Health Systems for the Millennium Development Goals: Country Needs and Funding Gaps

Background document for the Taskforce on Innovative International Financing for Health Systems

Working Group 1: Constraints to Scaling Up and Costs

Final Draft

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World Bank/ UNICEF/UNFPA/Partnership for Maternal, Newborn and Child Health
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A. Executive Summary

1. At the High Level Event on the Millennium Development Goals (MDGs) held at the United Nations Headquarters in New York on 25 September 2008, world leaders called for an additional US$30 billion to contribute to saving 10 million lives – 3 million mothers and 7 million children1 and announced the creation of a High Level Taskforce on Innovative International Financing for Health Systems (HLTF). The objectives of the task force are to contribute to filling national financing gaps to reach the health MDGs through mobilizing additional resources; increasing the financial efficiency of health financing; and enhancing the effective use of funds.

2. Two technical working groups have been established to present analyses and recommendations to the HLTF; Working Group 1 (WG1) on Constraints to Scaling Up and Costs, and Working Group 2 (WG2) on Raising and Channeling Funds. Working Group 1 (WG1) of the HLTF requested the UN Inter-Agency Group on Costing of the Health Related MDGs (UNIAG) to estimate the cost to reach the health-related MDGs through health system strengthening and estimate funding gaps for 49 low-income countries2 under various fiscal scenarios. The Inter-Agency Group established two technical teams to provide costing estimates; one based on a normative and one based on a country based model using a marginal costing approach. This report presents the work of this latter group, with the participation of the World Bank, UNICEF, UNFPA, UNAIDS and PMNCH.

3. To comply with its mission the UNIAG used a simulation tool to forecast the potential cost and impact of removing the constraints to reaching the health MDGs at country level.3 The approach focuses on the selection of evidence-based interventions currently implemented in a country and organizes them into three main service delivery modes: family oriented community based services (including household behavior change activities, community workers service, and social marketing), population oriented schedulable services (i.e. outreach services and campaigns for standardized universal services), and individual oriented clinical services (requiring decisions on diagnostic and treatment). The latter is further subdivided into primary care, first and second referral.

4. The approach simulates potential improvements in coverage derived from bottleneck reduction through addressing both programmatic and system constraints. It uses availability of essential inputs and human resources, physical access, utilization, continuity, quality and effective coverage as determinants. It then estimates the cost of strategies aimed at removing bottlenecks and their returns in terms of health outcomes, with a special focus on the health MDGs. In addition, the tool allows the analysis of the fiscal space and the remaining funding gap, as well as the simulation of different scenarios and sensitivity analysis.

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1 http://www.un.org/millenniumgoals/2008highlevel/
2 As defined by the World Bank, through the Atlas methodology.
3 The tool used was the Marginal Budgeting for Bottlenecks (MBB), an analytical, costing and budgeting tool originally developed by UNICEF and the World Bank and further enriched with the inputs and suggestions of UNFPA, WHO and UNAIDS.
5. As simulation exercises had recently been applied in 35 out of the 49 countries, much of the data required (demographic, epidemiological, health system parameters, intervention coverage, country strategies) was already available. In addition an intensive effort was conducted to gather solid data for the rest of the countries. Remaining data gaps were covered through interpolation. The overall period for which the simulation exercise was applied was 2009-2015. This period was divided into 3 phases: 2009-2011, 2012-2013 and 2014-2015.

6. The 49 countries were divided into 2 general groups (African and Non-African countries). Two regional strategic regional frameworks were considered to derive the main parameters and strategies of the simulation exercise: The Strategic Framework for Africa (SFA)\(^4\) and the Asia Pacific Investment Case (APIC)\(^5\). Both of these frameworks were developed through a broad consultation process with countries with ample technical support from key international organizations. These documents present specific strategies to strengthen national health system and gradually scale up essential cost-effective interventions to achieve the health related MDG.

7. The way interventions and their phasing were selected follows the strategy proposed by the Strategic Framework for Africa. A first phase focuses on “the low hanging fruits”, rapidly scaling up community and population oriented interventions and focusing initially on the lower levels of care (community, outreach and first clinical level). Interventions at the higher levels are then progressively introduced in later phases.

8. In the Africa simulation, phase 1 (2009-2011) focuses on investing in training of human resources and building infrastructure, deploying community health and nutrition promoters for improved family care practices and improving the demand and quality of clinical services. In phase 2 (2012-13), investments in human resources and infrastructure continue and additional neonatal care as well as comprehensive emergency obstetric care are introduced or scaled-up. In Phase 3 (2014-15), the investment in human resources and infrastructure decreases while the referral based interventions are scaled-up in order to offer a complete package of interventions by 2015.

9. Non-African countries are facing different problems. Typically these countries have, for example, a much lower incidence of malaria and HIV. Within this group there are substantive variations in the interventions packages chosen by each country. All non African countries however are assumed to follow the strategic recommendations of the APIC. The selected package of high impact interventions for the first phase (2009-2011) aims at strengthening the supply of health services at the community and outreach level as well as at the primary clinical level by investing on training and assigning incentives to providers. During phase 2 (2012-2013), interventions implemented during phase 1 will continue to be scaled-up and additional neonatal care interventions such as complementary and therapeutic feeding, zinc supplementation, new vaccines as well as

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\(^4\) A Strategic Framework and Investment Case for Reaching the Health Related Millennium Development Goals in Africa by Strengthening Primary Health Care Systems for Outcomes, revised for this exercise.

\(^5\) Investing in Maternal, Newborn and Child Health - The Case for Asia and the Pacific, February 2009.
long-term family planning interventions will be introduced. To support the delivery of these interventions, a particular focus will be given to investment in human resources for health and infrastructure at the primary level of care. Finally, during phase 3 (2014-2015), in addition to the previously cited interventions, emphasis will be put on emergency obstetric care, HIV/AIDS treatment (ARTs) and water and sanitation so as to provide a comprehensive package of interventions by the end of the period. To support these interventions, large investments in human resources and infrastructure at the referral level will be made.

10. Potential sources of funding and funding gaps were identified according to several fiscal space scenarios. Five scenarios were envisioned to analyze the financing gaps. The first four scenarios build on the recently revised IMF projections of GDP\(^6\) to consider the anticipated effect of the current global economic crisis. For the last scenario, a further deterioration of the global macroeconomic environment is projected with lower GDP growth than the IMF revised projections (1 percent below). Baselines for private and external expenditure on health as well as for the share of government expenditure allocated to health are based on the WHO National Health Accounts dataset\(^7\). Baseline data on the 2008 level of ODA comes from the OECD database and projections vary according to the fiscal space scenarios. Finally, macroeconomic data (such as government expenditure as a percentage of GDP) comes from the Economist Intelligence Unit (EIU) database\(^8\) or IMF database\(^9\).

11. Fiscal space Scenario 1 (“Gleneagles 0.7 percent and Abuja 15 percent” or “optimistic scenario”) estimates the funding available should the Gleneagles commitment and the Abuja target be met in SSA countries. The Gleneagles commitment is to allocate 0.7 percent of developed countries’ GDP to ODA. In the case of the United States – which did not commit to the Gleneagles target – it is assumed that their overall level of ODA increases from US$ 26 billion in 2008 to US$ 50 billion in 2015. The Abuja target is to allocate 15 percent of the national budget to health. In non SSA countries, 12 percent of the national budget is expected to be allocated to health. Fiscal space Scenario 2 (“Gleneagles doubling and Abuja 15 percent commitment”) is one of the two additional scenarios envisioned by the World Bank as the 0.7 percent targets may seem to ambitious when considering the Gleneagles commitment. The third fiscal space scenario (“Intermediate: ODA 50 percent and government 12 percent”) envisions aid to increase by 50 percent from the 2008 level (i.e. half of the increase achieved under Scenario 2) and governments to allocate 12 percent of their national health budgets in SSA countries and to 10 percent in non SSA countries. Fiscal space Scenario 4 (“no changes in ODA and Governments’ commitments” or “Status Quo/no change scenario”) is a conservative scenario in which no changes are predicted in real terms in ODA and government commitments. Finally, fiscal space Scenario 5 is the “crisis” or “pessimistic” scenario. This scenario aims at seeing what would be the amount of fiscal space creation over the period if growth assumptions and private expenditure were one percent lower than IMF projections; in this scenario, it is also assumed that government health spending and ODA

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\(^6\) International Monetary Fund, World Economic Outlook Database.
\(^7\) National Health Accounts Database on http://www.who.int/nha/country/en/
\(^8\) Economist Intelligence Unit Database on http://www.eiu.com.
\(^9\) International Monetary Fund, World Economic Outlook Database.
fall 10 percent during 2009 and 2010 and return to 2008 level from 2011 onwards to reflect the negative impact of the current economic crisis.

12. Three implementation scenarios for scaling up of Health System Strengthening in Africa and Asia were also defined:

- **Minimum scenario (Low Cost/ High Impact):** building on existing national plans and focusing on the highest impact and lowest cost interventions and strategies to accelerate progress towards MDGs 4, 5 and 6, through increased efficiency of health systems. This scenario is what countries can realistically do with increasing efforts and under the assumptions of this scenario, many countries can come close to achieving the MDGs.

- **Medium scenario (MDGs):** reaching the health-related MDGs (4, 5, and 6) in the 49 countries analyzed combined and contributing substantially to MDGs 1 and 7 through the implementation at scale of the above mentioned regional strategies for achieving Health related MDGs and health system strengthening, including reaching national targets for human resources and expansion of infrastructure.

- **Maximum scenario (MDGs ++):** developing a comprehensive health system in line with WHO standards to reach universal coverage with basic health services and improving health outcomes (beyond those contributing to the health-related MDGs). It is worth noticing that this scenario was developed for the purpose of the HLTF and is not supported by the MBB team as it is way too optimistic and there is doubt on feasibility of reaching such high coverage targets. The results of this scenario are therefore only provided in annexes for information.

13. The minimum scenario (low cost/high impact) simulates the potential impact of implementing country strategies aiming at the highest possible impact on MDG 4, 5 and 6 with a limited budget. This scenario concentrates on scaling up and strengthening only those interventions with the highest impact and lowest cost, mostly through a focus on primary health care. This scenario emphasizes low cost, high impact interventions, and increased efficiency of health systems by using less ambitious levels of staffing and reduced investments in infrastructure. Additional per capita costs in 2015 would reach US$ 12 overall (US$ 16 in SSA and US$ 7 in other countries)

14. The medium scenario focuses explicitly on achieving the health MDGs where possible and in the most efficient way, by addressing the most critical health system bottlenecks (by 80% on average) and scaling up a package of highly effective interventions proven to positively contribute to the health MDGs goals. The medium scenario divides SSA countries into three groups of countries, based on the level of expected progress on MDG 4 and 5 using the priority expanded intervention packages, strategies and levels of bottleneck reductions proposed in the joint WHO, UNICEF, WB Strategic Framework for Health related MDG’s in Africa. Non SSA countries were similarly divided into three groups based on the expected achievement of MDG 4 and 5 using the intervention packages, innovative strategies and bottleneck reductions proposed...
in the Asia-Pacific Regional Investment case for MNCH. Additional per capita costs in 2015 would reach US$ 24 overall (US$ 37 in SSA and US$ 9 in other countries)

15. The Maximum scenario includes the additional cost to strengthening all building blocks of health systems (including hardship allowances and performance contracts with the private sector) in order to remove 100 percent of the supply bottlenecks to achieve universal access and also stimulate demand (through conditional cash transfers, improved accountability, IEC, community empowerment etc) to remove demand bottlenecks also by 100 percent by 2015 to achieve universal coverage. Under this “maximum” scenario, all health MDGs which can be achieved are reached beyond the set target and many other health benefits result for non-MDG related diseases. The MBB maximum scenario shares the general aim with the WHO scenario of strengthening the health systems to cover a broad range of health needs. Additional per capita costs in 2015 would reach US$ 38 overall (US$ 54 in SSA and US$ 20 in other countries)

16. Expanding from the Minimum to the Medium scenario, the estimated additional cost was found to be relatively higher for health systems costs compared to specific intervention costs to provide support for the large scale-up; 62% of additional costs are allocated for health system improvements in the medium scenario compared to 48% in the minimum scenario. In the maximum scenario, the relative share allocated for health system costs drops to 48% as large allocations are included for scaling up water and sanitation improvements, which are classified as intervention specific costs. In the Medium scenario, of the US$ 68.9 billion for health systems strengthening nearly one-third (US$ 19.2 billion) is for infrastructure, equipment and transport; nearly one-sixth (US$ 8.8 billion) for strengthening logistics and supply chain management including buffer stocks; human resources would require additional US$ 21.2 billion; strengthening governance of the health system US$ 6.4 billion. Health Information Systems is estimated at US$ 1.5 billion; and health financing at US$ 2.3 billion. In the Minimum scenario, the share of additional resource requirement by disease, program and health system is rather comparable to the Medium scenario one (}
Table A-1).
Table A-1 Distribution of estimated additional resources requirement by disease, program and health system (in billion US$) for each scenario (49 countries)

<table>
<thead>
<tr>
<th>Program and disease</th>
<th>Minimum Scenario</th>
<th>Medium Scenario</th>
<th>Maximum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>$ Per capita in 2015</td>
</tr>
<tr>
<td>Integrated Management of childhood illness</td>
<td>3.31</td>
<td>4.9</td>
<td>0.52</td>
</tr>
<tr>
<td>Immunization</td>
<td>3.45</td>
<td>5.1</td>
<td>1.04</td>
</tr>
<tr>
<td>Water, sanitation and hygiene</td>
<td>0.03</td>
<td>0.1</td>
<td>0.01</td>
</tr>
<tr>
<td>Nutrition</td>
<td>2.69</td>
<td>4.0</td>
<td>0.37</td>
</tr>
<tr>
<td>Maternal health</td>
<td>3.72</td>
<td>5.5</td>
<td>0.68</td>
</tr>
<tr>
<td>Family planning</td>
<td>2.19</td>
<td>3.3</td>
<td>0.37</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>7.34</td>
<td>10.9</td>
<td>1.07</td>
</tr>
<tr>
<td>TB</td>
<td>1.41</td>
<td>2.1</td>
<td>0.27</td>
</tr>
<tr>
<td>Malaria</td>
<td>10.67</td>
<td>15.8</td>
<td>1.15</td>
</tr>
<tr>
<td>Essential drugs (NCD, MH, Parasitic Diseases)</td>
<td>0.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Health systems</td>
<td>32.65</td>
<td>48.4</td>
<td>6.56</td>
</tr>
<tr>
<td>Human resources</td>
<td>14.64</td>
<td>21.7</td>
<td>3.35</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>6.66</td>
<td>9.9</td>
<td>1.95</td>
</tr>
<tr>
<td>Salary</td>
<td>7.91</td>
<td>11.7</td>
<td>1.39</td>
</tr>
<tr>
<td>Incentives</td>
<td>0.07</td>
<td>0.1</td>
<td>0.01</td>
</tr>
<tr>
<td>Infrastructure, equipment and transport</td>
<td>9.43</td>
<td>14.0</td>
<td>1.64</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5.27</td>
<td>7.8</td>
<td>0.84</td>
</tr>
<tr>
<td>Equipment</td>
<td>2.65</td>
<td>3.9</td>
<td>0.52</td>
</tr>
<tr>
<td>Transport</td>
<td>1.50</td>
<td>2.2</td>
<td>0.28</td>
</tr>
<tr>
<td>Logistics</td>
<td>3.42</td>
<td>5.1</td>
<td>0.63</td>
</tr>
<tr>
<td>HMIS</td>
<td>1.11</td>
<td>1.6</td>
<td>0.23</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>4.05</td>
<td>6.0</td>
<td>0.71</td>
</tr>
<tr>
<td>Health financing</td>
<td>0.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>67.46</td>
<td>100</td>
<td>12.03</td>
</tr>
</tbody>
</table>

17. Related, the proportion of non-traded costs increases steadily from the minimum scenario (47.4 percent) to the medium (53.8 percent) and the maximum scenarios (61.7 percent) as the health system is expanded as outlined in Table A-2. Additional traded costs increase from US$ 35.5 billion in the Minimum scenario to US$ 51.5 billion in the Medium scenario and US$ 86.8 billion in the Maximum scenario.
Table A-2 Distribution of estimated additional resource requirement by traded versus non-traded costs (in billion US$) for each scenario (49 countries)

<table>
<thead>
<tr>
<th></th>
<th>Minimum Scenario</th>
<th>Medium Scenario</th>
<th>Maximum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>Traded</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffer Stocks</td>
<td>4.05</td>
<td>6.01</td>
<td>4.79</td>
</tr>
<tr>
<td>Contraceptives</td>
<td>1.40</td>
<td>2.07</td>
<td>1.82</td>
</tr>
<tr>
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<td>HMIS</td>
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<tr>
<td>Total</td>
<td>67.46</td>
<td>100.00</td>
<td>111.62</td>
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18. Overall, the aggregated additional funding needs for the 49 countries reaches in the Minimum scenario US$ 67.4 billion. Out of resources required, 61.5 percent are allocated to recurrent and 38.5 percent to capital costs, as this low cost/high impact strategy aims at making the best use of existing capacity. US$ 3.6 billion of capital expenditures go to infrastructure and US$ 4.1 billion to buffer stocks. ITNs represent US$ 5.5 billion and logistics US$ 2.5 billion. General equipment would require US$ 2.3 billion while pre-service training costs and transport equipment would account for US$ 6.7 billion and US$ 1.4 billion respectively. Recurrent expenditures amount to US$ 41.5 billion and include US$ 15.9 billion for essential drugs; US$ 1.4 billion for contraceptives; and US$ 2.5 billion for vaccines. Human resources (US$ 10.2 billion) would absorb almost a quarter of the total. Other categories include administration (US$ 4.3 billion), demand promotion (US$ 1.4 billion), governance (US$ 4.6 billion), health information systems (US$ 1.1 billion) and health financing (US$ 0.06 billion).

19. For the Medium scenario, the aggregated additional funding needed for the 49 countries reaches US$ 111.6 billion. Of the total, 48 percent corresponds to capital investment and 52 percent to recurrent costs. Strengthening of the health system would require US$ 68.9 billion of which US$ 21.9 billion is for human resources expansion, US$ 28.8 billion for infrastructure, US$ 8.75 billion to strengthen the logistical system and US$ 6.4 billion for improvement governance. The direct costs for scaling up interventions would reach US$ 42.7 billion, out of which HIV/AIDS would absorb US$ 9.1 billion, malaria US$ 10.7 billion, TB US$ 1.8 billion, child health US$ 3.6 billion, maternal health US$ 5.6 billion, family planning US$ 2.8 billion, immunization US$ 4.9
billion and other public health priorities (nutrition and WASH) US$ 4.2 billion. Regarding its distribution by service delivery levels, family oriented community based services would require US$ 18.9 billion, population oriented schedulable services US$ 17.2 billion, individual oriented clinical services US$ 51.5 billion and management and technical support US$ 21.1 billion.

20. The fall-back scenario presents us with a conservative approach, potentially adapted to the context of the current global economic crisis, in which we assume the global community to raise additional resources limited to about US$ 67.5 billion. The Minimum scenario would be fully covered under the fiscal space scenarios 1 and 2, where donors hold to their Gleneagles Commitment and governments to the Abuja 15 percent target and the fiscal space scenario 3 where aid increases by 50 percent and government allocation to health increases to 12 percent in SSA countries and to 10 percent in non SSA countries. In SSA countries however a gap of US$ 3.5 billion would need to be covered under the intermediate scenario. Finally, in SSA countries a gap of US$ 37.9 to 41.3 billion would need to be funded should Gleneagles commitments not materialize and the financial crisis hit (respectively under fiscal space scenario 4 and 5). In non SSA countries, the financing gap would vary between US$ 7.8 and 9.2 billion. Overall, for all the 49 countries, the financing gap for the Minimum scenario under fiscal space scenarios 4 and 5 would increase to US$ 45.7 and 50.6 billion respectively.

21. The MDGs Medium scenario, based on the Africa Strategy and the Asia pacific Investment Case frameworks, seems ambitious enough to reach the MDGs, and is based on a more strategic selection of interventions and approaches, taking into account their institutional feasibility and potential high impact. The MBB Medium scenario could be implemented under the optimistic macroeconomic conditions and fiscal framework should both donors and countries hold to their commitments. Assuming that the 49 countries achieve the expected levels of growth projected by the IMF and increase the share of health in public budgets, they would manage to contribute US$ 88 billion under scenario 1 and scenario 2 or close to 80 percent of required resources. If, in addition, donor countries comply with their Gleneagles commitment, funding could be sufficient to cover this scenario for the 49 countries and the non SSA group of countries. Yet SSA countries would still require an additional US$ 23 billion on top of increasing the current level of aid to 0.7 percent of developed countries’ GDP or an additional US$ 24.4 billion if the level of aid doubles. In the intermediate scenario, the gap for SSA countries would reach US$ 44.4 billion. Finally, should stakeholders be unable to reach their commitments to aid and public health expenditure and the global financial crisis negatively affects growth, the gap in SSA countries will grow up to US$ 78.8 billion under fiscal space scenario 4 and to US$ 82.2 billion under the fifth fiscal space scenario.

22. Finally, the Maximum MDGs ++ scale-up scenario, aimed at expanding all interventions in all countries at all levels and dramatically strengthening the health system, is likely to be very difficult to implement both financially and institutionally. From the financial perspective, even assuming a relatively optimistic macroeconomic framework and full compliance of donors to their Gleneagles commitments, a very large financing gap of US$ 113.2 billion for 2009-15 would remain. Indeed, the MBB
Maximum overflows all five fiscal space scenarios. Even if ODA meets the Gleneagles commitment of 0.7 percent of GDP (equivalent to more than tripling the current level of aid) and governments increase their allocation to health to 15 percent of public expenditures, a gap of US$ 113.2 billion remains under fiscal space scenario 1 for the 49 countries. This gap would increase to US$ 115.2 billion under fiscal space scenario 2, US$ 147.7 billion under scenario 3, US$ 204.9 billion under scenario 4 and finally, to US$ 209.7 billion under scenario 5. This substantial increase in resources would challenge the absorptive capacity of these countries and could present macro-economic problems. From the institutional perspective, this scenario would also call for countries to push the frontier of expansion of service delivery much beyond their current national plans, and develop approaches to solve problems that currently seem insurmountable. For many countries of SSA and some non SSA countries there is for example no clear strategy to ensure that trained midwives live and work in poor remote areas.

Figure A-1 Estimated impacts & Costs Framework (49 countries)

23. The additional cost and impact in mortality reduction and number of life saved due to the incremental impact of the implementation of the 3 scenarios are summarized in Figure A-2 below for SSA countries based on the national strategic plans of countries. Figure A-3 presents the same data for non SSA countries.
Figure A-2: Estimated impacts & Costs Framework (SSA countries)

Figure A-3: Estimated impacts & Costs Framework (non-SSA countries)
B. Introduction

24. At the High Level Event on the Millennium Development Goals (MDGs) held at the United Nations Headquarters in New York on 25 September 2008, world leaders called for an additional US$ 30 billion to contribute to saving 10 million lives – 3 million mothers and 7 million children.\(^\text{10}\) Stronger health systems are critical to saving these lives and building these systems will also require more resources from the international community. For this reason, international leaders announced that a High Level Taskforce on Innovative International Financing for Health Systems (HLTF) was to be created. Its objectives are to contribute to filling national financing gaps to reach the health MDGs through mobilizing additional resources; increasing the financial efficiency of health financing; and enhancing the effective use of funds. Two technical working groups have been established to present analyses and recommendations to the HLTF; Working Group 1 (WG1) on Constraints to Scaling Up and Costs, and Working Group 2 (WG2) on Raising and Channeling Funds.

25. The Working Group 1 (WG1) of the HLTF requested the UN Inter-Agency Group on Costing of the Health Related MDGs (the group includes representatives of WHO, UNICEF, UNFPA, UNAIDS, the World Bank, and the Partnership for Maternal, Newborn and Child Health [PMNCH]) to estimate the cost to reach the health-related MDGs through health system strengthening and the funding gaps for 49 low-income countries under various fiscal scenarios. The Inter-Agency Group established two technical teams to provide costing estimates; one based on a normative approach (using the “Global Price Tags” methodology developed by WHO) and one based on a country based model using a marginal costing approach. The latter approach would use the Marginal Budgeting for Bottlenecks tool, originally developed by the World Bank and UNICEF and recently revised with inputs from WHO, UNFPA, UNAIDS, and PMNCH. Annex 1 presents a summary table of the similarities and differences between the two methodologies and Annex 2 presents the incremental costs by year by disease and health system building blocks according to the WHO normative approach.

26. Subsequent to the request from WG1, a meeting of technical staff from the agencies involved in the second approach (World Bank, UNICEF, UNFPA and PMNCH) took place in Geneva on 21-23 January 2009. During this planning meeting a core technical team discussed the main methodological parameters to be used in the cost estimation exercise. These parameters included the option to produce cost estimates at the regional, sub-regional and country levels, the definition of sub-regional groups, the steps of the process, the parameters of budgeting including appropriate phasing of investment and linkages between investments and associated recurrent costs, the timeframe for each phase, and the various requirements for costing specific health systems costs based on country characteristics. In addition, extensive discussions took place with WHO to ensure comparability of both costing approaches. Specific coordination mechanisms between the two teams were established including fluent communication, exchange of technical documents and regular teleconferences.

\(^{10}\) http://www.un.org/millenniumgoals/2008highlevel/
27. Following the planning meeting, an extended technical group worked in Washington DC, hosted by the World Bank, on January 26 - February 11, 2009 to carry out the cost estimates while regularly seeking inputs and feedback from WHO, World Bank, UNICEF, and UNFPA technical departments. Discussions were carried out within the World Bank regarding the definition of parameters for the macroeconomic scenarios, with particular consideration of the impact of the financial crisis on creating and sustaining domestic fiscal space in developing countries.

28. The first phase of the process consisted of the preparation of consistent and harmonized country specific models based on applications conducted at country level during 2007 and 2008. Country specific data validated by country teams were migrated to the most recent version of the modeling tool (MBB 5.0), which includes all the latest updates and revisions suggested by the various agencies of the UN Inter-Agency Group. Fully validated country specific data were available for 35 countries. In addition, data were updated and completed for the remaining 14 countries without previous application of MBB. The internal coherence of the tool was reviewed and consistency checks as well as sensitivity analysis were run systematically to identify outliers and locate potentially inadequate drivers of cost. Numerous simulations of different scenarios were then run and discussed by the group, and additional sensitivity analysis was conducted. Finally, an expert group from the different participating agencies has been convened to discuss and interpret the results and implications.
C. Background and objectives

29. The health MDGs to which the World has committed include goals for substantial reductions in child and maternal mortality and child malnutrition as well as increased access to water and sanitation and an enhanced combat against HIV/AIDS, malaria, tuberculosis and other diseases. The root causes of currently stagnating mortality levels are clearly linked to poverty, lack of knowledge, poor water and sanitation, sometimes to discrimination linked to gender and ethnic origin, often to conflict and increasingly today to HIV/AIDS. At the same time, recent publications have reconfirmed that around two thirds of this mortality can be prevented through existing and proven health and nutrition interventions. Yet, despite extensive sector reforms, health systems in many low income countries still fail to reach large numbers of women and children - especially the poorest and most vulnerable - with these interventions.

C.1. Africa Strategic Framework and Asia-Pacific Investment Case

30. Two recent strategic documents have been developed by governments in collaboration with their development partners to accelerate progress on the health related MDGs:
   1) A Strategic Framework for Reaching the Health Related Millennium Development Goals in Africa by Strengthening Health Systems (the "Strategy"); and
   2) Investing in Maternal, Newborn and Child Health - The Case for Asia and the Pacific (the "Investment Case").

31. The Strategy and Investment Case form the backbone of this analysis, both in terms of the overall approach to achieving the health related MDGs by strengthening health systems, and also at a more technical and programmatic level by informing selection of interventions.

32. The Strategy and the Investment Case for MNCH are similar in important respects. First, they recognize that purposeful and stepped up action is needed to accelerate progress on the health related MDGs. Second, based on the latest evidence on effectiveness, they identify the interventions and strategies that will realize the largest health gains. Third, they both take a health systems approach by including short-term and medium-term investment needs, in addition to an increase in operational expenses, to ensure that the required human resources, infrastructure, inputs and governance structures are in place to deliver essential interventions.

33. The Strategy and the Investment Case are similar in fundamental respects. First, they begin with an empirical analysis of the situation of health and nutrition outcomes in African and Asian countries, the strengths and weaknesses of the health systems of these countries, as well as the constraints and barriers to effective use of health services and community interventions by the population. Second, socio-economic development indicators, such as economic growth, poverty rates, government fiscal capacity, and ODA
flows, are integrated as essential parameters of the health sector situation analysis. Third, the documents recognize that a package of high impact interventions to achieve the health related MDGs exist, but that constraints and bottlenecks on both supply and demand hinder progress on those MDGs. Fourth, they propose a set of remedial country tailored and complementary strategies to address demand and supply constraints, that should be planned, financed and delivered. Fifth, they estimate the costs, and associated fiscal implications, of delivering the interventions. Finally, they call for an increased commitment of governments and development partners to reduce child and maternal deaths, malnutrition and communicable diseases by prioritizing and accelerating efforts to ensure universal access to these effective interventions. They call upon governments to strengthen their health systems and mainstream these priorities into their national health policies, strategies, systems and budgets. And they call upon international development partners to step up their financial and technical assistance to countries.

34. While the overall approach of the *Strategy* and the *Investment Case* is similar, the situation analysis of the health sector, the socio-economic back-drop, and hence the recommended interventions and strategies, as well as their costs and financing mechanisms are specific to the different contexts. The two documents also take into account that the regions are not homogenous and that difference in health status, health systems, economic development and funding capacity, inform different recommendations tailored to different country contexts.

35. The *Strategy* emphasizes that most countries in sub-Saharan Africa, are not on track to achieve the health related MDGs – although a few countries have made significant progress. The strategy proposes to address this lack of progress by scaling up five distinct, but related work streams:

1) aligning interventions and programs for maternal and newborn care, immunization, nutrition, malaria, HIV/AIDS, tuberculosis and water and sanitation into integrated intervention packages organized in a continuum of care from pre-pregnancy to delivery to infancy, and beyond;
2) developing partnerships especially with communities and civil society;
3) ensuring that these packages are part of an improved and aligned national strategic planning process for scaling up;
4) ensuring equitable and predictable financing of services, health systems strengthening and communication; and
5) mustering the political commitment and harmonizing health related global initiatives and partnerships to strengthen health systems and guarantee equitable effective coverage with these intervention packages.

36. At a more technical and programmatic level, the *Strategy* proposes to maximize the synergy between the high impact interventions through the strengthening of three main service delivery arrangements namely:
1) **family-oriented, community-based services** that can be delivered on a daily basis by trained community health or nutrition promoters with periodic supervision from skilled health staff;

2) **population-oriented, schedulable services** that require health workers with basic skills (e.g., auxiliary nurses/midwives and other paramedical staff) and that can be delivered by outreach, campaigns, mobile teams or in health facilities in a scheduled way; and

3) **individually oriented clinical services** that require health workers with advanced skills (such as registered nurses, midwives or physicians) available on a continuous basis, usually based in clinics or hospitals.

37. Acknowledging that the process of universal coverage requires time and financial resources, especially in countries where the health system is weak, the *Strategy* identifies three potential service packages that can be delivered through the various delivery modes:

1) **A minimum package** of proven high-impact and low-cost interventions that need to be implemented immediately at scale in all of sub-Saharan Africa;11

2) **An expanded package** equivalent to the minimum package plus extra evidence-based interventions that include additional neonatal care and comprehensive emergency obstetric care;

3) **A maximum package** equivalent to the expanded package plus new interventions in the pipeline such as vaccines against rotavirus and pneumococcal infections, and intermittent preventive treatment of malaria in young children.

38. The *Strategy* proposes three phases for implementation:

1) **Phase 1** proposes to “jumpstart” the implementation at scale of the most effective interventions in the minimum package, by delivering those through community-based services and through outreach services as well as through primary clinics. A parallel, more incremental strengthening of demand, financial access and quality of clinical care at primary and first referral level, is conducted to boost the effective coverage of other integrated health and nutrition interventions.

2) During **phase 2**, the expanded package is integrated in the system while further reductions of system-wide supply and demand bottlenecks in all three service delivery arrangements lead to additional increases in effective coverage.

11 The minimum package includes ITNs for pregnant women and infants; antenatal care including antenatal IPT for malaria; promotion of early, exclusive and prolonged breastfeeding; neonatal care; routine immunization of mothers and children; vitamin A supplementation; deworming; complementary infant feeding; therapeutic feeding for severe malnutrition, oral rehydration therapy and zinc supplementation for diarrhea; malaria treatment, including artemisinin-based combined therapy; management of pneumonia in newborns and children; antiretroviral drugs and infant feeding counseling for the prevention of Mother to Child Transmission of AIDS; and birth spacing; Skilled Delivery and Newborn care backed up by Emergency Obstetric and Neonatal Care; antiretroviral drugs (ARVs) and cotrimoxazole prophylaxis for the management of pediatric AIDS; and Hib vaccine for haemophilus influenza type B.
3) To fully achieve the health-related MDGs **phase 3** adds additional strengthening of the availability and access to clinical care at all levels, as well as the introduction of new interventions as part of the maximum package.

39. The *Investment Case* was developed by the “Maternal, Newborn and Child Health Network for Asia and the Pacific”, which is composed of analysts from 12 global, multilateral and bilateral organizations and foundations working in the health field. The *Investment Case* has been discussed with several governments in the region, who have signaled strong interest in the approach, interest that has led to the development of some country-specific investment cases.

40. The investment case suggests that at the current rate of progress, Asian countries cannot achieve MDGs 4 and 5 unless urgent action is taken. Based on the best available science and economics and evidence about what works in practice, the *Investment Case* calls for increased and concerted funding and programming to address maternal, newborn and child health, as well as reproductive and family health, by governments and their development partners in the region.

The *Investment Case* argues that financing sits at the heart of why progress on the health related MDGs is insufficient in the region, and that five actions must be taken (the “five Is”):

1) increase funding;
2) increase efficiency;
3) increase equity;
4) strengthen incentives;
5) promote integration of funding and programming.

41. It also suggests that investment in health is an investment in social justice, social stability and economic productivity. The current global financial crisis brings these aforementioned challenges of financing and inequity in maternal, newborn and child health into an even sharper focus.

42. The *Investment Case* recommends a set of interventions and services from which countries should select, all of which have been proven to be “best buys” for achieving MDGs 4 and 5. It estimates the costs of these interventions, as well as complementary strategies to address constraints and bottlenecks on the supply and demand sides that constrain delivery, and utilization, of health services and community interventions.

43. The precise composition of the “best buys” varies from country to country, and changes over time, depending on health burdens, costs, capacities, and where and when epidemics strike. Therefore, for it to be effective, the illustrative approach described in the *Investment Case* should be adapted on a country-by-country basis to address the specific needs, circumstances, challenges, constraints and bottlenecks of each country where it is applied. It should also take into account the existing costs and capacities specific to that country or sub-national area.
C.2. Objectives of this analysis

44. The main and immediate objective of the analysis described in this report is to estimate the funding needs for strengthening and sustaining health systems so as to achieve of the health related MDGs in 49 low-income countries by 2015.

45. The cost estimates of this analysis will inform the final report of the High Level Taskforce on Innovative International Financing for Health Systems (HLTF), particularly Working Group 1 on Constraints to Scaling Up and Costs, and indirectly Working Group 2 (WG2) on Raising and Channeling Funds. Another cost analysis, based on the “Global Price Tag” methodology developed by WHO, will also be submitted to WG1.

46. Meeting these costs through increased and improved resource allocation will allow governments, and their development partners, to plan and finance implementation of cost-effective intervention packages at appropriate levels of care, under realistic fiscal scenarios. As such, an indirect objective of this analysis is to contribute to mobilization of increased, and more effectively used, financial resources to support the achievement of the health-related MDGs by building and sustaining strong health systems in low- and middle-income countries. This objective is directly aligned with those of the HLTF.
D. Methods

D.1. Time frame

47. The simulation exercise was applied to the period 2009-2015, coinciding with the end date of the MDGs. This time period was divided into 3 phases: 2009-2011, 2012-2013 and 2014-2015. This phasing aims at reflecting the gradual nature of the development of the health systems to achieve the health-related MDGs.

D.2. Countries included

48. The countries included in this exercise were the 49 Low-Income Countries, as per the World Bank definition, namely:

49. To derive this classification, the World Bank divides economies according to 2007 GNI per capita, calculated using the Atlas method. Low income countries, included in the exercise, are those with US$935 GNI per capita or less, as measured by this method.

50. It is important to note that the UNPD has estimated that the population living in less developed countries (including China) is approximately 5.6 billion. The set of 49 low income countries listed above have a total population of around 1.3 billion or less than a quarter of the world population living in less developed countries (including China).
D.3. Targets of the simulations (MDGs)

51. For the present exercise, the scaling up of interventions and strengthening of health systems aims at achieving the health-related Millennium Development Goals by 2015\textsuperscript{12}. The MDG included are:

- MDG 1: Eradicate extreme poverty and hunger (Target 1.C: Halve, between 1990 and 2015, 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;
- MDG 7: Ensure environmental sustainability (Target 3: Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation).

52. These targets are not exclusive, but mutually reinforcing. For example, the achievement of improved nutritional status in children (MDG 1c) will have significant impact on the reduction of child mortality (MDG 4). Reducing the burden of malaria and HIV (MDG 6) has a major impact on malnutrition (MDG 1c), child mortality (MDG 4) and maternal health (MDG 5). Strengthening health systems underpins all MDGs and reduces the need for large separate programmatic operations, thus reducing the cost of isolated disease-specific programs.

53. The present exercise takes into account these synergies as it is built on a country based model of joint planning and programming. For each country, programmatic assumptions are linked to health systems’ assumptions. Hypotheses in terms of increase in coverage of specific interventions for nutrition, child and maternal health are dependent on (and sometimes limited by) health systems constraints. For example, coverage of assisted deliveries cannot be set at 80 percent or 90 percent if human resources and infrastructure can only provide an access of 60 percent due to structural constraints. As a result this exercise analyzes the combined impact of strengthening health systems and scaling up critical interventions on each of these MDGs, eliminates double counting and takes due account of these dynamic interactions.

\textsuperscript{12} \url{http://www.un.org/millenniumgoals/}
D.4. Simulations

D.4.1 Overview of the simulation model

54. The simulations have been produced with the help of the Marginal Budgeting for Bottlenecks tool (MBB) tool. MBB is an analytical costing and budgeting tool developed by UNICEF, the World Bank, and Ministries of Health of numerous developing countries. Since January 2008, it has been subject to several inter-agency reviews and has been significantly enriched with the inputs and suggestions of UNFPA, WHO and UNAIDS.

55. The tool has been developed in the context of reforms of the health sector aiming at improving the effectiveness of the sector to deliver on health outcomes. These reforms have taken place within the framework of the Enhanced Heavily Indebted Poor Countries Initiative (HIPC)\textsuperscript{13} and Poverty Reduction Strategy Papers (PRSPs)\textsuperscript{14} to respond to the need for low-income countries to plan, cost and budget incremental allocations to health services and assess their potential impact on health coverage and MDG-related health outcomes of the poor. Recently the tool has been used to develop costing and budgeting scenarios for countries to progress towards the health MDGs in Ethiopia, Mali, Mozambique, Nepal and Zambia.

56. The tool mainly addresses the following six questions:
   1) Which high impact interventions can be integrated into existing service delivery arrangements to accelerate progress towards the health and nutrition MDGs?
   2) What are the major health systems hurdles or “bottlenecks” hampering the delivery of health services, and what is the potential for their improvement?
   3) What would be the potential cost of alternative options to alleviate the identified health systems hurdles or bottlenecks?
   4) How many additional financial resources are needed for the expected results?
   5) What could be achieved in terms of health outcomes by removing the bottlenecks?
   6) What amount of financing could be mobilized under various fiscal scenarios and how should additional funding be allocated?

57. The tool hence helps to: (i) plan and forecast the potential cost and impact of scaling up investments to remove health system constraints towards increasing the scope, coverage and quality of high impact health, nutrition, malaria, tuberculosis, and HIV/AIDS interventions; (ii) prepare results-oriented programs and health budgets; and (iii) suggest potential improvements in allocative and technical efficiency for various health sector resource utilization scenarios.

\textsuperscript{13}\url{www.worldbank.org/hipc/}
\textsuperscript{14}\url{http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPOVERTY/0,,menuPK:384207--pagePK:149018---piPK:149093---theSitePK:384201,00.html}
58. The approach focuses on the selection of evidence-based interventions currently implemented in a country and organizes them into three service delivery modes: family oriented community based services (including household behavior change activities, community workers service, and social marketing), population oriented schedulable services (i.e. outreach services and campaigns for standardized universal services), and individual oriented clinical services (requiring decisions on diagnostic and treatment). Five production functions are defined in the tool:

1) family and community services;
2) population oriented;
3) clinical primary level;
4) clinical first referral;
5) clinical second referral.

59. The tool uses baseline coverage of critical interventions (named tracer interventions) and coverage determinants to estimate performance of health services - both public and private - and identify bottlenecks in both supply and demand.

60. The approach simulates improvements in coverage derived from bottleneck reduction, including the expected changes in utilization resulting from changes in the volume of services supplied. It uses availability of essential inputs and human resources, physical access, utilization, continuity, quality and effective coverage as determinants. It then estimates the cost of strategies aimed at removing bottlenecks and their returns in terms of health outcomes, e.g. reductions in maternal, neonatal, and under five mortality rates and malnutrition.

61. The tool allows adjustments to country specific health systems and programs. In the same way that it can be applied at country level, it can also be applied at global, regional, or sub-national levels.

D.4.2 Conceptual framework

62. The modeling has been conducted on the basis of a functional analysis approach. It incorporates a two-level process aimed at improving health status, or improving health outcomes. These levels of production are in effect the *health service production function*, and the *health outcome production function*. The first one, the health service production function, captures the process of how inputs are used to produce outputs, i.e. how human resources, drugs and other inputs, and infrastructure are combined to produce health service coverage levels. The second one, the health outcome production function, is the process of transforming health service supply into coverage levels, and in turn into health outcomes, i.e., the relationship between the coverage of different medical interventions and the reductions in mortality, which tends to be a biological and clinical process (Figure D-1).\(^\text{15}\)

\(^{15}\) Further details can be found in the “MBB Technical Note”.

29
63. The following components or modules are included:

- **Health interventions and coverage module** covers aspects related to health services, including their packaging or coverage scenarios;
- **The outcome module** mirrors the health outcome production function and uses epidemiological evidence to quantify how the improvement of health services can translate into improvement in health outcomes, e.g., such as mortality reduction, or disease prevalence decline;
- **The costing module** covers the services/output production function, outlining the relationship between inputs and health service coverage (or outputs), calculating the additional resources needed for removing health system constraints;
- **The budgeting and fiscal space module** translates marginal costs into budget and funding needs considering the phasing and the pace of implementation decisions of countries as well as the macro-fiscal frameworks.

**D.4.3 Data requirements and limitations**

64. The production of the projections requires a vast amount of information which is based on a robust health sector planning process. This information includes demography, epidemiology, the main parameters of health systems, interventions and their coverage, item costs and the macroeconomic framework.

65. Most of the required data is produced at the country-level; usually validated through a country-based process by expert groups. The data entry sheet provides a menu of cost items to be included or excluded in each country based on the health system and financing design of the country. The tool includes generic unit costs, which can be used when local costs are not known. In the event that required information is not available, values are extrapolated from the averages of countries with similar characteristics (referred as country typologies), and generic data reviewed by a panel of experts is utilized. Epidemiology and demographics data are based on surveys including...
Demographic and Health Surveys (DHS)\textsuperscript{16} and Multiple Indicator Cluster Surveys (MICS)\textsuperscript{17}, national surveys, census, and other sources.

66. Obtaining all these data for 49 countries has been a major challenge. The fact that there had been recent applications in 35 out of the 49 countries has considerably lightened this load. See Annex 1 for details. However, some of the data sources for these countries were outdated. Where possible, data published by the UN (World Development Report, World Health Report, State of World Children, Population Tables, Report on the Global AIDS Epidemic, etc.) or other global bodies (e.g. CHERG) have been utilized. Another key source of data has been the DHS and MICS surveys. For those countries where the MBB had been previously applied, national sources of data (public registries, national surveys, expert opinion) have been included. A comprehensive list of the data sources utilized can be found in the Reference section. Follows a specific analysis on data issues and limitations for child and maternal mortality.

67. The modeling of the reduction in IMR and U5MR present several limitations:

A. Recent DHS and MICS surveys suggest significant U5MR reductions may overestimate the gains made due to methodological issues.
B. The affected fraction (proportion of the population that would benefit from a specific intervention) for the HAARTs and ACTs as well as pneumococcal, HIB and rotavirus vaccines are based on low resistance and high sensitivity. Emergence or increases in resistance to ACTs, ARVs or other epidemiological changes would reduce the projected impact;
C. Several governments have different policies regarding the inclusion of recent, evidence-based child survival interventions in their national policies: e.g. community-based management of pneumonia and neonatal infections; pneumococcal and rotavirus vaccines; and zinc and other multi-micronutrient supplements due to cost as well as concerns of feasibility;
D. A combination of the above three factors can result in overestimating the impact on U5MR reduction;
E. Stagnation and reversals of U5MR reduction between 1990 and 2005/8 in many “conflict” and “post conflict” countries like Rwanda and Afghanistan may make achieving the MDGs from the 1990 baseline impossible in the remaining seven years; Globally accepted, scientific estimates on the causes of under-five mortality include large proportions of “unspecified causes” for which no evidence based interventions are considered in the MBB impact model;

68. The modeling of the reduction in MMR also presents several limitations:

A. The 1990 MMR estimates are based on a different methodology from the 1995 revised estimates and the 2005 revised estimates and confidence intervals in all MMR estimates are generally very large;

\textsuperscript{16}\url{http://www.measuredhs.com/}
\textsuperscript{17}\url{http://www.childinfo.org/}
B. In several countries the reported and/or adjusted MMR rates show a significant rise from 1990 to 1995 (especially in Africa) or from 1990 to 2005 (especially in Central Asia);
C. Causes of Maternal Mortality include large proportions (20-40%) of “unspecified” causes, for which no evidence based interventions are considered in the MBB impact model;
D. The existing evidence base on interventions to address specific causes of MMR is remains limited. The literature indicates limited efficacy levels (below 100%) of these evidence based interventions, even when combined;
E. Several countries report high baseline coverage of key maternal health interventions especially skilled birth attendance and EOC, leaving little scope to further reduce MMR within the MBB impact model;
F. In several countries (especially Central Asian countries, DPRK and Vietnam) several of the above issues converge (reported rises in MMR since 1990, high 2005 coverage levels and high proportion of unspecified causes) which makes it mathematically impossible to reduce MMR by 75% from 1990-2015, even when effective coverage with all evidence based interventions reaches 100%;
G. Confidence intervals for the MMR estimates in 1990, 1995 and 2005 and for the expected MMR impact estimates are large due to sampling issues, validity of data sources and other reasons; this limits the validity and accuracy of the number of countries expected to reach MDG5.
H. In other countries (especially in Africa) an opposite issue arises, with very high reported drops in MMR rates from 1990 or 1995 to 2005, while reported 2005 baseline coverage with evidence based interventions is very low. This suggests over-optimistic and un-realistic reductions of MMR (e.g. Ethiopia).

D.5. Selecting high impact health interventions

D.5.1 Generic interventions included in the tool

69. The tool includes high impact interventions which have proven efficacy and are promoted by key global institutions. The interventions included in the present version of MBB can be provided at different service delivery levels, namely, Community (C), Outreach (O), Primary Clinical (P), First Referral (F) and Second referral (S). Annex 4 presents the list of all the interventions that can be selected for each country or group of country for each of the three phases.

D.5.2 Specific interventions selected for this exercise

70. Table D-1 lists the proven interventions related to the reduction of child mortality by the specific-causes most frequently associated with under-five mortality in lesser developed countries. Table D-2, Table D-3, and Table D-4 list the proven interventions related to reduction child malnutrition, maternal mortality, and reduction in HIV/AIDS, malaria, and tuberculosis, respectively.
### Table D-1: Proven interventions to reduce mortality in children

<table>
<thead>
<tr>
<th>Interventions to reduce U5 Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diarrhea</strong></td>
</tr>
<tr>
<td>Antibiotics (diarrhea)</td>
</tr>
<tr>
<td>Breastfeeding, children 6-11 months</td>
</tr>
<tr>
<td>Complementary feeding</td>
</tr>
<tr>
<td>Exclusive breastfeeding 0-5 months</td>
</tr>
<tr>
<td>Oral Rehydration Therapy</td>
</tr>
<tr>
<td>Vitamin A supplement (child)</td>
</tr>
<tr>
<td>Hand washing with soap by mother</td>
</tr>
<tr>
<td>Use of sanitary latrine</td>
</tr>
<tr>
<td>Supply of safe drinking water</td>
</tr>
<tr>
<td>Quality of drinking water</td>
</tr>
<tr>
<td>Multiple Water/Sanitation/Hygiene interventions</td>
</tr>
<tr>
<td>Zinc supplements (child)</td>
</tr>
<tr>
<td>Zinc therapy</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
</tr>
<tr>
<td>Management of severe dehydration and complicated enteric fevers at referral level</td>
</tr>
<tr>
<td><strong>HIV / AIDS</strong></td>
</tr>
<tr>
<td>Condom Use</td>
</tr>
<tr>
<td>Male circumcision</td>
</tr>
<tr>
<td>STI management</td>
</tr>
<tr>
<td>PMTCT (testing and counseling, AZT + sd)</td>
</tr>
<tr>
<td>NVP and infant feeding counseling</td>
</tr>
<tr>
<td>First-line ART for pregnant women with HIV/AIDS</td>
</tr>
<tr>
<td>Cotrimoxazole prophylaxis for children of HIV+ mothers</td>
</tr>
<tr>
<td>ART for children with Aids</td>
</tr>
<tr>
<td>Management of complicated Aids</td>
</tr>
<tr>
<td>Management of first line Aids failures</td>
</tr>
<tr>
<td><strong>Malaria</strong></td>
</tr>
<tr>
<td>Complementary feeding</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
</tr>
<tr>
<td>Insecticide Treated Mosquito Nets for under 5 children</td>
</tr>
<tr>
<td>Vitamin A</td>
</tr>
<tr>
<td>Zinc</td>
</tr>
<tr>
<td>Chloroquine for malarial treatment</td>
</tr>
<tr>
<td>Anti malarial combination treatment at PHC level</td>
</tr>
<tr>
<td>Management of complicated malaria at referral level</td>
</tr>
<tr>
<td>Intermittent Presumptive Treatment (IPT) for children</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
</tr>
<tr>
<td>Complementary feeding</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
</tr>
<tr>
<td>Measles immunization</td>
</tr>
<tr>
<td>Vitamin A – supplementation</td>
</tr>
<tr>
<td>Vitamin A - Treatment for measles</td>
</tr>
<tr>
<td>Management of severe measles at referral level</td>
</tr>
<tr>
<td><strong>NN Prematurity</strong></td>
</tr>
<tr>
<td>Calcium supplementation in pregnancy</td>
</tr>
<tr>
<td>Detection and management of (pre) eclampsia (Mg Sulphate)</td>
</tr>
<tr>
<td>Additional ANC: detection and treatment of asymptomatic bacteriuria</td>
</tr>
<tr>
<td>Additional intrapartum: antenatal steroids</td>
</tr>
<tr>
<td>Universal skilled maternal and immediate neonatal care</td>
</tr>
<tr>
<td>Community support to LBW</td>
</tr>
<tr>
<td>Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)</td>
</tr>
<tr>
<td>Balanced protein energy supplements for pregnant women</td>
</tr>
</tbody>
</table>
Interventions to reduce U5 Mortality
Supplementation in pregnancy with multi-micronutrients

NN Severe infection
Clean delivery
Community support to LBW
Early Breastfeeding
Universal case management for pneumonia
Intermittent presumptive treatment of malaria (IPT) for pregnant women
Skilled delivery and neonatal care
Detection & treatment of syphilis in pregnancy
Additional intrapartum: antibiotics (PPROM)
Additional emergency newborn care (management of serious infections)
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)

NN Tetanus
Skilled delivery
Tetanus toxoid
Clean delivery

Asphyxia
Universal antenatal care (ANC)
Skilled delivery and immediate neonatal care
Resuscitation of asphyctic newborns at birth
Asphyxia aftercare at referral level
Assisted delivery or vacuum extraction at B-EOC level
Caesarian section at C-EOC level

Pneumonia
Complementary feeding
Therapeutic Feeding
Breastfeeding for children 0-5 months
Breastfeeding for children 6-11 months
Zinc
Hib immunization
Antibiotics for U5 pneumonia
Management of severe pneumonia at referral level
Pneumococcal immunization


Table D-2 Proven interventions to reduce malnutrition in children

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

Total (residual)


Table D-3 Proven interventions to reduce maternal mortality

Tetanus toxoid
Screening for pre-eclampsia
Screening & treatment of asymptomatic bacteriuria
Normal delivery by skilled attendant
Active management of the third stage of labor
Initial management of post-partum hemorrhage
Drugs for preventing malaria-related illness in pregnant women and death in the newborn (50)
Treatment of severe pre-eclampsia or eclampsia
Assisted delivery & vacuum extraction at B-EOC level (51)
Management of obstructed labor, breech & fetal distress (OL) at C-EOC level (Caesarian Section)
Referral care for severe post-partum hemorrhage (PPH)
Management of maternal sepsis
MTP / management of complicated abortions
Family planning
Family Planning
iron/folic acid supplements
multi micronutrients
deworming
calcium supplements

Table D-4 Proven Interventions to reduce deaths from AIDS, TB and Malaria in adults and during pregnancy

- Cotrimoxazole 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 Multi Drug Resistant TB
- Artisunate Combination Treatment (ACT)
- Management of complicated malaria with second line drugs

D.5.3 Phasing of Interventions

71. One underlying principle of the exercise is that to accelerate scale-up of high-impact interventions it is necessary to strengthen the health system first. Certain interventions require complex inputs (skilled personnel, infrastructure) which take a relatively long period of time to generate. Those more complex interventions are effectively introduced in latter stages, while the investment costs of training new personnel or building new infrastructure is borne since the earlier stages. Some simpler interventions can be nevertheless scaled up in a relatively short period of time. Three phases of interventions were considered:

1) Phase 1 (2009-2011)
   - Immediate scale up of community, outreach and primary health case based interventions;
   - Start investing in training of human resources and building infrastructure.

2) Phase 2 (2012-13)
   - Scale up first referral based interventions;
   - Continue investment in human resources and infrastructure.

3) Phase 3 (2014-15)
   - Scale up second referral based interventions.
These general guiding principles have been interpreted in accordance with each scenario and group of countries concerned.

**D.6. Determining coverage targets through bottleneck analysis**

**D.6.1 General methodology**

72. The identification of bottlenecks is performed through a step-wise approach that assesses the availability of essential health commodities, availability of human resources, the accessibility of health care services, the initial utilization of these services, the continuity in the utilization of services, and the quality of the services delivered.

1) *Availability of Essential Commodities.* This component includes assessing the availability of critical health system inputs such as drugs, vaccines and supplies. MBB provides the additional cost of removing bottlenecks that are related to the availability of critical health system inputs.

2) *Availability of Human Resources.* This component includes the assessment of available human resources for the adequate functioning of the health system and specifically the delivery of proven high impact evidence based interventions.

3) *Accessibility.* This indicator describes the physical access of health services to the clients. It includes, for example, the number of villages reached at least once a month by outreach services (for population oriented outreach services), and time taken to reach a facilities providing basic and emergency obstetric and neonatal care services (for clinic based individual care services).

4) *Initial Utilization.* This describes the first use of multi-contact services, for example, first antenatal contact or first in a series of childhood vaccinations.

5) *Timely Continuous Utilization.* It assesses the extent of achievement compared to optimal contacts and services, for example the percentage of children receiving three doses of vaccine against Diphtheria, Pertussis and Tetanus (DPT3) or measles vaccine, or percentage of women receiving four prenatal visits. It measures continuity and compliance of multiple visits for care, thus sometimes referred to as the continuity determinant.

6) *Effective Quality Coverage.* This last determinant measures the proportion of the population in need of an intervention who has received an effective intervention. Effective services are defined as a minimum amount of inputs and processes that are expected to produce desired health effect if used by individuals or applied to the population at large. In effect, it measures health system performance and quality of care at local, district, and national levels.

73. The MBB tool thus uses a total of twelve tracer interventions to diagnose health system bottlenecks. For instance, the family preventive/WASH services sub-package of the family-oriented mode includes the following interventions: ITNs for children under five, ITNs for pregnant women, use of safe drinking water, use of sanitary latrine, hand washing and use of condoms. These are services practiced by the family with information and education support from low skilled health workers (community health workers) or
mass media. Usually the same community health worker educates families on certain set of messages such as ITNs, safe drinking water, sanitary latrines and hand washing. Systemic constraints identified and analyzed for one intervention holds for others in the subgroup.

D.6.2 Specific bottleneck reduction by group of countries

74. The minimum scenario (Low Cost/High Impact) simulates the potential impact of implementing country strategies aiming at the highest possible impact on MDG 4, 5 and 6 with a limited budget. This scenario concentrates on scaling up and strengthening only those interventions with the highest impact and lowest cost, mostly through a focus on primary health care. This scenario emphasizes low cost, high impact interventions, and increased efficiency of health systems by using less ambitious levels of staffing and reduced investments in infrastructure.

75. The medium scenario focuses explicitly on achieving the health MDGs where possible and in the most efficient way, by addressing the most critical health system bottlenecks (by 80% on average) and scaling up a package of highly effective interventions proven to positively contribute to the health MDGs goals. The medium scenario divides SSA countries into three groups of countries, based on the level of expected progress on MDG 4 and 5 using the priority expanded intervention packages, strategies and levels of bottleneck reductions proposed in the joint WHO, UNICEF, WB Strategic Framework for Health related MDG’s in Africa. Non SSA countries were similarly divided into three groups based on the expected achievement of MDG 4 and 5 using the intervention packages, innovative strategies and bottleneck reductions proposed in the Asia-Pacific Regional Investment case for MNCH.

76. The Maximum scenario includes the additional cost to strengthening all building blocks of health systems (including hardship allowances and performance contracts with the private sector) in order to remove 100 percent of the supply bottlenecks to achieve universal access and also stimulate demand (through conditional cash transfers, improved accountability, IEC, community empowerment etc) to remove demand bottlenecks also by 100 percent by 2015 to achieve universal coverage. Under this “maximum” scenario, all health MDGs which can be achieved are reached beyond the set target and many other health benefits result for non-MDG related diseases. The MBB maximum scenario shares the general aim with the WHO scenario of strengthening the health systems to cover a broad range of health needs.

77. The bottleneck analyses for African and non African countries conducted for this exercise are similar to the ones conducted for the Africa Strategic Framework and the Asia Pacific Investment Case. Annex 5 presents a summary of the bottleneck reductions by package of interventions for the three phases, both for all African countries included in this exercise and for non African countries.
78. Overall, as detailed in Annex 5, at the community level in Africa, bottleneck reductions are evenly distributed among demand and supply determinants. In non African countries, emphasis tends to fall on the demand side in the first two phases.

79. In general, at the outreach level, the bottleneck reductions are more ambitious on the demand side both for African and non African countries in phase 1 and 2 whereas in phase 3, the bottleneck reduction is evenly distributed. In the case of preventive infant and child care in Africa however, an important reduction of the human resource bottleneck is planned since phase one, revealing the urgent need to reduce the human resource shortage in order to improve service delivery.

80. At the health center and primary referral level, only bottlenecks for the demand side determinants are reduced during phase 1 in Africa. Starting from phase 2, supply side bottlenecks are being addressed but at a less rapid pace than that of the demand side ones. As far as non African countries are concerned, the bottleneck reduction follows the trend of the outreach and community level as the major reductions concern the demand side. The level of bottleneck reduction in non African countries during phase 3 is much higher than in Africa where efforts seem to stabilize from phase 2 onwards.

81. Finally, at the second referral level, there is no bottleneck reduction for the first phase in Africa as the strategy for African countries aims at focusing on the lower levels of care. In phase 2, only demand side bottlenecks are being addressed whereas all determinants are reduced in phase 3. In the case of non African countries, the bottleneck reduction at the second referral level starts from the first phase, giving more priority to the demand side. Interesting to note that even if the cost of interventions at the second referral level is high and their impact limited, the targets set for bottleneck reduction in non African countries are very ambitious.

**D.7. Calculating Impact**

**D.7.1 Evidence of effect on reducing child mortality and malnutrition**

82. In the MBB impact module, calculation of the efficacy and the effectiveness of each intervention on under five mortality and maternal mortality is based on the results of the Bellagio Child Survival Study, published in the Lancet and the Cochrane review study. Additional evidence-based efficacy for neonatal and maternal care that comes from the British Medical Journal was recently added. The MBB impact module imports parts of the spreadsheets that were used for the Lancet series on Child Survival, prepared by Gareth Jones, et. al. and complemented with the spreadsheets developed for the Lancet Series on Newborn health (March 2005).

83. The MBB predicts the effect of intervention packages based on the effective quality coverage (i.e. complying with Minimum quality standards to effectively produce expected health benefit) of each intervention and their specific evidence-based efficacies, which are calculated in a residual way. This calculation relies on an epidemiometric
model, based on the work done by Stan Becker et al., John Hopkins University and the Bellagio group study.

84. The resulting calculation platform reflects the “efficacy levels” of child and neonatal survival interventions on priority cases of child/neonatal death based on a review of the evidence from population trials in LDCs. In addition, the “affected fractions” (for interventions from which only a subgroup of children can benefit; e.g. Vitamin A supplementation only benefits children deficient in Vitamin A), are included based on the Lancet Child Survival Series.

85. As is done in the Lancet series, the impacts of multiple interventions for the same disease specific cause of death are then added up in a residual way to avoid double counting of impacts or saving the same life twice. The total impact on neonatal mortality (NNMR), Infant Mortality Rate (IMR) and under-five mortality (U5MR) is calculated for individual interventions and packages of interventions by multiplying the disease specific mortality reduction, by the percent of U5MR attributable to each disease-specific cause of death, as specified for each country.

86. In order to control for “replacement mortality”, lives saved during the neonatal period are added to the denominator of children at risk of dying in the post-neonatal period etc. which is reflected in the difference between “adjusted” and “unadjusted” mortality reductions for each service delivery mode.

87. The 2005 Lancet series on newborn survival has identified interventions with proven efficacy (implementation under ideal conditions) for neonatal survival. It combined them into packages for scaling up in health systems, according to three service delivery modes (outreach, family-community and facility-based clinical care). Details on the efficacies and effected fractions of interventions included in the model can be reviewed in Table D-5.

88. Some demographic modeling considerations must be clarified: (a) The MBB model assumes that as family planning services increase, the method mix shifts to more modern methods with a decline in traditional methods. (b) Universal coverage: MBB model assumes that the projected modern method contraceptive prevalence rate is equal to the current total prevalence rate (modern + traditional methods) plus the current unmet need. In practice this means that “universal coverage” does not imply that all women of reproductive age would be using some method of family planning, but only those who so demand it (those presently using plus those who express their desire to do so).

89. The estimates presented here are based on a specific analysis of constraints and bottlenecks in each country. The analysis has, however, several limitations.

A. Discrepancies exist between the baseline coverage data reported by countries and the countdown data published by other sources such as the UNICEF State of the World’s Children report; especially in Africa;

B. Realistic bottleneck reductions are constrained by the macroeconomic framework, infrastructure and governance issues, especially in fragile states. For example
universal access to health facilities in DR Congo and Ethiopia are constrained by a shortage of roads;
C. Data on the availability of- and access to- the private sector health services are underreported in many countries;
D. Expected elasticity coefficients for strategies to reduce bottlenecks, e.g. conditional cash transfers, are largely undocumented and based on country level experiences and expert opinion rather than peer-reviewed literature. The MBB medium scenario relies on the possibility of increasing coverage using promising supply and demand enhancing strategies such as performance based incentives, conditional cash transfers, campaigns, transfers, etc.;
E. For maternal health, data on clinical referral care bottlenecks are limited in countries that have not benefited from formal emergency obstetric care assessments (especially in Asia);
F. Country analysis, at times, calls for the implementation beyond what is likely to be possible in terms of proven intervention strategies: e.g. in Ethiopia assisted deliveries is currently 6% with 50% of the population able to physically access a health centre. There is currently no credible strategy to raise assisted delivery coverage to 90% in a period of 7 years where the number of midwives that can be trained is constrained by a shortage of deliveries’ to be observed by students and a general reluctance of existing midwives to work in rural areas even when wages are increased.
### Table D-5 Proven interventions, their efficacy and affected fraction/assumptions in reducing mortality in children - Summary of assumptions used in MBB modeling

<table>
<thead>
<tr>
<th>Interventions to reduce U5 Mortality</th>
<th>Efficacy</th>
<th>Affected fraction/Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diarrhea</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antibiotics (diarrhea)</td>
<td>80.0%</td>
<td></td>
</tr>
<tr>
<td>Breastfeeding, children 6-11 months</td>
<td></td>
<td>Share of total U5 diarrhea mortality, 6-11 months</td>
</tr>
<tr>
<td>Complementary feeding</td>
<td>22 %</td>
<td>Depends on level of malnutrition</td>
</tr>
<tr>
<td>Exclusive breastfeeding 0-5 months</td>
<td></td>
<td>Share of total U5 diarrhea mortality, corresponding to 0-5 months old</td>
</tr>
<tr>
<td>Oral Rehydration Therapy</td>
<td>90.0%</td>
<td></td>
</tr>
<tr>
<td>Vitamin A supplement (child)</td>
<td>53.0%</td>
<td>Vitamin A deficiency</td>
</tr>
<tr>
<td>Hand washing with soap by mother</td>
<td>44 %</td>
<td></td>
</tr>
<tr>
<td>Use of sanitary latrine</td>
<td>32 %</td>
<td></td>
</tr>
<tr>
<td>Supply of safe drinking water</td>
<td>25 %</td>
<td></td>
</tr>
<tr>
<td>Quality of drinking water</td>
<td>39 %</td>
<td></td>
</tr>
<tr>
<td>Multiple Water/Sanitation/Hygiene interventions</td>
<td>33.3%</td>
<td>100 %</td>
</tr>
<tr>
<td>Zinc supplements (child)</td>
<td>22.0%</td>
<td>Zinc deficiency</td>
</tr>
<tr>
<td>Zinc therapy</td>
<td>50.0%</td>
<td>38% Zinc deficiency</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
<td>50%</td>
<td>Depends on % of diarrhea due to Rotavirus</td>
</tr>
<tr>
<td>Management of severe dehydration and</td>
<td>80%</td>
<td>100 %</td>
</tr>
<tr>
<td>complicated enteric fevers at referral level</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HIV / AIDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condom Use</td>
<td>89%</td>
<td>% cases due to sexual transmission</td>
</tr>
<tr>
<td>Male circumcision</td>
<td>70%</td>
<td>% cases due to sexual transmission</td>
</tr>
<tr>
<td>STI management</td>
<td>38%</td>
<td>% cases due to sexual transmission</td>
</tr>
<tr>
<td>PMTCT (testing and counseling, AZT + sd NVP and infant feeding counseling)</td>
<td>90%</td>
<td>1-% pregnant women on ART’s</td>
</tr>
<tr>
<td>First-line ART for pregnant women with HIV/AIDS</td>
<td>90%</td>
<td>% pregnant women on ART’s</td>
</tr>
<tr>
<td>Cotrimoxazole prophylaxis for children of HIV+ mothers</td>
<td>43%</td>
<td>100 %</td>
</tr>
<tr>
<td>ART for children with Aids</td>
<td>85%</td>
<td>100 %</td>
</tr>
<tr>
<td>Management of complicated Aids</td>
<td>10%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Management of first line ART failures</td>
<td>60%</td>
<td>15.0%</td>
</tr>
<tr>
<td><strong>Malaria</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complementary feeding</td>
<td>20%</td>
<td>Depends on level of malnutrition</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
<td>20%</td>
<td>children wasted &lt; 2SD</td>
</tr>
<tr>
<td>Insecticide Treated Mosquito Nets for under 5 children</td>
<td>75%</td>
<td>100 %</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>44%</td>
<td>Vitamin A deficiency</td>
</tr>
<tr>
<td>Zinc</td>
<td>36%</td>
<td>Zinc deficiency</td>
</tr>
<tr>
<td>Chloroquine for malarial treatment</td>
<td>67%</td>
<td>malaria sensitivity to chloroquine</td>
</tr>
<tr>
<td>Anti malarial combination treatment at PHC level</td>
<td>67%</td>
<td>malaria sensitivity to ACT’s</td>
</tr>
<tr>
<td>Management of complicated malaria at referral level</td>
<td>67%</td>
<td>90%</td>
</tr>
<tr>
<td>Intermittent Presumptive Treatment (IPT) for children</td>
<td>50.0%</td>
<td>75%</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complementary feeding</td>
<td>15%</td>
<td>Depends on level of malnutrition</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
<td>15%</td>
<td>children wasted &lt; 2SD</td>
</tr>
<tr>
<td>Measles immunization</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>Vitamin A – supplementation</td>
<td>54%</td>
<td>Vitamin A deficiency</td>
</tr>
<tr>
<td>Vitamin A - Treatment for measles</td>
<td>46%</td>
<td>Vitamin A deficiency</td>
</tr>
<tr>
<td>Interventions to reduce U5 Mortality</td>
<td>Efficacy</td>
<td>Affected fraction/Assumption</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Management of severe measles at referral level</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td><strong>NN Prematurity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium supplementation in pregnancy</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td>Detection and management of (pre) eclampsia (Mg Sulphate)</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td>Additional ANC: detection and treatment of asymptomatic bacteriuria</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Additional intrapartum: antenatal steroids</td>
<td>38%</td>
<td>100%</td>
</tr>
<tr>
<td>Universal skilled maternal and immediate neonatal care</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>Community support to LBW</td>
<td>35%</td>
<td>75%</td>
</tr>
<tr>
<td>Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)</td>
<td>28%</td>
<td>90%</td>
</tr>
<tr>
<td>Balanced protein energy supplements for pregnant women</td>
<td>32%</td>
<td>100%</td>
</tr>
<tr>
<td>Supplementation in pregnancy with multimicronutrients</td>
<td>16%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>NN Severe infection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean delivery</td>
<td>15%</td>
<td>100% of home deliveries</td>
</tr>
<tr>
<td>Community support to LBW</td>
<td>6%</td>
<td>100%</td>
</tr>
<tr>
<td>Early Breastfeeding</td>
<td>19%</td>
<td>100%</td>
</tr>
<tr>
<td>Universal case management for pneumonia</td>
<td>38%</td>
<td>100%</td>
</tr>
<tr>
<td>Intermittent presumptive treatment of malaria (IPT) for pregnant women</td>
<td>15%</td>
<td>75%</td>
</tr>
<tr>
<td>Skilled delivery and neonatal care</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>Detection &amp; treatment of syphilis in pregnancy</td>
<td>5%</td>
<td>50%</td>
</tr>
<tr>
<td>Additional intrapartum: antibiotics (PPROM)</td>
<td>6%</td>
<td>100%</td>
</tr>
<tr>
<td>Additional emergency newborn care (management of serious infections)</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)</td>
<td>50%</td>
<td>90%</td>
</tr>
<tr>
<td><strong>NN Tetanus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skilled delivery</td>
<td>75%</td>
<td>100%</td>
</tr>
<tr>
<td>Tetanus toxoid</td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td>Clean delivery</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Asphyxia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universal antenatal care (ANC)</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>Skilled delivery and immediate neonatal care</td>
<td>25%</td>
<td>100%</td>
</tr>
<tr>
<td>Resuscitation of asphyctic newborns at birth</td>
<td>13%</td>
<td>100%</td>
</tr>
<tr>
<td>Asphyxia aftercare at referral level</td>
<td>3%</td>
<td>90%</td>
</tr>
<tr>
<td>Assisted delivery or vacuum extraction at B-EOC level</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>Caesarian section at C-EOC level</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>Interventions to reduce U5 Mortality</td>
<td>Efficacy</td>
<td>Affected fraction/Assumption</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------</td>
<td>----------------------------</td>
</tr>
<tr>
<td><strong>Pneumonia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complementary feeding</td>
<td>19%</td>
<td>Depends on level of malnutrition</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
<td>19%</td>
<td>children wasted &lt; 2SD</td>
</tr>
<tr>
<td>Breastfeeding for children 0-5 months</td>
<td>depends on HIV/AIDS prevalence</td>
<td>Share of total U5 pneumonia mortality, 0-5 months</td>
</tr>
<tr>
<td>Breastfeeding for children 6-11 months</td>
<td>depends on HIV/AIDS prevalence</td>
<td>Share of total U5 pneumonia mortality, 6-11 months</td>
</tr>
<tr>
<td>Zinc</td>
<td>34%</td>
<td>Zinc deficiency</td>
</tr>
<tr>
<td>Hib immunization</td>
<td>20%</td>
<td>% of pneumonia cases due to HIB</td>
</tr>
<tr>
<td>Antibiotics for U5 pneumonia</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>Management of severe pneumonia at referral level</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td>Pneumococcal immunization</td>
<td>50%</td>
<td>% of pneumonia cases due to pneumococ</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Stunting reduction at 99% effective coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>at 12 months</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Balanced protein energy supplements for pregnant women</td>
</tr>
<tr>
<td>Intermittent preventive treatment (IPTp) for malaria in pregnancy</td>
</tr>
<tr>
<td>Supplementation in pregnancy with multi-micronutrients</td>
</tr>
<tr>
<td>Complementary feeding</td>
</tr>
<tr>
<td>Zinc preventive</td>
</tr>
<tr>
<td>Hand washing by mother</td>
</tr>
<tr>
<td><strong>Total (residual)</strong></td>
</tr>
</tbody>
</table>


**D.7.2 Evidence of effect on reducing maternal mortality**

90. In its current version, MBB bases the maternal impact calculation on the latest WHO work on the effectiveness of interventions to reduce maternal mortality by the safe motherhood program18.

91. During this assessment, intervention effectiveness was based on a literature review from meta-analysis studies, clinical trials, the Cochrane reviews, observational studies, historical data and experts’ opinion. Then, a comparison was made observing maternal mortality reduction if pregnant women give birth outside health facility, in the absence of skilled birth attendants or any of certain obstetric interventions, and if the births have preceded/occurred under specific obstetric interventions.

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18 To date, MBB uses results in the work in progress document “The effectiveness and costs of interventions to reduce maternal mortality”, February 16, 2004.
92. Table D-6 summarizes the results of evidence based interventions that have been assessed and which are used by the MBB epidemiometric model.

Table D-6 Proven interventions, their efficacy and affected fraction/assumptions in reducing MMR

<table>
<thead>
<tr>
<th>Interventions to reduce maternal mortality</th>
<th>Risk reduction on maternal outcome(s)</th>
<th>Affected fraction for maternal care</th>
<th>Maternal outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus toxoid</td>
<td>90%</td>
<td>100%</td>
<td>Deaths from tetanus</td>
</tr>
<tr>
<td>Screening for pre-eclampsia</td>
<td>48%</td>
<td>100%</td>
<td>Deaths from hypertensive disorders during pregnancy</td>
</tr>
<tr>
<td>Screening &amp; treatment of asymptomatic bacteriuria</td>
<td>10%</td>
<td>100%</td>
<td>Deaths from sepsis &amp; cases of infertility</td>
</tr>
<tr>
<td>Normal delivery by skilled attendant</td>
<td>40%</td>
<td>100%</td>
<td>Deaths from sepsis and tetanus</td>
</tr>
<tr>
<td>Active management of the third stage of labor</td>
<td>62%</td>
<td>100%</td>
<td>Deaths from PPH &amp; cases of anaemia</td>
</tr>
<tr>
<td>Initial management of post-partum hemorrhage</td>
<td>75%</td>
<td>80%</td>
<td>Deaths from PPH &amp; cases of anaemia</td>
</tr>
<tr>
<td>Drugs for preventing malaria-related illness in pregnant women and death in the newborn (50)</td>
<td>38%</td>
<td>100%</td>
<td>Maternal deaths from malaria and (malaria related) anaemia</td>
</tr>
<tr>
<td>Treatment of severe pre-eclampsia or eclampsia</td>
<td>59%</td>
<td>100%</td>
<td>Deaths from hypertensive disorders during pregnancy</td>
</tr>
<tr>
<td>Assisted delivery &amp; vacuum extraction at B-EOC level (51)</td>
<td>88%</td>
<td>30%</td>
<td>Deaths from obstructed labor</td>
</tr>
<tr>
<td>Management of obstructed labor, breech &amp; fetal distress (OL) at C-EOC level (Caesarian Section)</td>
<td>95%</td>
<td>100%</td>
<td>Deaths from obstructed labor &amp; cases of urinary incontinence and obstetric fistula</td>
</tr>
<tr>
<td>Referral care for severe post-partum hemorrhage (PPH)</td>
<td>75%</td>
<td>100%</td>
<td>Deaths from PPH &amp; cases of anaemia</td>
</tr>
<tr>
<td>Management of maternal sepsis</td>
<td>90%</td>
<td>100%</td>
<td>Deaths from sepsis &amp; cases of infertility</td>
</tr>
<tr>
<td>MTP / management of complicated abortions</td>
<td>95%</td>
<td>100%</td>
<td>Death from complicated abortion</td>
</tr>
<tr>
<td>Family planning</td>
<td>50%</td>
<td>100%</td>
<td>Death from complicated abortion</td>
</tr>
<tr>
<td>Family Planning</td>
<td>89%</td>
<td>34%</td>
<td>Life Time Risk of Maternal Mortality</td>
</tr>
<tr>
<td>iron/folic acid supplements</td>
<td>73%</td>
<td>100%</td>
<td>anaemia</td>
</tr>
<tr>
<td>multi micronutrients</td>
<td>39%</td>
<td>100%</td>
<td>anaemia</td>
</tr>
<tr>
<td>deworming</td>
<td>8%</td>
<td>100%</td>
<td>anaemia</td>
</tr>
<tr>
<td>calcium supplements</td>
<td>52%</td>
<td>100%</td>
<td>Eclampsia</td>
</tr>
</tbody>
</table>


D.7.3 Evidence of effect o reduce deaths from AIDS, TB and Malaria in adults and during pregnancy

93. Table D-7 summarizes the results of evidence based interventions that have been assessed and which are used by the MBB epidemiometric model for malaria, HIV/AIDS, and tuberculosis control.
### Table D-7 Proven interventions, their efficacy and affected fraction/assumptions in reducing HIV/AIDS, TB, and Malaria

<table>
<thead>
<tr>
<th>Interventions to reduce deaths from AIDS, TB and Malaria in adults and during pregnancy</th>
<th>Efficacy</th>
<th>Affected fraction/Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotrimoxazole prophylaxis for adults with HIV/AIDS</td>
<td>45%</td>
<td>100% HIV/AIDS</td>
</tr>
<tr>
<td>ART for adults with Aids</td>
<td>85%</td>
<td>100% HIV/AIDS</td>
</tr>
<tr>
<td>Management of first line ART failures</td>
<td>60%</td>
<td>15.0% HIV/AIDS</td>
</tr>
<tr>
<td>Management of complicated Aids</td>
<td>10%</td>
<td>15.0% HIV/AIDS</td>
</tr>
<tr>
<td>DOTS</td>
<td>80%</td>
<td>% TB cases healed after DOTS Tuberculosis</td>
</tr>
<tr>
<td>DOTS retreatment</td>
<td>80%</td>
<td>% TB cases needing DOTS retreatment Tuberculosis</td>
</tr>
<tr>
<td>Treatment of Multi Drug Resistant TB</td>
<td>60%</td>
<td>% of MDR TB cases Tuberculosis</td>
</tr>
<tr>
<td>Artisunate Combination Treatment (ACT)</td>
<td>67%</td>
<td>malaria sensitivity to ACT’s Malaria</td>
</tr>
<tr>
<td>Management of complicated malaria with second line drugs</td>
<td>67%</td>
<td>90% Malaria</td>
</tr>
</tbody>
</table>

### D.7.4 Steps in calculating impact

94. The main purpose of the impact module is to evaluate and predict change in child and maternal health. Depending on the type of intervention, the resulting effect may be direct or indirect. Figure D-2 summarizes the steps used by the MBB epidemiometric model to predict the impact of evidence based interventions:

1. Calculate the proportion of mortality attributable to key cause-specific diseases;
2. Evaluate the increased coverage by scenario, including controlling for replacement mortality with different service delivery modes;
3. Measure the effectiveness (population efficacy) of evidence based interventions by cause-specific disease;
4. Compute the residual accumulation;
5. Predict the impact of selected interventions in reducing mortality rates;
6. In case of maternal health, estimate the maternal mortality using indirect method techniques (lifetime risk of dying).
95. Coverage targets are calculated in MBB based on the reduction of the different existing bottlenecks. A single exception to this approach is the access to Anti-Retroviral Therapy (ART), whose target population coverage are taken from the objectives set by each country as recorded UNAIDS.

Figure D-2: MBB Steps for Impact Calculation

D.8. Calculating Costs

D.8.1 Methodology

96. The costing, budgeting and financing analysis has been structured to take into account the strategic changes in the health care delivery policies, addressing both supply and demand constraints. These identify the budgetary expansion required to overcoming the bottlenecks that constrain effective coverage with the three main packages, as explained below. The costing exercise forecasts the additional resources required for removing a set of health system bottlenecks that are considered barriers to access of health services by the population. It is based on the premise that while a basic package of effective interventions can improve health, the cost estimate should reflect the cost of eliminating the constraints or bottlenecks that hinder the expansion of coverage of the population with that basic package.

97. For each package the coverage extension scenario entails a set of strategies or programs aimed at closing gaps and overcoming bottlenecks. For each package, six components were costed, five of which correspond to the five categories of bottlenecks identified above at each service delivery level. The sixth component is for the expected costs of overcoming bottlenecks in terms of management, regulation and administration including measures to strengthen governance (capacity strengthening, central supervision, research, assistance with planning, and accountability measures such as Citizen Report
Those measures help steer the increase in coverage with the three packages. These system-level strategies are set to result in an extension of effective coverage from the starting level to one closer to the coverage frontier. Implementing these strategies requires marginal expenditures that can be costed using standard budget lines.

98. The cost for scaling up critical health interventions is calculated as the unit price of inputs multiplied by the quantity of inputs necessary to improve coverage with services. Quantity of inputs are derived from the increase in coverage with health services including increase physical access, availability of human resources, availability of commodities and supplies, increased demand and increased continuity and quality of services (Figure D-3).

Figure D-3: Calculation of incremental cost to increase coverage with health services

99. The direct or specific costs related to the provision of the service (additional drugs and diagnostic, specific commodities, specific program management features, specific information, education and communication [IEC] activities or subsidies, etc.) are included in the costing as well as the indirect or system costs related to overcoming the identified system bottlenecks (Human resources, Infrastructure, Equipment, Logistics, Management Information Systems as well as administration).

100. Within each of the categories of service delivery, inputs are grouped into the six determinants of effective coverage, namely: availability of essential commodities, availability of human resources, accessibility, initial utilization, timely continuous utilization, and effective quality coverage. The additional quantities and their associated costs are then calculated for each input.
101. The additional cost of an input i (MCi) is calculated across the sheet using the following generic formula:

\[ MC_i = P_{oi} \times Q_{oi} \times S_{oi} \times n - P_{bi} \times Q_{bi} \times S_{bi} \times n \]

where MCi = additional cost of input i; Poi = unit price of input i in the scenarios/phases; Qoi = quantity of input i per unit of output, or per service production unit in the scenarios/phases (in other words, the amount of the input needed to produce on unit of a given service/output); Soi = SPU per 1 million population of input i for the objective/target coverage (in other words the amount of service/output i for producing the coverage/outcome for 1 million people); Pbi = baseline unit cost of input i; Qbi = quantity of input i per service production units for baseline coverage; Sbi = SPU per 1 million population of input i for the baseline coverage; and n = population. This calculates, in two steps, the portion of the cost associated with input i of achieving a certain level of an outcome.

102. The first step calculates the cost of the input i required to produce one unit of output (the output being service provision) \( P_{oi} \times Q_{oi} \), then in turn the second step, uses this cost of a unit of output to calculate the cost of a unit of outcome (for a population of 1 million). The cost of that outcome/result for a population of 1 million is then multiplied by total population (n) to have the total cost in terms of input i for achieving a given target in terms of an outcome or result. Finally these estimates of additional cost are aggregated over all inputs i; and subsequently aggregated over all determinants of coverage, and service delivery modes, allowing an estimate of the total cost of overcoming bottlenecks in the health system. The aggregated amounts show the cost of removing each bottleneck, as well as the cost of scaling up interventions through the three service delivery modes.

**D.8.2 Cost assumptions for this costing exercise**

103. The costing part of this exercise draws on the information provided at the country level on the unit prices, the input quantity, the service package and the increase in coverage in order to calculate the additional cost associated with a change in the coverage of given interventions from the baseline level to a new frontier.

104. The cost items used for this exercise include both recurrent costs (such as drugs and salaries) and capital costs (such as infrastructure). Cost are provided for each service delivery modes and the management supports inputs are organized into sub groups: human resources, travel costs and incentives, commodities, drugs and supplies, building and equipment, demand stimulation, performance incentive, IEC, subsidies and monitoring.

105. When the data are available, country-specific data on unit prices are used in the model in local currency so that the unit price for each of the five groups is the average input price of all the countries belonging to the group. When unit prices were missing, they are complemented with global prices, default values, or calculated prices using cost determinants. For instance, commodities and supplies global prices are taken from UNICEF/WHO supply division sources and prices. For inputs such as hardship allowance, distribution cost factor, stationary per trainee, leaflets for IEC, social/cultural
106. Finally, in some instances unit prices are calculated using cost determinants. The cost determinants include: percentage of GDP for salary; number of days of training for refresher training; time spent by the health workforce for travel incentive, performance incentive and IEC/BCC; time spent by family members and percentage of families subsidized for subsidies to poor.

107. The following paragraphs detail how unit prices were calculated when no country data was available are provided for the main sub groups.

108. Human Resources. The human resources input category captures salary of the health workforce, pre-service training and in-service trainings. For human resources, the first step is to define the number of each category of staff required to comply with the established national norm. This desired standard is compared to the actual availability of human resources in the country, thus resulting in a gap. On the other hand, the relative availability of required human resources is analyzed for each of the 12 groups or packages of interventions. The insufficiency of human resources thus defined is considered one of the bottlenecks to be overcome. The degree by which we expect to overcome such bottlenecks is directly related to the closing of the above mentioned human resources gap. Thus the model calculates the additional quantity of human resources of each category and type required to carry out the defined strategy and its cost. It then multiplies this quantity by the costs associated with the salary, pre-service and in-service training.

109. Travel costs and Incentives. The way travel cost and incentives are calculated is similar at each level of care. At the health center level for instance, mobility allowances for nurses supervisors per supervision of acute care are calculated using time spent by auxiliary nurse midwives × daily wages general physicians. The mobility allowance for nurses supervisors per supervision of chronic care is calculated by the time spent by auxiliary nurse midwives × daily wages.

110. Drugs and supplies. As drugs are mostly imported, the cost of drugs is not based on country specific costs but is taken from the UNICEF/WHO price list. The unit cost of drugs is multiplied by a distribution cost factor (30 percent) and a road condition factor (10 percent) to incorporate the cost of in-country transportation of the drugs and supplies.

111. Buildings and equipment. The cost of health facilities major rehabilitation and annual maintenance is estimated as a proportion of the local construction cost of new facilities. The input cost references are those used by the World Bank health projects in these countries. Rehabilitation cost of corresponding health facilities is estimated at 40 percent of the cost of construction of new health post, primary clinical, first referral and second referral facilities. 10 percent of the construction cost is applied in estimating the annual maintenance cost of health facilities at various levels. 10 percent of the equipment cost is used as the annual maintenance cost of equipment at each level. Similarly, 10
percent of the cost of cold chain is used for annual maintenance cost of cold chain. The requirement for building, purchasing or renovating infrastructure and equipment is derived from the degree in which the user intends to overcome the bottlenecks identified in terms of physical access to services.

112. **Performance based incentives.** At each level of service delivery, performance based incentives are calculated using time spent by the different cadre of health workers at each level, i.e. community health workers at the family community level, auxiliary nurses and midwives at the population oriented, registered nurses and midwives at the primary clinical, general physicians at first referral clinical, and specialists at second referral clinical. At the community level, the time spent by community health workers for a particular service is used as the cost determinant in estimating unit price of performance based incentive. Similarly, at the outreach level, the time spent by auxiliary nurses and midwives is multiplied with their daily wage. At the first clinical level, the time spent by nurses and midwives per episode (emergency neonatal and obstetric care for instance) is used while the time spent by a general physician or specialist per episode is used at the referral level.

113. **IEC/BCC.** At the community level, the number of home visits by community health workers is applied to calculate IEC/BCC. Time spent by auxiliary nurses and midwives, general physicians and specialists is used to calculate IEC/BCC at the population oriented schedulable and clinical service delivery modes respectively. For instance, at the community level, the tool assumes 6 home visits IEC (1 hour per visit for full package) per year for IEC for self/home care and multiplies it by the daily wage of community health workers. Similarly, at the health center level, the cost of IEC for seeking care for skilled maternal and neonatal care for instance corresponds to the time spent by nurses and midwives per episode multiplied by the daily wage of registered nurses midwives.

114. **Subsidies and cash transfers.** The default values for subsidies are calculated for the interventions that are or could be subsidized taking the input price for the intervention, incidence or prevalence, eligible population, proportion of population subsidized. The proportion of population subsidized is directly taken from the national policy of the country and the proportion of people living under the poverty line\(^\text{19}\).

115. The other system costs, such as Health Information Systems, management, regulation are calculated as a function of the overall increase in costs. Table D-8 below presents all the cost categories included in this costing, the way these costs are calculated and the hypotheses underlying these calculations.

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\(^{19}\) When no such policy is in place, it is assumed that 50% of the population below the poverty line is subsidized.
<table>
<thead>
<tr>
<th>Cost Categories</th>
<th>Which inputs are included</th>
<th>How is the price of input calculated (^{20})</th>
<th>How is the quantity calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital investment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Health facilities construction and rehabilitation, logistics, housing for health workers, etc.</td>
<td>Taken from the country</td>
<td>Using the national norm and estimating the existing gap</td>
</tr>
<tr>
<td></td>
<td>Radios, solar panel, cold chain, equipment for facilities, ambu-bags, equipment for surgery and obstetrics, medical equipment, office equipment, etc.</td>
<td>Taken from the country</td>
<td>Using the norm and estimated gap</td>
</tr>
<tr>
<td>Equipment</td>
<td>Motorbikes, cars, ambulances, vehicles, etc.</td>
<td>Taken from the country</td>
<td>Using the norm and estimated gap</td>
</tr>
<tr>
<td>Transport</td>
<td>Pre-service training for CHW, nurses, health officers, general practitioners, etc.</td>
<td>Base salary taken from countries as well as number of days</td>
<td>Using the HRH norm and estimated gap</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>All essential drugs, including vaccines, contraceptives, ARTs, TB drugs, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, epidemiology profile of each country and unit price</td>
</tr>
<tr>
<td>Buffer Stocks</td>
<td>Construction, rehabilitation, maintenance and electricity of logistical base</td>
<td>Taken from the country</td>
<td>Using the national norm and estimating the existing gap</td>
</tr>
<tr>
<td>Warehouse, equipment and vehicle</td>
<td>Long lasting insecticide treated nets and insecticide for bed nets</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Average number of ITNs in households, population data and estimated gap</td>
</tr>
<tr>
<td><strong>Recurrent</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contraceptives</td>
<td>Oral contraceptives, condoms, injectables, IUD, implants, sterilization of males and females, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, estimated gap and target coverage</td>
</tr>
<tr>
<td>Vaccines</td>
<td>Classical vaccines, AD syringes, measles, BCG, OPV, DPT, Pentavalent, Hib, Hep B, Yellow fever, Meningitis, pneumococce, rotavirus, HPV, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, estimated gap and target coverage</td>
</tr>
<tr>
<td>Drugs</td>
<td>Chloroquine, ACT, Quinine, Second line malaria drugs, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, prevalence and incidence, estimated gap and target coverage</td>
</tr>
<tr>
<td><strong>Malaria</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TB</td>
<td>TB drug regimen category 1&amp;3, category 2, second line for MDR TB, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, prevalence and incidence, estimated gap and target coverage</td>
</tr>
</tbody>
</table>

---

20 When no data was provided at the country level, global default data was used.
<table>
<thead>
<tr>
<th>Cost Categories</th>
<th>Which inputs are included</th>
<th>How is the price of input calculated&lt;sup&gt;39&lt;/sup&gt;</th>
<th>How is the quantity calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential drugs</td>
<td>Antibiotics, ORS, Zinc, Vitamin A, Drugs for jaundice, gentamycin, supplementary food, etc.</td>
<td>Global Price List (WHO/UNICEF)</td>
<td>Using population data, prevalence and incidence, estimated gap and target coverage</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Annual salary of CHWs, supervisors, nurses, paramedics, general practitioners, specialists, etc.</td>
<td>Taken from country</td>
<td>Using the HRH norms and estimated gap</td>
</tr>
<tr>
<td>Salary</td>
<td>Performance incentives, bonuses, allowances, etc.</td>
<td>Taken from country</td>
<td>Using the HRH norms and estimated gap</td>
</tr>
<tr>
<td>Incentives</td>
<td>In service of CHWs, supervisors, nurses, paramedics, general practitioners, specialists, etc.</td>
<td>Taken from country</td>
<td>Using the HRH norms and estimated gap</td>
</tr>
<tr>
<td>In-service training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health financing</td>
<td>Insurance subsidy to the poor for several health interventions at community level, health center and referral levels, etc.</td>
<td>Linked to the poverty line and cost of interventions</td>
<td>Using the target population for the subsidy for a given intervention</td>
</tr>
<tr>
<td>Insurance</td>
<td>Subsidies to the poor for several health interventions at all levels and demand side subsidies, etc.</td>
<td>Linked to the poverty line and cost of interventions</td>
<td>Using population data</td>
</tr>
<tr>
<td>Conditional cash transfer</td>
<td>IEC/BCC</td>
<td>Using the number of visits and time spent by health provider</td>
<td>Using population data and estimated gap</td>
</tr>
<tr>
<td>Demand promotion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMIS</td>
<td>HIS, M&amp;E and operational research, etc.</td>
<td>Taken from the country</td>
<td>By level of service delivery</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>Program management, citizens reporting, accreditation, regulation, etc.</td>
<td>Taken from the country</td>
<td>By level of service delivery</td>
</tr>
<tr>
<td>Administration</td>
<td>At facility, district, provincial and national level: per diem, water, electricity, petrol, maintenance, accountability mechanisms, etc.</td>
<td>Taken from the country</td>
<td>By level of service delivery</td>
</tr>
</tbody>
</table>
D.9. **Phasing assumptions for investment and recurrent costs to calculate funding requirements**

D.9.1 Methodology

116. The MBB tool distributes the incremental cost estimates into yearly additional budget needs. The distribution drives from the pace of implementation chosen by the groups of countries. The tool includes two types of phasing. The first one provides three phases over time where the cost is determined by the coverage objectives and input price levels. The second phasing is within each phase where MBB provides four options to facilitate the “phasing” choices: forefront, linear, increment and delayed (the proportions are detailed in Table D-9). The choice of the pace of implementation can be guided by several factors such as the nature of the intervention considered; the expected inflow of financial resources based on donor commitments or projected domestic resources mobilizations, the country starting point and its absorptive capacity in the health sector, the human resource constraint and the strategies to solve it, etc.

| Table D-9 Values for the phasing assumptions (expressed as proportion of total investment cost and annual recurrent costs in each year) |
|---------------------------------------------------------------|-----------------|-----------------|
| **Phase I** | **Year 1** | **Year 2** | **Year 3** |
| Capital investment | Frontloaded investment | 0.60 | 0.30 | 0.10 |
| | Linear investment | 0.33 | 0.33 | 0.33 |
| | Incremental investment | 0.23 | 0.33 | 0.43 |
| | Delayed investment | 0.10 | 0.30 | 0.60 |
| Recurrent | Frontloaded recurrent | 0.60 | 0.90 | 1.00 |
| | Linear recurrent | 0.33 | 0.67 | 1.00 |
| | Incremental recurrent | 0.23 | 0.57 | 1.00 |
| | Delayed recurrent | 0.10 | 0.40 | 1.00 |

| Phases II and III |
|--------------------------------|-----------------|-----------------|
| Capital investment | Year 1 | Year 2 |
| Frontloaded investment | 0.70 | 0.30 |
| Linear investment | 0.50 | 0.50 |
| Incremental investment | 0.40 | 0.60 |
| Delayed investment | 0.30 | 0.70 |

| Recurrent | Year 1 | Year 2 |
| Frontloaded recurrent | 0.70 | 1.00 |
| Linear recurrent | 0.50 | 1.00 |
| Incremental recurrent | 0.40 | 1.00 |
| Delayed recurrent | 0.30 | 1.00 |

117. The point estimates at the end of the planning period for each cost item is calculated. Then, the tool translates the point estimates for each cost item into yearly additional cost based on the phasing assumptions chosen by the country.

118. The yearly additional funding requirement for each input is computed as follow: \( Y_{it} = MC_i \times R_{it} \) where \( Y_{it} \) is the additional cost of input \( i \) in year \( t \); \( MC_i \) is the additional cost of input \( i \) at the end of the planning period (see section 5.4 for more details); \( R_{it} \) is the proportion of the total cost of input \( i \) (recurrent or investment) that is supported.
during year \( t \) according to the phasing assumptions. For each year \( t \), the sum of the additional cost of all inputs (\( \text{Sum} (Y_i) \)) gives the total additional budget necessary for that year.

**D.9.2 Phasing assumptions for this exercise**

119. The specific phasing assumptions used for this exercise are similar for the two groups of countries and the three phases. Frontloaded investment was chosen for the community and outreach levels as the above-presented strategies for the groups of countries plan to rapidly focus efforts on community and outreach services. Frontloaded investment predicts a very rapid start up with most of the investment required realized, and most of the recurrent costs incurred during the early stage of the program, followed by a slow progress toward the end of the planning period.

120. At the health center level, the two groups of countries follow the same linear pace, because a uniform pace of investment is expected at this level over the planning period. The total investment and recurrent cost required are therefore uniformly spread over the duration of the program and the recurrent cost increase linearly.

121. Finally, the strategies adopted for the two groups of countries tend to delay investment and recurrent costs at the higher levels of care. Despite very high unit costs, these investments are not expected to have as large an impact on MDGs outcomes.

**D.10. Fiscal space and estimates of financing gap**

122. For the purpose of this exercise, the team developed a fiscal space model to complement the MBB costing and its fiscal space module. This new model was developed in order to respond to the specific assumptions formulated by the Working Group 1. The revised model allows variation in fiscal space parameters for each year of the period for each country or group of countries for as many scenarios as deemed necessary. The process of defining the fiscal space assumptions for each scenario followed a wide consultative approach and the WHO and World Bank teams agreed on the baseline data for each parameter and on the assumptions of three fiscal space scenarios. In order to present a comprehensive picture with more realistic scenarios, the team added two additional scenarios. Therefore, in all, five fiscal space scenarios with their related fiscal space assumptions are described below.

123. The parameters used to estimate the incremental fiscal space in the model developed are: GDP growth; domestic revenue as a percentage of GDP, government expenditure on health as a percentage of total government expenditure; and external assistance on health and private expenditure on health. Based on projected evolution of these parameters, yearly estimates of incremental fiscal space (against a 2008 baseline) from government and donors are calculated. In addition, the incremental financial space (i.e. fiscal space plus resources from private sources, mainly from out-of-pocket
expenditures) are calculated. The results show the extent to which each financing source contributes.

124. The financing gap is estimated by comparing the additional resources required for increasing the coverage of selected health interventions and the incremental financial space created under each fiscal space scenario.

125. The five fiscal space scenarios were defined on the basis of international commitments and current macroeconomic trends. The different scenarios represent different levels of government and external contributions to the health sector. To estimate the fiscal space available for each group of countries, generic projections of the evolution of fiscal space parameters were made using data for each of the 49 countries. In some cases, specificities are introduced for a group of countries (e.g. non SSA countries are not projected to reach the Abuja 15 percent target but rather a 12 percent target) or a single country (e.g. the United States of America didn’t commit to reach the Gleneagles target of doubling aid; therefore, aid for the US was projected to increase up to US$ 50 billion and not to double). The fiscal space created for each country was then added up based on the scenario assumptions and limited exceptions.

126. Several issues create important limitations on the fiscal space analysis and should be considered in the final analysis.

A. As this exercise focuses on 49 countries, preference was given to data from a common source. For comparability country data, although more accurate, were not used; although the model was run using those data as a consistency check.

B. NHA data were found to overestimate government expenditure on health as a percentage of total government expenditure, as it comprises both domestic resources and external on budget resources. These latter resources are also included in external resources for health as percentage of total expenditure on health. There is, therefore, a double counting issue that was addressed in the model by taking out external financing from government expenditure.

C. As this exercise is focusing on aggregates (SSA, non SSA, and all the 49 countries), country specific fiscal space assumptions based on the individual country plans for instance are not used and may therefore more poorly reflect the intentions in individual countries. Fiscal space assumptions for each of the scenarios are generic assumptions for the 49 countries (e.g. Abuja target, doubling of aid, etc. regardless of the capacity of each country to achieve these targets). In the case of the USA only, it was decided not to follow the Gleneagles target of doubling aid but rather to increase the level of aid to US$ 50 billion by 2015.

127. As stated above, the financing gaps for each of the three implementation scenarios (Minimum, Medium and Maximum) were estimated against five fiscal space scenarios. The first four scenarios build on the recently revised IMF projections of GDP\(^{21}\) that consider the anticipated effect of the current global economic crisis. For the last scenario, further deterioration of the global macroeconomic environment is assumed with lower

\(^{21}\) International Monetary Fund, World Economic Outlook Database, April 2009.
GDP growth than that projected by the IMF (1 percent below). Baselines for private and external expenditure on health, as well as for the share of government expenditure allocated to health are based on the WHO National Health Accounts dataset\(^\text{22}\). OECD DAC 2008 data\(^\text{23}\) on the overall ODA flowing to developing countries were also used. Finally, macroeconomic data (such as domestic revenue as a percentage of GDP) comes from the Economist Intelligence Unit (EIU) database\(^\text{24}\) or IMF database\(^\text{25}\).

128. Table D-10 Error! Reference source not found. summarizes the assumptions for the five fiscal space scenarios. They were run simultaneously for each year by adjusting the following fiscal parameters:

- GDP through variations of the real growth rate as projected by the IMF;
- Domestic revenue (expressed as a percentage of GDP) using EIU and IMF database;
- Government expenditure on health as a percentage of total government expenditure using NHA data and corrected for double counting;
- Earmarked aid to health using aid per capita provided in the NHA database and the total level of aid in 2008 provided in the OECD database; and
- Private expenditure. For private expenditure, it is assumed, as agreed with WHO, that 50% of the incremental private spending will be available for health.

Table D-10: Assumptions for the five fiscal space scenarios

<table>
<thead>
<tr>
<th>Scenario 1: Gleneagles 0.7 % and Abuja 15% commitment (OPTIMISTIC)</th>
<th>Scenario 2: Gleneagles doubling and Abuja 15% commitment</th>
<th>Scenario 3: Intermediate: ODA 50% and government 12%</th>
<th>Scenario 4: No change in ODA and governments' commitments (STATUS QUO)</th>
<th>Scenario 5: Crisis (PESSIMISTIC)</th>
<th>Source of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual growth</td>
<td>IMF projections</td>
<td>IMF projections</td>
<td>IMF projections</td>
<td>IMF projections – 1%</td>
<td>IMF revised projections</td>
</tr>
<tr>
<td>GDP</td>
<td>IMF projections</td>
<td>IMF projections</td>
<td>IMF projections</td>
<td>IMF projections – 1%</td>
<td>IMF revised projections</td>
</tr>
<tr>
<td>Domestic revenue as % of GDP</td>
<td>Increases by the projected rates of GDP growth</td>
<td>Increases by the projected rates of GDP growth</td>
<td>Increases by the projected rates of GDP growth</td>
<td>Increases by the projected rates of GDP growth</td>
<td>Falls by 10% during 2009 and 2010 and returns to 2008 level by 2011 until 2015.</td>
</tr>
<tr>
<td>Health as % of Total Government Expendit</td>
<td>Reaches 15% in SSA and 12% in non SSA</td>
<td>Reaches 15% in SSA and 12% in non SSA</td>
<td>Reaches 12% in SSA and 10% in non SSA</td>
<td>Stays flat at 2008 level.</td>
<td>Stays flat at 2008 level.</td>
</tr>
</tbody>
</table>

22 National Health Accounts Database on http://www.who.int/nha/country/en/
23 Data extracted in May 2009 from OECD.Stat.
25 International Monetary Fund, World Economic Outlook Database, April 2009.
129. As shown in the summary table above, the five fiscal space scenarios have varying levels of government commitment to the sector, as well as external donor and private contributions. Government allocation to health also varies depending upon whether one considers SSA countries or non SSA countries. The paragraphs below highlight the main specificities of each of the five fiscal space scenarios.

130. Fiscal space Scenario 1 ("Gleneagles 0.7 percent and Abuja 15 percent" or "optimistic scenario") estimates the funding available should the Gleneagles commitment and the Abuja target be met in SSA countries. The Gleneagles commitment is to allocate 0.7 percent of developed countries’ GDP to ODA. In the case of the United States – which did not commit to the Gleneagles target – it is assumed that their overall level of ODA increases from US$ 26 billion in 2008 to US$ 50 billion in 2015. The Abuja target is to allocate 15 percent of the national budget to health. In non SSA countries, 12 percent of the national budget is expected to be allocated to health. In this scenario as in the three next scenarios, GDP growth follows the latest projections from IMF, domestic revenue follows GDP growth and private expenditure on health increases by the projected rates of GDP growth with a 1.06% elasticity.

131. Fiscal space Scenario 2 ("Gleneagles doubling and Abuja 15 percent commitment") is one of the two additional scenarios envisioned by the World Bank as the 0.7 percent targets may seem to ambitious when considering the Gleneagles commitment. This scenario is slightly different – and less optimistic – from the first scenario as it envisions a doubling of the 2008 level of aid after meeting the Gleneagles commitment. The other assumptions of this fiscal space scenario are in line with the assumptions of the first fiscal space scenario.

132. Fiscal space Scenario 3 is an intermediate scenario that was added by the World Bank. This scenario aims at showing what could be achieved if the optimistic assumptions of the first two fiscal space scenarios can not be achieved but if the overall situation is better than the one envisioned in the pessimistic scenario. In this scenario, significant efforts are made towards increasing resources for health, despite the fact that international commitments cannot be met. This third fiscal space scenario ("Intermediate: ODA 50 percent and government 12 percent") envisions aid to increase by 50 percent
from the 2008 level (i.e. half of the increase achieved under Scenario 2) and governments to allocate 12 percent of their national health budgets in SSA countries and to 10 percent in non SSA countries. As already stated above, assumptions for GDP growth, domestic revenue and private expenditure are similar than the one for the previously described fiscal space scenarios.

133. Fiscal space Scenario 4 (“no changes in ODA and Governments’ commitments” or “Status Quo/no change scenario”) is a conservative scenario in which no changes are predicted in real terms in ODA and government commitments. The assumptions of this scenario were defined with WHO. In this scenarios, all parameters are keeping constant and increase with the projected GDP growth (according to IMF projections).

134. Finally, fiscal Space Scenario 5 is the “crisis” or “pessimistic” scenario. With this scenario, the Working Group wanted to see what would be the amount of fiscal space creation over the period if growth assumptions and private expenditure were one percent lower than IMF projections; in this scenario, it is also assumed that government health spending and ODA fall 10 percent during 2009 and 2010 and return to 2008 level from 2011 onwards to reflect the negative impact of the current economic crisis.

135. It is worth noticing that in the financing gap analyses provided for the 49 countries, SSA and non SSA countries as aggregates in the sections below, the fiscal space created is considered as a whole. The sum of fiscal space created in each country is compared to the total aggregate needs of each group of countries. This assumes that an excess of fiscal space in one country can benefit another, which is not the case. Consequently, the financing gap is underestimated. The country by country analysis provided in the end compares the fiscal space created in each country with the cost requirements. Therefore, the countries in which the fiscal space created can cover the cost of scaling-up and those lacking resources can be identified.

E. Results

136. This section is divided into four subsections, each presenting results in terms of impact on the MDGs, additional cost requirements, cost distribution by service delivery mode, cost distribution by disease, program and components of the health system, cost distribution by economic classification, health facilities and health workers requirements and finally fiscal space creation and financing gap analysis. Subsection E.1. presents the results for the 49 countries under study as a whole. Subsection E.2. and subsection E.3. present respectively the results for SSA countries and non SSA countries. Finally, subsection E.4. presents the results of the country by country costing and financing gap analysis.

137. As stated in the previous sections, three scenarios were run for each group of countries with varying levels of ambition. The Minimum scenario corresponds to what countries could achieve with additional efforts in the health sector. This scenario would enable to come close to reaching the MDGs. Mobilizing the resources required for this scenario and achieving its targets would already represent a great step. The Medium
scenario represents what countries need to do to reach the MDG by 2015. However, the amount of resources required by this scenario it is not likely to be mobilized in the current macroeconomic environment. Still, as developing countries are committed to reach the MDGs and developed countries are committed to support developing countries, the cost of reaching the Medium scenario is presented in this report. Finally, as already stated, the Maximum scenario is considered as an unfeasible and unrealistic scenario that was run only for comparison with the WHO normative approach. The detailed costs of this latter scenario are presented in annexes.

### E.1. Scaling Up for the MDGs in the 49 countries

#### E.1.1 Potential impact on the MDGs

138. Table E-1 provides the impact estimates for the scenarios for the year 2015. In the Maximum scenario, in 2015:

- 4.7 million child and infant deaths would be averted, and MDG4 would be achieved in 86% of countries.
- Nearly three hundred thousand maternal deaths would be averted in 2015 and MDG5 would be achieved in 55% of the countries.
- Nearly 200 000 HIV deaths and 283 000 TB deaths would be averted.
- 16 million unplanned births would be prevented and the MDG target for unmet demand for Family Planning would be met in all countries.
- 9.9 million children (aged 12-23 months) would be protected from stunting.
- There would be 100% access to an improved source of drinking water and sanitation and an additional improvement in the quality of drinking water through household water treatment in 37% of households. MDG 7 would be fully achieved in all countries.

139. In the Medium scenario, in 2015:

- Over 4 million child and infant deaths would be averted, and MDG4 would be achieved in 82% of countries.
- 259 000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 39% of the countries (45% would actually reach a 70% reduction from the baseline).
- Nearly 177 000 HIV deaths and 235 000 TB deaths would be averted.
- 11.9 million births would be averted and the MDG target for unmet demand for Family Planning would be met in all countries.
- 8 million children (aged 12-23 months) would be protected from stunting.
- Access to improved sanitation would reach almost 80% and improvement in the quality of drinking water through household water treatment in 19% of households. The Sanitation Goal of MDG 7 would be fully achieved in 48 of the 49 countries.
140. In the Minimum scenario, in 2015:

- 3.5 million child and infant deaths would be averted, and MDG4 would be achieved in 45% of countries.
- 200,000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 12% of the countries.
- More than 116,000 HIV/AIDS deaths and over 169,000 TB deaths would be averted.
- 7 million births would be averted and 73% of countries would meet the MDG Family Planning target.
- 6 million children (aged 12-23 months) would be protected from stunting.
- There would be an increase of nearly two thirds in access to improved sanitation.
Table E-1 Comparative impact of different scenarios on reaching the health related MDGs in 49 Low Income Countries (values for year 2015 as compared to a year-specific (1990/2005) baseline

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional Deaths Averted in 2015</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under five deaths (including infant and neonatal)</td>
<td>4,778,016</td>
<td></td>
<td>4,288,519</td>
<td></td>
<td>3,522,655</td>
<td></td>
</tr>
<tr>
<td>Newborn deaths (included above in U5 deaths)</td>
<td>1,418,165</td>
<td></td>
<td>1,260,918</td>
<td></td>
<td>1,009,863</td>
<td></td>
</tr>
<tr>
<td>Maternal deaths</td>
<td>297,273</td>
<td></td>
<td>259,383</td>
<td></td>
<td>200,079</td>
<td></td>
</tr>
<tr>
<td>Malaria deaths in adults</td>
<td>75,438</td>
<td></td>
<td>63,750</td>
<td></td>
<td>55,914</td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS deaths in adults</td>
<td>191,176</td>
<td></td>
<td>176,817</td>
<td></td>
<td>116,355</td>
<td></td>
</tr>
<tr>
<td>Tuberculosis deaths</td>
<td>283,191</td>
<td></td>
<td>235,127</td>
<td></td>
<td>169,165</td>
<td></td>
</tr>
<tr>
<td>Total number of deaths averted</td>
<td>5,625,094</td>
<td></td>
<td>5,023,596</td>
<td></td>
<td>4,064,168</td>
<td></td>
</tr>
<tr>
<td>Decrease in # births</td>
<td>16,326,543</td>
<td></td>
<td>11,874,492</td>
<td></td>
<td>7,131,992</td>
<td></td>
</tr>
<tr>
<td>Total # stunting prevented (12-23 Months)</td>
<td>9,938,891</td>
<td></td>
<td>8,332,510</td>
<td></td>
<td>6,190,619</td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG4 and 5 from 1990/95 baselines

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDG4: U5MR reduction from 1990 by two-thirds</td>
<td>80%</td>
<td></td>
<td>72%</td>
<td></td>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>MMR reduction from 1990/1995 baseline</td>
<td>77%</td>
<td></td>
<td>64%</td>
<td></td>
<td>57%</td>
<td></td>
</tr>
<tr>
<td>Countries reaching 70% MMR reduction</td>
<td>69%</td>
<td></td>
<td>45%</td>
<td></td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>1 in Lifetime Risk of Dying reduction *</td>
<td>84%</td>
<td></td>
<td>76%</td>
<td></td>
<td>62%</td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG1 malnutrition goal since 2005-8 baseline

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia*</td>
<td>66%</td>
<td></td>
<td>56%</td>
<td></td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>Reduction of Low Birth weight*</td>
<td>42%</td>
<td></td>
<td>36%</td>
<td></td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Reduction in stunting 12-23 months</td>
<td>29%</td>
<td></td>
<td>20%</td>
<td></td>
<td>15%</td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG4 child survival goal since 2005-8 baseline

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % reduction in U5MR *</td>
<td>73%</td>
<td></td>
<td>63%</td>
<td></td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>IMR reduction *</td>
<td>70%</td>
<td></td>
<td>61%</td>
<td></td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>NMR reduction *</td>
<td>65%</td>
<td></td>
<td>57%</td>
<td></td>
<td>48%</td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG5 reproductive health goal since 2005-8 baseline

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % reduction in MMR *</td>
<td>72%</td>
<td></td>
<td>62%</td>
<td></td>
<td>49%</td>
<td></td>
</tr>
<tr>
<td>Total demand for Family Planning Met*</td>
<td>103%</td>
<td></td>
<td>96%</td>
<td></td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>Reduction of Malaria Mortality in adults</td>
<td>66%</td>
<td></td>
<td>59%</td>
<td></td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>Reduction in Malaria Incidence*</td>
<td>55%</td>
<td></td>
<td>45%</td>
<td></td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Reduction in AIDS mortality *</td>
<td>25%</td>
<td></td>
<td>15%</td>
<td></td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Reduction in HIV/AIDS incidence</td>
<td>49%</td>
<td></td>
<td>41%</td>
<td></td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Change in HIV/AIDS prevalence</td>
<td>1%</td>
<td></td>
<td>12%</td>
<td></td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Reduction in TB Mortality *</td>
<td>61%</td>
<td></td>
<td>49%</td>
<td></td>
<td>33%</td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG7 WASH goal since 2005-8 baseline

<table>
<thead>
<tr>
<th></th>
<th>Maximum Estimate</th>
<th>% countries reaching target</th>
<th>Medium Estimate</th>
<th>% countries reaching target</th>
<th>Minimum Estimate</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of drinking water increase*</td>
<td>36%</td>
<td></td>
<td>19%</td>
<td></td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Access to improved sanitation*</td>
<td>100%</td>
<td></td>
<td>79%</td>
<td></td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>Access to an improved drinking water*</td>
<td>100%</td>
<td></td>
<td>72%</td>
<td></td>
<td>63%</td>
<td></td>
</tr>
</tbody>
</table>

Indicators with * are calculated as a weighted average based on country population.

---

26 To calculate deaths averted/unplanned births prevented the MBB follows a counter-factual approach: first the total number of events without any of the interventions included is calculated, the number of events including the interventions, and finally the difference between both. The number of births without interventions is calculated multiplying the population projected by UNPD in 2015 by the baseline crude birth rate. The number of births expected with intervention is calculated by multiplying the expected crude birth rate in 2015 with increased access to family planning times the expected population in 2015 with intervention, which is based on UNPD projections plus the deaths prevented minus the decrease in births. The number of maternal and child deaths averted are calculated by multiplying the expected number of births without interventions times the baseline relevant mortality rate, while the expected number of deaths with intervention is calculated by multiplying the expected number of births with intervention times the expected mortality rate with intervention.
E.1.2 Overall additional costs

141. Table E-2 below presents the estimates of additional resources needed by year according to the different scenarios (i.e. MBB Minimum, Medium and Maximum scenarios) for the 49 countries. The additional costs are presented both in absolute values (in billion US$) and in per capita terms. This table shows that the MBB Maximum scenario requires twice as much additional resource as in the Medium scenario to reach the ambitious objectives of reaching universal coverage with a basic package of services although the impact on MDGs is no significantly different from the impact achieved under the Medium scenario. The MBB Medium and MBB Minimum scenarios require fewer additional resources as the ambitions are lower. Overall, the Maximum scenario would require close to US$ 227 billion over the period, while the Medium scenario would require close to US$ 112 billion and the Minimum scenario US$ 67 billion.

142. In per capita terms, US$ 37 per capita per year would be needed on average in the 49 countries in 2015 to reach the ambitious targets of the Maximum scenario. The per capita additional resources required in 2015 would decrease to less than US$ 24 for the Medium scenario and to close to US$ 12 for the Minimum scenario.

| Table E-2 Additional Costs by Year for the 49 countries (total and per capita) (2009-2015) |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| MBB Maximum Scenario           | $12.73          | $16.70          | $23.57          | $24.43          | $27.66          | $63.97          | $57.54          | $226.60         |
| MBB Medium Scenario            | $4.30           | $5.65           | $7.31           | $12.64          | $18.61          | $26.62          | $36.48          | $111.62         |
| MBB Minimum Scenario           | $2.95           | $4.42           | $6.57           | $8.47           | $10.78          | $15.65          | $18.61          | $67.46          |
| Per capita (in US$)            |                 |                 |                 |                 |                 |                 |                 |                 |
| MBB Maximum Scenario           | $8.90           | $11.67          | $16.47          | $16.41          | $18.58          | $41.48          | $37.31          | $153.09         |
| MBB Medium Scenario            | $3.00           | $3.95           | $5.11           | $8.49           | $12.51          | $17.26          | $23.66          | $75.41          |
| MBB Minimum Scenario           | $2.06           | $3.09           | $4.59           | $5.68           | $7.22           | $10.10          | $12.01          | $45.57          |

E.1.3 Cost distribution by service delivery mode

143. The distribution of the cost between service delivery levels evolves over the implementation phases. In the Minimum and Medium Scenario, in the beginning of phase 1, the estimated additional cost includes mainly the cost of scaling up community based and population oriented schedulable services such as immunization, vitamin A and ITNs distribution. Clinical care represents a small share of additional costs initially. Towards the end of phase 1 the three service delivery modes represent roughly equal shares of the expenditure. In phase 2, the incremental amounts going to clinical care increase dramatically. In phase 3, around half of the costs are allocated to clinical care, largely to account for the increase in the access to skilled and motivated health workers as well as
the increase in the availability and utilization of drugs. Population oriented schedulable services represent 15-19 percent of total cost in this phase as the cost of the new vaccines is included.

144. Table E-3 (for the Minimum scenario) and Table E-4 (for the Medium scenario) show rather similar trends in the share of resources that needs to be allocated over time at each level of service delivery. However, it is worth noticing that in the case of the Medium scenario, a higher share of resources is allocated to governance and management than in the Minimum scenario.

Table E-3 Estimated additional cost by service packages and delivery level in the 49 countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th>Service Package</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>1.13</td>
<td>1.04</td>
<td>0.90</td>
<td>2.22</td>
<td>1.72</td>
<td>3.85</td>
<td>2.72</td>
<td>13.57</td>
<td>20.1</td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td>0.21</td>
<td>0.28</td>
<td>0.31</td>
<td>0.53</td>
<td>0.59</td>
<td>0.91</td>
<td>0.96</td>
<td>3.79</td>
<td>5.6</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>0.21</td>
<td>0.3</td>
</tr>
<tr>
<td>1.3 Infant and child feeding</td>
<td>0.21</td>
<td>0.27</td>
<td>0.27</td>
<td>0.35</td>
<td>0.37</td>
<td>0.46</td>
<td>0.49</td>
<td>2.42</td>
<td>3.6</td>
</tr>
<tr>
<td>1.4 Community illness management</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>0.06</td>
<td>0.06</td>
<td>0.07</td>
<td>0.35</td>
<td>0.5</td>
</tr>
<tr>
<td>2. Population oriented schedulable services</td>
<td>0.43</td>
<td>0.73</td>
<td>1.09</td>
<td>1.37</td>
<td>2.01</td>
<td>2.94</td>
<td>4.06</td>
<td>12.63</td>
<td>18.7</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.27</td>
<td>0.45</td>
<td>0.66</td>
<td>0.89</td>
<td>1.04</td>
<td>1.40</td>
<td>1.40</td>
<td>5.31</td>
<td>7.9</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
<td>0.16</td>
<td>0.21</td>
<td>0.26</td>
<td>0.30</td>
<td>1.13</td>
<td>1.7</td>
</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
<td>0.05</td>
<td>0.10</td>
<td>0.17</td>
<td>0.26</td>
<td>0.40</td>
<td>0.42</td>
<td>0.49</td>
<td>1.99</td>
<td>2.8</td>
</tr>
<tr>
<td>2.3 HIV/AIDS prevention and care</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>0.06</td>
<td>0.09</td>
<td>0.12</td>
<td>0.16</td>
<td>0.51</td>
<td>0.8</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
<td>0.06</td>
<td>0.10</td>
<td>0.14</td>
<td>0.27</td>
<td>0.42</td>
<td>1.10</td>
<td>1.72</td>
<td>3.79</td>
<td>5.6</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.98</td>
<td>2.11</td>
<td>3.91</td>
<td>3.71</td>
<td>5.60</td>
<td>6.35</td>
<td>9.01</td>
<td>31.68</td>
<td>47.0</td>
</tr>
<tr>
<td>3.0 HR, infrastructure and equipment</td>
<td>0.47</td>
<td>1.07</td>
<td>1.98</td>
<td>1.76</td>
<td>2.75</td>
<td>3.59</td>
<td>6.08</td>
<td>17.70</td>
<td>26.2</td>
</tr>
<tr>
<td>3.1 Maternal and neonatal care at primary clinical level</td>
<td>0.02</td>
<td>0.04</td>
<td>0.06</td>
<td>0.11</td>
<td>0.17</td>
<td>0.27</td>
<td>0.36</td>
<td>1.02</td>
<td>1.5</td>
</tr>
<tr>
<td>3.2 Management of illnesses at primary clinical level</td>
<td>0.38</td>
<td>0.68</td>
<td>1.18</td>
<td>1.23</td>
<td>1.65</td>
<td>1.62</td>
<td>1.63</td>
<td>8.38</td>
<td>12.4</td>
</tr>
<tr>
<td>3.3 Clinical first referral care</td>
<td>0.06</td>
<td>0.20</td>
<td>0.44</td>
<td>0.34</td>
<td>0.67</td>
<td>0.46</td>
<td>0.38</td>
<td>2.55</td>
<td>3.8</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.05</td>
<td>0.12</td>
<td>0.25</td>
<td>0.27</td>
<td>0.36</td>
<td>0.41</td>
<td>0.56</td>
<td>2.03</td>
<td>3.0</td>
</tr>
<tr>
<td>District, provincial and national governance and management</td>
<td>0.41</td>
<td>0.54</td>
<td>0.67</td>
<td>1.16</td>
<td>1.46</td>
<td>2.51</td>
<td>2.83</td>
<td>9.58</td>
<td>14.2</td>
</tr>
<tr>
<td>Total</td>
<td>2.95</td>
<td>4.42</td>
<td>6.57</td>
<td>8.47</td>
<td>10.78</td>
<td>15.65</td>
<td>18.61</td>
<td>67.46</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table E-4 Estimated additional cost by service packages and delivery level in the 49 countries (in billion US$), Medium scenario

<table>
<thead>
<tr>
<th>Service Package</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td>0.54</td>
<td>1.85</td>
<td>1.68</td>
<td>3.06</td>
<td>2.56</td>
<td>5.20</td>
<td>4.04</td>
<td>18.94</td>
<td>16.97</td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>0.06</td>
<td>0.73</td>
<td>0.80</td>
<td>1.06</td>
<td>1.16</td>
<td>1.59</td>
<td>1.75</td>
<td>7.15</td>
<td>6.41</td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td>0.30</td>
<td>0.61</td>
<td>0.34</td>
<td>1.39</td>
<td>0.74</td>
<td>2.79</td>
<td>1.40</td>
<td>7.56</td>
<td>6.77</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td>0.01</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.23</td>
<td>0.21</td>
</tr>
<tr>
<td>1.3 Infant and child feeding</td>
<td>0.16</td>
<td>0.35</td>
<td>0.36</td>
<td>0.40</td>
<td>0.43</td>
<td>0.55</td>
<td>0.59</td>
<td>2.84</td>
<td>2.55</td>
</tr>
<tr>
<td>1.4 Community illness management</td>
<td>0.02</td>
<td>0.15</td>
<td>0.16</td>
<td>0.17</td>
<td>0.19</td>
<td>0.22</td>
<td>0.25</td>
<td>1.15</td>
<td>1.03</td>
</tr>
<tr>
<td>2. Population oriented schedulable services</td>
<td>0.24</td>
<td>1.16</td>
<td>1.73</td>
<td>2.07</td>
<td>2.99</td>
<td>3.89</td>
<td>5.03</td>
<td>17.12</td>
<td>15.33</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.13</td>
<td>0.61</td>
<td>0.90</td>
<td>0.69</td>
<td>0.93</td>
<td>1.20</td>
<td>1.64</td>
<td>6.10</td>
<td>5.46</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.03</td>
<td>0.10</td>
<td>0.14</td>
<td>0.18</td>
<td>0.22</td>
<td>0.35</td>
<td>0.43</td>
<td>1.45</td>
<td>1.30</td>
</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
<td>0.05</td>
<td>0.27</td>
<td>0.43</td>
<td>0.46</td>
<td>0.63</td>
<td>0.78</td>
<td>1.00</td>
<td>3.63</td>
<td>3.25</td>
</tr>
<tr>
<td>2.3 HIV/AIDS prevention and care</td>
<td>0.01</td>
<td>0.04</td>
<td>0.07</td>
<td>0.09</td>
<td>0.13</td>
<td>0.17</td>
<td>0.22</td>
<td>0.72</td>
<td>0.64</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
<td>0.02</td>
<td>0.14</td>
<td>0.20</td>
<td>0.65</td>
<td>1.09</td>
<td>1.39</td>
<td>1.74</td>
<td>5.23</td>
<td>4.68</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.18</td>
<td>1.11</td>
<td>2.08</td>
<td>5.13</td>
<td>10.36</td>
<td>11.65</td>
<td>20.97</td>
<td>51.48</td>
<td>46.12</td>
</tr>
<tr>
<td>3.0 HR, infrastructure and equipment</td>
<td>0.08</td>
<td>0.36</td>
<td>0.71</td>
<td>3.53</td>
<td>7.75</td>
<td>8.82</td>
<td>17.36</td>
<td>38.60</td>
<td>34.58</td>
</tr>
<tr>
<td>3.1 Maternal and neonatal care at primary clinical level</td>
<td>0.02</td>
<td>0.04</td>
<td>0.06</td>
<td>0.13</td>
<td>0.20</td>
<td>0.32</td>
<td>0.42</td>
<td>1.18</td>
<td>1.05</td>
</tr>
<tr>
<td>3.2 Management of illnesses at primary clinical level</td>
<td>0.03</td>
<td>0.42</td>
<td>0.72</td>
<td>0.86</td>
<td>1.25</td>
<td>1.27</td>
<td>1.33</td>
<td>5.88</td>
<td>5.27</td>
</tr>
<tr>
<td>3.3 Clinical first referral care</td>
<td>0.02</td>
<td>0.19</td>
<td>0.41</td>
<td>0.35</td>
<td>0.71</td>
<td>0.64</td>
<td>0.83</td>
<td>3.15</td>
<td>2.82</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.04</td>
<td>0.10</td>
<td>0.19</td>
<td>0.27</td>
<td>0.45</td>
<td>0.60</td>
<td>1.03</td>
<td>2.68</td>
<td>2.40</td>
</tr>
<tr>
<td>District, provincial and national governance and management</td>
<td>0.38</td>
<td>1.53</td>
<td>1.82</td>
<td>2.38</td>
<td>2.71</td>
<td>5.88</td>
<td>6.44</td>
<td>21.13</td>
<td>18.93</td>
</tr>
<tr>
<td>Total</td>
<td>4.30</td>
<td>5.65</td>
<td>7.31</td>
<td>12.64</td>
<td>18.61</td>
<td>26.62</td>
<td>36.48</td>
<td>111.62</td>
<td>100.00</td>
</tr>
</tbody>
</table>

145. The distribution of costs for the Maximum scenario by service delivery mode is presented in Annex 7. It reveals a higher priority given to family oriented community based services (35 percent of the additional cost requirements in the Maximum scenario against 17-20 percent in the Minimum and Medium scenarios). Although higher in real terms, the share allocated to individual oriented clinical services (out of total resource requirements) is lower in the Maximum Scenario also, than in the two other scenarios. The share allocated to governance and management is also lower in the Maximum scenario compared to the Medium scenario.

**E.1.4 Cost distribution by disease, program and components of the health system**

146. The distribution of costs among different diseases, programs and components of health systems for the Minimum scenario (Table E-5) is evenly distributed: 48.4 percent of the additional costs are allocated to strengthen the health system while the remaining 51.6 percent is specifically allocated to scale up high impact health interventions. Of the US$ 32.7 billion for health systems strengthening, close to one third (US$ 9.4 billion) is for infrastructure, equipment and transport; and nearly half (US$ 14.6 billion) for human resources. Strengthening logistics and supply chain management including buffer stocks
would require an additional US$ 3.4 billion and strengthening governance of the health system an additional US$ 4.1 billion. Health information systems are estimated at US$ 1.1 billion.

Of the US$ 34.8 billion allocated for programs and diseases, a third is allocated to malaria (US$ 10.7 billion) mostly for the procurement of drugs and supplies. Child health is estimated at US$ 3.3 billion; HIV/AIDS at US$ 7.34 billion; maternal health at US$ 3.7 billion; family planning at US$ 2.2 billion; nutrition at US$ 2.7 billion; immunization at US$ 3.5 billion; water and sanitation at US$ 0.03 billion; and TB at US$ 1.4 billion. Regarding the distribution among service delivery levels, family-oriented (20 percent) and population-oriented services (19 percent) absorb over one-third of all expenses. Clinical care would absorb a further US$ 31.7 billion (47 percent of all additional costs). District, provincial and national governance and management would require the remaining US$ 9.6 billion (14 percent of the total costs).

Table E-5 Distribution of estimated additional resource requirement by disease, program and health system in the 49 countries (in billion US$), Minimum Scenario

<table>
<thead>
<tr>
<th>Program and disease</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child health</td>
<td>0.13</td>
<td>0.23</td>
<td>0.31</td>
<td>0.47</td>
<td>0.64</td>
<td>0.72</td>
<td>0.80</td>
<td>3.31</td>
</tr>
<tr>
<td>Immunization</td>
<td>0.03</td>
<td>0.06</td>
<td>0.10</td>
<td>0.24</td>
<td>0.37</td>
<td>1.03</td>
<td>1.61</td>
<td>3.45</td>
</tr>
<tr>
<td>Water, sanitation and hygiene</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.22</td>
<td>0.28</td>
<td>0.29</td>
<td>0.36</td>
<td>0.45</td>
<td>0.51</td>
<td>0.57</td>
<td>2.69</td>
</tr>
<tr>
<td>Maternal health</td>
<td>0.09</td>
<td>0.21</td>
<td>0.38</td>
<td>0.47</td>
<td>0.67</td>
<td>0.85</td>
<td>1.06</td>
<td>3.72</td>
</tr>
<tr>
<td>Family planning</td>
<td>0.10</td>
<td>0.18</td>
<td>0.29</td>
<td>0.26</td>
<td>0.37</td>
<td>0.43</td>
<td>0.57</td>
<td>2.19</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.25</td>
<td>0.44</td>
<td>0.69</td>
<td>1.01</td>
<td>1.64</td>
<td>1.65</td>
<td>1.65</td>
<td>7.34</td>
</tr>
<tr>
<td>TB</td>
<td>0.03</td>
<td>0.08</td>
<td>0.17</td>
<td>0.17</td>
<td>0.24</td>
<td>0.30</td>
<td>0.41</td>
<td>1.41</td>
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<tr>
<td>Malaria</td>
<td>0.83</td>
<td>0.78</td>
<td>0.98</td>
<td>1.89</td>
<td>1.39</td>
<td>3.01</td>
<td>1.78</td>
<td>10.67</td>
</tr>
<tr>
<td>Non-MDGs basic services</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Health systems</td>
<td>1.26</td>
<td>2.16</td>
<td>3.34</td>
<td>3.59</td>
<td>5.01</td>
<td>7.14</td>
<td>10.15</td>
<td>32.65</td>
</tr>
<tr>
<td>Human resources</td>
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<td>0.82</td>
<td>1.49</td>
<td>1.46</td>
<td>2.18</td>
<td>3.14</td>
<td>5.18</td>
<td>14.64</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>0.20</td>
<td>0.39</td>
<td>0.65</td>
<td>0.37</td>
<td>0.68</td>
<td>1.37</td>
<td>3.01</td>
<td>6.66</td>
</tr>
<tr>
<td>Salary</td>
<td>0.16</td>
<td>0.43</td>
<td>0.84</td>
<td>1.09</td>
<td>1.49</td>
<td>1.75</td>
<td>2.15</td>
<td>7.91</td>
</tr>
<tr>
<td>Incentives</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td>Infrastructure, equipment and transport</td>
<td>0.48</td>
<td>0.78</td>
<td>1.17</td>
<td>1.07</td>
<td>1.54</td>
<td>1.84</td>
<td>2.54</td>
<td>9.43</td>
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<tr>
<td>Infrastructure</td>
<td>0.29</td>
<td>0.51</td>
<td>0.80</td>
<td>0.59</td>
<td>0.90</td>
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<td>Equipment</td>
<td>0.12</td>
<td>0.18</td>
<td>0.27</td>
<td>0.30</td>
<td>0.44</td>
<td>0.55</td>
<td>0.80</td>
<td>2.65</td>
</tr>
<tr>
<td>Transport</td>
<td>0.08</td>
<td>0.09</td>
<td>0.10</td>
<td>0.19</td>
<td>0.19</td>
<td>0.42</td>
<td>0.44</td>
<td>1.50</td>
</tr>
<tr>
<td>Logistics</td>
<td>0.23</td>
<td>0.24</td>
<td>0.25</td>
<td>0.37</td>
<td>0.39</td>
<td>0.96</td>
<td>0.98</td>
<td>3.42</td>
</tr>
<tr>
<td>Buffer stocks</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.06</td>
<td>0.06</td>
<td>0.24</td>
<td>0.24</td>
<td>0.88</td>
</tr>
<tr>
<td>Warehouse, equipment and vehicle</td>
<td>0.13</td>
<td>0.15</td>
<td>0.16</td>
<td>0.31</td>
<td>0.33</td>
<td>0.72</td>
<td>0.74</td>
<td>2.53</td>
</tr>
<tr>
<td>HMIS</td>
<td>0.02</td>
<td>0.05</td>
<td>0.10</td>
<td>0.14</td>
<td>0.20</td>
<td>0.26</td>
<td>0.35</td>
<td>1.11</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>0.17</td>
<td>0.27</td>
<td>0.33</td>
<td>0.55</td>
<td>0.69</td>
<td>0.95</td>
<td>1.10</td>
<td>4.05</td>
</tr>
<tr>
<td>Health financing</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Insurance</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Conditional cash transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>2.95</td>
<td>4.42</td>
<td>6.57</td>
<td>8.47</td>
<td>10.78</td>
<td>15.65</td>
<td>18.61</td>
<td>67.46</td>
</tr>
</tbody>
</table>
148. In the case of the Medium Scenario, the estimated additional cost is slightly higher for health systems compared to intervention costs (Table E-6). Sixty-two percent of the additional costs are allocated to strengthen the health system while the remaining 38 percent is allocated to scale up high impact health related interventions. Of the US$ 68.9 billion for health systems strengthening over a third (US$ 25.8 billion) is for infrastructure, equipment and transport; another tenth (US$ 7.8 billion) for strengthening logistics and supply chain management including buffer stocks; human resources would require an additional US$ 19.0 billion; strengthening governance of the health system US$ 5.7 billion. Health Information Systems is estimated at US$ 1.3 billion; and health financing at US$ 2.1 billion.

149. Of the US$ 42.7 billion allocated for programs and disease control 1 in 4 dollars is allocated to malaria (US$ 10.7 billion) and nearly one-third is allocated for HIV/AIDS (US$ 9.1 billion), mostly for procurement of drugs and supplies. Child health is estimated at US$ 3.6 billion; maternal health US$ 5.6; nutrition US$ 3.4 billion, water and sanitation US$ 0.7 billion; family planning US$ 2.8 billion; immunization US$ 4.9 billion; and TB US$ 1.8 billion.

150. Finally, the distribution of costs among different diseases, programs and components of health systems for the Maximum scenario show that more than 52 percent of the total additional cost would need to flow to programs and diseases which reveals a different trend compared to the Medium scenario. The annual additional cost requirements by disease, programs and components for the Maximum scenario are presented in Annex 8.
Table E-6 Distribution of estimated additional resource requirement by disease, program and health system in the 49 countries (in billion US$), Medium Scenario

<table>
<thead>
<tr>
<th>Program and disease</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child health</td>
<td>0.17</td>
<td>0.28</td>
<td>0.37</td>
<td>0.49</td>
<td>0.65</td>
<td>0.77</td>
<td>0.90</td>
<td>3.64</td>
</tr>
<tr>
<td>Water, sanitation and hygiene</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.08</td>
<td>0.09</td>
<td>0.23</td>
<td>0.25</td>
<td>0.73</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.32</td>
<td>0.42</td>
<td>0.48</td>
<td>0.43</td>
<td>0.47</td>
<td>0.62</td>
<td>0.71</td>
<td>3.44</td>
</tr>
<tr>
<td>Maternal health</td>
<td>0.13</td>
<td>0.29</td>
<td>0.50</td>
<td>0.67</td>
<td>0.98</td>
<td>1.30</td>
<td>1.74</td>
<td>5.62</td>
</tr>
<tr>
<td>Family planning</td>
<td>0.13</td>
<td>0.22</td>
<td>0.35</td>
<td>0.30</td>
<td>0.40</td>
<td>0.57</td>
<td>0.85</td>
<td>2.81</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.28</td>
<td>0.52</td>
<td>0.82</td>
<td>1.17</td>
<td>1.82</td>
<td>2.04</td>
<td>2.42</td>
<td>9.07</td>
</tr>
<tr>
<td>TB</td>
<td>0.04</td>
<td>0.09</td>
<td>0.19</td>
<td>0.29</td>
<td>0.40</td>
<td>0.63</td>
<td>1.82</td>
<td>1.82</td>
</tr>
<tr>
<td>Malaria</td>
<td>1.10</td>
<td>0.83</td>
<td>0.75</td>
<td>1.78</td>
<td>1.28</td>
<td>3.15</td>
<td>1.77</td>
<td>10.67</td>
</tr>
<tr>
<td>Non-MDGs basic services</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Health systems</td>
<td>2.06</td>
<td>2.87</td>
<td>3.69</td>
<td>6.91</td>
<td>11.60</td>
<td>16.21</td>
<td>25.58</td>
<td>68.93</td>
</tr>
<tr>
<td>Human resources</td>
<td>0.39</td>
<td>0.75</td>
<td>1.13</td>
<td>1.87</td>
<td>3.34</td>
<td>5.06</td>
<td>8.65</td>
<td>21.19</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>0.13</td>
<td>0.28</td>
<td>0.49</td>
<td>0.69</td>
<td>1.30</td>
<td>2.46</td>
<td>5.30</td>
<td>10.65</td>
</tr>
<tr>
<td>Salary</td>
<td>0.27</td>
<td>0.47</td>
<td>0.63</td>
<td>1.18</td>
<td>2.03</td>
<td>2.58</td>
<td>3.32</td>
<td>10.48</td>
</tr>
<tr>
<td>Incentives</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td>Infrastructure, equipment and transport</td>
<td>0.55</td>
<td>0.74</td>
<td>0.97</td>
<td>2.96</td>
<td>5.90</td>
<td>6.21</td>
<td>11.50</td>
<td>28.83</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>0.31</td>
<td>0.43</td>
<td>0.58</td>
<td>2.12</td>
<td>4.35</td>
<td>3.92</td>
<td>7.50</td>
<td>19.21</td>
</tr>
<tr>
<td>Equipment</td>
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<td>0.19</td>
<td>0.24</td>
<td>0.68</td>
<td>1.38</td>
<td>1.81</td>
<td>3.42</td>
<td>7.86</td>
</tr>
<tr>
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<td>0.14</td>
<td>0.15</td>
<td>0.18</td>
<td>0.48</td>
<td>0.58</td>
<td>1.76</td>
</tr>
<tr>
<td>Logistics</td>
<td>0.61</td>
<td>0.65</td>
<td>0.69</td>
<td>0.82</td>
<td>0.87</td>
<td>2.52</td>
<td>2.60</td>
<td>8.75</td>
</tr>
<tr>
<td>Buffer stocks</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.08</td>
<td>0.08</td>
<td>0.28</td>
<td>0.28</td>
<td>1.00</td>
</tr>
<tr>
<td>Warehouse, equipment and vehicle</td>
<td>0.52</td>
<td>0.56</td>
<td>0.60</td>
<td>0.74</td>
<td>0.78</td>
<td>2.24</td>
<td>2.31</td>
<td>7.75</td>
</tr>
<tr>
<td>HMIS</td>
<td>0.03</td>
<td>0.06</td>
<td>0.11</td>
<td>0.16</td>
<td>0.25</td>
<td>0.36</td>
<td>0.54</td>
<td>1.49</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>0.33</td>
<td>0.53</td>
<td>0.65</td>
<td>0.86</td>
<td>1.01</td>
<td>1.37</td>
<td>1.61</td>
<td>6.36</td>
</tr>
<tr>
<td>Health financing</td>
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<td>0.15</td>
<td>0.23</td>
<td>0.23</td>
<td>0.69</td>
<td>0.69</td>
<td>2.30</td>
</tr>
<tr>
<td>Insurance</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.23</td>
<td>0.23</td>
<td>0.69</td>
<td>0.69</td>
<td>2.30</td>
</tr>
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</tr>
<tr>
<td>Total</td>
<td>4.30</td>
<td>5.65</td>
<td>7.31</td>
<td>12.64</td>
<td>18.61</td>
<td>26.62</td>
<td>36.48</td>
<td>111.62</td>
</tr>
</tbody>
</table>

E.1.5 Cost distribution by economic classification

151. Table E-7, Table E-8 present the details of the estimated additional resource requirement according to their economic classification for the Minimum scenario. Out of the total US$ 67 billion required, 61.5 percent are allocated to recurrent and 38.5 percent to capital costs, as this Minimum low cost / high impact strategy aims at making the best use of existing capacity. US$ 3.6 billion of capital expenditures go to infrastructure and US$ 4.1 billion to buffer stocks. ITNs represent US$ 5.5 billion and logistics US$ 2.5 billion. General equipment would require US$ 2.3 billion while pre-service training costs and transport equipment would account for US$ 6.7 billion and US$ 1.4 billion respectively. Recurrent expenditures amount to US$ 41.5 billion and include US$ 15.9
billion for essential drugs; US$ 1.4 billion for contraceptives; and US$ 2.5 billion for vaccines. Human resources (US$ 10.2 billion) would absorb almost a quarter of the total. Other categories include administration (US$ 4.3 billion), demand promotion (US$ 1.4 billion), governance (US$ 4.6 billion), health information systems (US$ 1.1 billion) and health financing (US$ 0.06 billion). Given the emphasis on increasing coverage using existing resources, traded inputs make up a larger proportion of additional costs (52.6%) compared to non-traded costs, which includes staffing and infrastructure investments.

Table E-7 Estimated additional resource requirement by capital and recurrent classification in the 49 countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital investment</td>
<td>1.82</td>
<td>2.03</td>
<td>2.51</td>
<td>2.84</td>
<td>3.05</td>
<td>6.26</td>
<td>7.45</td>
<td>25.95</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>0.26</td>
<td>0.42</td>
<td>0.62</td>
<td>0.35</td>
<td>0.59</td>
<td>0.51</td>
<td>0.85</td>
<td>3.58</td>
</tr>
<tr>
<td>Equipment</td>
<td>0.11</td>
<td>0.16</td>
<td>0.23</td>
<td>0.24</td>
<td>0.36</td>
<td>0.46</td>
<td>0.69</td>
<td>2.25</td>
</tr>
<tr>
<td>Transport</td>
<td>0.07</td>
<td>0.08</td>
<td>0.09</td>
<td>0.17</td>
<td>0.17</td>
<td>0.39</td>
<td>0.40</td>
<td>1.37</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>0.20</td>
<td>0.39</td>
<td>0.65</td>
<td>0.37</td>
<td>0.68</td>
<td>1.37</td>
<td>3.01</td>
<td>6.66</td>
</tr>
<tr>
<td>Buffer Stocks</td>
<td>0.50</td>
<td>0.56</td>
<td>0.68</td>
<td>0.33</td>
<td>0.46</td>
<td>0.68</td>
<td>0.84</td>
<td>4.05</td>
</tr>
<tr>
<td>Warehouse, equipment, and vehicles</td>
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Table E-8 Estimated additional resource requirement by traded versus non-traded classification in the 49 countries (in billion US$), Minimum scenario

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In the case of the Medium scenario, out of the estimated additional US$ 111.6 billion required for the seven years, 52 percent and 48 percent are allocated to recurrent and capital costs respectively that is to say US$ 57.7 billion for recurrent costs and US$ 54.0 billion for capital cost (Table E-9). Over US$ 15.6 billion, one-quarter of all capital expenditures goes to infrastructure. Pre-service training costs, $10.7 billion, represent nearly one-fifth of capital costs. Buffer stocks and ITNs represent US$ 11.3 billion, equipment US$ 7.0 billion and logistics US$ 7.8 billion. Transport equipment would be a lesser category within this chapter, with US$ 1.6 billion needed. Recurrent expenditures include US$ 18.3 billion for essential drugs; US$ 1.8 billion for contraceptives; and US$ 3.8 billion for vaccines. Human resources, with US$ 13.4 billion, will absorb one fifth of the total. Other categories include administration (US$ 8.1 billion), demand promotion (US$ 1.7 billion), Governance (US$ 6.8 billion), Health Information Systems (US$ 1.5 billion) and Health financing (US$ 2.4 billion). Traded versus non-traded costs are outlined in Table E-10. In the Medium scenario, non-traded costs increase to US$ 60.1 billion, just over half of all additional costs (53.8 percent).
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<td>18.61</td>
<td>26.62</td>
<td>36.48</td>
<td>111.62</td>
</tr>
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</table>
Table E-10 Estimated additional resource requirement by traded versus non-traded classification in the 49 countries (in billion US$), Medium scenario

<table>
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<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
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<td>0.09</td>
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<td>9.49</td>
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<td>0.63</td>
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<td>2.58</td>
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<td>0.15</td>
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<td>0.00</td>
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<td>0.00</td>
<td>0.01</td>
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<td>Demand promotion</td>
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<td>1.48</td>
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<td>26.62</td>
<td>36.48</td>
<td>111.62</td>
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</tbody>
</table>

Finally, the distribution of costs by economic classification for the Maximum Scenario is presented in Annex 9. Compared to the Minimum and the Medium scenarios, it shows a greater priority granted to capital expenditure (more than 58 percent of the total additional resource requirements), mainly driven by high resources requirements for infrastructure (more than 33 percent of the total resource needed).

E.1.6 Health facilities and health workers requirements

Table E-11 describes the main indicators for health system strengthening in the 49 countries for the 3 scenarios. During the 7-year period, close to 33,000 health facilities are proposed for construction or rehabilitation under the Minimum Scenario, over 77,000 facilities in the Medium Scenario and more than 92,000 in the Maximum Scenario. As could be expected, a large majority of the facilities would be health posts (78-89 percent
on average in all scenarios) and health centers (7-16 percent), while district and regional hospitals would only represent around 4-5 percent of new or rehabilitated facilities in all the scenarios.

155. During the same period, some 1.3 million additional health workers would be required in the Minimum scenario. Overall, 55 percent of new positions in the Minimum scenario would be community health workers (29 percent), health extension workers (13 percent), or junior nurses (14 percent). Technicians would absorb 9 percent of all these new positions; registered nurses represent 13 percent; and physicians, specialists and health officers represent under 5 percent of the additional health workforce. Finally, administrative staff will account for 16 percent of new jobs.

156. In the Medium and Maximum scenarios, the proportion of health workers required at the lowest levels is higher as seven of every ten new positions would be a community health worker, a health extension worker or a junior nurse.

Table E-11 Total additional facilities and health workers for the 49 countries and the three scenarios

<table>
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<tr>
<th></th>
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<th></th>
<th>Medium Scenario</th>
<th></th>
<th>Maximum Scenario</th>
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<tr>
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<td>percent</td>
<td>Total</td>
<td>percent</td>
<td>Total</td>
<td>percent</td>
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<td>72,923</td>
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<tr>
<td>New</td>
<td>11,894</td>
<td>36.2</td>
<td>29,144.54</td>
<td>37.8</td>
<td>34,670</td>
<td>37.5</td>
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<tr>
<td>Rehab</td>
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<td>31,440.67</td>
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<td>38,253</td>
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<td>4,661.63</td>
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<td>1,218.40</td>
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<td>1,696</td>
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<td>976</td>
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<td>505.52</td>
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<td>600</td>
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<tr>
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<td>376</td>
<td>0.4</td>
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<td>2,933,739</td>
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<td>Community based health &amp; nutrition promoters</td>
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<td>1,599,479</td>
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<td>Junior, assistant, assistant midwife nurse (1 year training)</td>
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<td>160,478</td>
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<td>Technicians (lab, x-ray, pharmacy)</td>
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<td>60,317</td>
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E.1.7 Fiscal Space and funding gaps

157. Table E-12 presents the available fiscal space by year under the five fiscal space scenarios. Overall, the total incremental fiscal space created over the period for the 49 countries would reach US$ 113.4 billion under the assumptions of the first fiscal space scenario, around US$ 111.4 billion under the second fiscal space scenario, US$ 78.9 billion under the third fiscal space scenario, US$ 21.7 billion under the fourth fiscal space scenario and finally US$ 16.9 billion under the fifth fiscal space scenario assumptions.

158. It is worth mentioning that in the financing gap analyses provided in subsections E.1.7, E.2.7 and E.3.7, the fiscal space created is considered as a whole. The sum of fiscal space created in each country is compared to the total aggregate needs of each group of countries. This relies on the assumption that an excess of fiscal space in one country can benefit to another which is not the case. As a consequence, the financing gap is underestimated. The country by country analysis provided in section E.4 will provide a comparison of the fiscal space created in each individual country with the cost requirements of each country. This will enable to identify countries in which the fiscal space created can cover the cost of scaling-up and the countries that will lack resources.

Table E-12 Incremental fiscal space for the 49 countries (billion US$) (2009-2015)

<table>
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<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<tr>
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<td>29.45</td>
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<td>3.41</td>
<td>4.51</td>
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<td>17.69</td>
</tr>
<tr>
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<td>0.42</td>
<td>0.78</td>
<td>1.03</td>
<td>1.26</td>
<td>1.50</td>
<td>1.72</td>
<td>6.91</td>
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<tr>
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<td>20.53</td>
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<td>4.80</td>
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<tr>
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<td>0.42</td>
<td>0.78</td>
<td>1.03</td>
<td>1.26</td>
<td>1.50</td>
<td>1.72</td>
<td>6.91</td>
</tr>
<tr>
<td>Scenario 3: Intermediate - ODA 50% and government 12%</td>
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<td></td>
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<td></td>
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<tr>
<td>government</td>
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<td>4.46</td>
<td>7.64</td>
<td>11.09</td>
<td>14.82</td>
<td>18.94</td>
<td>20.76</td>
<td>78.91</td>
</tr>
<tr>
<td>external</td>
<td>-0.24</td>
<td>0.09</td>
<td>0.59</td>
<td>1.19</td>
<td>1.86</td>
<td>2.58</td>
<td>3.05</td>
<td>9.11</td>
</tr>
<tr>
<td>private</td>
<td>0.19</td>
<td>0.42</td>
<td>0.78</td>
<td>1.03</td>
<td>1.26</td>
<td>1.50</td>
<td>1.72</td>
<td>6.91</td>
</tr>
<tr>
<td>Scenario 4: Status Quo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>government</td>
<td>-0.31</td>
<td>0.58</td>
<td>1.83</td>
<td>3.11</td>
<td>4.44</td>
<td>5.86</td>
<td>6.23</td>
<td>21.74</td>
</tr>
<tr>
<td>external</td>
<td>-0.02</td>
<td>0.55</td>
<td>1.23</td>
<td>1.98</td>
<td>2.78</td>
<td>3.65</td>
<td>3.68</td>
<td>13.84</td>
</tr>
<tr>
<td>private</td>
<td>-0.48</td>
<td>-0.39</td>
<td>-0.18</td>
<td>0.10</td>
<td>0.40</td>
<td>0.72</td>
<td>0.83</td>
<td>0.99</td>
</tr>
<tr>
<td>Scenario 5: Pessimistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>government</td>
<td>-1.33</td>
<td>-0.89</td>
<td>1.50</td>
<td>2.72</td>
<td>3.98</td>
<td>5.28</td>
<td>5.62</td>
<td>16.88</td>
</tr>
<tr>
<td>external</td>
<td>-0.56</td>
<td>-0.42</td>
<td>0.99</td>
<td>1.69</td>
<td>2.41</td>
<td>3.17</td>
<td>3.17</td>
<td>10.46</td>
</tr>
<tr>
<td>private</td>
<td>-0.87</td>
<td>-0.79</td>
<td>-0.18</td>
<td>0.10</td>
<td>0.40</td>
<td>0.72</td>
<td>0.83</td>
<td>0.20</td>
</tr>
</tbody>
</table>

159. In all the fiscal space scenarios, government is expected to contribute the biggest share of fiscal space created over the period. The governments contribution amounts to close to US$ 89 billion in the first two scenarios, to US$ 63 billion in the third scenario,
to US$ 14 billion in the fourth fiscal space scenario and to over US$ 10 billion in the last scenario. External resources are expected to represent a significant share of the total fiscal space created in the fiscal space scenario 1 (US$ 17.7 billion), in scenario 2 (US$ 15.7 billion) and scenario 3 (US$ 9.1) but a small amount in the last 2 fiscal space scenarios (less than US$ 1 billion). Finally, private expenditure varies between US$ 6.9 billion in the first fiscal space scenario and US$ 6.2 billion in the crisis scenario.

160. Table E-13 compares the additional costs for achieving the MDGs under the three scaling-up scenarios, with the incremental fiscal space created under each of the fiscal space scenarios for the period 2009-2015 (the same comparative table for all the groups for the year 2015 is presented in Annex 10). In this analysis, the Maximum scenario overflows all five fiscal space scenarios. Even if ODA meets the Gleneagles commitment of 0.7 percent of GDP (equivalent to more than tripling the current level of aid), the United States increase their ODA to US$ 50 billion and governments increase their allocation to health to 15 percent of public expenditures in SSA countries and 12 percent in non SSA countries, a gap of more than US$ 113 billion remains under fiscal space scenario 1 for the 49 countries. This gap would increase to more than US$ 115 billion under fiscal space scenario 2, to close to US$ 148 billion under the intermediate scenario, to close to US$ 205 billion under scenario 4 and to US$ 210 billion under scenario 5.

161. In contrast, the MBB Medium scenario could be implemented under the optimistic macroeconomic conditions and fiscal framework should both donors and countries honor their commitments. Assuming that the 49 countries achieve the expected levels of growth projected by the IMF and increase the allocation to health in public budgets, they would contribute US$ 88.8 billion under scenario 1 and scenario 2, or close to 80 percent of required resources. In addition, if donor countries comply with their Gleneagles commitment, funding would cover this scenario for the 49 countries (no financing gap under fiscal space scenario 1 and only a US$ 0.2 billion financing gap under scenario 2).

162. Finally, the MBB Minimum scenario would be fully covered under the first two fiscal space scenarios, where donors honor their Gleneagles commitment, governments meet the Abuja target in SSA countries, and 12 percent of national budgets are allocated to health in non SSA countries. Even under the less optimistic assumptions of the intermediate scenario, the Minimum scenario’s costs could be covered. A financing gap for the Minimum scenario appears under fiscal space scenarios 4 and 5; it would reach US$ 45.7 and 50.6 billion respectively.
Table E-13 Funding requirements and funding gap for the three scenarios for the 49 countries and under the five fiscal space scenarios (2009-2015) (billion US$)

<table>
<thead>
<tr>
<th>Sources of additional funding</th>
<th>MBB Maximum Scenario</th>
<th>MBB Medium Scenario</th>
<th>MBB Minimum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All countries</td>
<td>Gov’t</td>
<td>ODA</td>
</tr>
<tr>
<td>Optimistic</td>
<td>88.82</td>
<td>17.69</td>
<td>6.91</td>
</tr>
<tr>
<td>Doubling</td>
<td>88.82</td>
<td>15.68</td>
<td>6.91</td>
</tr>
<tr>
<td>Intermediate</td>
<td>62.89</td>
<td>9.11</td>
<td>6.91</td>
</tr>
<tr>
<td>Status Quo</td>
<td>13.84</td>
<td>0.99</td>
<td>6.91</td>
</tr>
<tr>
<td>Pessimistic</td>
<td>10.46</td>
<td>0.20</td>
<td>6.21</td>
</tr>
</tbody>
</table>

E.2. Scaling up for the MDGs in Sub-Saharan Africa

163. In this exercise, thirty three African low income countries, as per the World Bank classification, are included. The population of these 33 countries is over 700 million.

E.2.1 Potential impact on the MDGs

164. Table E-14 provides the impact estimates for the scenarios for the year 2015 in the 33 sub-Saharan African countries analyzed.

165. In the Maximum scenario, in 2015:

- 3.6m child and infant deaths would be averted, and MDG4 would be achieved in 88% of countries
- More than two hundred thousand maternal deaths would be averted in 2015 and MDG5 would be achieved in 45% of the countries (from the 1995 revised baseline). 61% of countries will reach at least a 70% decrease in MMR.
- More than 170000 HIV deaths and 220 000 TB deaths would be averted
- 9m unplanned births would be prevented and the MDG target for unmet demand for Family Planning would be met in all countries.
- 5.9m children (aged 12-23 months) would be protected from stunting.
- There would be 100% access to an improved source of drinking water and sanitation and an additional improvement in the quality of drinking water through household water treatment in 48% of households. MDG 7 would be fully achieved in all countries.

166. In the Medium scenario, in 2015:

- 3.3 million child and infant deaths would be averted, and MDG4 would be achieved in 79% of countries

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• Nearly 200,000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 29% of the countries (36% would reach at least a 70% reduction in MMR).
• More than 160,000 HIV deaths and 200,000 TB deaths would be averted.
• 6.8m unplanned births would be prevented and the MDG target for unmet demand for Family Planning would be met in all countries.
• 5m children (aged 12-23 months) would be protected from stunting.
• 82% of people will have access to improved sanitation and 56% to improved water sources. There would be an increase in the quality of drinking water through household water treatment in 30% of households. The Sanitation Goal of MDG 7 would be fully achieved in all countries.

167. In the Minimum scenario, in 2015:

• 2.7m child and infant deaths would be averted, and MDG4 would be achieved in 39% of countries.
• 150,000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 9% of the countries (but 24% would reach at least a 70% reduction in MMR).
• Over 147,000 TB deaths would and 104,000 HIV related deaths would be averted.
• 5m unplanned births would be prevented and 67% of countries would meet the MDG Family Planning target.
• 3.9m children (aged 12-23 months) would be protected from stunting.
• There would be an increase of nearly two thirds in access to improved sanitation.
Table E-14 Comparative impact of different scenarios on reaching the health related MDGs in SSA Countries (values for year 2015 as compared to a year-specific (1990/2005) baseline

<table>
<thead>
<tr>
<th>Additional Deaths Averted in 2015 28</th>
<th>Maximum</th>
<th>Estimate</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under five deaths (including infant and neonatal)</td>
<td>3,602,486</td>
<td>3,266,864</td>
<td>2,702,083</td>
</tr>
<tr>
<td>Newborn deaths (included above in U5 deaths)</td>
<td>850,855</td>
<td>756,519</td>
<td>620,959</td>
</tr>
<tr>
<td>Maternal deaths</td>
<td>219,254</td>
<td>193,205</td>
<td>150,804</td>
</tr>
<tr>
<td>Malaria deaths in adults</td>
<td>70,483</td>
<td>60,395</td>
<td>53,094</td>
</tr>
<tr>
<td>HIV/AIDS deaths in adults</td>
<td>172,587</td>
<td>163,413</td>
<td>104,329</td>
</tr>
<tr>
<td>Tuberculosis deaths</td>
<td>222,789</td>
<td>206,456</td>
<td>147,086</td>
</tr>
<tr>
<td>Total number of deaths averted</td>
<td>4,287,599</td>
<td>3,890,333</td>
<td>3,157,396</td>
</tr>
<tr>
<td>Decrease in # births</td>
<td>9,236,760</td>
<td>6,850,173</td>
<td>5,051,069</td>
</tr>
<tr>
<td>Total # stunting prevented (12-23 Months)</td>
<td>5,933,152</td>
<td>5,073,945</td>
<td>3,895,601</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% progress towards MDG4 and 5 from 1990/95 baselines</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDG4: U5MR reduction from 1990 by two-thirds</td>
</tr>
<tr>
<td>MMR reduction from 1990/1995 baseline</td>
</tr>
<tr>
<td>Countries reaching 70% MMR reduction</td>
</tr>
<tr>
<td>1 in Lifetime Risk of Dying reduction *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% progress towards MDG4 child survival goal since 2005-8 baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % reduction in U5MR*</td>
</tr>
<tr>
<td>IMR reduction *</td>
</tr>
<tr>
<td>NMMR reduction *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% progress towards MDG5 reproductive health goal since 2005-8 baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average % reduction in MMR *</td>
</tr>
<tr>
<td>% of total demand for Family Planning Met *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% progress towards MDG6 communicable disease goal since 2005-8 baseline (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction of Malaria Mortality in adults</td>
</tr>
<tr>
<td>Reduction in Malaria Incidence*</td>
</tr>
<tr>
<td>Reduction in AIDs mortality *</td>
</tr>
<tr>
<td>Reduction in HIV/AIDS incidence</td>
</tr>
<tr>
<td>Change in HIV/AIDS prevalence</td>
</tr>
<tr>
<td>Reduction in TB Mortality *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% progress towards MDG7 WASH goal since 2005-8 baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of drinking water increase*</td>
</tr>
<tr>
<td>Access to improved sanitation*</td>
</tr>
<tr>
<td>Access to an improved source of drinking water*</td>
</tr>
</tbody>
</table>

Indicators with * are calculated as a weighted average based on country population.

Phasing of interventions

168. During phase 1 (2008-2011), efforts are focused on investing in training of human resources and building infrastructure. The training and deployment of community health and nutrition promoters for improved family care practices is a key strategy to be implemented over the period. At the same time, efforts are made to improve the demand

28 For technical explanation of methodology, see footnote 26.
and quality of clinical services. Among the interventions that will be scaled-up are: ITNs for pregnant women and infants; antenatal care including antenatal IPT for malaria; promotion of early, exclusive and prolonged breastfeeding; neonatal care; routine immunization of mothers and children; vitamin A supplementation; deworming; complementary infant feeding; therapeutic feeding for severe malnutrition, oral rehydration therapy and zinc supplementation for diarrhea; malaria treatment, including artemisinin-based combined therapy; management of pneumonia in newborns and children; antiretroviral drugs and infant feeding counseling for the prevention of mother to child transmission of AIDS and birth spacing; skilled delivery and newborn care backed up by emergency obstetric and neonatal care; antiretroviral drugs (ARVs) and cotrimoxazole prophylaxis for the management of pediatric AIDS; and Hib vaccine for haemophilus influenza type B.

169. In phase 2 (2012-13), investments in human resources and infrastructure will continue and additional neonatal care as well as comprehensive emergency obstetric care will be introduced or scaled-up. These interventions include: community-based management of neonatal sepsis, zinc for diarrhea management, antibiotics for under-five pneumonia, deworming in pregnancy, treatment of asymptomatic bacteriuria, micronutrients for pregnant women, pneumococcal immunization, rotavirus immunization, resuscitation of asphyctic newborns at birth, antibiotics for preterm/prelabour rupture of membrane and basic emergency obstetric care.

170. Finally, in Phase 3 (2014-15), the investment in human resources and infrastructure will decrease while the referral based interventions will be scaled-up in order to offer a complete package of interventions by the end of the period.

**Maximum Scenario**

*N.B. All the percentages in the present section have been rounded to the nearest 5%, for ease of interpretation.*

171. During Phase One (2009-11), child mortality would be reduced by 40 percent and maternal mortality by 35 percent, low birth weight by 15 percent and stunting by less than 5 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 30 percent and AIDS Mortality by 5 percent. Additional annual costs per capita for 2011 will reach US$25.

172. During Phase Two (2012-13), child mortality would decrease by 60 percent and maternal mortality by 50 percent, low birth weight by 35 percent and stunting by 20 percent. Malaria mortality would be reduced by 70 percent, TB Mortality by 45 percent and AIDS mortality by 10 percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$27.

173. During Phase Three (2014-15), child mortality would be reduced by 70 percent, maternal mortality by 70 percent, low birth weight by 10 percent and stunting by 55 percent. Malaria mortality would be reduced by 90 percent, TB Mortality by 65 percent
and AIDS mortality by 20 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$53. Overall these improvements ensure the achievement of the health related MDG for this group. Figure E-1 summarizes the improvements and costs over the indicated phases.

**Figure E-1: Estimated impacts & Costs Framework (SSA countries), Maximum Scenario**

![Figure E-1: Estimated impacts & Costs Framework (SSA countries), Maximum Scenario](image)

**Medium Scenario**

174. During **Phase One** (2009-11), child mortality would be reduced by 30 percent and maternal mortality by 15 percent, low birth weight by 15 and stunting by less than 5 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 15 percent and AIDS mortality by less than 5 percent. Additional annual costs per capita for 2011 will reach US$ 7.

175. During **Phase Two** (2012-13), child mortality would decrease by 50 percent and maternal mortality by 35 percent, low birth weight by 30 percent and stunting by 15 percent. Malaria mortality would be reduced by 60 percent, TB mortality by 30 percent and AIDS mortality by 10 percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$ 20.

176. During **Phase Three** (2014-15), child mortality would be reduced by 70 percent, maternal mortality by 60 percent, low birth weight by 45 percent and stunting by 30 percent, malaria mortality would be reduced by 90 percent, TB mortality by 60 percent and AIDS mortality by 15 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$ 37. Overall these improvements ensure the achievement of the health related MDG for this group. Figure A-2 (page 18) illustrates the improvements and costs over the indicated phases.
177. During **Phase One** (2009-11) child mortality would decrease by 20 percent and maternal mortality by 20 percent, low birth weight by 5 percent and stunting by less than 5 percent. Malaria mortality would be reduced by 35 percent, TB mortality by 10 percent and AIDS mortality by less than one percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$ 6.

178. During **Phase Two** (2012-13), child mortality would be reduced by 40 percent and maternal mortality by 35 percent, low birth weight by 25 and stunting by less than percent. Malaria mortality would be reduced by 35 percent, TB mortality by 10 percent and AIDS Mortality by less than 5 percent. Additional annual costs per capita for 2011 will reach US$ 10.

179. During **Phase Three** (2014-15), child mortality would be reduced by 60 percent, maternal mortality by 50 percent, low birth weight by 35 percent and stunting by 20 percent. Malaria mortality would be reduced by 80 percent, TB Mortality by 40 percent and AIDS mortality by 5 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$ 16. Overall these improvements ensure the achievement of the health related MDG for this group. Figure E-3 summarizes the improvements and costs over the indicated phases.
180. Table E-15 below presents the estimates of additional resources needed by year according to the different scenarios for SSA countries. It shows that the Maximum scenario would require a total of US$ 172 billion over the period 2009-2015 for SSA countries. This would represent an annual additional per capita cost of US$ 54 in 2015. The MBB Medium and MBB Minimum scenarios require fewer additional resources, with US$ 89 billion and US$ 48 billion respectively for the period, which translates into US$ 37 and US$ 16 per capita in 2015 for the Medium and the Minimum scenarios respectively.

Table E-15 Additional costs by year for Sub-Saharan Africa (total and per capita)

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total (in US$ billions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBB Maximum Scenario</td>
<td>$9.96</td>
<td>$13.25</td>
<td>$18.99</td>
<td>$18.71</td>
<td>$21.06</td>
<td>$47.03</td>
<td>$43.47</td>
<td>$172.47</td>
</tr>
<tr>
<td>MBB Medium Scenario</td>
<td>$3.19</td>
<td>$4.07</td>
<td>$5.15</td>
<td>$9.96</td>
<td>$15.27</td>
<td>$21.40</td>
<td>$30.15</td>
<td>$89.19</td>
</tr>
<tr>
<td>MBB Minimum Scenario</td>
<td>$2.00</td>
<td>$3.10</td>
<td>$4.79</td>
<td>$6.01</td>
<td>$7.67</td>
<td>$11.27</td>
<td>$13.44</td>
<td>$48.29</td>
</tr>
<tr>
<td>Per capita (in US$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBB Maximum Scenario</td>
<td>$13.38</td>
<td>$17.80</td>
<td>$25.51</td>
<td>$24.05</td>
<td>$27.07</td>
<td>$58.11</td>
<td>$53.71</td>
<td>$222.88</td>
</tr>
<tr>
<td>MBB Medium Scenario</td>
<td>$4.28</td>
<td>$5.47</td>
<td>$6.92</td>
<td>$12.81</td>
<td>$19.63</td>
<td>$26.44</td>
<td>$37.26</td>
<td>$115.26</td>
</tr>
<tr>
<td>MBB Minimum Scenario</td>
<td>$2.69</td>
<td>$4.17</td>
<td>$6.44</td>
<td>$7.69</td>
<td>$9.82</td>
<td>$13.78</td>
<td>$16.44</td>
<td>$62.40</td>
</tr>
</tbody>
</table>

E.2.3 Cost distribution by service delivery mode
Table E-16 and Table E-17 below show a similar emphasis on family oriented community based services (with about 16-19 percent of the total costs going to this level). Population oriented schedulable services are allocated 15 percent of the total additional cost in the Minimum scenario and clinical services just over 55 percent. The share or additional resources to be allocated at these levels varies slightly for the Medium scenario, as 13 percent of total resources is needed at the population oriented level and 51 percent at the clinical level. Indeed, the major difference between the two scenarios can be seen at the governance and management level as the Medium scenario tends to put more emphasis on them.

Table E-16 Estimated additional cost by service packages and delivery level for SSA countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th>Service Package</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td>0.68</td>
<td>0.57</td>
<td>0.46</td>
<td>1.51</td>
<td>1.09</td>
<td>2.79</td>
<td>1.86</td>
<td>8.96</td>
<td>18.6</td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>0.16</td>
<td>0.22</td>
<td>0.24</td>
<td>0.43</td>
<td>0.47</td>
<td>0.73</td>
<td>0.77</td>
<td>3.01</td>
<td>6.2</td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td>0.42</td>
<td>0.22</td>
<td>0.09</td>
<td>0.89</td>
<td>0.41</td>
<td>1.78</td>
<td>0.80</td>
<td>4.60</td>
<td>9.5</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.13</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>1.3 Infant and child feeding</td>
<td>0.08</td>
<td>0.10</td>
<td>0.15</td>
<td>0.16</td>
<td>0.22</td>
<td>0.23</td>
<td>1.04</td>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>1.4 Community illness management</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.18</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Population oriented schedulable services</td>
<td>0.26</td>
<td>0.44</td>
<td>0.65</td>
<td>0.78</td>
<td>1.13</td>
<td>1.65</td>
<td>2.33</td>
<td>7.25</td>
<td>15.0</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.17</td>
<td>0.29</td>
<td>0.42</td>
<td>0.41</td>
<td>0.58</td>
<td>0.68</td>
<td>0.92</td>
<td>3.47</td>
<td>7.2</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>0.09</td>
<td>0.13</td>
<td>0.17</td>
<td>0.20</td>
<td>0.71</td>
<td>1.5</td>
</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
<td>0.02</td>
<td>0.03</td>
<td>0.06</td>
<td>0.13</td>
<td>0.21</td>
<td>0.21</td>
<td>0.25</td>
<td>0.91</td>
<td>1.9</td>
</tr>
<tr>
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<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.07</td>
<td>0.10</td>
<td>0.13</td>
<td>0.39</td>
<td>0.8</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
<td>0.04</td>
<td>0.07</td>
<td>0.10</td>
<td>0.11</td>
<td>0.14</td>
<td>0.50</td>
<td>0.82</td>
<td>1.77</td>
<td>3.7</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.85</td>
<td>1.80</td>
<td>3.31</td>
<td>3.06</td>
<td>4.58</td>
<td>5.42</td>
<td>7.64</td>
<td>63.9</td>
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<td>1.44</td>
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<td>3.19</td>
<td>5.47</td>
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<td>0.02</td>
<td>0.03</td>
<td>0.06</td>
<td>0.09</td>
<td>0.16</td>
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</tr>
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<td>1.13</td>
<td>1.18</td>
<td>1.60</td>
<td>1.57</td>
<td>1.56</td>
<td>8.06</td>
<td>16.7</td>
</tr>
<tr>
<td>3.3 Clinical first referral care</td>
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<td>0.15</td>
<td>0.32</td>
<td>0.26</td>
<td>0.53</td>
<td>0.31</td>
<td>0.15</td>
<td>1.76</td>
<td>3.7</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.02</td>
<td>0.05</td>
<td>0.12</td>
<td>0.12</td>
<td>0.16</td>
<td>0.19</td>
<td>0.25</td>
<td>0.92</td>
<td>1.9</td>
</tr>
<tr>
<td>District, provincial and national governance and management</td>
<td>0.21</td>
<td>0.29</td>
<td>0.37</td>
<td>0.66</td>
<td>0.87</td>
<td>1.41</td>
<td>1.60</td>
<td>5.42</td>
<td>11.2</td>
</tr>
<tr>
<td>Total</td>
<td>2.00</td>
<td>3.10</td>
<td>4.79</td>
<td>6.01</td>
<td>7.67</td>
<td>11.2</td>
<td>13.4</td>
<td>48.2</td>
<td>100.0</td>
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</table>
Table E-17 Estimated additional cost by service packages and delivery level for SSA countries (in billion US$), Medium Scenario

<table>
<thead>
<tr>
<th>Service Package</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td>0.08</td>
<td>1.37</td>
<td>1.22</td>
<td>2.34</td>
<td>1.92</td>
<td>4.01</td>
<td>3.09</td>
<td>14.0</td>
<td>15.7</td>
</tr>
<tr>
<td>1.0 Family preventive/WASH services</td>
<td>0.02</td>
<td>0.66</td>
<td>0.73</td>
<td>0.94</td>
<td>1.03</td>
<td>1.39</td>
<td>1.53</td>
<td>6.31</td>
<td>7.1</td>
</tr>
<tr>
<td>1.1 Infant and child feeding</td>
<td>0.01</td>
<td>0.16</td>
<td>0.16</td>
<td>0.19</td>
<td>0.20</td>
<td>0.28</td>
<td>0.30</td>
<td>1.30</td>
<td>1.5</td>
</tr>
<tr>
<td>1.2 Community illness management</td>
<td>0.00</td>
<td>0.13</td>
<td>0.14</td>
<td>0.15</td>
<td>0.16</td>
<td>0.19</td>
<td>0.22</td>
<td>0.98</td>
<td>1.1</td>
</tr>
<tr>
<td>2. Population oriented schedulable services</td>
<td>0.06</td>
<td>0.85</td>
<td>1.27</td>
<td>1.41</td>
<td>2.03</td>
<td>2.45</td>
<td>3.08</td>
<td>6</td>
<td>12.5</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.05</td>
<td>0.46</td>
<td>0.68</td>
<td>0.46</td>
<td>0.59</td>
<td>0.75</td>
<td>1.02</td>
<td>4.01</td>
<td>4.5</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.00</td>
<td>0.07</td>
<td>0.10</td>
<td>0.11</td>
<td>0.13</td>
<td>0.21</td>
<td>0.25</td>
<td>0.88</td>
<td>1.0</td>
</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
<td>0.00</td>
<td>0.18</td>
<td>0.29</td>
<td>0.32</td>
<td>0.44</td>
<td>0.53</td>
<td>0.67</td>
<td>2.44</td>
<td>2.7</td>
</tr>
<tr>
<td>2.3 HIV/AIDS prevention and care</td>
<td>0.00</td>
<td>0.03</td>
<td>0.05</td>
<td>0.07</td>
<td>0.11</td>
<td>0.14</td>
<td>0.20</td>
<td>0.59</td>
<td>0.7</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
<td>0.01</td>
<td>0.11</td>
<td>0.16</td>
<td>0.45</td>
<td>0.75</td>
<td>0.82</td>
<td>0.95</td>
<td>3.24</td>
<td>3.6</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.02</td>
<td>0.72</td>
<td>1.32</td>
<td>4.41</td>
<td>9.29</td>
<td>10.4</td>
<td>18.1</td>
<td>45.3</td>
<td>50.9</td>
</tr>
<tr>
<td>3.0 HR, infrastructure and equipment</td>
<td>0.00</td>
<td>0.18</td>
<td>0.36</td>
<td>3.21</td>
<td>7.19</td>
<td>8.29</td>
<td>16.4</td>
<td>35.7</td>
<td>40.1</td>
</tr>
<tr>
<td>3.1 Maternal and neonatal care at primary clinical level</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.06</td>
<td>0.11</td>
<td>0.20</td>
<td>0.27</td>
<td>0.67</td>
<td>0.8</td>
</tr>
<tr>
<td>3.2 Management of illnesses at primary clinical level</td>
<td>0.01</td>
<td>0.39</td>
<td>0.66</td>
<td>0.81</td>
<td>1.21</td>
<td>1.22</td>
<td>1.25</td>
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<td>3.3 Clinical first referral care</td>
<td>0.00</td>
<td>0.13</td>
<td>0.28</td>
<td>0.25</td>
<td>0.55</td>
<td>0.45</td>
<td>0.54</td>
<td>2.21</td>
<td>2.5</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.08</td>
<td>0.21</td>
<td>0.31</td>
<td>0.58</td>
<td>1.21</td>
<td>1.4</td>
</tr>
<tr>
<td>District, provincial and national governance and management</td>
<td>0.08</td>
<td>1.14</td>
<td>1.34</td>
<td>1.80</td>
<td>2.03</td>
<td>4.46</td>
<td>4.85</td>
<td>1.57</td>
<td>17.6</td>
</tr>
<tr>
<td>Total</td>
<td>3.19</td>
<td>4.07</td>
<td>5.15</td>
<td>9.96</td>
<td>15.2</td>
<td>21.4</td>
<td>30.1</td>
<td>89.1</td>
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</tr>
</tbody>
</table>

Finally, the distribution of additional resource requirements for the Maximum scenario by service delivery mode and by year is presented in Annex 11. As for the 49 countries altogether, the Maximum scenario puts more emphasis on the family oriented community based services than the Minimum and the Medium scenarios.

### E.2.4 Cost by disease, program and components of the health system

The distribution of costs among different diseases, programs and components of health systems under the Minimum scenario is presented in Table E-18. Fifty-one percent of the additional costs are invested to strengthen the health system and the remaining 49 percent to scale up high impact health related interventions. Of the US$ 24.7 billion for health systems strengthening one-quarter (US$ 6.8 billion) is for infrastructure, equipment and transport; human resources would require additional US$ 12.5 billion; another US$ 1.2 billion for strengthening logistics and supply chain management including buffer stocks; strengthening governance of the health system US$ 3.3 billion. Health information systems are estimated at less than US$ 1 billion.

Of the US$ 26.6 billion allocated for programs and diseases half is allocated for HIV/AIDS and malaria, mostly for procurement of drugs and supplies. Child health is
estimated at US$ 2.4 billion; maternal health US$ 2.0 billion; family planning US$ 1.3 billion; immunization US$ 1.6 billion; TB US$ 0.7 billion; nutrition (US$ 1.1 billion) and water, sanitation and hygiene programs (0.03 billion).

Table E-18 Distribution of estimated additional resource requirement by disease, program and health system for SSA countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th>Program and disease</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child health</td>
<td>0.10</td>
<td>0.17</td>
<td>0.23</td>
<td>0.34</td>
<td>0.49</td>
<td>0.54</td>
<td>0.58</td>
<td>2.44</td>
</tr>
<tr>
<td>Immunization</td>
<td>0.03</td>
<td>0.05</td>
<td>0.07</td>
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<td>0.11</td>
<td>0.45</td>
<td>0.75</td>
<td>1.55</td>
</tr>
<tr>
<td>Water, sanitation and hygiene</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.03</td>
</tr>
<tr>
<td>Nutrition</td>
<td>0.07</td>
<td>0.08</td>
<td>0.09</td>
<td>0.17</td>
<td>0.22</td>
<td>0.26</td>
<td>0.29</td>
<td>1.18</td>
</tr>
<tr>
<td>Maternal health</td>
<td>0.05</td>
<td>0.11</td>
<td>0.20</td>
<td>0.25</td>
<td>0.36</td>
<td>0.48</td>
<td>0.60</td>
<td>2.04</td>
</tr>
<tr>
<td>Family planning</td>
<td>0.06</td>
<td>0.12</td>
<td>0.21</td>
<td>0.13</td>
<td>0.19</td>
<td>0.24</td>
<td>0.33</td>
<td>1.28</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.22</td>
<td>0.37</td>
<td>0.57</td>
<td>0.84</td>
<td>1.42</td>
<td>1.35</td>
<td>1.27</td>
<td>6.05</td>
</tr>
<tr>
<td>TB</td>
<td>0.02</td>
<td>0.04</td>
<td>0.08</td>
<td>0.09</td>
<td>0.12</td>
<td>0.16</td>
<td>0.22</td>
<td>0.73</td>
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<tr>
<td>Malaria</td>
<td>0.57</td>
<td>0.56</td>
<td>0.79</td>
<td>1.50</td>
<td>1.11</td>
<td>2.39</td>
<td>1.39</td>
<td>8.32</td>
</tr>
<tr>
<td>Non-MDGs basic services</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
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<td>2.55</td>
<td>2.60</td>
<td>3.64</td>
<td>5.38</td>
<td>8.00</td>
<td>24.67</td>
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<td>1.13</td>
<td>1.68</td>
<td>2.70</td>
<td>4.61</td>
<td>12.46</td>
</tr>
<tr>
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<td>0.47</td>
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<td>1.41</td>
<td>1.76</td>
<td>6.34</td>
</tr>
<tr>
<td>Incentives</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Infrastructure, equipment and transport</td>
<td>0.33</td>
<td>0.53</td>
<td>0.79</td>
<td>0.79</td>
<td>1.11</td>
<td>1.36</td>
<td>1.87</td>
<td>6.79</td>
</tr>
<tr>
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<td>0.35</td>
<td>0.55</td>
<td>0.40</td>
<td>0.62</td>
<td>0.61</td>
<td>0.94</td>
<td>3.68</td>
</tr>
<tr>
<td>Equipment</td>
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<td>0.12</td>
<td>0.17</td>
<td>0.23</td>
<td>0.33</td>
<td>0.39</td>
<td>0.57</td>
<td>1.89</td>
</tr>
<tr>
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<td>0.06</td>
<td>0.07</td>
<td>0.16</td>
<td>0.16</td>
<td>0.36</td>
<td>0.36</td>
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<td>0.12</td>
<td>0.13</td>
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<td>0.34</td>
<td>1.21</td>
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<td>0.07</td>
<td>0.07</td>
<td>0.04</td>
<td>0.04</td>
<td>0.16</td>
<td>0.16</td>
<td>0.62</td>
</tr>
<tr>
<td>Warehouse, equipment and vehicle</td>
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<td>0.03</td>
<td>0.03</td>
<td>0.08</td>
<td>0.08</td>
<td>0.18</td>
<td>0.18</td>
<td>0.60</td>
</tr>
<tr>
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<td>0.08</td>
<td>0.11</td>
<td>0.16</td>
<td>0.21</td>
<td>0.28</td>
<td>0.89</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
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<td>0.22</td>
<td>0.27</td>
<td>0.45</td>
<td>0.56</td>
<td>0.77</td>
<td>0.90</td>
<td>3.32</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Insurance</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Conditional cash transfer</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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</tr>
<tr>
<td>Total</td>
<td>2.00</td>
<td>3.10</td>
<td>4.79</td>
<td>6.01</td>
<td>7.67</td>
<td>11.27</td>
<td>13.44</td>
<td>48.29</td>
</tr>
</tbody>
</table>

The distribution of costs among different diseases, programs and components of health systems in the Medium scenario is analyzed based on Table E-19 below. The estimated additional cost is balanced between the two broad categories, i.e. program and diseases; and health systems. Sixty-seven percent of the additional costs are invested to strengthen the health system and the remaining 33 percent to scale up high impact health related interventions. Of the US$ 59.4 billion for health systems strengthening nearly half (US$ 25.7 billion) is for infrastructure, equipment and transport; human resources would require additional US$ 18.8 billion; another US$ 6.0 billion for strengthening logistics and supply chain management including buffer stocks; strengthening governance of the 185. The distribution of costs among different diseases, programs and components of health systems in the Medium scenario is analyzed based on Table E-19 below. The estimated additional cost is balanced between the two broad categories, i.e. program and diseases; and health systems. Sixty-seven percent of the additional costs are invested to strengthen the health system and the remaining 33 percent to scale up high impact health related interventions. Of the US$ 59.4 billion for health systems strengthening nearly half (US$ 25.7 billion) is for infrastructure, equipment and transport; human resources would require additional US$ 18.8 billion; another US$ 6.0 billion for strengthening logistics and supply chain management including buffer stocks; strengthening governance of the
health system US$ 5.5 billion. Health Information Systems are estimated at US$ 1.2 billion.

Of the US$ 29.8 billion allocated for programs and diseases over half (US$ 15.5 billion) is allocated for HIV/AIDS and malaria, mostly for procurement of drugs and supplies. Child health is estimated at US$ 2.7 billion; maternal health US$ 3.6 billion; family planning US$ 1.6 billion; immunization US$ 3.0 billion; TB US$ 0.9 billion; nutrition (US$ 1.7 billion) and water, sanitation and hygiene programs (US$ 0.7 billion).

Table E-19 Distribution of estimated additional resource requirement by disease, program and health system for SSA countries (in billion US$), Medium scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program and disease</td>
<td>1.58</td>
<td>1.88</td>
<td>2.41</td>
<td>4.08</td>
<td>5.08</td>
<td>7.41</td>
<td>7.40</td>
<td>29.84</td>
</tr>
<tr>
<td>Child health</td>
<td>0.13</td>
<td>0.21</td>
<td>0.27</td>
<td>0.36</td>
<td>0.50</td>
<td>0.59</td>
<td>0.67</td>
<td>2.72</td>
</tr>
<tr>
<td>Immunization</td>
<td>0.04</td>
<td>0.08</td>
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<td>3.09</td>
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<td>0.57</td>
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<td>0.14</td>
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<td>0.67</td>
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<tr>
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</table>

The distribution of costs among different diseases, programs and components of health systems for the Maximum scenario are presented in Annex 12. It reveals a greater focus on the disease and program component, due to higher expenditure on water, sanitation and hygiene.
E.2.5 Cost distribution by economic classification

188. Table E-20 presents the details of the estimated additional resource requirement according to their economic classification for the Minimum scenario. Out of the total US$ 48.3 billion required, 60.5 percent are allocated to recurrent and 39.5 percent to capital costs, as this Minimum low cost / high impact strategy aims at making the best use of existing capacity.

189. US$ 2.5 billion of capital expenditures go to infrastructure and US$ 2.8 billion to buffer stocks and ITNs represent US$ 4.4 billion. General equipment would require US$ 1.6 billion while pre-service training costs and transport equipment would account for US$ 6.1 billion and US$ 1.1 billion respectively.

Table E-20 Estimated additional resource requirement by capital and recurrent classification for SSA countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<td>4.60</td>
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<td>19.05</td>
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<td>0.23</td>
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<td>0.33</td>
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</tr>
<tr>
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<td>0.06</td>
<td>0.15</td>
<td>0.14</td>
<td>0.33</td>
<td>0.33</td>
<td>1.13</td>
</tr>
<tr>
<td>Pre-service training</td>
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<td>0.65</td>
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<td>0.47</td>
<td>1.29</td>
<td>2.86</td>
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<td>0.54</td>
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<td>0.34</td>
<td>0.40</td>
<td>0.47</td>
<td>2.78</td>
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<td>0.05</td>
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<td>0.11</td>
<td>0.15</td>
<td>0.18</td>
<td>0.66</td>
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<tr>
<td>Vaccines</td>
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<td>0.05</td>
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<td>0.07</td>
<td>0.32</td>
<td>0.57</td>
<td>1.13</td>
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<tr>
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<td>1.30</td>
<td>1.64</td>
<td>2.29</td>
<td>2.35</td>
<td>2.34</td>
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<td>0.54</td>
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<td>0.67</td>
<td>0.65</td>
<td>0.61</td>
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<td>HIV/AIDS</td>
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<td>0.34</td>
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<td>0.58</td>
<td>0.66</td>
<td>0.77</td>
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<td>1.86</td>
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<td>1.41</td>
<td>1.76</td>
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<tr>
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<td>0.04</td>
<td>0.06</td>
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<td>0.12</td>
<td>0.17</td>
<td>0.22</td>
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<td>0.00</td>
<td>0.00</td>
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<td>7.67</td>
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</table>

190. Recurrent expenditures amount to US$ 29.2 billion and include US$ 10.8 billion for essential drugs; US$ 0.7 billion for contraceptives; and US$ 1.1 billion for vaccines. Human resources (US$ 8.0 billion) would absorb a quarter of the total. Other categories
include administration (US$ 3.0 billion), demand promotion (US$ 1.2 billion), governance (US$ 3.5 billion) and health information systems (less than US$ 1 billion). Traded versus non-traded costs are outlined in Table E-21. Given the emphasis on increasing coverage using existing resources, traded inputs make up a larger proportion of additional costs (52.2%) compared to non-traded costs, which includes staffing and infrastructure investments.

Table E-21 Estimated additional resource requirement by traded versus non-traded classification for SSA countries (in billion US$), Minimum scenario

<table>
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<th></th>
<th>2009</th>
<th>2010</th>
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<td>0.34</td>
<td>0.40</td>
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<tr>
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<td>0.66</td>
</tr>
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<td>2.29</td>
<td>2.35</td>
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</tr>
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<td>0.77</td>
<td>3.11</td>
</tr>
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<td>1.72</td>
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<td>0.33</td>
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191. In the Medium scenario, as shown in Table E-22, out of the total US$ 89.2 billion additional requirement, US$ 43.4 billion would be for recurrent costs while US$ 45.8 billion for investment cost. That means that just under US$ 5 out of every US$ 10 would be dedicated to recurrent expenses. Around US$ 14.2 billion, one quarter of all capital expenditures, will be dedicated to infrastructure; pre-service training, another one-quarter with US$10.0 billion required. Buffer stock will require US$ 3.4 billion, ITNs US$ 5.3 billion, equipment and warehouses US$ 6.2 and 5.3 billion respectively. Transport
equipment would be the lesser sub category within this chapter, with US$ 1.3 billion. Within recurrent expenditures, drugs (US$ 12.5 billion), contraceptives (US$ 0.9 billion) and vaccines (US$ 2.4 billion) will absorb just over one-third of all recurrent expenditures. Human resources, with US$ 11.0 billion, will absorb one-fourth, while administration (US$ 6.6 billion), demand promotion (US$ 1.4 billion), governance (US$ 5.3 billion) and health information systems (US$ 1.2 billion) will complete this category. Traded versus non-traded costs are outlined in Table E-23. In the Medium scenario, non-traded costs increase to US$ 37.3 billion, well under half of all additional costs (41.9 percent).

Table E-22 Estimated additional resource requirement by capital and recurrent classification for SSA countries (in billion US$), Medium scenario

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<tr>
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<th>2009</th>
<th>2010</th>
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<th>Total</th>
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### Table E-23 Estimated additional resource requirement by traded versus non-traded classification for SSA countries (in billion US$), Medium scenario

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</tbody>
</table>

Finally, the distribution of costs by economic classification for the Maximum scenario for SSA countries is presented in Annex 13. It shows that the Maximum scenario emphasizes more on capital expenditure than the two other scenarios, as 61 percent of the total additional cost requirements are allocated to capital expenditure in the Maximum scenario, against 39.5 percent in the Minimum scenario and 51.3 percent in the Medium scenario.
E.2.6 Health facilities and health workers requirements

193. Table E-24 describes the main inputs for health system strengthening. During this period more than 31,000 facilities are expected to be built or rehabilitated in the Minimum Scenario. The number of facilities that need to be built or rehabilitated increases to close to 39,000 in the Medium scenario and to over 44,000 in the Maximum scenario. A large majority of the facilities would be health posts (between 67 and 68 percent) and health centers (25 percent). District and regional hospitals would only represent 6-7 percent of all new facilities in the scenarios.

194. To achieve the coverage of the Minimum scenario, some 0.6 million additional health workers would be required. The number of additional health workers required increases to 1.7 million, 1.9 million in the Medium and the Maximum scenarios respectively. This important difference comes from the fact that in the Minimum scenario, fewer additional health workers are required as this scenario builds on existing resources.

Table E-24 Total additional facilities and health workers for SSA countries and the three scenarios

<table>
<thead>
<tr>
<th></th>
<th>Minimum Scenario</th>
<th>Medium Scenario</th>
<th>Maximum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Facilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>31,188</td>
<td>38,778</td>
<td>44,331</td>
</tr>
<tr>
<td>Health Post</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>12,187</td>
<td>15,318</td>
<td>17,222</td>
</tr>
<tr>
<td>Rehab</td>
<td>9,010</td>
<td>11,179</td>
<td>12,738</td>
</tr>
<tr>
<td>Health Centre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>4,980</td>
<td>6,257</td>
<td>7,042</td>
</tr>
<tr>
<td>Rehab</td>
<td>2,938</td>
<td>3,585</td>
<td>4,153</td>
</tr>
<tr>
<td>District Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>1,116</td>
<td>1,173</td>
<td>1,556</td>
</tr>
<tr>
<td>Rehab</td>
<td>750</td>
<td>754</td>
<td>1,046</td>
</tr>
<tr>
<td>Regional Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>0</td>
<td>251</td>
<td>279</td>
</tr>
<tr>
<td>Rehab</td>
<td>208</td>
<td>261</td>
<td>294</td>
</tr>
<tr>
<td>Health Workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community based health &amp; nutrition promoters</td>
<td>0</td>
<td>918,460</td>
<td>1,068,768</td>
</tr>
<tr>
<td>Health extension workers</td>
<td>97,474</td>
<td>122,414</td>
<td>137,665</td>
</tr>
<tr>
<td>Junior, assistant, assistant midwife nurse (1 year training)</td>
<td>88,111</td>
<td>119,363</td>
<td>124,546</td>
</tr>
<tr>
<td>Technicians (lab, x-ray, pharmacy)</td>
<td>77,530</td>
<td>96,361</td>
<td>109,630</td>
</tr>
<tr>
<td>Registered nurse/midwives (at least 3 yr training)</td>
<td>125,954</td>
<td>159,725</td>
<td>178,554</td>
</tr>
<tr>
<td>Health officer</td>
<td>8,427</td>
<td>12,377</td>
<td>11,921</td>
</tr>
<tr>
<td>Physician/MD</td>
<td>13,902</td>
<td>20,483</td>
<td>19,914</td>
</tr>
<tr>
<td>Specialist</td>
<td>3,099</td>
<td>3,973</td>
<td>4,383</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>148,615</td>
<td>188,571</td>
<td>210,466</td>
</tr>
<tr>
<td>District and provincial managers</td>
<td>22,626</td>
<td>34,069</td>
<td>40,927</td>
</tr>
</tbody>
</table>

E.2.7 Fiscal space and funding gaps

90
Table E-25 presents the available fiscal space in SSA over the period 2009 and 2015 under the five fiscal space scenarios. The available incremental fiscal space over the period reaches US$ 66.1 billion under Scenario 1, US$ 64.7 billion under Scenario 2, US$ 44.8 billion under Scenario 3, US$ 10.4 billion under Scenario 4 and only US$ 7.0 billion under Scenario 5.

<table>
<thead>
<tr>
<th>Available incremental funding (SSA countries)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1: Optimistic</td>
<td>1.24</td>
<td>4.01</td>
<td>6.49</td>
<td>9.20</td>
<td>12.23</td>
<td>15.54</td>
<td>17.42</td>
<td>66.14</td>
</tr>
<tr>
<td>... government</td>
<td>1.10</td>
<td>3.33</td>
<td>5.07</td>
<td>7.00</td>
<td>9.16</td>
<td>11.58</td>
<td>12.75</td>
<td>50.00</td>
</tr>
<tr>
<td>... external</td>
<td>0.03</td>
<td>0.45</td>
<td>0.97</td>
<td>1.62</td>
<td>2.36</td>
<td>3.12</td>
<td>3.71</td>
<td>12.26</td>
</tr>
<tr>
<td>... private</td>
<td>0.11</td>
<td>0.24</td>
<td>0.45</td>
<td>0.58</td>
<td>0.71</td>
<td>0.83</td>
<td>0.96</td>
<td>3.88</td>
</tr>
<tr>
<td>Scenario 2: Gleneagles doubling and Abuja 15% commitment</td>
<td>1.20</td>
<td>3.93</td>
<td>6.36</td>
<td>9.02</td>
<td>11.99</td>
<td>15.22</td>
<td>17.04</td>
<td>64.76</td>
</tr>
<tr>
<td>... government</td>
<td>1.10</td>
<td>3.33</td>
<td>5.07</td>
<td>7.00</td>
<td>9.16</td>
<td>11.58</td>
<td>12.75</td>
<td>50.00</td>
</tr>
<tr>
<td>... external</td>
<td>-0.01</td>
<td>0.36</td>
<td>0.83</td>
<td>1.44</td>
<td>2.12</td>
<td>2.81</td>
<td>3.33</td>
<td>10.88</td>
</tr>
<tr>
<td>... private</td>
<td>0.11</td>
<td>0.24</td>
<td>0.45</td>
<td>0.58</td>
<td>0.71</td>
<td>0.83</td>
<td>0.96</td>
<td>3.88</td>
</tr>
<tr>
<td>Scenario 3: Intermediate - ODA 50% and government 12%</td>
<td>0.50</td>
<td>2.43</td>
<td>4.30</td>
<td>6.26</td>
<td>8.44</td>
<td>10.83</td>
<td>12.03</td>
<td>44.78</td>
</tr>
<tr>
<td>... government</td>
<td>0.54</td>
<td>2.12</td>
<td>3.43</td>
<td>4.85</td>
<td>6.44</td>
<td>8.21</td>
<td>8.94</td>
<td>34.54</td>
</tr>
<tr>
<td>... external</td>
<td>-0.16</td>
<td>0.07</td>
<td>0.41</td>
<td>0.83</td>
<td>1.29</td>
<td>1.79</td>
<td>2.12</td>
<td>6.37</td>
</tr>
<tr>
<td>... private</td>
<td>0.11</td>
<td>0.24</td>
<td>0.45</td>
<td>0.58</td>
<td>0.71</td>
<td>0.83</td>
<td>0.96</td>
<td>3.88</td>
</tr>
<tr>
<td>Scenario 4: Status Quo</td>
<td>-0.34</td>
<td>0.13</td>
<td>0.83</td>
<td>1.48</td>
<td>2.19</td>
<td>2.93</td>
<td>3.17</td>
<td>10.38</td>
</tr>
<tr>
<td>... government</td>
<td>-0.13</td>
<td>0.16</td>
<td>0.48</td>
<td>0.82</td>
<td>1.16</td>
<td>1.56</td>
<td>1.61</td>
<td>5.71</td>
</tr>
<tr>
<td>... external</td>
<td>-0.32</td>
<td>-0.26</td>
<td>-0.11</td>
<td>0.08</td>
<td>0.29</td>
<td>0.52</td>
<td>0.60</td>
<td>0.80</td>
</tr>
<tr>
<td>... private</td>
<td>0.11</td>
<td>0.24</td>
<td>0.45</td>
<td>0.58</td>
<td>0.71</td>
<td>0.83</td>
<td>0.96</td>
<td>3.88</td>
</tr>
<tr>
<td>Scenario 5: Pessimistic</td>
<td>-0.79</td>
<td>-0.79</td>
<td>0.52</td>
<td>1.12</td>
<td>1.79</td>
<td>2.47</td>
<td>2.68</td>
<td>7.01</td>
</tr>
<tr>
<td>... government</td>
<td>-0.27</td>
<td>-0.45</td>
<td>0.22</td>
<td>0.51</td>
<td>0.83</td>
<td>1.17</td>
<td>1.17</td>
<td>3.17</td>
</tr>
<tr>
<td>... external</td>
<td>-0.58</td>
<td>-0.53</td>
<td>-0.10</td>
<td>0.09</td>
<td>0.30</td>
<td>0.52</td>
<td>0.61</td>
<td>0.31</td>
</tr>
<tr>
<td>... private</td>
<td>0.07</td>
<td>0.19</td>
<td>0.40</td>
<td>0.53</td>
<td>0.66</td>
<td>0.78</td>
<td>0.90</td>
<td>3.53</td>
</tr>
</tbody>
</table>

Table E-26 compares the additional costs for achieving the MDGs in SSA countries under the three scaling-up scenarios, with the incremental fiscal space created under each of the fiscal space scenarios for the period 2009-2015 and for SSA countries. In SSA countries, the Maximum scenario overflows all five fiscal space scenarios. Even if ODA meets the Gleneagles commitment of 0.7 percent and governments increase their allocation to health to 15 percent of public expenditures, a gap of US$ 106.3 billion remains under fiscal space scenario 1 for the SSA countries. This gap would increase to US$ 107.7 billion under fiscal space scenario 2, US$ 127.7 billion under scenario 3, US$ 162.1 billion under scenario 4 and finally, to US$ 165.5 billion under scenario 5.

Similarly, none of the fiscal space scenarios envisioned in this exercise would enable to cover the costs of the Medium scenario. Although very limited compared to the financing gap of the Maximum scenario, a US$ 23 billion would remain under the assumptions of the first fiscal space scenario. This financing gap would increase up to US$ 82.2 under the pessimistic assumptions of the fifth fiscal space scenario.

Finally the Minimum scenario for SSA countries would be fully covered under the fiscal space scenarios 1 and 2. However, a gap of US$ 3.5, 37.9 and 41.3 billion
would need to be funded under should Gleneagles commitments not materialize and the financial crisis hit (respectively under fiscal space scenario 3, 4 and 5).

Table E-26 Funding requirements and funding gap for the three scenarios for SSA countries under the five fiscal space scenarios (2009-2015) (billion US$)

<table>
<thead>
<tr>
<th>SSA</th>
<th>Sources of additional funding</th>
<th>MBB Maximum Scenario</th>
<th>MBB Medium Scenario</th>
<th>MBB Minimum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
<td>ODA</td>
<td>Private</td>
<td>Total</td>
</tr>
<tr>
<td>Optimistic</td>
<td>50.00</td>
<td>12.26</td>
<td>3.88</td>
<td>66.14</td>
</tr>
<tr>
<td>Doubling</td>
<td>50.00</td>
<td>10.88</td>
<td>3.88</td>
<td>64.76</td>
</tr>
<tr>
<td>Intermediate</td>
<td>34.54</td>
<td>6.37</td>
<td>3.88</td>
<td>44.78</td>
</tr>
<tr>
<td>Status Quo</td>
<td>5.71</td>
<td>0.80</td>
<td>3.88</td>
<td>10.38</td>
</tr>
<tr>
<td>Pessimistic</td>
<td>3.17</td>
<td>0.26</td>
<td>3.53</td>
<td>6.96</td>
</tr>
</tbody>
</table>

E.3. Scaling up for the MDGs in non Sub-Saharan African countries

For this exercise, 16 low income Asian countries plus Yemen and Haiti were included29. The population of these 16 countries is over 686 million.

E.3.1 Potential impact on the MDGs

Table E-27 provides the impact estimates for the scenarios for the year 2015 for the 16 non Sub-Saharan African countries.

In the Maximum scenario, in 2015:

- 1.2m child and infant deaths would be averted, and MDG4 would be achieved in 81% of countries
- Nearly eighty thousand maternal deaths would be averted in 2015 and MDG5 would be achieved in 75% of the countries (88% would reach at least a 70% reduction in MMR).
- Nearly 20 000 HIV deaths and 60 000 TB deaths would be averted
- 7m unplanned births would be prevented and the MDG target for unmet demand for Family Planning would be met in all countries
- 4m children (aged 12-23 months) would be protected from stunting.
- There would be 100% access to an improved source of drinking water and sanitation and an additional improvement in the quality of drinking water through household water treatment in 27% of households. MDG 7 would be fully achieved in all countries.

In the Medium scenario, in 2015

---

29 Afghanistan, Bangladesh, Cambodia, DPR Korea, Haiti, Kyrgyz Republic, Lao PDR, Myanmar, Pakistan, Papua New Guinea, Solomon Islands, Tajikistan, Uzbekistan, Vietnam, and Yemen.
• Over 1m child and infant deaths would be averted, and MDG4 would be achieved in 81% of countries
• 66 000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 56% of the countries
• Over 13 000 HIV deaths and 28 000 TB deaths would be averted
• 5m unplanned births would be prevented and the MDG target for unmet demand for Family Planning would be met in all countries
• Over 3m children (aged 12-23 months) would be protected from stunting
• Coverage of access to improved sanitation would reach three quarter- of the population and 6% will improve the quality of their drinking water through household water treatment. The Sanitation Goal of MDG 7 would be fully achieved all but 1 country.

203. In the Minimum scenario, in 2015

• 820,000 child and infant deaths would be averted, and MDG4 would be achieved in 56% of countries
• 50 000 maternal deaths would be averted in 2015 and MDG5 would be achieved in 19% of the countries (38% would reach at least a 70% reduction of MMR).
• Around 12,000 HIV/AIDS deaths and over 22 000 TB deaths would be averted
• 2m unplanned births would be prevented and 88% of countries would meet the MDG Family Planning target.
• 2.2m children (aged 12-23 months) would be protected from stunting
• Improved sanitation would reach 71% of the population and 3 out of 4 countries would reach the MDG for sanitation.
Table E-27 Comparative impact of different scenarios on reaching the health related MDGs in Non SSA countries (values for year 2015 as compared to a year-specific (1990/2005) baseline

<table>
<thead>
<tr>
<th>Maximum</th>
<th>% countries reaching target</th>
<th>Medium</th>
<th>% countries reaching target</th>
<th>Minimum</th>
<th>% countries reaching target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under five deaths (including infant and neonatal)</td>
<td>1,175,529</td>
<td>1,021,655</td>
<td>820,572</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newborn deaths (included above in U5 deaths)</td>
<td>567,310</td>
<td>504,400</td>
<td>388,904</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal deaths</td>
<td>78,020</td>
<td>66,178</td>
<td>49,275</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaria deaths in adults</td>
<td>4,955</td>
<td>3,355</td>
<td>2,820</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS deaths in adults</td>
<td>18,589</td>
<td>13,404</td>
<td>12,026</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuberculosis deaths</td>
<td>60,402</td>
<td>28,671</td>
<td>22,079</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of deaths averted</td>
<td>1,337,495</td>
<td>1,133,263</td>
<td>906,772</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decrease in # births</td>
<td>7,089,783</td>
<td>5,024,319</td>
<td>2,080,924</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total # stunting prevented (WHO 12-59 Months; MBB:12-23 Months)</td>
<td>4,005,739</td>
<td>3,258,565</td>
<td>2,295,018</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

% progress towards MDG4 and 5 from 1990/95 baselines

| MDG4: U5MR reduction from 1990 by two-thirds | 82% | 81% | 77% | 81% | 72% | 56% |
| MMR reduction from 1990/1995 baseline | 80% | 75% | 72% | 56% | 60% | 19% |
| Countries reaching 70% MMR reduction | 88% | 63% | 38% |
| 1 in Lifetime Risk of Dying reduction * | 87% | 94% | 78% | 63% | 61% | 6% |

% progress towards MDG1 malnutrition goal since 2005-8 baseline

| Anemia* | 62% | 100% | 53% | 69% | 43% | 13% |
| Reduction of Low Birth weight* | 34% | 0% | 28% | 0% | 26% | 0% |
| Estimated reduction in stunting children 12-23 months | 31% | 0% | 21% | 0% | 19% | 0% |

% progress towards MDG4 child survival goal since 2005-8 baseline

| Average % reduction in U5MR * | 70% | 81% | 62% | 81% | 53% | 56% |
| IMR reduction * | 67% | 60% | 51% |
| NNMR reduction * | 66% | 59% | 49% |

% progress towards MDG5 reproductive health goal since 2005-8 baseline

| Average % reduction in MMR * | 74% | 75% | 65% | 56% | 49| 19% |
| % of total demand for Family Planning Met* | 103% | 100% | 98% | 94% | 82% | 88% |

% progress towards MDG6 communicable disease goal since 2005-8 baseline

| Reduction of Malaria Mortality in adults | 69% | 75% | 36% | 100% | 32% | 100% |
| Reduction in Malaria Incidence* | 37% | 38% | 16% | 27% | 15% | 14% |
| Reduction in AIDS mortality * | 30% | 0% | 21% | 0% | 17% | 0% |
| Reduction in HIV/AIDS incidence | 32% | 25% | 27% | 19% | 19% | 0% |
| Change in HIV/AIDS prevalence | -40% | 0% | -22% | 0% | -21% | 0% |
| Reduction in TB Mortality * | 55% | 81% | 45% | 50% | 28% | 19% |

% progress towards MDG7 WASH goal since 2005-8 baseline

| Quality of drinking water increase* | 27% | 6% | 5% |
| Access to improved sanitation* | 100% | 100% | 75% | 94% | 71% | 75% |
| Access to an improved source of drinking water* | 100% | 100% | 86% | 25% | 88% | 25% |

Indicators with * are calculated as a weighted average based on country population.

Phasing of interventions

30 For technical explanation of methodology, see footnote 26.
As noted above, the Asia-Pacific investment case for maternal, newborn and child health has defined three sets of strategies that can be implemented respectively during the three phases of this exercise. The rationale for selecting interventions and the pace of their scale-up is similar to the one for Africa as it is planned to scale-up interventions starting from the lower level of service delivery and ending with the highest level at the end of the period.

The selected package of high impact interventions for the first phase (2008-2011) aims at strengthening the supply of health services at the community and outreach level as well as at the primary clinical level by investing on training and providing incentives to providers. The interventions scaled-up over this period include antenatal care, skilled birth attendance, basic family planning, essential newborn care, promotion of exclusive breastfeeding, immunization, vitamin A supplementation, oral rehydration, case management of childhood diseases (for example, pneumonia, diarrhea, malaria), hand-washing promotion and insecticide-treated bed nets.

During phase 2 (2012-2013), interventions implemented during phase 1 continue to be scaled-up, and additional neonatal care interventions such as complementary and therapeutic feeding, zinc supplementation, new vaccines as well as long-term family planning interventions are introduced. To support the delivery of these interventions, a particular focus is given to investment in human resources for health and infrastructure at primary level.

Finally, during phase 3 (2014-2015), in addition to the previously cited interventions, emphasis will be put on emergency obstetric care, HIV/AIDS treatment (ARTs) and water and sanitation so as to provide a comprehensive package of interventions by the end of the period. To support these interventions, large investments in human resources and infrastructure at the referral level will be made.

The interventions selected for Central Asia differ from the interventions selected for the other non SSA countries. The major differences include the absence of malaria interventions; less HIV/AIDS curative interventions; less community based interventions as most of the interventions tend to be provided at the facility level; and the treatment of neonatal infections and the first referral level. However, the phasing of interventions for central Asia does not differ from the phasing of the other Asian countries, that is to say that it follows the Asia-Pacific investment case for maternal, newborn and child health.

N.B. All the percentages in the present section have been rounded to the nearest 5% for ease of interpretation.

Maximum Scenario

During Phase One (2009-11), child mortality would be reduced by 30 percent and maternal mortality by 40 percent, low birth weight by 30 percent and stunting by 30 percent. Malaria mortality would be reduced by 55 percent, TB mortality by 15 percent
and AIDS mortality by 10 percent. Additional annual costs per capita for 2011 will reach US$ 7.

210. During **Phase Two** (2012-13), child mortality would decrease by 45 percent and maternal mortality by 50 percent, low birth weight by 40 percent and stunting by 20 percent, malaria mortality would be reduced by 65 percent, TB mortality by 30 percent and AIDS mortality by 15 percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$ 9.

211. During **Phase Three** (2014-15), child mortality would be reduced by 60 percent, maternal mortality by 70 percent, low birth weight by 50 percent and stunting by 35 percent. Malaria mortality would be reduced by 70 percent, TB mortality by 55 percent and AIDS mortality by 25 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$ 20. Overall these improvements ensure the achievement of the health related MDG for this group. Figure E-3 summarizes the improvements and costs over the indicated phases.

**Figure E-4: Estimated impacts & Costs Framework (non-SSA countries), Maximum Scenario**

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaemia</td>
<td>Reduction of Low Birth weight</td>
<td>Reduction of Malaria Mortality</td>
</tr>
<tr>
<td>Estimated reduction in stunting</td>
<td>USMR reduction</td>
<td>$19.80</td>
</tr>
<tr>
<td>IMR reduction</td>
<td>NNMR reduction</td>
<td>$9.29</td>
</tr>
<tr>
<td>MMR reduction</td>
<td>Reduction of Lifetime Risk of Dying</td>
<td></td>
</tr>
<tr>
<td>% total demand for Family Planning met</td>
<td>Reduction of Malaria Mortality</td>
<td></td>
</tr>
</tbody>
</table>

**Medium Scenario**

212. During **Phase One** (2009-11), child mortality would be reduced by 30 percent and maternal mortality by 35 percent, low birth weight by 30 and stunting by 15 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 10 percent and AIDS mortality by 10 percent. Additional annual costs per capita for 2011 will reach US$ 3.

213. During **Phase Two** (2012-13), child mortality would decrease by 40 percent and maternal mortality by 45 percent, low birth weight by 35 percent and stunting by 15 percent. Malaria mortality would be reduced by 60 percent, TB mortality by 25 percent
and AIDS mortality by 15 percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$ 5.

214. During **Phase Three** (2014-15), child mortality would be reduced by 55 percent, maternal mortality by 60 percent, low birth weight by 40 percent and stunting by 25 percent. Malaria mortality would be reduced by 60 percent, TB mortality by 50 percent and AIDS mortality by 20 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$ 9. Overall these improvements ensure the achievement of the health related MDG for this group. Figure A-2 (page 18) summarizes the improvements and costs over the indicated phases.

**Figure E-5: Estimated impacts & Costs Framework (non-SSA countries), Medium Scenario**

During **Phase One** (2009-11), child mortality would be reduced by 25 percent and maternal mortality by 20 percent, low birth weight by 20 percent and stunting by 15 percent. Malaria mortality would be reduced by 50 percent, TB mortality by less than 5 percent and AIDS mortality by 5 percent. Additional annual costs per capita for 2011 will reach US$ 3.

216. During **Phase Two** (2012-13), Child mortality would decrease by 35 percent and maternal mortality by 40 percent, low birth weight by 30 percent and stunting by 15 percent. Malaria mortality would be reduced by 65 percent, TB mortality by 15 percent and AIDS mortality by 10 percent. To achieve these results, additional annual costs per capita for 2013 would amount to US$ 4.

**Minimum Scenario**

215. During **Phase One** (2009-11), child mortality would be reduced by 25 percent and maternal mortality by 20 percent, low birth weight by 20 percent and stunting by 15 percent. Malaria mortality would be reduced by 50 percent, TB mortality by less than 5 percent and AIDS mortality by 5 percent. Additional annual costs per capita for 2011 will reach US$ 3.
217. During **Phase Three** (2014-15), child mortality would be reduced by 50 percent, maternal mortality by 50 percent, low birth weight by 40 percent and stunting by 20 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 30 percent and AIDS mortality by 15 percent. To achieve these results, the additional annual costs per capita for 2015 would reach US$7. Overall these improvements ensure the achievement of the health related MDG for this group. Figure E-6 summarizes the improvements and costs over the indicated phases.

Figure E-6: Estimated impacts & Costs Framework (non-SSA countries), Minimum Scenario

![Graph showing estimated impacts & costs framework](image)

E.3.2 Overall additional costs

218. Table E-28 present the additional resources needed annually according to the three scenarios for non SSA countries. The Maximum scenario would require a total of US$ 54.1 billion over the period 2009-2015. This would represent an annual additional per capita cost of US$ 19.2 in 2015. The MBB Medium and Minimum scenarios require fewer additional resources, with US$ 22.4 billion and US$ 19.2 billion respectively for the period. In per capita terms, this corresponds to US$ 8.6 and US$ 7.1 per capita in 2015 for the Medium and the Minimum scenarios respectively.

<p>| Table E-28 Additional costs by year for non Sub-Saharan Africa (total and per capita) |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|</p>
<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBB Maximum Scenario</td>
<td>$2.77</td>
<td>$3.45</td>
<td>$4.58</td>
<td>$5.72</td>
<td>$6.60</td>
<td>$16.94</td>
<td>$14.07</td>
<td>$54.13</td>
</tr>
<tr>
<td>MBB Medium Scenario</td>
<td>$1.11</td>
<td>$1.58</td>
<td>$2.17</td>
<td>$2.68</td>
<td>$3.35</td>
<td>$5.22</td>
<td>$6.33</td>
<td>$22.43</td>
</tr>
<tr>
<td>MBB Minimum Scenario</td>
<td>$0.95</td>
<td>$1.32</td>
<td>$1.77</td>
<td>$2.46</td>
<td>$3.11</td>
<td>$4.38</td>
<td>$5.18</td>
<td>$19.17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per capita (in US$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MBB Maximum Scenario</td>
<td>$4.04</td>
<td>$5.02</td>
<td>$6.67</td>
<td>$8.05</td>
<td>$9.29</td>
<td>$23.11</td>
<td>$19.20</td>
<td>$76.64</td>
</tr>
<tr>
<td>MBB Medium Scenario</td>
<td>$1.62</td>
<td>$2.31</td>
<td>$3.16</td>
<td>$3.77</td>
<td>$4.71</td>
<td>$7.12</td>
<td>$8.64</td>
<td>$31.76</td>
</tr>
<tr>
<td>MBB Minimum Scenario</td>
<td>$1.39</td>
<td>$1.92</td>
<td>$2.58</td>
<td>$3.46</td>
<td>$4.37</td>
<td>$5.98</td>
<td>$7.07</td>
<td>$27.14</td>
</tr>
</tbody>
</table>
E.3.3 Cost distribution by service delivery mode

219. Table E-29 and Table E-30 present the estimated additional cost by service packages and delivery level for non SSA countries respectively under the Minimum and the Medium scenario. Under the Minimum scenario, a greater emphasis is put on family oriented community based services (over to 24 percent of the total cost; compared to 22 percent in the Medium scenario). Population oriented schedulable services are allocated more than 28 percent of the total additional cost in the Minimum scenario and clinical services close to 26 percent. The share or additional resources to be allocated at these levels varies slightly for the Medium scenario, as 27 percent of total resources is needed at the population oriented level and less than 27 percent at the clinical level. Concerning governance and management, the share of total resources to be allocated is greater in the Medium scenario, reaching more than 24 percent of total resource requirements. This share is slightly lower in the Minimum scenario, reaching 22 percent.

Table E-29 Estimated additional cost by service packages and delivery level for non SSA countries (in billion US$), Minimum Scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td>0.45</td>
<td>0.47</td>
<td>0.44</td>
<td>0.71</td>
<td>0.63</td>
<td>1.06</td>
<td>0.86</td>
<td>4.61</td>
<td>24.1</td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>0.04</td>
<td>0.06</td>
<td>0.07</td>
<td>0.11</td>
<td>0.12</td>
<td>0.18</td>
<td>0.19</td>
<td>0.78</td>
<td>4.1</td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td>0.25</td>
<td>0.21</td>
<td>0.17</td>
<td>0.37</td>
<td>0.25</td>
<td>0.59</td>
<td>0.36</td>
<td>2.20</td>
<td>11.5</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>0.4</td>
</tr>
<tr>
<td>1.3 Infant and child feeding</td>
<td>0.14</td>
<td>0.17</td>
<td>0.17</td>
<td>0.20</td>
<td>0.21</td>
<td>0.24</td>
<td>0.25</td>
<td>1.39</td>
<td>7.2</td>
</tr>
<tr>
<td>1.4 Community illness management</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.18</td>
<td>0.9</td>
</tr>
<tr>
<td>2. Population oriented schedulable services</td>
<td>0.17</td>
<td>0.29</td>
<td>0.43</td>
<td>0.60</td>
<td>0.88</td>
<td>1.28</td>
<td>1.74</td>
<td>5.38</td>
<td>28.1</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.09</td>
<td>0.16</td>
<td>0.24</td>
<td>0.22</td>
<td>0.31</td>
<td>0.36</td>
<td>0.47</td>
<td>1.85</td>
<td>9.6</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.06</td>
<td>0.08</td>
<td>0.09</td>
<td>0.10</td>
<td>0.42</td>
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</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
<td>0.04</td>
<td>0.07</td>
<td>0.11</td>
<td>0.13</td>
<td>0.19</td>
<td>0.20</td>
<td>0.24</td>
<td>0.98</td>
<td>5.1</td>
</tr>
<tr>
<td>2.3 HIV/AIDS prevention and care</td>
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<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.11</td>
<td>0.6</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.16</td>
<td>0.28</td>
<td>0.60</td>
<td>0.89</td>
<td>2.02</td>
<td>10.5</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.13</td>
<td>0.31</td>
<td>0.60</td>
<td>0.66</td>
<td>1.01</td>
<td>0.94</td>
<td>1.36</td>
<td>5.02</td>
<td>26.2</td>
</tr>
<tr>
<td>3.0 HR, infrastructure and equipment</td>
<td>0.06</td>
<td>0.14</td>
<td>0.27</td>
<td>0.33</td>
<td>0.56</td>
<td>0.40</td>
<td>0.61</td>
<td>2.37</td>
<td>12.4</td>
</tr>
<tr>
<td>3.1 Maternal and neonatal care at primary clinical level</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.05</td>
<td>0.08</td>
<td>0.11</td>
<td>0.14</td>
<td>0.43</td>
<td>2.2</td>
</tr>
<tr>
<td>3.2 Management of illnesses at primary clinical level</td>
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<td>0.03</td>
<td>0.05</td>
<td>0.05</td>
<td>0.04</td>
<td>0.05</td>
<td>0.07</td>
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<tr>
<td>3.3 Clinical first referral care</td>
<td>0.02</td>
<td>0.05</td>
<td>0.12</td>
<td>0.09</td>
<td>0.14</td>
<td>0.15</td>
<td>0.23</td>
<td>0.79</td>
<td>4.1</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.03</td>
<td>0.07</td>
<td>0.13</td>
<td>0.15</td>
<td>0.20</td>
<td>0.22</td>
<td>0.31</td>
<td>1.11</td>
<td>5.8</td>
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<tr>
<td>District, provincial and national governance and management</td>
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<td>0.25</td>
<td>0.30</td>
<td>0.50</td>
<td>0.59</td>
<td>1.10</td>
<td>1.22</td>
<td>4.16</td>
<td>21.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.95</strong></td>
<td><strong>1.32</strong></td>
<td><strong>1.77</strong></td>
<td><strong>2.46</strong></td>
<td><strong>3.11</strong></td>
<td><strong>4.38</strong></td>
<td><strong>5.18</strong></td>
<td><strong>19.17</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Table E-30 Estimated additional cost by service packages and delivery level for non SSA countries (in billion US$), Medium Scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family oriented community based services</td>
<td>0.47</td>
<td>0.49</td>
<td>0.46</td>
<td>0.72</td>
<td>0.64</td>
<td>1.18</td>
<td>0.95</td>
<td>4.91</td>
<td>21.9</td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>0.05</td>
<td>0.07</td>
<td>0.07</td>
<td>0.11</td>
<td>0.13</td>
<td>0.20</td>
<td>0.22</td>
<td>0.84</td>
<td>3.8</td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td>0.25</td>
<td>0.21</td>
<td>0.17</td>
<td>0.35</td>
<td>0.24</td>
<td>0.66</td>
<td>0.39</td>
<td>2.28</td>
<td>10.1</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.08</td>
<td>0.3</td>
</tr>
<tr>
<td>1.3 Infant and child feeding</td>
<td>0.15</td>
<td>0.19</td>
<td>0.20</td>
<td>0.22</td>
<td>0.23</td>
<td>0.27</td>
<td>0.29</td>
<td>1.55</td>
<td>6.9</td>
</tr>
<tr>
<td>1.4 Community illness management</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.16</td>
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<tr>
<td>2. Population oriented schedulable services</td>
<td>0.18</td>
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<td>0.66</td>
<td>0.96</td>
<td>1.44</td>
<td>1.95</td>
<td>5.96</td>
<td>26.6</td>
</tr>
<tr>
<td>2.0 HR, infrastructure and equipment</td>
<td>0.08</td>
<td>0.15</td>
<td>0.22</td>
<td>0.23</td>
<td>0.33</td>
<td>0.45</td>
<td>0.62</td>
<td>2.09</td>
<td>9.3</td>
</tr>
<tr>
<td>2.1 Preventive care for adolescents &amp; adults</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.07</td>
<td>0.08</td>
<td>0.14</td>
<td>0.18</td>
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</tr>
<tr>
<td>2.2 Preventive pregnancy care</td>
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<td>0.14</td>
<td>0.14</td>
<td>0.18</td>
<td>0.25</td>
<td>0.34</td>
<td>1.19</td>
<td>5.3</td>
</tr>
<tr>
<td>2.3 HIV/AIDS prevention and care</td>
<td>0.00</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.12</td>
<td>0.6</td>
</tr>
<tr>
<td>2.4 Preventive infant &amp; child care</td>
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<td>0.03</td>
<td>0.04</td>
<td>0.20</td>
<td>0.34</td>
<td>0.57</td>
<td>0.79</td>
<td>1.99</td>
<td>8.9</td>
</tr>
<tr>
<td>3. Individual oriented clinical services</td>
<td>0.17</td>
<td>0.39</td>
<td>0.76</td>
<td>0.72</td>
<td>1.08</td>
<td>1.18</td>
<td>1.83</td>
<td>6.13</td>
<td>27.3</td>
</tr>
<tr>
<td>3.0 HR, infrastructure and equipment</td>
<td>0.08</td>
<td>0.19</td>
<td>0.35</td>
<td>0.32</td>
<td>0.55</td>
<td>0.53</td>
<td>0.87</td>
<td>2.88</td>
<td>12.8</td>
</tr>
<tr>
<td>3.1 Maternal and neonatal care at primary clinical level</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.09</td>
<td>0.12</td>
<td>0.15</td>
<td>0.51</td>
<td>2.3</td>
</tr>
<tr>
<td>3.2 Management of illnesses at primary clinical level</td>
<td>0.02</td>
<td>0.03</td>
<td>0.06</td>
<td>0.05</td>
<td>0.04</td>
<td>0.05</td>
<td>0.08</td>
<td>0.33</td>
<td>1.5</td>
</tr>
<tr>
<td>3.3 Clinical first referral care</td>
<td>0.02</td>
<td>0.06</td>
<td>0.13</td>
<td>0.10</td>
<td>0.16</td>
<td>0.19</td>
<td>0.29</td>
<td>0.94</td>
<td>4.2</td>
</tr>
<tr>
<td>3.4 Clinical second referral care</td>
<td>0.04</td>
<td>0.09</td>
<td>0.18</td>
<td>0.19</td>
<td>0.24</td>
<td>0.29</td>
<td>0.45</td>
<td>1.47</td>
<td>6.5</td>
</tr>
<tr>
<td>District, provincial and national governance and management</td>
<td>0.30</td>
<td>0.39</td>
<td>0.48</td>
<td>0.58</td>
<td>0.67</td>
<td>1.42</td>
<td>1.60</td>
<td>5.44</td>
<td>24.2</td>
</tr>
<tr>
<td>Total</td>
<td>1.11</td>
<td>1.58</td>
<td>2.17</td>
<td>2.68</td>
<td>3.35</td>
<td>5.22</td>
<td>6.33</td>
<td>22.43</td>
<td>100.0</td>
</tr>
</tbody>
</table>

220. The distribution of additional resource requirements for the Maximum scenario by service delivery mode and by year is presented in Annex 14. The Maximum scenario puts relatively more emphasis on the family oriented community based services (more than 39 percent of the total cost requirements) due to the higher investment in water and sanitation than on population oriented services (close to 19 percent of the total cost requirements) compared to the Minimum and the Medium scenarios. The Maximum scenario allocates relatively fewer resources to governance and management (19 percent of the total or almost half of the relative share of the Medium scenario) but nearly double the absolute value.

E.3.4 Cost by disease, program and components of the health system

221. The distribution of costs among different diseases, programs and components of health systems under the Minimum scenario is presented in Table E-27. Forty-two percent of the additional costs are invested to strengthen the health system and the remaining 58 percent to scale up high impact health related interventions. Of the US$ 8.0 billion for health systems strengthening less than one third (US$ 2.6 billion) is for infrastructure, equipment and transport; human resources would require additional US$ 2.2 billion; another US$ 2.2 billion would be needed for strengthening logistics and supply chain management including buffer stocks; and strengthening governance of the
health system US$ 0.7 billion. Finally, health Information Systems is estimated at US$ 0.2 billion.

222. Of the US$ 11.2 billion allocated for programs and diseases approximately one-quarter is allocated for HIV/AIDS and malaria, mostly for procurement of drugs and supplies. Child health is estimated at US$ 0.9 billion; maternal health US$ 1.7 billion; family planning US$ 0.9 billion; immunization US$ 1.9 billion; TB US$ 0.7 billion; and nutrition (US$ 1.5 billion).

Table E-31 Distribution of estimated additional resource requirement by disease, program and health system for SSA countries (in billion US$), Minimum scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program and disease</td>
<td>0.59</td>
<td>0.76</td>
<td>0.98</td>
<td>1.46</td>
<td>1.74</td>
<td>2.62</td>
<td>3.03</td>
<td>11.19</td>
</tr>
<tr>
<td>Child health</td>
<td>0.04</td>
<td>0.06</td>
<td>0.08</td>
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</table>

223. The distribution of costs among different diseases, programs and components of health systems for the Medium Scenario is presented in Table E-28. The estimated additional cost, like the Minimum scenario, allocates slightly more to program and diseases and slightly less to health systems. Forty-three percent of the additional costs are invested to strengthen the health system and the remaining 57 percent to scale up high
impact health related interventions. Of the US$ 9.6 billion for health systems strengthening nearly one-quarter went for improvements to the logistics infrastructure and supply systems (US$ 2.7 billion), about a one-third (US$ 3.2 billion) is for infrastructure, equipment and transport; human resources would require additional US$ 2.4 billion; strengthening governance of the health system US$ 0.9 billion. Health information systems are estimated at less than a US$ 0.3 billion and health financing at US$ 0.07 billion.

Of the US$ 12.9 billion allocated for programs and diseases over one-third (US$ 10.7 billion) is allocated for HIV/AIDS and malaria, mostly for procurement of drugs and ITNs. Child health is estimated at US$ 0.9 billion; maternal health US$ 2.0 billion; family planning US$ 1.2 billion; immunization US$ 1.9 billion; TB US$ 0.9 billion; and nutrition 1.7 billion.

Table E-32: Distribution of estimated additional resource requirement by disease, program and health system (in billion US$), Medium scenario

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<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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<th>2013</th>
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<td>0.16</td>
<td>0.19</td>
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<td>0.92</td>
</tr>
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<td>0.34</td>
<td>0.43</td>
<td>0.56</td>
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<td>0.17</td>
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<td>0.39</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Pre-service training</td>
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<td>0.10</td>
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<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.07</td>
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<td>0.37</td>
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<td>0.21</td>
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<td>0.04</td>
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<td>0.08</td>
<td>0.10</td>
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</table>

225. The distribution of costs among different diseases, programs and components of health systems for the Maximum scenario are presented in Annex 15. Although the share allocated to program and disease was similar in the Minimum and Medium scenarios, the Maximum scenario shows a different trend as almost 70 percent of the total cost
requirements are allocated to diseases and programs. As in the case for SSA countries, this difference is mainly explained by a high emphasis put on water, sanitation and hygiene.

E.3.5 Cost distribution by economic classification

226. Table E-33 presents the details of the estimated additional resource requirement for non SSA countries under the Minimum scenario according to economic classification. Out of the total US$ 19.2 billion required, 64 percent are allocated to recurrent and 36 percent to capital costs. As for SSA countries, the Minimum scenario has a relatively low level of capital expenditure as it intends to make the best use of existing capacity.

Table E-33: Estimated additional resource requirement by capital and recurrent classification for non SSA countries (in billion US$), Minimum scenario

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<td>0.09</td>
<td>0.05</td>
<td>0.08</td>
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<td>0.03</td>
<td>0.06</td>
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<tr>
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<td>0.21</td>
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<td>0.13</td>
<td>0.28</td>
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<td>1.27</td>
</tr>
<tr>
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<td>3.11</td>
<td>4.38</td>
<td>5.18</td>
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227. US$ 1.1 billion of capital expenditures go to infrastructure and US$ 1.3 billion to buffer stocks and ITNs represent US$ 1.2 billion. General equipment would require US$ 0.6 billion while pre-service training costs and transport equipment would account for US$ 0.5 billion and US$ 0.2 billion respectively.

228. Recurrent expenditures amount to US$ 12.3 billion and include US$ 5.1 billion for essential drugs; US$ 0.7 billion for contraceptives; and US$ 1.4 billion for vaccines. Human resources would amount to US$ 2.2 billion. Other categories include administration (US$ 1.3 billion), demand promotion (US$ 0.2 billion), governance (US$ 1.1 billion) and health information systems (US$ 0.2 billion). Traded and non-traded additional costs are outlined in Error! Not a valid bookmark self-reference. Given the emphasis on increasing coverage using existing resources, traded inputs make up a larger proportion of additional costs (64.8%) compared to non-traded costs, which includes staffing and infrastructure investments.

Table E-34 Estimated additional resource requirement by traded, non-traded classification for non SSA countries (in billion US$), Minimum scenario

<table>
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<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<td>0.98</td>
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<td>0.16</td>
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<td>0.56</td>
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<td>0.34</td>
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<tr>
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<td>0.01</td>
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<tr>
<td>Conditional cash transfer</td>
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<td>0.00</td>
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<tr>
<td>Demand promotion</td>
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<td>0.02</td>
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<td>0.04</td>
<td>0.06</td>
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<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>0.07</td>
<td>0.22</td>
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<td>Governance, accreditation and regulation</td>
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<td>0.06</td>
<td>0.09</td>
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<td>1.32</td>
<td>1.77</td>
<td>2.46</td>
<td>3.11</td>
<td>4.38</td>
<td>5.18</td>
<td>19.17</td>
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</table>
In the Medium scenario, as shown in Table E-35 out of the total US$ 22.4 billion additional requirement, US$ 14.2 billion would be for recurrent costs while US$ 8.2 billion for investment cost. That means that nearly two-thirds of total expenditure would be dedicated to recurrent expenses. Around US$ 1.4 billion will be dedicated to infrastructure. Buffer stock will require US$ 1.4 billion, ITNs US$ 1.2 billion, equipment and warehouses US$ 2.4 billion. Transport and pre-service training costs would require US$ 0.3 and 0.7 billion respectively. Within recurrent expenditures, drugs (US$ 5.8 billion), contraceptives (US$ 1 billion) and vaccines (US$ 1.4 billion) will absorb more than half of all recurrent expenditures. Human resources will require US$ 2.3 billion, while administration will require US$ 1.5 billion, demand promotion US$ 0.3 billion, governance US$ 1.6 billion and health information systems (US$ 0.3 billion). Traded versus non-traded costs are outlined in Table E-36. In the Medium scenario, non-traded costs increase to US$ 8.2 billion, well under half of all additional costs (36.6 percent).

| Table E-35 Estimated additional resource requirement by capital and recurrent classification for non SSA countries (in billion US$), Medium scenario |
|---------------------------------|---|---|---|---|---|---|---|---|---|
| Total                          | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | Total |
| Capital investment             | 0.61 | 0.65 | 0.76 | 0.83 | 0.98 | 2.08 | 2.29 | 8.19  |
| Infrastructure                 | 0.08 | 0.12 | 0.18 | 0.15 | 0.25 | 0.26 | 0.40 | 1.43  |
| Equipment                      | 0.04 | 0.05 | 0.08 | 0.06 | 0.09 | 0.18 | 0.29 | 0.78  |
| Transport                      | 0.02 | 0.03 | 0.04 | 0.02 | 0.03 | 0.07 | 0.08 | 0.28  |
| Pre-service training           | 0.02 | 0.05 | 0.10 | 0.07 | 0.15 | 0.10 | 0.19 | 0.69  |
| Buffer Stocks                  | 0.14 | 0.14 | 0.16 | 0.10 | 0.13 | 0.30 | 0.41 | 1.37  |
| Warehouse, equipment, and vehicles | 0.17 | 0.18 | 0.20 | 0.23 | 0.25 | 0.68 | 0.71 | 2.41  |
| ITNs                           | 0.14 | 0.07 | 0.02 | 0.20 | 0.09 | 0.49 | 0.21 | 1.22  |
| Recurrent                      | 0.50 | 0.93 | 1.40 | 1.85 | 2.37 | 3.14 | 4.04 | 14.24 |
| Contraceptives                 | 0.04 | 0.06 | 0.07 | 0.12 | 0.14 | 0.22 | 0.31 | 0.97  |
| Vaccines                       | 0.00 | 0.00 | 0.01 | 0.13 | 0.25 | 0.41 | 0.58 | 1.38  |
| Drugs                          | 0.27 | 0.51 | 0.76 | 0.81 | 0.95 | 1.12 | 1.37 | 5.79  |
| Malaria                        | 0.08 | 0.13 | 0.16 | 0.17 | 0.18 | 0.20 | 0.22 | 1.16  |
| HIV/AIDS                       | 0.01 | 0.02 | 0.04 | 0.05 | 0.06 | 0.07 | 0.09 | 0.34  |
| TB                             | 0.02 | 0.05 | 0.12 | 0.10 | 0.13 | 0.17 | 0.26 | 0.84  |
| Essential drugs                | 0.17 | 0.30 | 0.44 | 0.49 | 0.57 | 0.68 | 0.80 | 3.46  |
| Human Resources                | 0.06 | 0.13 | 0.21 | 0.32 | 0.42 | 0.53 | 0.66 | 2.33  |
| Salary                         | 0.05 | 0.10 | 0.16 | 0.22 | 0.29 | 0.38 | 0.47 | 1.65  |
| Incentives                     | 0.01 | 0.02 | 0.04 | 0.08 | 0.11 | 0.12 | 0.14 | 0.53  |
| In-service training            | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.15  |
| Health financing               | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.03 | 0.06 | 0.13  |
| Insurance                      | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.07  |
| Conditional cash transfer      | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.04 | 0.06  |
| Demand promotion               | 0.02 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.29  |
| HMIS                           | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | 0.10 | 0.31  |
| Governance, accreditation and regulation | 0.05 | 0.10 | 0.15 | 0.20 | 0.24 | 0.36 | 0.47 | 1.58  |
| Administration                 | 0.04 | 0.09 | 0.14 | 0.19 | 0.25 | 0.33 | 0.42 | 1.46  |
| Total                          | 1.11 | 1.58 | 2.17 | 2.68 | 3.35 | 5.22 | 6.33 | 22.43 |
Table E-36 Estimated additional resource requirement by traded, non-traded classification for non SSA countries (in billion US$), Medium scenario

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<td>1.32</td>
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<td>1.93</td>
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<td>0.13</td>
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<td>0.18</td>
<td>0.20</td>
<td>0.23</td>
<td>0.25</td>
<td>0.68</td>
<td>0.71</td>
<td>2.41</td>
</tr>
<tr>
<td>Non-traded</td>
<td>0.28</td>
<td>0.54</td>
<td>0.84</td>
<td>1.02</td>
<td>1.42</td>
<td>1.75</td>
<td>2.37</td>
<td>8.22</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>0.08</td>
<td>0.12</td>
<td>0.18</td>
<td>0.15</td>
<td>0.25</td>
<td>0.26</td>
<td>0.40</td>
<td>1.43</td>
</tr>
<tr>
<td>Human Resources</td>
<td>0.08</td>
<td>0.18</td>
<td>0.31</td>
<td>0.39</td>
<td>0.58</td>
<td>0.63</td>
<td>0.85</td>
<td>3.02</td>
</tr>
<tr>
<td>Salary</td>
<td>0.05</td>
<td>0.10</td>
<td>0.16</td>
<td>0.22</td>
<td>0.29</td>
<td>0.38</td>
<td>0.47</td>
<td>1.65</td>
</tr>
<tr>
<td>Incentives</td>
<td>0.01</td>
<td>0.02</td>
<td>0.04</td>
<td>0.08</td>
<td>0.11</td>
<td>0.12</td>
<td>0.14</td>
<td>0.53</td>
</tr>
<tr>
<td>In-service training</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.15</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>0.02</td>
<td>0.05</td>
<td>0.10</td>
<td>0.07</td>
<td>0.15</td>
<td>0.10</td>
<td>0.19</td>
<td>0.69</td>
</tr>
<tr>
<td>Health financing</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.02</td>
<td>0.07</td>
</tr>
<tr>
<td>Insurance</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Conditional cash transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Demand promotion</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>0.06</td>
<td>0.07</td>
<td>0.29</td>
</tr>
<tr>
<td>HMIS</td>
<td>0.01</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.05</td>
<td>0.07</td>
<td>0.10</td>
<td>0.31</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>0.05</td>
<td>0.10</td>
<td>0.15</td>
<td>0.20</td>
<td>0.24</td>
<td>0.36</td>
<td>0.47</td>
<td>1.58</td>
</tr>
<tr>
<td>Administration</td>
<td>0.04</td>
<td>0.09</td>
<td>0.14</td>
<td>0.19</td>
<td>0.25</td>
<td>0.33</td>
<td>0.42</td>
<td>1.46</td>
</tr>
<tr>
<td>Total</td>
<td>1.11</td>
<td>1.58</td>
<td>2.17</td>
<td>2.68</td>
<td>3.35</td>
<td>5.22</td>
<td>6.33</td>
<td>22.43</td>
</tr>
</tbody>
</table>

230. Finally, the distribution of costs by economic classification for the Maximum scenario for non SSA countries is presented in Annex 16. It shows that the Maximum scenario emphasizes additional capital expenditure compared to the other scenarios, but less than in SSA countries.

**E.3.6 Health facilities and health workers requirements**

231. Table E-37 describes the main inputs for health system strengthening in non SSA countries. During this period close to 33,000 facilities are expected to be built or rehabilitated in the Minimum Scenario. The number of facilities that need to be built or rehabilitated increases to more than 48,000 in the Maximum scenario. A large majority of the facilities would be health posts (89 percent in all three scenarios) and health centers
(7-8 percent). District and regional hospital would reach between 3-4 percent of the total constructions and rehabilitation in the three scenarios.

To achieve the coverage of the Minimum scenario, some 0.7 million additional health workers would be required. The number of additional health workers required increases to 0.9 million in the Medium and 1.0 million the Maximum scenarios.

Table E-37 Total additional facilities and health workers for non SSA countries and the three scenarios

<table>
<thead>
<tr>
<th></th>
<th>Minimum Scenario</th>
<th>Medium Scenario</th>
<th>Maximum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>percent</td>
<td>Total</td>
</tr>
<tr>
<td>Health Facilities</td>
<td>32,881</td>
<td>100.0</td>
<td>38,347.71</td>
</tr>
<tr>
<td>Health Post</td>
<td>29,272</td>
<td>89.0</td>
<td>34,088.72</td>
</tr>
<tr>
<td>New</td>
<td>11,894</td>
<td>36.2</td>
<td>13,826.59</td>
</tr>
<tr>
<td>Rehab</td>
<td>17,377</td>
<td>52.9</td>
<td>20,262.13</td>
</tr>
<tr>
<td>Health Centre</td>
<td>2,435</td>
<td>7.4</td>
<td>3,037.95</td>
</tr>
<tr>
<td>New</td>
<td>1,594</td>
<td>4.8</td>
<td>1,961.29</td>
</tr>
<tr>
<td>Rehab</td>
<td>841</td>
<td>2.6</td>
<td>1,076.66</td>
</tr>
<tr>
<td>District Hospital</td>
<td>891</td>
<td>2.7</td>
<td>890.57</td>
</tr>
<tr>
<td>New</td>
<td>427</td>
<td>1.3</td>
<td>426.54</td>
</tr>
<tr>
<td>Rehab</td>
<td>464</td>
<td>1.4</td>
<td>464.03</td>
</tr>
<tr>
<td>Regional Hospital</td>
<td>283</td>
<td>0.9</td>
<td>330.47</td>
</tr>
<tr>
<td>New</td>
<td>225</td>
<td>0.7</td>
<td>254.08</td>
</tr>
<tr>
<td>Rehab</td>
<td>57</td>
<td>0.2</td>
<td>76.39</td>
</tr>
<tr>
<td>Health Workers</td>
<td>713,943</td>
<td>100.0</td>
<td>910,096</td>
</tr>
<tr>
<td>Community based health &amp; nutrition promoters</td>
<td>372,228</td>
<td>52.1</td>
<td>523,468</td>
</tr>
<tr>
<td>Health extension workers</td>
<td>73,087</td>
<td>10.2</td>
<td>77,733</td>
</tr>
<tr>
<td>Junior, assistant, assistant midwife nurse (1 year training)</td>
<td>88,111</td>
<td>12.3</td>
<td>41,115</td>
</tr>
<tr>
<td>Technicians (lab, x-ray, pharmacy)</td>
<td>39,459</td>
<td>5.5</td>
<td>62,429</td>
</tr>
<tr>
<td>Registered nurse/midwives (at least 3 yr training)</td>
<td>41,284</td>
<td>5.8</td>
<td>43,288</td>
</tr>
<tr>
<td>Health officer</td>
<td>6,170</td>
<td>0.9</td>
<td>10,849</td>
</tr>
<tr>
<td>Physician/MD</td>
<td>15,118</td>
<td>2.1</td>
<td>15,396</td>
</tr>
<tr>
<td>Specialist</td>
<td>5,854</td>
<td>0.8</td>
<td>2,263</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>61,921</td>
<td>8.7</td>
<td>118,232</td>
</tr>
<tr>
<td>District and provincial managers</td>
<td>10,712</td>
<td>1.5</td>
<td>15,323</td>
</tr>
</tbody>
</table>

E.3.7 Fiscal space and funding gaps

Table E-38 presents the available fiscal space in non SSA between 2009 and 2015 under the five different fiscal space scenarios. The available incremental fiscal space over the period reaches US$ 47.3 billion under Scenario 1, US$ 46.7 billion under Scenario 2, US$ 34.1 billion under Scenario 3, US$ 11.4 under Scenario 4 and US$ 9.9 billion under Scenario 5.
Table E-38 Incremental fiscal space for non SSA countries (billion US$) (2009-2015)

<table>
<thead>
<tr>
<th>Available incremental funding (non SSA countries) billion constant US$</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1: Optimistic</td>
<td>1.17</td>
<td>3.02</td>
<td>4.71</td>
<td>6.64</td>
<td>8.71</td>
<td>11.01</td>
<td>12.04</td>
<td>47.28</td>
</tr>
<tr>
<td>... government</td>
<td>1.08</td>
<td>2.64</td>
<td>3.95</td>
<td>5.47</td>
<td>7.10</td>
<td>8.95</td>
<td>9.63</td>
<td>38.82</td>
</tr>
<tr>
<td>... external</td>
<td>0.01</td>
<td>0.20</td>
<td>0.43</td>
<td>0.72</td>
<td>1.05</td>
<td>1.39</td>
<td>1.64</td>
<td>5.43</td>
</tr>
<tr>
<td>... private</td>
<td>0.08</td>
<td>0.19</td>
<td>0.33</td>
<td>0.45</td>
<td>0.56</td>
<td>0.67</td>
<td>0.76</td>
<td>3.03</td>
</tr>
<tr>
<td>Scenario 2: Gleneagles doubling and Abuja 15% commitment</td>
<td>1.14</td>
<td>2.98</td>
<td>4.64</td>
<td>6.56</td>
<td>8.60</td>
<td>10.86</td>
<td>11.86</td>
<td>46.65</td>
</tr>
<tr>
<td>... government</td>
<td>1.08</td>
<td>2.64</td>
<td>3.95</td>
<td>5.47</td>
<td>7.10</td>
<td>8.95</td>
<td>9.63</td>
<td>38.82</td>
</tr>
<tr>
<td>... external</td>
<td>-0.01</td>
<td>0.16</td>
<td>0.37</td>
<td>0.64</td>
<td>0.94</td>
<td>1.24</td>
<td>1.47</td>
<td>4.80</td>
</tr>
<tr>
<td>... private</td>
<td>0.08</td>
<td>0.19</td>
<td>0.33</td>
<td>0.45</td>
<td>0.56</td>
<td>0.67</td>
<td>0.76</td>
<td>3.03</td>
</tr>
<tr>
<td>Scenario 3: Intermediate - ODA 50% and government 12%</td>
<td>0.70</td>
<td>2.03</td>
<td>3.35</td>
<td>4.83</td>
<td>6.38</td>
<td>8.11</td>
<td>8.74</td>
<td>34.13</td>
</tr>
<tr>
<td>... government</td>
<td>0.70</td>
<td>1.83</td>
<td>2.64</td>
<td>4.02</td>
<td>5.26</td>
<td>6.65</td>
<td>7.05</td>
<td>28.35</td>
</tr>
<tr>
<td>... external</td>
<td>-0.08</td>
<td>0.02</td>
<td>0.17</td>
<td>0.36</td>
<td>0.56</td>
<td>0.78</td>
<td>0.92</td>
<td>2.74</td>
</tr>
<tr>
<td>... private</td>
<td>0.08</td>
<td>0.19</td>
<td>0.33</td>
<td>0.45</td>
<td>0.56</td>
<td>0.67</td>
<td>0.76</td>
<td>3.03</td>
</tr>
<tr>
<td>Scenario 4: Status Quo</td>
<td>0.03</td>
<td>0.44</td>
<td>1.01</td>
<td>1.63</td>
<td>2.26</td>
<td>2.94</td>
<td>3.06</td>
<td>11.36</td>
</tr>
<tr>
<td>... government</td>
<td>0.11</td>
<td>0.39</td>
<td>0.75</td>
<td>1.16</td>
<td>1.59</td>
<td>2.07</td>
<td>2.07</td>
<td>8.13</td>
</tr>
<tr>
<td>... external</td>
<td>-0.15</td>
<td>-0.13</td>
<td>-0.07</td>
<td>0.01</td>
<td>0.11</td>
<td>0.20</td>
<td>0.23</td>
<td>0.20</td>
</tr>
<tr>
<td>... private</td>
<td>0.08</td>
<td>0.19</td>
<td>0.33</td>
<td>0.45</td>
<td>0.56</td>
<td>0.67</td>
<td>0.76</td>
<td>3.03</td>
</tr>
<tr>
<td>Scenario 5: Pessimistic</td>
<td>-0.53</td>
<td>-0.10</td>
<td>0.98</td>
<td>1.61</td>
<td>2.20</td>
<td>2.82</td>
<td>2.94</td>
<td>9.92</td>
</tr>
<tr>
<td>... government</td>
<td>-0.29</td>
<td>0.02</td>
<td>0.77</td>
<td>1.19</td>
<td>1.58</td>
<td>2.00</td>
<td>2.00</td>
<td>7.28</td>
</tr>
<tr>
<td>... external</td>
<td>-0.28</td>
<td>-0.26</td>
<td>-0.07</td>
<td>0.01</td>
<td>0.11</td>
<td>0.20</td>
<td>0.23</td>
<td>-0.05</td>
</tr>
<tr>
<td>... private</td>
<td>0.03</td>
<td>0.14</td>
<td>0.28</td>
<td>0.40</td>
<td>0.51</td>
<td>0.62</td>
<td>0.71</td>
<td>2.69</td>
</tr>
</tbody>
</table>

233. Table E-39 compares the additional costs for achieving the MDGs in non SSA countries under the three scaling-up scenarios, with the incremental fiscal space created under each of the fiscal space scenarios for the period 2009-2015 and for the same group of countries. In this analysis, the Maximum scenario overflows all fiscal space scenarios and the financing gap varies between US$ 6.8 billion in fiscal space scenario 1 and US$ 44.2 billion in the last fiscal space scenario.

234. The Medium scenario could be implemented under the reasonably optimistic macroeconomic conditions and fiscal framework should both donors and countries hold to their commitments. Assuming that non SSA countries achieve the expected levels of growth projected by the IMF and increase the share of funds allocated to health in public budgets and donor countries comply with their Gleneagles commitment, funding could be sufficient to cover this scenario for non SSA countries. Even under the less optimistic assumptions of the intermediate scenario, funding may well be sufficient to cover the cost of the medium scenario for non SSA countries. However, under fiscal space scenarios 4 and 5, a financing would appear and vary between US$ 11.1 billion and US$12.5 billion.

235. Similarly, the Minimum scenario would be fully covered under the fiscal space scenarios 1 and 2, where donors hold to their Gleneagles Commitment and governments to the Abuja 15 percent target and under the more realistic assumptions of scenario 3. Should Gleneagles commitments not materialize and the financial crisis hit (respectively under fiscal space scenario 4 and 5), the financing gap would vary between US$ 7.8 and 9.2 billion.
Table E-39 Funding requirements and funding gap for the three scenarios for non SSA countries and under the five fiscal space scenarios (2009-2015) (billion US$)

<table>
<thead>
<tr>
<th>Sources of additional funding</th>
<th>MBB Maximum Scenario</th>
<th>MBB Medium Scenario</th>
<th>MBB Minimum Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gov’t</td>
<td>ODA</td>
<td>Private</td>
<td>Cost</td>
</tr>
<tr>
<td>Optimistic</td>
<td>38.82</td>
<td>5.43</td>
<td>3.03</td>
</tr>
<tr>
<td>Doubling</td>
<td>38.82</td>
<td>-4.80</td>
<td>3.03</td>
</tr>
<tr>
<td>Intermediate</td>
<td>28.35</td>
<td>0.00</td>
<td>3.03</td>
</tr>
<tr>
<td>Status Quo</td>
<td>8.13</td>
<td>0.20</td>
<td>3.03</td>
</tr>
<tr>
<td>Pessimistic</td>
<td>7.28</td>
<td>-0.05</td>
<td>2.69</td>
</tr>
</tbody>
</table>

E.4. Fiscal space and funding gap analysis by country

236. Although further analysis of the country by country data is required to provide a realistic fiscal space and funding gap analysis by country, some trends can already be highlighted.

237. Previous sections showed that the optimistic fiscal space scenario (scenario 1) could cover the cost of the medium and the minimum scenarios for the 49 countries. Indeed, the country by country analysis reveals that 31 percent of countries cannot afford the cost of the Minimum scenario under the assumptions of fiscal space scenario 1 and close to half of the countries cannot afford the cost of the Medium scenario. Countries that have more resources than needed for the implementation scenarios are highlighted in green in Error! Reference source not found. The country by country analysis also enables to see that seven non SSA countries could implement the Maximum scenario, should the assumptions of the optimistic fiscal space scenario be met.

238. The same discrepancy between the results of the country by country funding gap analysis and the funding gap analysis by aggregates (SSA, non SSA, 49 countries) can be observed with fiscal space scenario 2. Under the assumptions of this scenario, 33 percent of countries cannot afford the cost of the Minimum scenario and half of the countries cannot afford the cost of the Medium Scenario. However, 14 percent of countries (non SSA countries) would mobilize sufficient resources to cover the cost of the Maximum scenario.

239. In the intermediate fiscal space scenario, the country by country analysis reveals that half of the countries would manage to cover the cost of the Minimum scenario but only one third would be able to pay for the cost of the Medium scenario. Finally, only 6 percent would manage the cost of the Maximum scenario.

240. Lastly, the proportion of countries that can mobilize sufficient funds to cover the cost of any implementation scenario under the pessimistic assumptions of fiscal space scenarios 4 and 5 is very small, revealing, as the previous analysis by aggregates already showed, that the assumptions of these fiscal space scenarios are far too pessimistic to achieve significant results in terms of coverage of high impact interventions. Countries that could potentially afford the cost of the implementation scenarios are the richer non SSA countries.
F. Discussion

241. The Minimum scenario presents us with a conservative approach, potentially adapted to the context of the current global economic crisis, in which we assume the global community to raise additional resources limited to about US$ 67.5 billion. The Minimum scenario would be fully covered under the fiscal space scenarios 1 and 2, where donors hold to their Gleneagles Commitment and governments to the Abuja 15 percent target and the fiscal space scenario 3 where aid increases by 50 percent and government allocation to health increases to 12 percent in SSA countries and to 10 percent in non SSA countries. In SSA countries however a gap of US$ 3.5 billion would need to be covered under the intermediate scenario. Finally, in SSA countries a gap of US$ 37.9 to 41.3 billion would need to be funded should Gleneagles commitments not materialize and the financial crisis hit (respectively under fiscal space scenario 4 and 5). In non SSA countries, the financing gap would vary between US$ 7.8 and 9.2 billion. Overall, for all the 49 countries, the financing gap for the Minimum scenario under fiscal space scenarios 4 and 5 would increase to US$ 45.7 and 50.6 billion respectively.

242. The Medium scenario, based on the Africa Strategy and the Asia Pacific Investment Case frameworks, seems ambitious enough to reach the MDGs, and is based on a strategic selection of interventions and approaches, taking into account their institutional feasibility and potential high impact. The Medium scenario could be implemented under the optimistic macroeconomic conditions and fiscal framework should both donors and countries hold to their commitments. Assuming that the 49 countries achieve the expected levels of growth projected by the IMF and increase the share of health in public budgets, they would manage to contribute US$ 88 billion under scenario 1 and scenario 2 or close to 80 percent of required resources. If, in addition, donor countries comply with their Gleneagles commitment, funding could be sufficient to cover this scenario for the 49 countries and the non SSA group of countries. Yet SSA countries would still require an additional US$ 23 billion on top of increasing the current level of aid to 0.7 percent of developed countries’ GDP or an additional US$ 24.4 billion if the level of aid doubles. In the intermediate scenario, the gap for SSA countries would reach US$ 44.4 billion. Finally, should stakeholders be unable to reach their commitments to aid and public health expenditure and the global financial crisis negatively affects growth, the gap in SSA countries will grow up to US$ 78.8 billion under fiscal space scenario 4 and to US$ 82.2 billion under the fifth fiscal space scenario.

243. Finally, the Maximum MDGs ++ scale-up scenario, aimed at expanding all interventions in all countries at all levels and dramatically strengthening the health system, is likely to be very difficult to implement both financially and institutionally. From the financial perspective, even assuming a relatively optimistic macroeconomic framework and full compliance of donors to their Gleneagles commitments, a very large financing gap of US$ 113.2 billion for 2009-15 would remain. Indeed, the MBB Maximum overflows all five fiscal space scenarios. Even if ODA meets the Gleneagles commitment of 0.7 percent of GDP (equivalent to more than tripling the current level of aid) and governments increase their allocation to health to 15 percent of public
expenditures, a gap of US$ 113.2 billion remains under fiscal space scenario 1 for the 49 countries. This gap would increase to US$ 115.2 billion under fiscal space scenario 2, US$ 147.7 billion under scenario 3, US$ 204.9 billion under scenario 4 and finally, to US$ 209.7 billion under scenario 5. This substantial increase in resources would challenge the absorptive capacity of these countries and could present macro-economic problems. From the institutional perspective, this scenario would also call for countries to push the frontier of expansion of service delivery much beyond their current national plans, and develop approaches to solve problems that currently seem insurmountable. For many countries of SSA and some non SSA countries there is for example no clear strategy to ensure that trained midwives live and work in poor remote areas.

244. The last funding gap analysis country by country needs to be further developed to provide a precise by country analysis of resources available. However, the existing results already highlight the fact that the funding gap analysis by aggregates hide major differences among countries, with some countries having more resources than needed, thus helping other countries to cover their funding gap.
G. Conclusions

245. The MDGs have presented the world with an opportunity to improve the lives of billions, through the acceleration of human development. But it also presents the international community, including developing countries, donors and international organizations, with a formidable challenge to assign the required resources to achieve them. In fact progress towards health MDGs is mixed with very few countries on track and even some

246. This exercise aimed at identifying the strategies and estimating the costs required to strengthen health systems and scale up critical interventions so as to achieve the MDG in the 49 Low Income Countries. The exercise provides a range of strategic options and scenarios, with their consequences in terms of health outcomes and funding requirements. These results are expected to inform and enrich the debates and deliberations of the High Level Taskforce on Innovative International Financing for Health Systems (HLTF).

247. The potential effects present of the present international crises on the capacity of Low Income Countries to finance the strengthening of their health systems must be a key factor to be taken into consideration by the Task Force.

248. The important financing gaps identified, and this is particularly salient in the case of SSA countries, show how crucial it is in the current macroeconomic environment, to increase allocations to health from both donors and governments, in order to compensate for the potentially lower than expected economic growth. Compared to the needs of developing countries and to the existing commitments to the health sector, the fiscal space created under the assumptions of fiscal space scenarios 3 and 4 is too small and cannot be satisfactory, both from the point of view of donors and governments. Indeed, without a strong commitment to health, only limited results will be achieved in the health sector by 2015.

249. This report is not intended to propose a definite solution but to present decision makers with possible policy options, their viability and their expected outcome. Decision makers have a responsibility to honor their commitments, as well as to make decisions that take into account prevalent conditions. In this sense the international commitment for the MDGs and the present global crises present a challenging situation which requires boldness and creativity.
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### Annex 1: Previous applications of MBB

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</tbody>
</table>

**EAPR**

| *                    | Cambodia                  | P    | P    | F       |                           |                                      |                        |                               |                                         | 1             | 0                      |
| *                    | China                     |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
| *                    | Indonesia                 |      |      | P       |                          | P                                    | 1                      |                               |                                         |               | 0                      |
| *                    | Korea, DPR                |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
| *                    | Laos                      |      |      | F       |                          |                                      |                        |                               |                                         |               | 2                      |
|                       | Malaysia                  |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
| *                    | Myanmar                   |      |      | F       |                          |                                      |                        |                               |                                         |               | 2                      |
| *                    | Papua New Guinea          |      |      | P       |                          |                                      |                        |                               |                                         |               | 1                      |
| *                    | Philippines               |      |      | F       |                          |                                      |                        |                               |                                         |               | 2                      |
|                       | Solomon                   |      |      | P       |                          |                                      |                        |                               |                                         |               | 1                      |
|                       | Thailand                  |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
|                       | Timor Leste               |      |      | F       |                          |                                      |                        |                               |                                         |               | 1                      |
|                       | Vietnam                   | O    | F    | O       |                          |                                      |                        |                               |                                         |               | 4                      |

**Finalized**

| 0                    | 0                        | 0    | 0    | 7       | 0                        | 0                      | 0                                           | 0                                                              | 1             | 8                      |
|----------------------|--------------------------|------|------|---------|--------------------------|                        |                               |                                         |                                         |               |                        |

**Ongoing**

| 1                    | 0                        | 0    | 0    | 0       | 1                        | 0                      | 0                                           | 0                                                              | 0             | 2                      |
|----------------------|--------------------------|------|------|---------|--------------------------|                        |                               |                                         |                                         |               |                        |

**Planned/Requested**

| 1                    | 1                        | 0    | 0    | 3       | 3                        | 0                      | 0                                           | 3                                                              | 0             | 10                     |
|----------------------|--------------------------|------|------|---------|--------------------------|                        |                               |                                         |                                         |               |                        |

**Total EAPR**

| 2                    | 1                        | 0    | 0    | 10      | 4                        | 0                      | 0                                           | 3                                                              | 1             | 1                      |

**RSA**

<p>| *                    | Afghanistan              |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
| *                    | Bangladesh               |      |      |         |                          |                                      |                        |                               |                                         |               | 3                      |
|                       | Bhutan                   |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |
| *                    | India                    |      |      | F       |                          |                                      |                        |                               |                                         |               | 2                      |
|                       | Maldives                 |      |      |         |                          |                                      |                        |                               |                                         |               | 0                      |</p>
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<th>National Health Strategic Plan</th>
<th>MTEF</th>
<th>SWAP</th>
<th>Compact</th>
<th>Strategic Analysis/CSSA</th>
<th>Investment Case/MDG needs Assessment</th>
<th>Child Survival Strategy</th>
<th>Maternal, Newborn and Child Health Strategy</th>
<th>Sub National Health Strategic Planning/ District Evidences Planning and Budgeting</th>
<th>National Training</th>
<th>No. of Areas of support</th>
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<td>13</td>
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<td>7</td>
<td>3</td>
<td>17</td>
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</tr>
</tbody>
</table>
### Annex 2: Generic list of interventions included in the MBB tool, by service delivery level

#### Water and Sanitation

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of drinking water</td>
<td>C O P F S</td>
<td>% Families using an improved source for drinking water</td>
</tr>
<tr>
<td>Supply of safe drinking water</td>
<td>X</td>
<td>% Families with access to safe drinking water</td>
</tr>
<tr>
<td>Use of sanitary latrine</td>
<td>X</td>
<td>% Families using improved, not shared sanitary facility</td>
</tr>
<tr>
<td>Hand washing by mother</td>
<td>X</td>
<td>% Mothers washing hands after defecation and before feeding child</td>
</tr>
</tbody>
</table>

#### Nutrition

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeeding for children 0-5 months</td>
<td>C O P F S</td>
<td>% children exclusively breastfed for 6 months</td>
</tr>
<tr>
<td>Breastfeeding for children 6-11 months</td>
<td>X</td>
<td>% children aged 12-15 months receiving breast milk.</td>
</tr>
<tr>
<td>Complementary feeding</td>
<td>X</td>
<td>% children 6-9 months receiving complementary food and continued breastfeeding</td>
</tr>
<tr>
<td>Therapeutic Feeding</td>
<td>X</td>
<td>% malnourished children receiving supplementary food</td>
</tr>
<tr>
<td>Vitamin A – supplementation</td>
<td>X</td>
<td>% children 12-23 months who received 2 doses Vit A in last 6 months or Percentage of children aged 6-59 months who received at least one high dose vitamin A supplement within the last 6 months</td>
</tr>
<tr>
<td>Zinc preventive</td>
<td>X</td>
<td>% children under five who received zinc supplements</td>
</tr>
</tbody>
</table>

#### Maternal Health/Reproductive Health

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean delivery and cord care</td>
<td>X</td>
<td>% deliveries with trained and equipped community health workers or TBA with 4 cleans and temperature care</td>
</tr>
<tr>
<td>Family planning</td>
<td>X</td>
<td>% WRA currently using any method</td>
</tr>
<tr>
<td>Preconceptual folate supplementation</td>
<td>X</td>
<td>% Women receiving folate supplements around conception</td>
</tr>
<tr>
<td>Basic emergency obstetric care (B-EOC)</td>
<td>X X X</td>
<td>% complicated pregnancy treated in quality EOC facility (B-EOC or C-EOC)</td>
</tr>
<tr>
<td>Normal delivery by skilled attendant</td>
<td>X X X</td>
<td>% deliveries assisted by auxiliary-nurse, nurse, midwife or physician with life saving skills</td>
</tr>
<tr>
<td>Active management of the third stage of labor</td>
<td>X X X</td>
<td>% preterm labor treated with prenatal steroids in a hospital (first level referral)</td>
</tr>
<tr>
<td>Antenatal steroids for preterm labor</td>
<td>X X X</td>
<td>% premature membrane ruptures during preterm (P/PROM) treated with antibiotics in hospital (first level referral)</td>
</tr>
<tr>
<td>Antibiotics for Preterm/Prelabour Rupture of Membrane (P/PROM)</td>
<td>X X X</td>
<td>% (pre) ecclampsia cases treated in hospital (first level referral)</td>
</tr>
<tr>
<td>Detection and management of (pre)ecclampsia (Mg Sulphate)</td>
<td>X X X</td>
<td>% CS conducted In 24 hour C-EOC facility with low case fatality rate</td>
</tr>
<tr>
<td>Comprehensive emergency obstetric care (C-EOC)</td>
<td>X X</td>
<td>% CS conducted In 24 hour C-EOC facility with low case fatality rate</td>
</tr>
</tbody>
</table>
### Neonatal

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early breastfeeding and temperature management</td>
<td></td>
</tr>
<tr>
<td>Universal extra community-based care of LBW infants</td>
<td></td>
</tr>
<tr>
<td>Community based management of neonatal sepsis</td>
<td></td>
</tr>
<tr>
<td>Antenatal Care</td>
<td></td>
</tr>
<tr>
<td>Calcium supplementation in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Tetanus toxoid</td>
<td></td>
</tr>
<tr>
<td>Deworming in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Detection and treatment of asymptomatic bacteriuria</td>
<td></td>
</tr>
<tr>
<td>Treatment of syphilis in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Prevention and treatment of iron deficiency anemia in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Intermittent preventive treatment (IPTp) for malaria in pregnancy</td>
<td></td>
</tr>
<tr>
<td>Balanced protein energy supplements for pregnant women</td>
<td></td>
</tr>
<tr>
<td>Supplementation in pregnancy with multi-micronutrients</td>
<td></td>
</tr>
<tr>
<td>Neonatal Vitamin A supplementation</td>
<td></td>
</tr>
<tr>
<td>Resuscitation of asphyxic newborns at birth</td>
<td></td>
</tr>
<tr>
<td>Management of neonatal infections</td>
<td></td>
</tr>
<tr>
<td>Clinical management of neonatal jaundice</td>
<td></td>
</tr>
<tr>
<td>Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)</td>
<td></td>
</tr>
</tbody>
</table>

#### MBB - indicator of effective quality coverage

- % newborns breastfed within 1 hour of birth
- % LBW infants receiving extra care
- % newborns with pneumonia who are not receiving clinical care but receiving antibiotics at home or community level
- % pregnant women who received their first ANC in first trimester during their pregnancy
- % pregnant women who received full dose of calcium supplements during their pregnancy
- % pregnant women whose last birth was protected against neonatal tetanus
- % pregnant women who received antihelmins (deworming) during their pregnancy
- % pregnant women with bacteriuria screened and treated with antibiotics
- % pregnant women with syphilis screened and treated with antibiotics
- % pregnant women receiving Iron supplementation
- % pregnant women receiving 2 doses of IPT during their pregnancy
- % stunting pregnant women receiving supplementary food
- % pregnant women receiving Vitamin A within 2 months after birth
- % resuscitation cases or asphyxia treated in hospitals (first level referral)
- % neonatal infections treated in hospital (first level referral)
- % neonates with jaundice treated in hospital (first or second line)
- % new born with asphyxia, severe infection of low birth weight treated in hospital (first or second line) quality neonatal care

### Child Health

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Rehydration Therapy</td>
<td></td>
</tr>
<tr>
<td>Measles immunization</td>
<td></td>
</tr>
<tr>
<td>BCG immunization</td>
<td></td>
</tr>
<tr>
<td>OPV immunization</td>
<td></td>
</tr>
<tr>
<td>DPT immunization</td>
<td></td>
</tr>
<tr>
<td>Pentavalent (DPT-Hib-Hepatitis) immunization</td>
<td></td>
</tr>
<tr>
<td>Hib immunization</td>
<td></td>
</tr>
</tbody>
</table>

#### MBB - indicator of effective quality coverage

- % children with diarrhea cases given increased fluids and same or more food
- % children 12-23 months fully immunized before first birthday with safe injection
- % children 12-23 months who received BCG vaccine
- % children 12-23 months who received OPV vaccine
- % children 12-23 months who received DPT3
- % children 12-23 months who received Pentavalent
- % children 12-23 months who received 2 doses of Hib
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Delivery level:</th>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B immunization</td>
<td>C O P F S</td>
<td>% children 12-23 months receiving hepatitis vaccine</td>
</tr>
<tr>
<td>Yellow fever immunization</td>
<td>x</td>
<td>% children 12-23 months who received yellow fever vaccine</td>
</tr>
<tr>
<td>Meningitis immunization</td>
<td>x</td>
<td>% children 12-23 months received meningitis vaccine</td>
</tr>
<tr>
<td>Pneumococcal immunization</td>
<td>x</td>
<td>% children 12-23 months who received 3 doses of pneumococce vaccine</td>
</tr>
<tr>
<td>Rotavirus immunization</td>
<td>x</td>
<td>% children 12-23 months who received rotavirus</td>
</tr>
<tr>
<td>Antibiotics for U5 pneumonia</td>
<td>x x x</td>
<td>% ARI cases and dysentery treated in a hospital (first level referral)</td>
</tr>
<tr>
<td>Antibiotics for dysentery and enteric fevers</td>
<td>x x</td>
<td>% diarrhea and enteric fever cases treated in a hospital (first level referral)</td>
</tr>
<tr>
<td>Vitamin A - Treatment for measles</td>
<td>x x x</td>
<td>% children with measles treated with Vitamin A in a hospital (first level referral)</td>
</tr>
<tr>
<td>Zinc for diarrhea management</td>
<td>x x x</td>
<td>% diarrhea cases treated in a hospital (first level referral)</td>
</tr>
<tr>
<td>Other emergency acute care</td>
<td>x</td>
<td>% acute non obstetric emergencies managed correctly at second line referral facilities</td>
</tr>
</tbody>
</table>

**Malaria**

**Intervention**

- Insecticide Treated Mosquito Nets
- Indoor Residual Spraying (IRS)
- Intermittent Presumptive Treatment (IPT) for children*
- Chloroquine for malaria (P.vivax)
- Artemisinin-based Combination Therapy for children
- Artemisinin-based Combination Therapy for pregnant women
- Artemisinin-based Combination Therapy for adults
- Management of complicated malaria (2nd line drug)
- Management of severe malaria

**Delivery level:**

- C
- O
- P
- F
- S

<table>
<thead>
<tr>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>% under-five children who slept under Insecticide Treated Net</td>
</tr>
<tr>
<td>% household sprayed in th twelve months before the survey</td>
</tr>
<tr>
<td>% children 12-23 months receiving 2 doses IPT infant in last 6 months</td>
</tr>
<tr>
<td>% malaria cases treated with chloroquine in a hospital (first level referral)</td>
</tr>
<tr>
<td>% malaria cases treated with chloroquine in a hospital (first level referral)</td>
</tr>
<tr>
<td>% diarrhea and enteric fever cases treated in a hospital (first level referral)</td>
</tr>
</tbody>
</table>

**HIV/AIDS**

**Intervention**

- PMTCT
- VCT
- Condom use
- Cotrimoxazole prophylaxis for HIV+ mothers
- Cotrimoxazole prophylaxis for HIV+ adults
- Cotrimoxazole prophylaxis for children of HIV+ mothers
- Detection and management of STI
- Management of opportunistic infections

**Delivery level:**

<table>
<thead>
<tr>
<th>C</th>
<th>O</th>
<th>P</th>
<th>F</th>
<th>S</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>% eligible HIV+ pregnant women receiving cotrimoxazole prophylaxis</td>
</tr>
<tr>
<td>% eligible HIV+ adults receiving cotrimoxazole prophylaxis</td>
</tr>
<tr>
<td>% of infants born of HIV+ mothers receiving cotrimoxazole prophylaxis</td>
</tr>
<tr>
<td>% of men aged 15-59 who reported using a condom at last higher-risk intercourse</td>
</tr>
<tr>
<td>% eligible HIV+ pregnant women receiving a complete course of ARV prophylaxis to reduce MTCT</td>
</tr>
<tr>
<td>% of men aged 15-59 who reported using a condom at last higher-risk intercourse</td>
</tr>
<tr>
<td>% of men aged 15-59 who reported using a condom at last higher-risk intercourse</td>
</tr>
<tr>
<td>% of men aged 15-59 who reported using a condom at last higher-risk intercourse</td>
</tr>
<tr>
<td>% of men aged 15-59 who reported using a condom at last higher-risk intercourse</td>
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<td>Intervention</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Male circumcision</td>
</tr>
<tr>
<td>First line ART for children with HIV/AIDS</td>
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<tr>
<td>First-line ART for pregnant women with HIV/AIDS</td>
</tr>
<tr>
<td>First-line ART for adults with AIDS</td>
</tr>
<tr>
<td>Children second-line ART</td>
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<tr>
<td>Adult second-line ART</td>
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<tr>
<td>Management 2nd line ART</td>
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**Tuberculosis**

<table>
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<th>Intervention</th>
<th>Delivery level:</th>
<th>MBB - indicator of effective quality coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection and treatment of TB with first line drugs (category 1 and 3)</td>
<td>X X % community cases receiving DOTS</td>
<td>% TB cases receiving DOTS by a skilled health worker</td>
</tr>
<tr>
<td>Re-treatment of TB patients with first line drugs (category 2)</td>
<td>X X % outreach cases receiving DOTS</td>
<td>% complicated TB cases receiving combined treatment</td>
</tr>
<tr>
<td>MDR treatment with second line drugs</td>
<td>X X % primary clinical cases receiving DOTS</td>
<td></td>
</tr>
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</table>

C = Community
O = Outreach
P = Primary Clinical
F = First Referral
S = Second referral
## Annex 3: Bottleneck reduction by phase for African and non African countries

<table>
<thead>
<tr>
<th>Effective interventions</th>
<th>All African countries</th>
<th>All non African countries</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Phase one</td>
<td>Phase two</td>
</tr>
<tr>
<td>1. Family oriented community based services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Family preventive/WASH services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential commodities availability bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Human resources availability bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Accessibility bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Initial utilization bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Timely continuous utilization bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Effective quality bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>1.2 Family neonatal care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential commodities availability bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Human resources availability bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
</tr>
<tr>
<td>Accessibility bottleneck reduction</td>
<td>30%</td>
<td>50%</td>
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<td>Effective quality bottleneck reduction</td>
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<td>2.3 HIV/AIDS prevention and care</td>
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<td>All non African countries</td>
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<td>Effective quality bottleneck reduction</td>
<td>30% 50% 70%</td>
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</tr>
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</table>

2.4 Preventive infant & child care
Essential commodities availability bottleneck reduction                               30% 50% 70%
Human resources availability bottleneck reduction                                      30% 50% 70%
Accessibility bottleneck reduction                                                     30% 50% 70%
Initial utilization bottleneck reduction                                               30% 50% 70%
Timely continuous utilization bottleneck reduction                                      30% 50% 70%
Effective quality bottleneck reduction                                                 30% 50% 70%

3. Individual oriented clinical services
3.1 Maternal and neonatal care at primary clinical level
Essential commodities availability bottleneck reduction                               30% 50% 70%
Human resources availability bottleneck reduction                                      30% 50% 70%
Accessibility bottleneck reduction                                                     30% 50% 70%
Initial utilization bottleneck reduction                                               30% 50% 70%
Timely continuous utilization bottleneck reduction                                      30% 50% 70%
Effective quality bottleneck reduction                                                 30% 50% 70%

3.2 Management of illnesses at primary clinical level
Essential commodities availability bottleneck reduction                               30% 50% 70%
Human resources availability bottleneck reduction                                      30% 50% 70%
Accessibility bottleneck reduction                                                     30% 50% 70%
Initial utilization bottleneck reduction                                               30% 50% 70%
Timely continuous utilization bottleneck reduction                                      30% 50% 70%
Effective quality bottleneck reduction                                                 30% 50% 70%

3.3 Clinical first referral care
Essential commodities availability bottleneck reduction                               30% 50% 70%
Human resources availability bottleneck reduction                                      30% 50% 70%
Accessibility bottleneck reduction                                                     30% 50% 70%
Initial utilization bottleneck reduction                                               30% 50% 70%
Timely continuous utilization bottleneck reduction                                      30% 50% 70%
Effective quality bottleneck reduction                                                 30% 50% 70%

3.4 Clinical second referral care
Essential commodities availability bottleneck reduction                               30% 50% 70%
Human resources availability bottleneck reduction                                      30% 50% 70%
Accessibility bottleneck reduction                                                     30% 50% 70%
Initial utilization bottleneck reduction                                               30% 50% 70%
Timely continuous utilization bottleneck reduction                                      30% 50% 70%
Effective quality bottleneck reduction                                                 30% 50% 70%

Medium

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<td>17% 33% 77%</td>
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1. Family oriented community based services
1.1 Family preventive/WASH services
Essential commodities availability bottleneck reduction                                      50% 65% 90%
<table>
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<th>All non African countries</th>
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<td>65%</td>
</tr>
<tr>
<td>Effective quality bottleneck reduction</td>
<td>100%</td>
<td>100%</td>
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</tbody>
</table>

1.2 Family neonatal care

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |

1.3 Infant and child feeding

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |

1.4 Community illness management

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |

2. Population oriented schedulable services

2.1 Preventive care for adolescents & adults

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 90%         | 27%       | 50%       | 80%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 90%         | 27%       | 50%       | 80%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 90%         | 27%       | 50%       | 80%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 90%         | 50%       | 57%       | 80%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |

2.2 Preventive pregnancy care

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 90%         | 27%       | 50%       | 77%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 90%         | 50%       | 63%       | 77%         |

2.3 HIV/AIDS prevention and care

| Essential commodities availability bottleneck reduction                 | 50%       | 65%       | 93%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 50%       | 65%       | 93%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 50%       | 65%       | 93%         | 27%       | 50%       | 77%         |
| Initial utilization bottleneck reduction                                 | 50%       | 65%       | 93%         | 50%       | 63%       | 77%         |
| Timely continuous utilization bottleneck reduction                       | 50%       | 65%       | 93%         | 50%       | 63%       | 77%         |
| Effective quality bottleneck reduction                                  | 50%       | 65%       | 93%         | 50%       | 63%       | 77%         |

2.4 Preventive infant & child care

<p>| Essential commodities availability bottleneck reduction                 | 57%       | 68%       | 90%         | 27%       | 50%       | 77%         |
| Human resources availability bottleneck reduction                        | 57%       | 68%       | 90%         | 27%       | 50%       | 77%         |
| Accessibility bottleneck reduction                                       | 57%       | 68%       | 90%         | 27%       | 50%       | 77%         |</p>
<table>
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<th>All non African countries</th>
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</tr>
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<td>Effective quality bottleneck reduction</td>
<td>57%</td>
<td>68%</td>
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</tbody>
</table>

3. Individual oriented clinical services
3.1 Maternal and neonatal care at primary clinical level
Essential commodities availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Human resources availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Accessibility bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

3.2 Management of illnesses at primary clinical level
Essential commodities availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Human resources availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Accessibility bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

3.3 Clinical first referral care
Essential commodities availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Human resources availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Accessibility bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

3.4 Clinical second referral care
Essential commodities availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Human resources availability bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Accessibility bottleneck reduction
- Initial utilization: 50% 50% 90%
- Timely continuous utilization: 50% 50% 90%
- Effective quality: 50% 50% 90%

Minimum

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<td>All non African countries</td>
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<td>--------------------------</td>
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<td>---------------------------</td>
</tr>
<tr>
<td></td>
<td>Phase one</td>
<td>Phase two</td>
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</tr>
<tr>
<td>Effective quality bottleneck reduction</td>
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<td>75%</td>
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</table>

### 1.3 Infant and child feeding

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

### 1.4 Community illness management

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

### 2. Population oriented schedulable services

#### 2.1 Preventive care for adolescents & adults

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### 2.2 Preventive pregnancy care

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### 2.3 HIV/AIDS prevention and care

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### 2.4 Preventive infant & child care

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Accessibility bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Initial utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Timely continuous utilization bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Effective quality bottleneck reduction
- 50% 75% 100% 50% 70% 100%

### 3. Individual oriented clinical services

#### 3.1 Maternal and neonatal care at primary clinical level

#### Essential commodities availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%

#### Human resources availability bottleneck reduction
- 50% 75% 100% 50% 70% 100%
All African countries | All non African countries
--- | ---
Effective interventions |  |  |  |  |  |  |  |  
Accessibility bottleneck reduction | 50% | 75% | 100% | 50% | 70% | 100% |  |  
Initial utilization bottleneck reduction | 50% | 75% | 100% | 50% | 70% | 100% |  |  
Timely continuous utilization bottleneck reduction | 50% | 75% | 100% | 50% | 70% | 100% |  |  
Effective quality bottleneck reduction | 50% | 75% | 100% | 50% | 70% | 100% |  |  

### 3.2 Management of illnesses at primary clinical level
Essential commodities availability bottleneck reduction | 50% | 75% | 100% | 50% | 70% | 100% |  |  
Human resources availability bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Accessibility bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Initial utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Timely continuous utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Effective quality bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  

### 3.3 Clinical first referral care
Essential commodities availability bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Human resources availability bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Accessibility bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Initial utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Timely continuous utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Effective quality bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  

### 3.4 Clinical second referral care
Essential commodities availability bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Human resources availability bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Accessibility bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Initial utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Timely continuous utilization bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  
Effective quality bottleneck reduction | 50% | 70% | 100% | 50% | 70% | 100% |  |  

### Annex 4: Estimated additional cost by service packages and delivery level for the 49 countries (in billion US$), Maximum scenario

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<th>2010</th>
<th>2011</th>
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<td>2.91</td>
<td>8.99</td>
<td>5.85</td>
<td>33.41</td>
<td>17.37</td>
<td>78.74</td>
<td>34.75</td>
</tr>
<tr>
<td>1.0 HR, infrastructure and equipment</td>
<td>0.91</td>
<td>1.47</td>
<td>0.15</td>
<td>0.25</td>
<td>0.20</td>
<td>0.36</td>
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Annex 7: Funding requirements and funding gap for each package of interventions, for each group of countries and under the four fiscal space scenarios in 2015 (billion US$)

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<th>MBB Minimum Scenario</th>
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<td>Non-SSA</td>
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<td>9.04</td>
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### Annex 8: Estimated additional cost by service packages and delivery level for SSA countries (in billion US$), Maximum scenario

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<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
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<td>12.46</td>
<td>57.44</td>
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<td>0.78</td>
<td>1.25</td>
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<td>2.08</td>
<td>2.05</td>
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<td>1.1 Family preventive/WASH services</td>
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<td>0.64</td>
<td>4.85</td>
<td>2.17</td>
<td>20.81</td>
<td>9.11</td>
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<td>0.03</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
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<td>1.3 Infant and child feeding</td>
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<td>0.28</td>
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<td>0.14</td>
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<td>0.65</td>
<td>0.81</td>
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<tr>
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<td>0.07</td>
<td>0.09</td>
<td>0.13</td>
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<td>7.23</td>
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<td>11.69</td>
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Annex 9: Distribution of estimated additional resource requirement by disease, program and health system in SSA countries (in billion US$), Maximum Scenario

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<th>2013</th>
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<td>Governance, accreditation and regulation</td>
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<td>0.00</td>
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### Annex 10: Estimated additional resource requirement by capital and recurrent classification in SSA countries (in billion US$), Maximum scenario

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<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<td>1.02</td>
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<td>0.68</td>
<td>2.14</td>
<td>4.81</td>
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Annex 11: Estimated additional cost by service packages and delivery level for non SSA countries (in billion US$), Maximum scenario

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<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
<th>%</th>
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<td>4.91</td>
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<td>0.01</td>
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<td>0.02</td>
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<td>0.03</td>
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<td>0.85</td>
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Annex 12: Distribution of estimated additional resource requirement by disease, program and health system in non SSA countries (in billion US$), Maximum Scenario

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<th>2014</th>
<th>2015</th>
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<td>0.13</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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</tr>
<tr>
<td>Total</td>
<td>2.77</td>
<td>3.45</td>
<td>4.58</td>
<td>5.72</td>
<td>6.60</td>
<td>16.94</td>
<td>14.07</td>
<td>54.13</td>
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</table>
Annex 13: Estimated additional resource requirement by capital and recurrent classification in non SSA countries (in billion US$), Maximum scenario

<table>
<thead>
<tr>
<th>Capital investment</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>0.77</td>
<td>0.66</td>
<td>0.68</td>
<td>0.98</td>
<td>0.68</td>
<td>7.11</td>
<td>3.46</td>
<td>14.32</td>
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<tr>
<td>Equipment</td>
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<td>0.19</td>
<td>0.20</td>
<td>0.12</td>
<td>0.13</td>
<td>0.40</td>
<td>0.41</td>
<td>1.64</td>
</tr>
<tr>
<td>Transport</td>
<td>0.04</td>
<td>0.05</td>
<td>0.05</td>
<td>0.04</td>
<td>0.05</td>
<td>0.13</td>
<td>0.15</td>
<td>0.51</td>
</tr>
<tr>
<td>Pre-service training</td>
<td>0.05</td>
<td>0.10</td>
<td>0.17</td>
<td>0.05</td>
<td>0.09</td>
<td>0.01</td>
<td>0.01</td>
<td>0.47</td>
</tr>
<tr>
<td>Buffer Stocks</td>
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<td>0.37</td>
<td>0.41</td>
<td>0.28</td>
<td>0.34</td>
<td>1.68</td>
<td>1.50</td>
<td>4.99</td>
</tr>
<tr>
<td>Warehouse, equipment, and vehicles</td>
<td>0.23</td>
<td>0.26</td>
<td>0.28</td>
<td>0.30</td>
<td>0.32</td>
<td>0.93</td>
<td>0.98</td>
<td>3.29</td>
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<tr>
<td>ITNs</td>
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<td>0.04</td>
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<td>0.14</td>
<td>0.59</td>
<td>0.26</td>
<td>1.63</td>
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<table>
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<tr>
<th>Recurrent</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>Total</th>
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<tbody>
<tr>
<td>Contraceptives</td>
<td>0.05</td>
<td>0.07</td>
<td>0.10</td>
<td>0.14</td>
<td>0.16</td>
<td>0.21</td>
<td>0.28</td>
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<tr>
<td>Vaccines</td>
<td>0.00</td>
<td>0.00</td>
<td>0.01</td>
<td>0.14</td>
<td>0.27</td>
<td>0.42</td>
<td>0.56</td>
<td>1.41</td>
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<tr>
<td>Drugs</td>
<td>0.52</td>
<td>1.05</td>
<td>1.73</td>
<td>1.88</td>
<td>2.20</td>
<td>2.67</td>
<td>3.21</td>
<td>13.25</td>
</tr>
<tr>
<td>Malaria</td>
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<td>0.15</td>
<td>0.18</td>
<td>0.19</td>
<td>0.20</td>
<td>0.22</td>
<td>0.23</td>
<td>1.27</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.01</td>
<td>0.02</td>
<td>0.06</td>
<td>0.09</td>
<td>0.09</td>
<td>0.11</td>
<td>0.44</td>
<td>10.54</td>
</tr>
<tr>
<td>TB</td>
<td>0.02</td>
<td>0.06</td>
<td>0.14</td>
<td>0.12</td>
<td>0.16</td>
<td>0.20</td>
<td>0.30</td>
<td>1.00</td>
</tr>
<tr>
<td>Essential drugs</td>
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<td>0.82</td>
<td>1.35</td>
<td>1.50</td>
<td>1.75</td>
<td>2.15</td>
<td>2.57</td>
<td>10.54</td>
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<tr>
<td>Human Resources</td>
<td>0.10</td>
<td>0.22</td>
<td>0.36</td>
<td>0.47</td>
<td>0.57</td>
<td>0.68</td>
<td>0.81</td>
<td>3.22</td>
</tr>
<tr>
<td>Salary</td>
<td>0.09</td>
<td>0.18</td>
<td>0.28</td>
<td>0.34</td>
<td>0.41</td>
<td>0.50</td>
<td>0.59</td>
<td>2.38</td>
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<tr>
<td>Incentives</td>
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<td>0.03</td>
<td>0.06</td>
<td>0.10</td>
<td>0.13</td>
<td>0.14</td>
<td>0.16</td>
<td>0.65</td>
</tr>
<tr>
<td>In-service training</td>
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<td>0.01</td>
<td>0.02</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.19</td>
</tr>
<tr>
<td>Health financing</td>
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<td>0.04</td>
<td>0.04</td>
<td>0.36</td>
<td>0.84</td>
<td>0.97</td>
<td>1.03</td>
<td>3.33</td>
</tr>
<tr>
<td>Insurance</td>
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<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.13</td>
<td>0.13</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>Conditional cash transfer</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.33</td>
<td>0.81</td>
<td>0.84</td>
<td>0.90</td>
<td>2.88</td>
</tr>
<tr>
<td>Demand promotion</td>
<td>0.02</td>
<td>0.03</td>
<td>0.04</td>
<td>0.06</td>
<td>0.06</td>
<td>0.09</td>
<td>0.10</td>
<td>0.41</td>
</tr>
<tr>
<td>HMIS</td>
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<td>0.02</td>
<td>0.04</td>
<td>0.05</td>
<td>0.07</td>
<td>0.09</td>
<td>0.12</td>
<td>0.39</td>
</tr>
<tr>
<td>Governance, accreditation and regulation</td>
<td>0.07</td>
<td>0.13</td>
<td>0.19</td>
<td>0.27</td>
<td>0.34</td>
<td>0.49</td>
<td>0.64</td>
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</tr>
<tr>
<td>Administration</td>
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<td>0.15</td>
<td>0.24</td>
<td>0.29</td>
<td>0.36</td>
<td>0.46</td>
<td>0.57</td>
<td>2.14</td>
</tr>
</tbody>
</table>

| Total              | 2.77  | 3.45  | 4.58  | 5.72  | 6.60  | 16.94 | 14.07 | 54.13  |
### Annex 14: Details on the determination of country clusters

The clusters identified were the following:

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<th></th>
<th></th>
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<tbody>
<tr>
<td>Cluster 2</td>
<td>Kyrgyzstan</td>
<td>Mongolia</td>
<td>Uzbekistan</td>
<td>Lao People's Democratic Republic</td>
<td>Pakistan</td>
<td>India</td>
<td>Tajikistan</td>
<td>Bangladesh</td>
<td>Viet Nam</td>
<td>Myanmar</td>
<td>Cambodia</td>
<td>North Korea</td>
<td>Nepal</td>
<td>Timor Lest</td>
<td>Philippines</td>
<td>Afghanistan</td>
<td>Haiti</td>
<td>Papua New Guinea</td>
<td>Yemen</td>
<td>Salomon Islands</td>
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<td></td>
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<tr>
<td>Cluster 3</td>
<td>Botswana</td>
<td>Côte d'Ivoire</td>
<td>Chad</td>
<td>Ethiopia</td>
<td>Uganda</td>
<td>Eritrea</td>
<td>Somalia</td>
<td></td>
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<td></td>
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<td>Cluster 4</td>
<td>Niger</td>
<td>South Africa</td>
<td>Gabon</td>
<td>Central African Republic</td>
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</tr>
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</table>

The average values for the variables analyzed in each cluster were the following:

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<th>Cluster</th>
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<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Infant mortality_2005</td>
<td>99</td>
<td>65</td>
<td>67</td>
<td>143</td>
</tr>
<tr>
<td>U5 mortality_2005</td>
<td>163</td>
<td>87</td>
<td>93</td>
<td>244</td>
</tr>
<tr>
<td>MMR_adjusted</td>
<td>895</td>
<td>432</td>
<td>433</td>
<td>1627</td>
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<td>HIV_prevalance</td>
<td>5</td>
<td>1</td>
<td>17</td>
<td>1</td>
</tr>
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<td>Life_expectancy_at_birth</td>
<td>51</td>
<td>63</td>
<td>52</td>
<td>47</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>465</td>
<td>549</td>
<td>5592</td>
<td>266</td>
</tr>
<tr>
<td>GDP_per_capita_ppp</td>
<td>1372</td>
<td>1989</td>
<td>10150</td>
<td>937</td>
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<td>Gini_index</td>
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<td>36</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
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<td>51</td>
<td>91</td>
<td>34</td>
</tr>
<tr>
<td>percent_safety_concern</td>
<td>1.2%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>1.7%</td>
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