
<b>Per capita (US\$)</b>	<b>\$19</b>	<b>\$22</b>	<b>\$26</b>	<b>\$25</b>	<b>\$27</b>	<b>\$116</b>

### *iv. Limitations and caveats*

The assumption made here, that capital costs originally planned for the first two years of scale-up can be fully postponed and attributed to the later five-year period, presupposes very intensive efforts at country level. It also ignores the need for lag-time in some countries in order to match the investments with the capacity of local institutions. For example, pre-service training schools can only output a fixed number of students per year.



The second assumption is that interventions can be rapidly scaled up in the first year to reach coverage rates that were originally modelled for year three in our analysis (i.e. that programs can implement a "jump-start", with rapid initial scale-up). There are many factors that may make this difficult, especially the absorptive capacity of countries' health systems. This may make the actual rate of scale-up lower than estimated, even if funds are available.

### **c) Allocation of costs to achieve the MDGs related to women's and children's health**

The Taskforce Working Group 1 did not identify the proportion of its estimate needed for women's and children's health. The FWG has attempted to estimate this proportion by identifying three types of costs that relate to the health of women and children:

1. Costs specific to the health of women and children
2. Costs related to the health of women and children that are covered by other programs
3. The share of health systems costs that relate to the health of women and children

The following section presents these three types of costs and the estimates.

#### ***i. Categories included in costs specific to the health of women and children***

We identified these as costs included under the areas of management of childhood illness, immunizations, maternal health and family planning in the Taskforce on Innovative International Financing for Health Systems.

In addition, we looked at costs incurred specifically for interventions that have a large effect on maternal and child mortality, but which tend to be covered under other health programs at national level. This refers to prevention of mother-to-child transmission of HIV (PMTCT), and paediatric and adult female anti-retroviral therapy (ART) as managed by HIV/AIDS programs. For malaria, we included the costs of insecticide-treated bednets (ITNs), artemisinin-based combination therapy (ACT), and rapid diagnostic tests (RDTs) for children under five and intermittent preventative treatment for pregnant women (IPTp). The interventions for children under five for malaria are especially important in sub-Saharan countries, where malaria is a major cause of child mortality.

For HIV costs, we included the incremental costs of PMTCT, adult female ART and paediatric ART. The costs for adult female ART were calculated by UNAIDS based on HIV treatment costs. For adult female ART, we assumed that 25% of total ART for women is allocated to maternal health, and therefore included in this costing.

Overall service delivery will benefit from integrated systems. It is acknowledged that pregnant women will also benefit from interventions for adults for malaria, tuberculosis and other disease programs as costed in the Taskforce Working Group 1. However, these interventions are intended for adults, and are not specific to pregnancy or child care. Therefore, they are not included in the estimates for the costs related to the health of women and children covered under other programs (as presented in Table 2).

***ii. Identifying the share of health system costs related to the health of women and children***

We identified and redistributed system-wide costs based on the share that could be attributed directly to the health of women and children. For example, in the original costing done for the Taskforce, approximately 44% of costs within other disease-specific programs were related to women's and children's health. Therefore, we attributed the same share of the health systems costs (44%) to the health of women and children in the typical low-income settings of the 49 countries. This is the average share of women's and children's health in the total disease program costs from 2011-2015 (in the WHO normative analysis).

Similarly, we calculated the relative share of additional disease program costs for MDG 6 (malaria, HIV and TB) to be 41%, and the share for essential medicines to be 15% (in the WHO normative analysis). Added together, these equal 100% of the program costs. These proportions remained the same for the revised estimates as for the original costs for 2011-2015. Of the 41% for MDG 6, we calculated that the proportion of these services specific to women's and children's health is 7% (based on WHO normative analysis). We then applied this to the percentage of the health systems costs that should be included in this analysis.

However, it is important to note that the estimates for health systems contributions were purely illustrative. Piecemeal strengthening of health system would not contribute to achieving the health MDGs as effectively as the approach to comprehensive health system strengthening proposed by the Taskforce Working Group 1 and the UN Secretary-General's Global Strategy for Women's and Children's Health.

***iii. Estimates of additional costs for scaling up women's and children's health***

The cumulative cost of interventions related to the health of women and children from 2011 to 2015 would be US\$20.5 billion. The cumulative cost of the women's and children's health components of HIV and malaria over the same period would be US\$5.0 billion. Finally, the cost of the appropriate share of health systems strengthening related to the health of women and children would be an additional US\$62.4 billion from 2011 to 2015.

In Table 2, all numbers are derived from the Taskforce Working Group 1 estimates and are therefore a median between the MBB medium scenario and the WHO normative approach (except the costing of adult female ART). This estimate has been provided by UNAIDS and added to the median estimates for PMTCT and paediatric ART costs.

**Table 2: Estimated additional costs for scaling up services for the health of women and children in the 49 low est-income countries (in 2005 US\$ billions)<sup>7</sup>**

US\$ Billion	2011	2012	2013	2014	2015	2011-2015
<b>MNCH interventions</b>						
Management of childhood illness	0.31	0.43	0.55	0.65	0.78	2.73
Immunization	0.66	0.83	1.11	1.13	1.31	5.04
Maternal health	0.90	1.13	1.53	1.92	2.36	7.83
Family planning	1.09	1.03	0.97	0.93	0.88	4.89
<b>Subtotal MNCH interventions</b>	<b>2.96</b>	<b>3.42</b>	<b>4.16</b>	<b>4.63</b>	<b>5.32</b>	<b>20.49</b>
<b>Interventions specific to MNCH in other programs</b>						
HIV/AIDS (PMTCT, adult female ART, pediatric ART)	0.33	0.38	0.42	0.46	0.51	2.10
TB	0.00	0.00	0.00	0.00	0.00	0.00
Malaria (ITNs for children and pregnant mothers, RDTs and ACTs for children U5, IPT)	0.18	0.53	0.25	0.47	0.57	2.02
Water and sanitation *	0.01	0.02	0.02	0.06	0.06	0.17
Nutrition **	0.12	0.11	0.12	0.16	0.18	0.68
<b>Subtotal costs for MNCH interventions carried out by other programs</b>	<b>0.63</b>	<b>1.03</b>	<b>0.82</b>	<b>1.15</b>	<b>1.32</b>	<b>4.96</b>
<b>Health systems strengthening contribution (51%)</b>	<b>10.26</b>	<b>12.16</b>	<b>11.96</b>	<b>13.33</b>	<b>14.68</b>	<b>62.39</b>
<b>Total</b>	<b>13.85</b>	<b>16.61</b>	<b>16.94</b>	<b>19.11</b>	<b>21.32</b>	<b>87.84</b>
<b>Per capita (US\$)</b>	<b>\$10</b>	<b>\$11</b>	<b>\$11</b>	<b>\$13</b>	<b>\$14</b>	<b>\$60</b>

#### ***iv. Limitations and caveats of approach***

In interpreting any estimates of costs that include a partial share of system needs, it should be noted that this amount would need to be matched by a similar amount for overall strengthening of health systems (the share that has not been allocated to the health of women and children), in order for health services to be effectively scaled up as envisioned.

The very rough attribution of 51% of systems costs to the health of women and children (44% for MNCH interventions and 7% for other program interventions) is included for illustrative purposes only, because partially funded systems at country level will make it difficult for countries to scale up interventions. This presupposes that other programs – "non-related to the health of women and children" – will step in to fund the remaining 49%.

## 2. OUTCOMES AND IMPACT ESTIMATES

The Global Strategy also includes estimates for each investment of the associated benefits in output (e.g. increases in numbers of health workers or health-care facilities), outcomes (e.g. increases in coverage levels for key interventions) and impact (e.g. decreases in mortality).

These estimates are derived from the work of Taskforce Working Group 1 on the 49 lowest-income countries. To make the estimates similar to the costing estimates in the Global Strategy, we calculated the median between the WHO normative approach and the MBB approach. This allows us to present only one number, which we felt would be less confusing for advocacy purposes than showing a range.

For the outcomes estimates, the same methodology was applied as to the recurrent intervention costs. We assumed the same numbers as in the Taskforce Working Group 1 for the same years – in short, we assumed that a rapid scale up of interventions could occur from the 2008 estimate to the 2011 estimate. This was deemed difficult but still feasible, because many of the interventions had scale-up curves that showed coverage increasing gradually in the first years but more rapidly in the later years. Then we took the average between the WHO normative approach and the MBB approach, and combined the estimated annual output from 2011 to 2015 to calculate the cumulative additional interventions needed. For some of these interventions, data was missing and we could not calculate the cumulative number, so we presented only the value for 2015. Naturally, these estimated outputs are only for illustrative purposes, because each country needs to develop its own investment strategy appropriate to the local context.

For the output numbers, we did not adjust these estimates to shorten the timeframe. We assumed that the adjustments we made to the cost estimates would bring the same total system outputs as originally planned for over the five years, in terms of educating health worker providers and building hospitals and health centers. We report the total additional number in 2015. This number represents the cumulative additional facilities built and workers trained, because both of these will operate in future years.

**Table 3: Estimated output, outcome and impact<sup>8</sup>**

		Median	WHO normative approach	MBB medium scenario
<b>Output and outcome in millions</b>				
	<b>Period</b>			
Additional women received Skilled Birth Attendance (SBA)	2015	<b>191</b>	221	16.2
Additional neonatal infections treated (suspected sepsis)	2015	<b>2.2</b>	3.1	1.3
Additional infants exclusively breastfed (6 months)	2015	<b>21.9</b>	25.8	18.0
Additional children fully immunized (12 months)	2015	<b>15.2</b>	na	15.2
Additional children with pneumonia treated	2015	<b>400</b>	401	40.0
Additional children receiving 2 doses of vitamin A per year	2015	<b>117.3</b>	37.5	197.0
New users receiving access to family planning	2015	<b>428</b>	426	43.0
New health facilities (in units)	2015	<b>85 265.5</b>	96 838.0	73 693.0
Additional health personnel	2015	<b>3.0</b>	35	2.6
<b>Cumulated impact in millions</b>				
Child and infant (under 5 years of age) deaths averted (total)	2011-2015	<b>15.3</b>	14.6	16.1
Newborn deaths averted (0-28 days)	2011-2015	<b>3.4</b>	3.4	0.0
Maternal deaths averted	2011-2015	<b>0.6</b>	0.6	0.7
Children under 5 protected from stunting	2011-2015	<b>87.8</b>	85.7	90.0
Additional unwanted births averted due to increase in family planning	2011-2015	<b>32.9</b>	35.8	30.0

For impact estimates, the deaths averted as calculated for child health for the years 2011-2015 are the same as in the High Level Task Force report. For maternal deaths averted, the estimates in this table have been updated taking into account new UN maternal mortality estimates. The MBB estimates have not been updated. However, since the normative and MBB estimates were very close, and based on the same data, it is anticipated that the MBB figures will be very similar when they are updated.

### 3. ESTIMATES OF COUNTRY FUNDS TO BRIDGE THE FINANCIAL GAP

We undertook an analysis to estimate how much governmental expenditure might be available for women's and children's health between 2011 and 2015. The purpose of this analysis was to get a sense of what proportion each group might be able to contribute towards the funding gap for the 49 lowest-income countries. Based on estimates derived from expected growth in GDP and resulting government expenditures, we estimate that many middle-income countries may have sufficient governmental resources to finance the achievement of the MDGs in their own countries. On the other hand, the 49 lowest-income countries will probably have very much less to contribute from growth of government expenditures alone, and will continue to rely on development assistance to cover the additional costs.

#### *i. Calculation of health expenditures between 2011 and 2015*

This was done by applying the trend in health expenditure growth for the period 1995-2008 to estimate future growth for 2009-2015. We started by calculating the past nominal health expenditure elasticities of growth, using double-log regressions for each country. We used health expenditures and GDP data for 1995-2008 in local currency units, with GDP as the independent variable. We then calculated the expected nominal growth rate in GDP for each country for 2009-2015, using the IMF nominal GDP projections in local currencies.  $(\text{GDP year}[n] - \text{GDP year}[n-1]) / \text{GDP year}[n-1]$ . The annual growth rates are geometric growth numbers calculated by finding the slope of the log-normal model. Next, we calculated each country's health expenditure growth rate from 2009 to 2015 by multiplying the health expenditure elasticities by the GDP growth rate for each country and each year.

To estimate the 2008 baseline expenditures, government health expenditures were computed by subtracting 70% of 2008 external funding from 2008 total government health expenditures. We used the Countdown to 2015 assumption that 70% of total external resources flow through the government.

Next, we computed each country's health expenditures by multiplying 2008 baseline health expenditure with computed Health Expenditure Growth Rates. Averages and total health expenditures are calculated for five country groupings. The first three groups are based on the current World Bank classification of countries by low income, low-middle income, and upper-middle income.<sup>9</sup> The Countdown group includes the same 68 countries used for the Countdown to 2015 report. The group referred to as the "49 lowest-income countries" in the analysis in this paper includes the low-income countries as previously defined. The 49 lowest-income countries in this component of the analysis do not include data for

Zimbabwe, Somalia, DR Congo and DR Korea – because either health expenditures or GDP growth were not available – so in fact it only includes 45 countries.

We then used estimated exchange rates for 2009-2015 to convert health expenditures from local currency units to US dollars. Exchange rates were estimated by dividing GDP in US dollars with GDP in local currency units for each year from 2009 to 2015.

Finally, we assumed that 25% of government health expenditure generally flows to reproductive, maternal, newborn and child health. This estimate is the same one used in the Countdown to 2015 report and is based on a review of government health expenditures calculated in sub-accounts for countries that collect this data.

Table 4 shows only the aggregate results by country group. These groupings are not static: there is some overlap, because a number of countries have moved from low to low-middle income status over the period. Please note that the drop in government expenditures in upper middle income countries in 2009 is because these countries had negative or very small GDP growth due to the financial crisis.

**Table 4: Estimated annual government health expenditure 2011-2015**

Government RMNCH Expenditure* = Government RMNCH Expenditure Less Foreign Funding (US\$ MI)								
	2008	2009	2010	2011	2012	2013	2014	2015
Low income countries	1,199	1,247	1,399	1,580	1,775	1,969	2,194	2,447
Low/Middle income countries	38,153	39,399	43,985	49,169	54,973	61,485	68,745	76,797
Upper-Middle income countries	68,884	60,892	71,525	77,974	84,901	92,543	100,994	109,988
Countdown countries	58,557	58,814	68,028	75,243	83,199	91,962	101,641	112,293
<b>49 Lowest-income countries</b>	<b>3,369</b>	<b>3,317</b>	<b>3,835</b>	<b>4,337</b>	<b>4,844</b>	<b>5,385</b>	<b>6,003</b>	<b>6,699</b>
*Assuming RMNCH are 25% of the total Government expenditures								

**ii. Calculation of the additional health expenditures between 2011 and 2015**

Next, we calculated the incremental resources available for reproductive, maternal, newborn and child health (RMNCH). As a simple proxy, we used the change in government RMNCH funding between any two years. This difference is obtained by subtracting the previous year's government RMNCH expenditure from that in the current year. The increase in projected government RMNCH funding for different groups of countries between 2011 and 2015 is calculated by subtracting projected government RMNCH health expenditures in 2011 from that projected in 2015.

Table 5 shows that the 49 lowest-income countries will continue to rely on development assistance between 2011 and 2015 to achieve the health MDGs since they will have far less than the US\$169 billion needed. Many low-middle income countries may be able to finance the MDGs in their own countries through domestic government spending or borrowing.

**Table 5: Change in government RMNCH expenditure from 2011 to 2015**

	Change in Government RMNCH Expenditure (US\$ Mil)								2008-2015	2011-2015
	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015			
Low income countries	48	153	180	195	195	225	253	1,248	867	
Low-Middle income countries	1,246	4,586	5,184	5,804	6,512	7,260	8,052	38,645	27,628	
Upper-Middle income countries	-7,992	10,634	6,448	6,927	7,642	8,451	8,994	41,105	32,014	
Countdown countries	257	9,214	7,215	7,956	8,763	9,679	10,651	53,735	37,049	
49 Lowest-income countries	-52	518	502	507	541	618	696	3,330	2,362	

\*Assuming RMNCH are 25% of the total Government expenditures

### *iii. Limitations and caveats of approach*

These estimates are based on current prices. If we deflate the estimates to US\$ 2005, as the estimates for the financial gap are calculated, it will lower even further the amount of government expenditures available for women's and children's health. For example, for the 49 lowest-income countries, we estimate that the level of government expenditures would drop below one billion dollars in total between 2011 and 2015.

This analysis also does not take into account the fact that countries could reallocate existing government expenditures to women's and children's health even if there is no growth in GDP and resulting growth in government expenditures. This could lead to substantially more resources for women's and children's health.



## ANNEX 1. LIST OF HEALTH INTERVENTIONS COSTED IN WHO NORMATIVE APPROACH

### Preventive interventions

Communication and behaviour change

Condom promotion and distribution

Control of tobacco use

Counselling for improved complementary feeding

Counselling for promotion of exclusive and continued breastfeeding

Family planning interventions: oral contraceptives, injectables, condom (male and female), intrauterine device (IUD), implant, sterilization (female and male)

Harm reduction among intravenous drug users

HIV prevention among female sex workers

HIV prevention among male sex workers

HIV prevention among men who have sex with men

HIV prevention: mass media

Immunizations (all routine immunizations including BCG, DPT, OPV, Hib, pneumococcus, two-dose measles, hepatitis B, yellow fever, rubella, rotavirus, and meningitis A, and Japanese encephalitis for populations at risk)

Implementation of the international code of marketing of breast milk substitutes

Insecticidal mosquito nets, long-lasting, or other malaria vector control intervention

Intermittent preventive therapy for malaria

Male circumcision

Newborn care, routine (immediate postnatal care, breastfeeding support, resuscitation, small baby care and kangaroo mother care, care for minor problems, presumptive sepsis care, eye prophylaxis, presumptive treatment for syphilis, pre-referral care for seriously ill neonate)

Post-exposure prophylaxis

Postnatal care

Postpartum administration of anti-D immunoglobulin to rhesusnegative women with a rhesus-positive foetus

Postpartum care in the maternity ward, routine (examination of the mother, information and counselling, recording and reporting, administration of iron and folate supplements, administration of vitamin A supplements)

Postpartum care, follow-up visit (postpartum examination of the mother, information and counselling on home care, care seeking, counselling on family planning methods)

Postpartum counselling on family planning (counselling on family planning methods, voluntary tubal ligation, intrauterine device, combined oral contraceptives, combined injectables)

Prevention and control of malaria epidemics

Prevention of mother to child transmission of HIV by antiretroviral prophylaxis and infant feeding counselling

Salt reduction in processed foods

Screening all pregnant women for blood group isoimmunization

Social marketing

Sexually transmitted infection management

Universal salt iodization

Vitamin A supplementation to children under five, routine

Voluntary counselling and testing

### Treatment interventions

Antibiotic treatment for dysentery

Antiretroviral therapy

Antiretroviral therapy (plus co-trimoxazole preventive therapy for HIV positive TB patients)

Basic care package for HIV positive people

Case management of diarrhoea

Case management of malaria (artemisinin-based combination therapies and rapid diagnostic tests)

Case management of pneumonia

Case management of severe malnutrition

Case management of neonatal infections

Co-trimoxazole preventive therapy for HIV positive TB patients

Diagnostic testing (HIV)

HIV care and support in TB patients

HIV surveillance in TB patients tested

HIV testing and counselling of TB patients

Home-based care for people living with HIV

Isoniazid preventive therapy, following tuberculin skin test

Isoniazid preventive therapy, no tuberculin skin test

Management of breathing difficulty

Management of congenital syphilis

Management of convulsions  
 Management of mastitis  
 Management of neonatal tetanus  
 Management of postpartum depression  
 Management of severe hypothermia  
 Management of severe jaundice  
 Multidrug-resistant tuberculosis patients treated  
 Nutritional support  
 Palliative care for people living with HIV  
 Prophylaxis for opportunistic infections  
 Regular deworming  
 Routine offer of counselling and testing  
 Safe abortions/management of abortion complications  
 Sepsis management  
 Severe and complicated malaria, case management  
 Special general care for seriously ill neonate  
 Supporting breastfeeding (maternal stay for baby care)  
 TB smear positive/ negative / extrapulmonary treatment  
 TB screening among people living with HIV  
 Treatment of bacterial vaginosis or trichomoniasis infection in pregnancy  
 Treatment of chlamydia in pregnancy  
 Treatment of chronic diseases including asthma, cardiovascular disease, mental illness and neglected tropical diseases and symptomatic treatment  
 Treatment of complications during childbirth (ultrasound, promote foetal maturation before preterm delivery, management of pre-labour rupture of membranes or infection, management of antepartum haemorrhage, management of puerperal sepsis, management of obstructed labour, management of prolonged labour, management of foetal distress, episiotomy, avoid breech presentation at birth [with external cephalic version], vaginal breech delivery, craniotomy or embryotomy, management of postpartum haemorrhage, management of perineal infection, repair of vaginal or perineal tear, repair of cervical tear, symphysiotomy)  
 Treatment of eclampsia  
 Treatment of gonorrhoea in pregnancy  
 Treatment of hookworm infection (antenatal care)  
 Treatment of lower urinary tract infection in pregnancy  
 Treatment of measles and measles complications

Treatment of moderate anaemia in pregnancy  
 Treatment of opportunistic infections  
 Treatment of severe anaemia  
 Treatment of severe hypertension in pregnancy  
 Treatment of severe pre-eclampsia  
 Treatment of syphilis in pregnancy  
 Treatment of upper urinary tract infection  
 Treatment of upper urinary tract infection in pregnancy  
 Treatment of vaginal candida infection in pregnancy  
 Very small baby care and kangaroo mother care

### Complicated interventions

Antenatal care, routine (assessment of maternal and foetal wellbeing, information and counselling, recording and reporting, screening for hypertensive disorders of pregnancy [pre-eclampsia], screening for anaemia, prevention of anaemia, specialist care for pregnant women with diabetes, syphilis testing, tetanus toxoid immunization)

Childbirth care, routine (initial assessment and recognition of delivery complications, surveillance and regular monitoring of labour and delivery, social support throughout labour and delivery, prevention and control of infections, assistance during childbirth, active management of the third stage of labour, care and support of the mother)

## ANNEX 2. LIST OF INTERVENTIONS COSTED IN MBB

### Interventions to reduce under-5 mortality

#### Diarrhoea

Antibiotics (diarrhoea)  
Breastfeeding, children 6-11 months  
Complementary feeding  
Exclusive breastfeeding 0-5 months  
Oral rehydration therapy  
Vitamin A supplement (child)  
Hand washing with soap by mother  
Use of sanitary latrine  
Supply of safe drinking water  
Quality of drinking water  
Multiple water/sanitation/hygiene interventions  
Zinc supplements (child)  
Zinc therapy  
Rotavirus vaccine  
Management of severe dehydration and complicated enteric fevers at referral level

#### HIV / AIDS

Condom use  
Male circumcision  
Sexually transmitted infection management  
Preventing mother-to-child transmission of HIV, (testing and counselling, AZT + single dose nevirapine and infant feeding counselling)  
First-line antiretroviral therapy for pregnant women with HIV/AIDS  
Co-trimoxazole prophylaxis for children of HIV-positive mothers  
Antiretroviral therapy for children with AIDS  
Management of complicated AIDS  
Management of first-line antiretroviral therapy failures

#### Malaria

Complementary feeding  
Therapeutic feeding  
Insecticide-treated mosquito nets for under-5 children  
Vitamin A  
Zinc

Chloroquine for malarial treatment  
Antimalarial combination treatment at primary health care level  
Management of complicated malaria at referral level  
Intermittent presumptive treatment for children

#### Measles

Complementary feeding  
Therapeutic feeding  
Measles immunization  
Vitamin A - supplementation  
Vitamin A - treatment for measles  
Management of severe measles at referral level

#### Neonatal prematurity

Calcium supplementation in pregnancy  
Detection and management of (pre) eclampsia (magnesium sulphate)  
Additional antenatal care: detection and treatment of asymptomatic bacteriuria  
Additional intrapartum: antenatal steroids  
Universal skilled maternal and immediate neonatal care  
Community support to low birth weight babies  
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the very low birth weight infant)  
Balanced protein energy supplements for pregnant women  
Supplementation in pregnancy with multi-micronutrients

#### Neonatal severe infection

Clean delivery  
Community support to low birth weight babies  
Early breastfeeding  
Universal case management for pneumonia  
Intermittent presumptive treatment of malaria (IPT) for pregnant women  
Skilled delivery and neonatal care  
Detection and treatment of syphilis in pregnancy  
Additional intrapartum: antibiotics for premature and prolonged rupture of membranes  
Additional emergency newborn care (management of serious infections)

Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the very low birth weight infant)

#### **Neonatal tetanus**

Skilled delivery

Tetanus toxoid

Clean delivery

#### **Asphyxia**

Universal antenatal care

Skilled delivery and immediate neonatal care

Resuscitation of asphyctic newborns at birth

Asphyxia aftercare at referral level

Assisted delivery or vacuum extraction at basic emergency obstetric care level

Caesarean section at comprehensive emergency obstetric care level

#### **Pneumonia**

Complementary feeding

Therapeutic feeding

Breastfeeding for children 0-5 months

Breastfeeding for children 6-11 months

Zinc

Hib immunization

Antibiotics for under-5 children with pneumonia

Management of severe pneumonia at referral level

Pneumococcal immunization

#### **Interventions to reduce stunting**

Balanced protein energy supplements for pregnant women

Intermittent preventive treatment (IPTp) for malaria in pregnancy

Supplementation in pregnancy with multi-micronutrients

Complementary feeding

Zinc preventive

Hand washing by mother

#### **Interventions to reduce maternal mortality**

Tetanus toxoid

Screening for pre-eclampsia

Screening and treatment of asymptomatic bacteriuria

Normal delivery by skilled attendant

Active management of the third stage of labour

Initial management of post-partum haemorrhage

Drugs for preventing malaria-related illness in pregnant women and death in the newborn

Treatment of severe pre-eclampsia or eclampsia

Assisted delivery and vacuum extraction at basic emergency obstetric care level

Management of obstructed labour, breech and fetal distress at comprehensive obstetric care level (caesarean section)

Referral care for severe post-partum haemorrhage

Management of maternal sepsis

Medical termination of pregnancy / management of complicated abortions

Family planning

Iron/folic acid supplements

Multi micronutrients

Deworming

Calcium supplements

#### **Interventions to reduce deaths from AIDS, TB and malaria in adults and during pregnancy**

Co-trimoxazole prophylaxis for adults with HIV/AIDS

ART for adults with AIDS

Management of first-line ART failures

Management of complicated AIDS

DOTS

DOTS retreatment

Treatment of multidrug-resistant TB

Artesunate combination treatment

Management of complicated malaria with second-line drugs

## REFERENCES

- 1 The 49 countries included in the 2009 analysis of the Taskforce on Innovative International Financing for Health Systems (the Taskforce) were: Afghanistan, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Cote d'Ivoire, Eritrea, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Kenya, Democratic Republic of Korea, Kyrgyz Republic, Lao PDR, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Tajikistan, Tanzania, Togo, Uganda, Uzbekistan, Vietnam, Yemen, Zambia and Zimbabwe. While the list of countries included amongst the lowest income countries may have changed in 2010, we have retained the 2009 list used by the Taskforce to be consistent with previous work.
- 2 *More Money for Health and More Health for the Money*, Taskforce on Innovative International Financing for Health Systems, 2009. *Constraints to Scaling Up and Costs: Working Group 1 Report*, Taskforce on Innovative International Financing for Health Systems, 2009. *Constraints on Scaling Up the Health MDGs: Costing and Financial Gap Analysis*, WHO, 2009, 2010. *Health Systems for the MDGs: Country Needs and Funding Gaps*, World Bank/ UNICEF/ UNFPA/ PMNCH, 2009. WHO updates 2010. MBB updates 2010.
- 3 [http://www.internationalhealthpartnership.net//CMS\\_files/documents/working\\_group\\_1\\_report:\\_constraints\\_to\\_scaling\\_up\\_costs\\_EN.pdf](http://www.internationalhealthpartnership.net//CMS_files/documents/working_group_1_report:_constraints_to_scaling_up_costs_EN.pdf).
- 4 Listed in the Annex of this document, and also in Appendix 1 and 2 of the report of the Working Group 1 on pages 80-83. Detailed lists of interventions are provided in Annexes 1 and 2 in *Constraints to Scaling Up and Costs: Working Group 1 Report*, Taskforce on Innovative International Financing for Health Systems, 2009; Annex 3 in *Constraints on Scaling Up the Health MDGs: Costing and Financial Gap Analysis*, WHO, 2009, 2010; and Annexes 2-6 in *Health Systems for the MDGs: Country Needs and Funding Gaps*, World Bank/ UNICEF/ UNFPA/ PMNCH, 2009.
- 5 See page 67 of the High Level Task Force Working Group report available at [http://www.internationalhealthpartnership.net//CMS\\_files/documents/working\\_group\\_1\\_report:\\_constraints\\_to\\_scaling\\_up\\_and\\_costs\\_EN.pdf](http://www.internationalhealthpartnership.net//CMS_files/documents/working_group_1_report:_constraints_to_scaling_up_and_costs_EN.pdf)
- 6 Water and sanitation: costs are not included in the normative analysis. Nutrition: MBB includes a significant portion; normative includes cost for nutrition interventions in other categories.
- 7 Water and sanitation, Nutrition: MBB counted at 50% of total (table 1); Costs for water and sanitation are not included in the normative analysis. Nutrition: in the normative analysis the cost for nutrition interventions is included under other categories. HSS: for illustrative purposes only. The assumption is that other programs will fund the remaining health systems strengthening, as full scale-up is needed
- 8 Children under five protected from stunting: projections for unmet need were based on reducing the most recently measured unmet need as of 2008 to zero by 2015. From this calculation, the projected number of users was computed based on the contraceptive prevalence rate projection and the number of women of reproductive age projection, where both those quantities change over time. It is important to note that the unmet need for family planning is not a static number but rather one that changes over time.
- 9 <http://data.worldbank.org/about/country-classifications/country-and-lending-groups>.