

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

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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.

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

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 GDP⁶ 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 dataset⁷. 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) database⁸ or IMF database⁹.

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

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)

	Minimum Scenario			Medium Scenario			Maximum Scenario		
	Total	%	\$ Per capita in 2015	Total	%	\$ Per capita in 2015	Total	%	\$ Per capita in 2015
Program and disease	34.81	51.6	5.47	42.69	38.2	7.05	116.84	51.6	17.36
Integrated Management of childhood illness	3.31	4.9	0.52	3.64	3.3	0.58	5.93	2.6	0.77
Immunization	3.45	5.1	1.04	4.90	4.4	1.06	8.30	3.7	1.75
Water, sanitation and hygiene	0.03	0.1	0.01	0.73	0.7	0.16	49.12	21.7	7.35
Nutrition	2.69	4.0	0.37	3.44	3.1	0.46	3.93	1.7	0.53
Maternal health	3.72	5.5	0.68	5.62	5.0	1.12	7.38	3.3	1.22
Family planning	2.19	3.3	0.37	2.81	2.5	0.55	3.02	1.3	0.50
HIV/AIDS	7.34	10.9	1.07	9.07	8.1	1.56	12.72	5.6	1.88
TB	1.41	2.1	0.27	1.82	1.6	0.41	2.38	1.1	0.47
Malaria	10.67	15.8	1.15	10.67	9.6	1.15	12.84	5.7	1.16
Essential drugs (NCD, MH, Parasitic Diseases)	0.00	-	-	0.00	-	-	11.22	5.0	1.72
Health systems	32.65	48.4	6.56	68.93	61.8	16.54	109.76	48.4	19.83
Human resources	14.64	21.7	3.35	21.19	19.0	5.59	26.21	11.6	5.75
<i>Pre-service training</i>	6.66	9.9	1.95	10.65	9.5	3.43	10.43	4.6	3.12
<i>Salary</i>	7.91	11.7	1.39	10.48	9.4	2.15	14.82	6.5	2.46
<i>Incentives</i>	0.07	0.1	0.01	0.07	0.1	0.01	0.96	0.4	0.17
Infrastructure, equipment and transport	9.43	14.0	1.64	28.83	25.8	7.43	50.04	22.1	7.30
<i>Infrastructure</i>	5.27	7.8	0.84	19.21	17.2	4.85	37.72	16.6	5.02
<i>Equipment</i>	2.65	3.9	0.52	7.86	7.0	2.21	9.77	4.3	1.79
<i>Transport</i>	1.50	2.2	0.28	1.76	1.6	0.37	2.56	1.1	0.48
Logistics	3.42	5.1	0.63	8.75	7.8	1.68	20.40	9.0	4.43
HMIS	1.11	1.6	0.23	1.49	1.3	0.35	2.09	0.9	0.42
Governance, accreditation and regulation	4.05	6.0	0.71	6.36	5.7	1.04	7.83	3.5	1.33
Health financing	0.00	-	-	2.30	2.1	0.45	3.19	1.4	0.62
Total	67.46	100	12.03	111.62	100	23.58	226.60	100	37.20

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)

	Minimum Scenario		Medium Scenario		Maximum Scenario	
	Total	%	Total	%	Total	%
Traded	35.51	52.64	51.54	46.17	86.82	38.31
Buffer Stocks	4.05	6.01	4.79	4.29	17.72	7.82
Contraceptives	1.40	2.07	1.82	1.63	1.93	0.85
Vaccines	2.53	3.76	3.79	3.39	4.01	1.77
Drugs	15.87	23.53	18.27	16.37	34.90	15.40
ITNs	5.50	8.15	6.52	5.84	7.94	3.51
Equipment	2.25	3.34	7.02	6.29	8.29	3.66
Transport	1.37	2.03	1.58	1.42	2.34	1.03
Warehouse, equipment and vehicle	2.53	3.75	7.75	6.94	9.68	4.27
Non-traded	31.95	47.36	60.09	53.83	139.78	61.69
Infrastructure	3.58	5.31	15.63	14.00	75.97	33.52
Human Resources	16.84	24.97	23.99	21.49	31.14	13.74
Health financing	0.06	0.08	2.36	2.11	7.19	3.17
Demand promotion	1.42	2.11	1.68	1.50	2.14	0.94
HMIS	1.11	1.65	1.49	1.34	2.09	0.92
Governance, accreditation and regulation	4.59	6.80	6.83	6.12	8.50	3.75
Administration	4.34	6.44	8.10	7.26	12.77	5.64
Total	67.46	100.00	111.62	100.00	226.60	100.00

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.

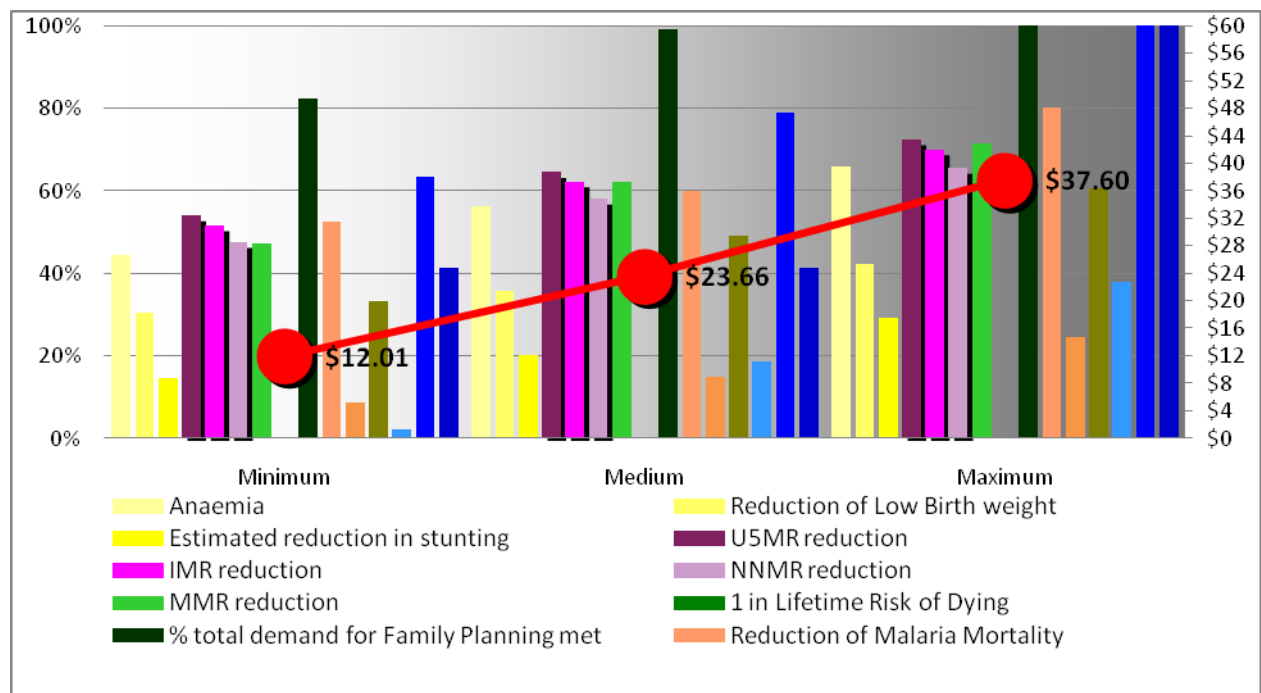
20. The fall-back scenario presents us with a conservative approach, potentially adapted to the context of the current global economic crisis, in which we assume the global community to raise additional resources limited to about US\$ 67.5 billion. The Minimum scenario would be fully covered under the 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)

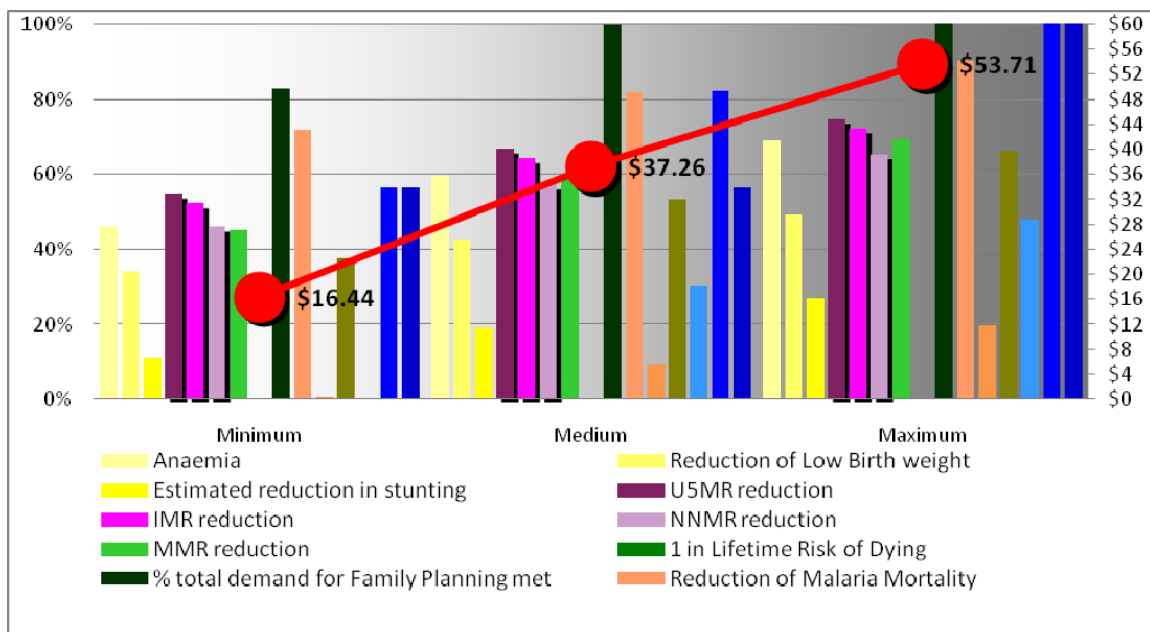
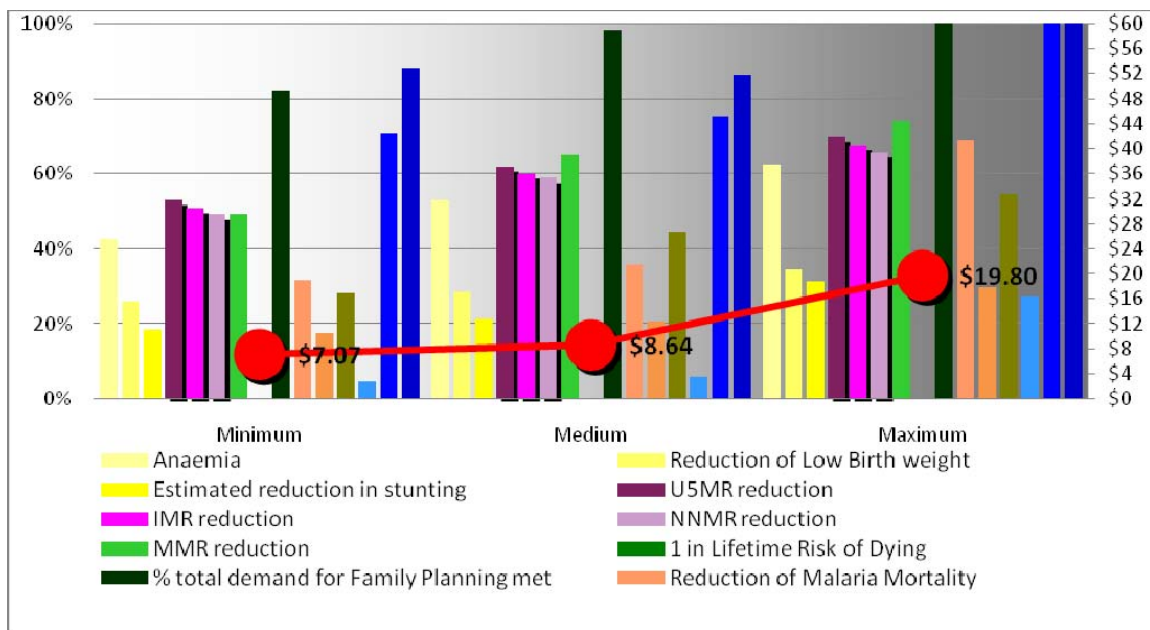


Figure A-3: Estimated impacts & Costs Framework (non-SSA countries)



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 children¹⁰. 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 Africa¹¹;
- 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 cotrimoxazol 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:

West and Central Africa	Benin	East and South Africa	Burundi	South Asia	Afghanistan
	Burkina Faso		Comoros		Bangladesh
	CAR		Eritrea		Nepal
	Chad		Ethiopia		Pakistan
	Cote D'Ivoire		Kenya	Central Asia	Kyrgyz Republic
	DR Congo		Madagascar		Tajikistan
	Gambia		Malawi		Uzbekistan
	Ghana		Mozambique		
	Guinea		Rwanda	Eastern Asia and the Pacific	Cambodia
	Guinea Bissau		Somalia		Lao PDR
	Liberia		Tanzania		Myanmar
	Mali		Uganda		North Korea
	Mauritania		Zambia		Papua New Guinea
	Niger		Zimbabwe		Solomon Islands
Nigeria		Vietnam			
Sao Tome and Principe					
Senegal					
Sierra Leone					
Togo					

Middle East and North Africa	Yemen
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Latin America and the Caribbean	Haiti
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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 2015¹². 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.

¹² <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)¹³ and Poverty Reduction Strategy Papers (PRSPs)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.

¹³ www.worldbank.org/hipc/

¹⁴

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPRS/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.

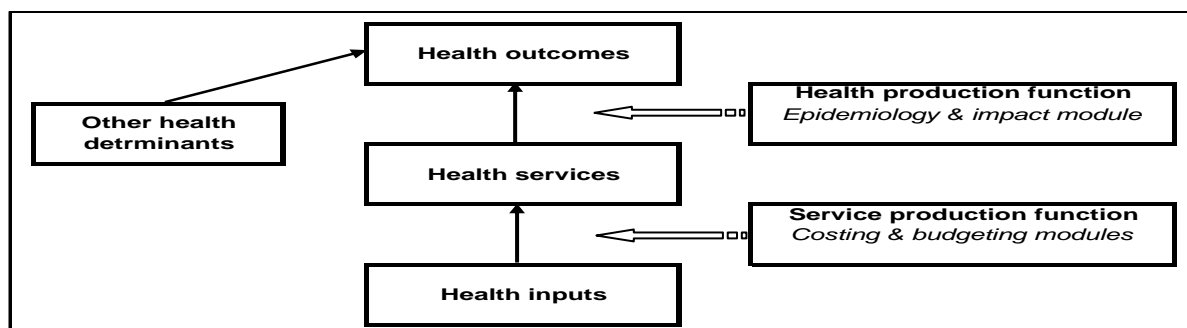
61. The tool allows adjustments to country specific health systems and programs. In the same way that it can be applied at country level, it can also be applied at global, regional, or sub-national levels.

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)¹⁵.

¹⁵ Further details can be found in the “MBB Technical Note”.

Figure D-1: Two-levels of health production functions



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)¹⁶ and Multiple Indicator Cluster Surveys (MICS)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;

¹⁶ <http://www.measuredhs.com/>

¹⁷ <http://www.childinfo.org/>

- B. In several countries the reported and/or adjusted MMR rates show a significant rises 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 s 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

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

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

Source: Bellagio Study Group on Child Survival, The Lancet, Summer 2003 and Neonatal Study Group, 2004, Lancet 2005

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)

Source: Lancet Nutrition series January 2008.

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
 Artesunate 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

Interventions to reduce U5 Mortality	Efficacy	Affected fraction/Assumption
Diarrhea		
Antibiotics (diarrhea)	80.0%	20%
Breastfeeding, children 6-11 months	depends on HIV/AIDS prevalence	Share of total U5 diarrhea mortality, 6-11 months
Complementary feeding	22 %	Depends on level of malnutrition
Exclusive breastfeeding 0-5 months	depends on HIV/AIDS prevalence	Share of total U5 diarrhea mortality, corresponding to 0-5 months old
Oral Rehydration Therapy	90.0%	80%
Vitamin A supplement (child)	53.0%	Vitamin A deficiency
Hand washing with soap by mother	44 %	100%
Use of sanitary latrine	32 %	100%
Supply of safe drinking water	25 %	100%
Quality of drinking water	39 %	100%
Multiple Water/Sanitation/Hygiene interventions	33.0%	100%
Zinc supplements (child)	22.0%	Zinc deficiency
Zinc therapy	50.0%	38% Zinc deficiency
Rotavirus vaccine	50%	Depends on % of diarrhea due to Rotavirus
Management of severe dehydration and complicated enteric fevers at referral level	80%	100 %
HIV / AIDS		
Condom Use	89%	% cases due to sexual transmission
Male circumcision	70%	% cases due to sexual transmission
STI management	38%	% cases due to sexual transmission
PMTCT (testing and counseling, AZT + sd	90%	1-% pregnant women on ART's
NVP and infant feeding counseling)		
First-line ART for pregnant women with HIV/AIDS	90 %	% pregnant women on ART's
Cotrimoxazole prophylaxis for children of HIV+ mothers	43%	100 %
ART for children with Aids	85%	100 %
Management of complicated Aids	10%	15.0%
Management of first line ART failures	60%	15.0%
Malaria		
Complementary feeding	20%	Depends on level of malnutrition
Therapeutic Feeding	20%	children wasted < 2SD
Insecticide Treated Mosquito Nets for under 5 children	75%	100 %
Vitamin A	44%	Vitamin A deficiency
Zinc	36%	Zinc deficiency
Chloroquine for malarial treatment	67%	malaria sensitivity to chloroquine
Anti malarial combination treatment at PHC level	67%	malaria sensitivity to ACT's
Management of complicated malaria at referral level	67%	90%
Intermittent Presumptive Treatment (IPT) for children	50.0%	75%
Measles		
Complementary feeding	15%	Depends on level of malnutrition
Therapeutic Feeding	15%	children wasted < 2SD
Measles immunization	90%	
Vitamin A – supplementation	54%	Vitamin A deficiency
Vitamin A - Treatment for measles	46%	Vitamin A deficiency

Interventions to reduce U5 Mortality	Efficacy	Affected fraction/Assumption
Management of severe measles at referral level	46%	
NN Prematurity		
Calcium supplementation in pregnancy	7%	100 %
Detection and management of (pre) eclampsia (Mg Sulphate)	3%	100 %
Additional ANC: detection and treatment of asymptomatic bacteriuria	10%	100 %
Additional intrapartum: antenatal steroids	38%	100 %
Universal skilled maternal and immediate neonatal care	8%	100 %
Community support to LBW	35%	75%
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)	28%	90%
Balanced protein energy supplements for pregnant women	32%	100 %
Supplementation in pregnancy with multi-micronutrients	16%	100 %
NN Severe infection		
Clean delivery	15%	100% of home deliveries
Community support to LBW	6%	100%
Early Breastfeeding	19%	100%
Universal case management for pneumonia	38%	100%
Intermittent presumptive treatment of malaria (IPT)for pregnant women	15%	75%
Skilled delivery and neonatal care	15%	100%
Detection & treatment of syphilis in pregnancy	5%	50%
Additional intrapartum: antibiotics (PPROM)	6%	100%
Additional emergency newborn care (management of serious infections)	50%	100%
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)	50%	90%
NN Tetanus		
Skilled delivery	75%	100%
Tetanus toxoid	80%	100%
Clean delivery	50%	100%
Asphyxia		
Universal antenatal care (ANC)	15%	100%
Skilled delivery and immediate neonatal care	25%	100%
Resuscitation of asphyctic newborns at birth	13%	100%
Asphyxia aftercare at referral level	3%	90%
Assisted delivery or vacuum extraction at B-EOC level	40%	30%
Caesarian section at C-EOC level	40%	100%

Interventions to reduce U5 Mortality	Efficacy	Affected fraction/Assumption
Pneumonia		
Complementary feeding	19%	Depends on level of malnutrition
Therapeutic Feeding	19%	children wasted < 2SD
Breastfeeding for children 0-5 months	depends on HIV/AIDS prevalence	Share of total U5 pneumonia mortality, 0-5 months
Breastfeeding for children 6-11 months	depends on HIV/AIDS prevalence	Share of total U5 pneumonia mortality, 6-11 months
Zinc	34%	Zinc deficiency
Hib immunization	20%	% of pneumonia cases due to HIB
Antibiotics for U5 pneumonia	40%	100%
Management of severe pneumonia at referral level	40%	100%
Pneumococcal immunization	50%	% of pneumonia cases due to pneumococci

Source: Bellagio Study Group on Child Survival, The Lancet, Summer 2003 and Neonatal Study Group, 2004, Lancet 2005

	Stunting reduction at 99 % effective coverage		
	at 12 months	at 24 months	at 36 months
Balanced protein energy supplements for pregnant women	1.90%	0.50%	0.30%
Intermittent preventive treatment (IPTp) for malaria in pregnancy	1.40%	0.30%	0.10%
Supplementation in pregnancy with multi-micronutrients	0.90%	0.30%	0.10%
Complementary feeding	19.80%	17.20%	15.00%
Zinc preventive	9.10%	15.50%	17.00%
Hand washing by mother	1.90%	2.40%	2.40%
Total (residual)	31.73%	33.07%	32.18%

Source: Lancet Nutrition series January 2008.

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.

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

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

Source: A global and Regional analysis, WHO, February 2004.

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

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

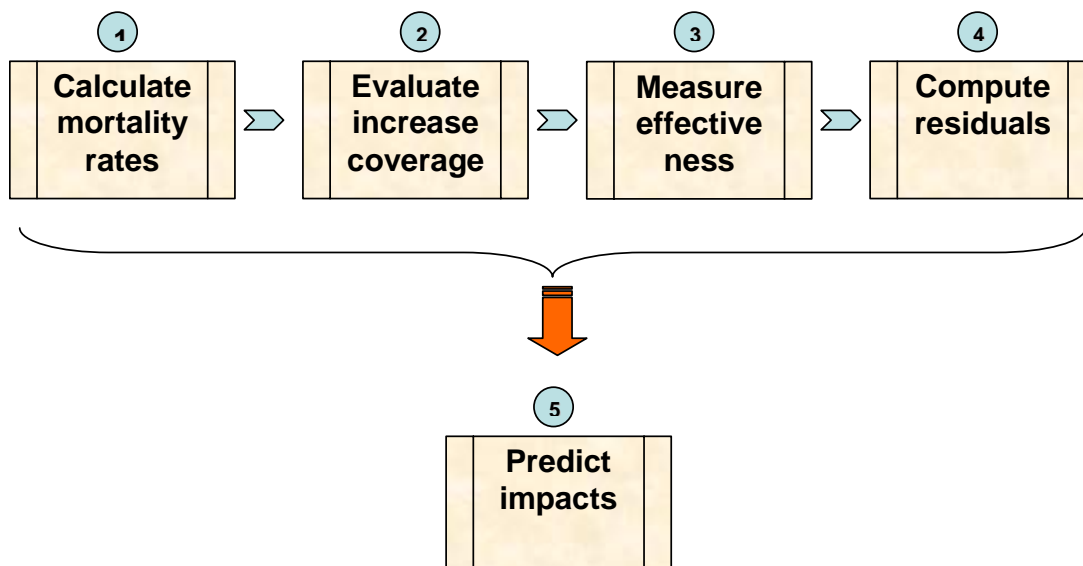
D.7.4 Steps in calculating impact

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

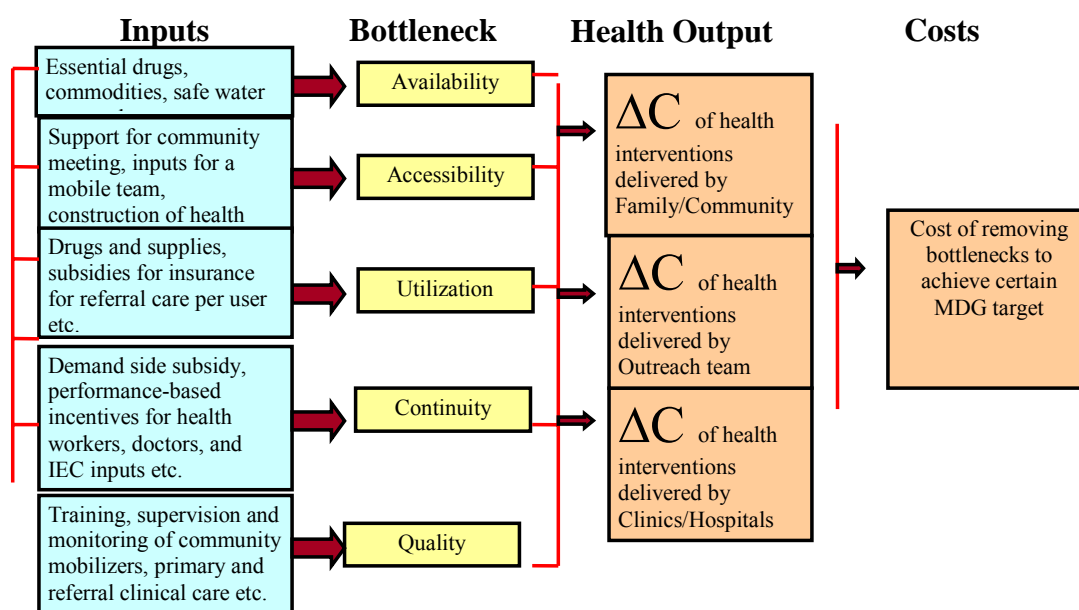
96. The costing, budgeting and financing analysis has been structured to take into account the strategic changes in the health care delivery policies, addressing both supply and demand constraints. These identify the budgetary expansion required to overcoming the bottlenecks that constrain effective 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

Cards, etc.). 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 (MC_i) 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 MC_i = additional cost of input i ; P_{oi} = unit price of input i in the scenarios/phases; Q_{oi} = 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); S_{oi} = 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); P_{bi} = baseline unit cost of input i ; Q_{bi} = quantity of input i per service production units for baseline coverage; S_{bi} = 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

events, management information tool for monitoring, construction of health facilities, housing and training school default values are provided.

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 work force 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 \times 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 \times 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 line¹⁹.

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.

¹⁹ When no such policy is in place, it is assumed that 50% of the population below the poverty line is subsidized.

Table D-8 Cost categories included in the costing and hypotheses underlying these calculations

Cost Categories		Which inputs are included	How is the price of input calculated ²⁰	How is the quantity calculated
Capital investment				
Infrastructure		Health facilities construction and rehabilitation, logistics, housing for health workers, etc.	Taken from the country	Using the national norm and estimating the existing gap
		Radios, solar panel, cold chain, equipment for facilities, ambu-bags, equipment for surgery and obstetrics, medical equipment, office equipment, etc.	Taken from the country	Using the norm and estimated gap
Equipment		Motorbikes, cars, ambulances, vehicles, etc.	Taken from the country	Using the norm and estimated gap
Transport		Pre-service training for CHW, nurses, health officers, general practitioners, etc.	Base salary taken from countries as well as number of days	Using the HRH norm and estimated gap
Pre-service training		All essential drugs, including vaccines, contraceptives, ARTs, TB drugs, etc.	Global Price List (WHO/UNICEF)	Using population data, epidemiology profile of each country and unit price
Buffer Stocks		Construction, rehabilitation, maintenance and electricity of logistical base	Taken from the country	Using the national norm and estimating the existing gap
Warehouse, equipment and vehicle		Long lasting insecticide treated nets and insecticide for bed nets	Global Price List (WHO/UNICEF)	Average number of ITNs in households, population data and estimated gap
ITNs				
Recurrent				
Contraceptives		Oral contraceptives, condoms, injectables, IUD, implants, sterilization of males and females, etc.	Global Price List (WHO/UNICEF)	Using population data, estimated gap and target coverage
		Classical vaccines, AD syringes, measles, BCG, OPV, DPT, Pentavalent, Hib, Hep B, Yellow fever, Meningitis, pneumococce, rotavirus, HPV, etc.	Global Price List (WHO/UNICEF)	Using population data, estimated gap and target coverage
Vaccines				
Drugs		Chloroquine, ACT, Quinine, Second line malaria drugs, etc.	Global Price List (WHO/UNICEF)	Using population data, prevalence and incidence, estimated gap and target coverage
<i>Malaria</i>		PITC, Nevirapine, HAART, AZT, male circumcision, etc.	Global Price List (WHO/UNICEF)	Using population data, prevalence and incidence, estimated gap and target coverage
<i>HIV/AIDS</i>		TB drug regimen category 1&3, category 2, second line for MDR TB, etc.	Global Price List (WHO/UNICEF)	Using population data, prevalence and incidence, estimated gap and target coverage
<i>TB</i>				

²⁰ When no data was provided at the country level, global default data was used.

Cost Categories	Which inputs are included	How is the price of input calculated ²⁰	How is the quantity calculated
<i>Essential drugs</i>	Antibiotics, ORS, Zinc, Vitamin A, Drugs for jaundice, gentamycin, supplementary food, etc.	Global Price List (WHO/UNICEF)	Using population data, prevalence and incidence, estimated gap and target coverage
Human Resources			
<i>Salary</i>	Annual salary of CHWs, supervisors, nurses, paramedics, general practitioners, specialists, etc.	Taken from country	Using the HRH norms and estimated gap
<i>Incentives</i>	Performance incentives, bonuses, allowances, etc.	Taken from country	Using the HRH norms and estimated gap
<i>In-service training</i>	In service of CHWs, supervisors, nurses, paramedics, general practitioners, specialists, etc.	Taken from country	Using the HRH norms and estimated gap
Health financing			
<i>Insurance</i>	Insurance subsidy to the poor for several health interventions at community level, health center and referral levels, etc.	Linked to the poverty line and cost of interventions	Using the target population for the subsidy for a given intervention
<i>Conditional cash transfer</i>	Subsidies to the poor for several health interventions at all levels and demand side subsidies, etc.	Linked to the poverty line and cost of interventions	Using population data
Demand promotion	IEC/BCC	Using the number of visits and time spent by health provider	Using population data and estimated gap
HMIS	HIS, M&E and operational research, etc.	Taken from the country	By level of service delivery
Governance, accreditation and regulation	Program management, citizens reporting, accreditation, regulation, etc.	Taken from the country	By level of service delivery
Administration	At facility, district, provincial and national level: per diem, water, electricity, petrol, maintenance, accountability mechanisms, etc.	Taken from the country	By level of service delivery

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		
Capital investment		Year 1	Year 2	Year 3
	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		Year 1	Year 2	Year 3
	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 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 and 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 GDP²¹ 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 dataset²². OECD DAC 2008 data²³ 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) database²⁴ or IMF database²⁵.

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

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

²² National Health Accounts Database on <http://www.who.int/nha/country/en/>

²³ Data extracted in May 2009 from OECD.Stat.

²⁴ Economist Intelligence Unit Database on <http://www.eiu.com>.

²⁵ International Monetary Fund, World Economic Outlook Database, April 2009.

ure						
Aid for health	Reaches 0.7% of GDP for all countries except for US (ODA increasing to US\$ 50 billion in 2015)	Doubles	Increases by 50%	Increases by the projected rates of GDP growth	Falls by 10% during 2009 and 2010 and returns to 2008 level by 2011 until 2015.	<i>National Health Accounts; OECD Database</i>
Private expenditure for health	Increases by the projected rates of GDP growth with a 1.06% elasticity.	Increases by the projected rates of GDP growth with a 1.06% elasticity.	Increases by the projected rates of GDP growth with a 1.06% elasticity.	Increases by the projected rates of GDP growth with a 1.06% elasticity.	Increases by the lower projected rates of GDP growth	<i>National Health Accounts</i>

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 met 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

	Maximum		Medium		Minimum	
	Estimate	% countries reaching target	Estimate	% countries reaching target	Estimate	% countries reaching target
Additional Deaths Averted in 2015²⁶						
Under five deaths (including infant and neonatal)	4,778,016		4,288,519		3,522,655	
Newborn deaths (included above in U5 deaths)	1,418,165		1,260,918		1,009,863	
Maternal deaths	297,273		259,383		200,079	
Malaria deaths in adults	75,438		63,750		55,914	
HIV/AIDS deaths in adults	191,176		176,817		116,355	
Tuberculosis deaths	283,191		235,127		169,165	
Total number of deaths averted	5,625,094		5,023,596		4,064,168	
Decrease in # births	16,326,543		11,874,492		7,131,992	
Total # stunting prevented (12-23 Months)	9,938,891		8,332,510		6,190,619	
% progress towards MDG4 and 5 from 1990/95 baselines						
MDG4: U5MR reduction from 1990 by two-thirds	80%	86%	72%	82%	67%	45%
MMR reduction from 1990/1995 baseline	77%	55%	64%	39%	57%	12%
Countries reaching 70% MMR reduction		69%		45%		29%
1 in Lifetime Risk of Dying reduction *	84%	90%	76%	62%	62%	4%
% progress towards MDG1 malnutrition goal since 2005-8 baseline						
Anemia*	66%	100%	56%	88%	45%	16%
Reduction of Low Birth weight*	42%	24%	36%	0%	30%	0%
Reduction in stunting 12-23 months	29%	0%	20%	0%	15%	0%
% progress towards MDG4 child survival goal since 2005-8 baseline						
Average % reduction in U5MR *	73%	86%	63%	82%	55%	45%
IMR reduction *	70%		61%		52%	
NNMR reduction *	65%		57%		48%	
% progress towards MDG5 reproductive health goal since 2005-8 baseline						
Average % reduction in MMR *	72%	53%	62%	46%	49%	12%
Total demand for Family Planning Met*	103%	100%	96%	100%	85%	73%
% progress towards MDG6 communicable disease goal since 2005-8 baseline (3)						
Reduction of Malaria Mortality in adults	66%	100%	59%	100%	53%	100%
Reduction in Malaria Incidence*	55%	97%	45%	87%	35%	69%
Reduction in AIDS mortality *	25%	2%	15%	0%	9%	0%
Reduction in HIV/AIDS incidence	49%	57%	41%	42%	19%	0%
Change in HIV/AIDS prevalence	1%	12%	12%	26%	0%	2%
Reduction in TB Mortality *	61%	88%	49%	72%	33%	12%
% progress towards MDG7 WASH goal since 2005-8 baseline						
Quality of drinking water increase*	38%		19%		2%	
Access to improved sanitation*	100%	100%	79%	98%	63%	51%
Access to an improved drinking water*	100%	100%	72%	18%	72%	18%

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)

	2009	2010	2011	2012	2013	2014	2015	Total
Total (in US\$ billion)								
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

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	1.13	1.04	0.90	2.22	1.72	3.85	2.72	13.57	20.1
1.0 HR, infrastructure and equipment	0.21	0.28	0.31	0.53	0.59	0.91	0.96	3.79	5.6
1.1 Family preventive/WASH services	0.67	0.43	0.26	1.26	0.66	2.37	1.16	6.80	10.1
1.2 Family neonatal care	0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.21	0.3
1.3 Infant and child feeding	0.21	0.27	0.27	0.35	0.37	0.46	0.49	2.42	3.6
1.4 Community illness management	0.03	0.04	0.04	0.05	0.06	0.06	0.07	0.35	0.5
2. Population oriented schedulable services	0.43	0.73	1.09	1.37	2.01	2.94	4.06	12.63	18.7
2.0 HR, infrastructure and equipment	0.27	0.45	0.66	0.63	0.89	1.04	1.40	5.31	7.9
2.1 Preventive care for adolescents & adults	0.04	0.06	0.08	0.16	0.21	0.26	0.30	1.13	1.7
2.2 Preventive pregnancy care	0.05	0.10	0.17	0.26	0.40	0.42	0.49	1.89	2.8
2.3 HIV/AIDS prevention and care	0.01	0.02	0.04	0.06	0.09	0.12	0.16	0.51	0.8
2.4 Preventive infant & child care	0.06	0.10	0.14	0.27	0.42	1.10	1.72	3.79	5.6
3. Individual oriented clinical services	0.98	2.11	3.91	3.71	5.60	6.35	9.01	31.68	47.0
3.0 HR, infrastructure and equipment	0.47	1.07	1.98	1.76	2.75	3.59	6.08	17.70	26.2
3.1 Maternal and neonatal care at primary clinical level	0.02	0.04	0.06	0.11	0.17	0.27	0.36	1.02	1.5
3.2 Management of illnesses at primary clinical level	0.38	0.68	1.18	1.23	1.65	1.62	1.63	8.38	12.4
3.3 Clinical first referral care	0.06	0.20	0.44	0.34	0.67	0.46	0.38	2.55	3.8
3.4 Clinical second referral care	0.05	0.12	0.25	0.27	0.36	0.41	0.56	2.03	3.0
District, provincial and national governance and management	0.41	0.54	0.67	1.16	1.46	2.51	2.83	9.58	14.2
Total	2.95	4.42	6.57	8.47	10.78	15.65	18.61	67.46	100.0

Table E-4 Estimated additional cost by service packages and delivery level in the 49 countries (in billion US\$), Medium scenario

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

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.

147. 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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	1.69	2.26	3.23	4.88	5.77	8.51	8.46	34.81
Child health	0.13	0.23	0.31	0.47	0.64	0.72	0.80	3.31
Immunization	0.03	0.06	0.10	0.24	0.37	1.03	1.61	3.45
Water, sanitation and hygiene	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03
Nutrition	0.22	0.28	0.29	0.36	0.45	0.51	0.57	2.69
Maternal health	0.09	0.21	0.38	0.47	0.67	0.85	1.06	3.72
Family planning	0.10	0.18	0.29	0.26	0.37	0.43	0.57	2.19
HIV/AIDS	0.25	0.44	0.69	1.01	1.64	1.65	1.65	7.34
TB	0.03	0.08	0.17	0.17	0.24	0.30	0.41	1.41
Malaria	0.83	0.78	0.98	1.89	1.39	3.01	1.78	10.67
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	1.26	2.16	3.34	3.59	5.01	7.14	10.15	32.65
Human resources	0.36	0.82	1.49	1.46	2.18	3.14	5.18	14.64
<i>Pre-service training</i>	0.20	0.39	0.65	0.37	0.68	1.37	3.01	6.66
<i>Salary</i>	0.16	0.43	0.84	1.09	1.49	1.75	2.15	7.91
<i>Incentives</i>	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.07
Infrastructure, equipment and transport	0.48	0.78	1.17	1.07	1.54	1.84	2.54	9.43
<i>Infrastructure</i>	0.29	0.51	0.80	0.59	0.90	0.87	1.30	5.27
<i>Equipment</i>	0.12	0.18	0.27	0.30	0.44	0.55	0.80	2.65
<i>Transport</i>	0.08	0.09	0.10	0.19	0.19	0.42	0.44	1.50
Logistics	0.23	0.24	0.25	0.37	0.39	0.96	0.98	3.42
<i>Buffer stocks</i>	0.09	0.09	0.09	0.06	0.06	0.24	0.24	0.88
<i>Warehouse, equipment and vehicle</i>	0.13	0.15	0.16	0.31	0.33	0.72	0.74	2.53
HMIS	0.02	0.05	0.10	0.14	0.20	0.26	0.35	1.11
Governance, accreditation and regulation	0.17	0.27	0.33	0.55	0.69	0.95	1.10	4.05
Health financing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.95	4.42	6.57	8.47	10.78	15.65	18.61	67.46

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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	2.24	2.78	3.62	5.73	7.01	10.40	10.90	42.69
Child health	0.17	0.28	0.37	0.49	0.65	0.77	0.90	3.64
Immunization	0.05	0.10	0.15	0.62	1.03	1.31	1.64	4.90
Water, sanitation and hygiene	0.02	0.03	0.03	0.08	0.09	0.23	0.25	0.73
Nutrition	0.32	0.42	0.48	0.43	0.47	0.62	0.71	3.44
Maternal health	0.13	0.29	0.50	0.67	0.98	1.30	1.74	5.62
Family planning	0.13	0.22	0.35	0.30	0.40	0.57	0.85	2.81
HIV/AIDS	0.28	0.52	0.82	1.17	1.82	2.04	2.42	9.07
TB	0.04	0.09	0.18	0.19	0.29	0.40	0.63	1.82
Malaria	1.10	0.83	0.75	1.78	1.28	3.15	1.77	10.67
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	2.06	2.87	3.69	6.91	11.60	16.21	25.58	68.93
Human resources	0.39	0.75	1.13	1.87	3.34	5.06	8.65	21.19
<i>Pre-service training</i>	0.13	0.28	0.49	0.69	1.30	2.46	5.30	10.65
<i>Salary</i>	0.27	0.47	0.63	1.18	2.03	2.58	3.32	10.48
<i>Incentives</i>	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.07
Infrastructure, equipment and transport	0.55	0.74	0.97	2.96	5.90	6.21	11.50	28.83
<i>Infrastructure</i>	0.31	0.43	0.58	2.12	4.35	3.92	7.50	19.21
<i>Equipment</i>	0.14	0.19	0.24	0.68	1.38	1.81	3.42	7.86
<i>Transport</i>	0.10	0.12	0.14	0.15	0.18	0.48	0.58	1.76
Logistics	0.61	0.65	0.69	0.82	0.87	2.52	2.60	8.75
<i>Buffer stocks</i>	0.09	0.09	0.09	0.08	0.08	0.28	0.28	1.00
<i>Warehouse, equipment and vehicle</i>	0.52	0.56	0.60	0.74	0.78	2.24	2.31	7.75
HMIS	0.03	0.06	0.11	0.16	0.25	0.36	0.54	1.49
Governance, accreditation and regulation	0.33	0.53	0.65	0.86	1.01	1.37	1.61	6.36
Health financing	0.15	0.15	0.15	0.23	0.23	0.69	0.69	2.30
<i>Insurance</i>	0.15	0.15	0.15	0.23	0.23	0.69	0.69	2.30
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.30	5.65	7.31	12.64	18.61	26.62	36.48	111.62

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

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	1.82	2.03	2.51	2.84	3.05	6.26	7.45	25.95
Infrastructure	0.26	0.42	0.62	0.35	0.59	0.51	0.85	3.58
Equipment	0.11	0.16	0.23	0.24	0.36	0.46	0.69	2.25
Transport	0.07	0.08	0.09	0.17	0.17	0.39	0.40	1.37
Pre-service training	0.20	0.39	0.65	0.37	0.68	1.37	3.01	6.66
Buffer Stocks	0.50	0.56	0.68	0.33	0.46	0.68	0.84	4.05
Warehouse, equipment, and vehicles	0.13	0.15	0.16	0.31	0.33	0.72	0.74	2.53
ITNs	0.55	0.28	0.09	1.07	0.46	2.14	0.92	5.50
Recurrent	1.14	2.40	4.06	5.63	7.73	9.39	11.17	41.51
Contraceptives	0.06	0.08	0.11	0.21	0.26	0.30	0.37	1.40
Vaccines	0.02	0.04	0.05	0.16	0.27	0.75	1.24	2.53
Drugs	0.50	1.10	1.94	2.35	3.16	3.33	3.49	15.87
Malaria	0.14	0.35	0.69	0.75	0.85	0.84	0.81	4.42
HIV/AIDS	0.08	0.21	0.39	0.58	1.00	0.97	0.86	4.10
TB	0.03	0.08	0.16	0.14	0.21	0.26	0.36	1.23
Essential drugs	0.25	0.47	0.70	0.88	1.11	1.26	1.45	6.12
Human Resources	0.20	0.50	0.95	1.38	1.98	2.34	2.84	10.18
Salary	0.16	0.43	0.84	1.09	1.49	1.75	2.15	7.91
Incentives	0.01	0.03	0.05	0.18	0.35	0.39	0.44	1.44
In-service training	0.03	0.05	0.06	0.11	0.14	0.20	0.25	0.83
Health financing	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Conditional cash transfer	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.06	0.10	0.14	0.20	0.25	0.32	0.35	1.42
HMIS	0.02	0.05	0.10	0.14	0.20	0.26	0.35	1.11
Governance, accreditation and regulation	0.16	0.28	0.36	0.61	0.80	1.08	1.29	4.59
Administration	0.12	0.25	0.41	0.59	0.79	0.99	1.20	4.34
Total	2.95	4.42	6.57	8.47	10.78	15.65	18.61	67.46

Table E-8 Estimated additional resource requirement by traded versus non-traded classification in the 49 countries (in billion US\$), Minimum scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	1.94	2.44	3.35	4.84	5.48	8.77	8.69	35.51
Buffer Stocks	0.50	0.56	0.68	0.33	0.46	0.68	0.84	4.05
Contraceptives	0.06	0.08	0.11	0.21	0.26	0.30	0.37	1.40
Vaccines	0.02	0.04	0.05	0.16	0.27	0.75	1.24	2.53
Drugs	0.50	1.10	1.94	2.35	3.16	3.33	3.49	15.87
<i>Malaria</i>	0.14	0.35	0.69	0.75	0.85	0.84	0.81	4.42
<i>HIV/AIDS</i>	0.08	0.21	0.39	0.58	1.00	0.97	0.86	4.10
<i>TB</i>	0.03	0.08	0.16	0.14	0.21	0.26	0.36	1.23
<i>Essential drugs</i>	0.25	0.47	0.70	0.88	1.11	1.26	1.45	6.12
ITNs	0.55	0.28	0.09	1.07	0.46	2.14	0.92	5.50
Equipment	0.11	0.16	0.23	0.24	0.36	0.46	0.69	2.25
Transport	0.07	0.08	0.09	0.17	0.17	0.39	0.40	1.37
Warehouse, equipment and vehicle	0.13	0.15	0.16	0.31	0.33	0.72	0.74	2.53
Non-traded	1.01	1.99	3.22	3.63	5.30	6.88	9.93	31.95
Infrastructure	0.26	0.42	0.62	0.35	0.59	0.51	0.85	3.58
Human Resources	0.40	0.89	1.60	1.74	2.66	3.71	5.85	16.84
<i>Salary</i>	0.16	0.43	0.84	1.09	1.49	1.75	2.15	7.91
<i>Incentives</i>	0.01	0.03	0.05	0.18	0.35	0.39	0.44	1.44
<i>In-service training</i>	0.03	0.05	0.06	0.11	0.14	0.20	0.25	0.83
<i>Pre-service training</i>	0.20	0.39	0.65	0.37	0.68	1.37	3.01	6.66
Health financing	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.06	0.10	0.14	0.20	0.25	0.32	0.35	1.42
HMIS	0.02	0.05	0.10	0.14	0.20	0.26	0.35	1.11
Governance, accreditation and regulation	0.16	0.28	0.36	0.61	0.80	1.08	1.29	4.59
Administration	0.12	0.25	0.41	0.59	0.79	0.99	1.20	4.34
Total	2.95	4.42	6.57	8.47	10.78	15.65	18.61	67.46

152. 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).

Table E-9 Estimated additional resource requirement by capital and recurrent classification in the 49 countries (in billion US\$), Medium scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	2.49	2.45	2.69	5.61	8.29	13.06	19.36	53.94
Infrastructure	0.29	0.38	0.49	1.85	3.73	2.99	5.89	15.63
Equipment	0.13	0.17	0.21	0.61	1.21	1.59	3.10	7.02
Transport	0.10	0.11	0.12	0.13	0.15	0.44	0.53	1.58
Pre-service training	0.13	0.28	0.49	0.69	1.30	2.46	5.30	10.65
Buffer Stocks	0.47	0.53	0.64	0.44	0.62	0.90	1.18	4.79
Warehouse, equipment, and vehicles	0.52	0.56	0.60	0.74	0.78	2.24	2.31	7.75
ITNs	0.84	0.42	0.14	1.15	0.49	2.43	1.04	6.52
Recurrent	1.81	3.21	4.62	7.03	10.32	13.56	17.13	57.68
Contraceptives	0.09	0.13	0.17	0.23	0.26	0.39	0.55	1.82
Vaccines	0.03	0.06	0.09	0.46	0.82	1.05	1.28	3.79
Drugs	0.62	1.22	1.95	2.45	3.41	3.94	4.69	18.27
<i>Malaria</i>	0.16	0.31	0.49	0.55	0.68	0.67	0.66	3.51
<i>HIV/AIDS</i>	0.08	0.19	0.35	0.56	0.99	1.05	1.15	4.37
<i>TB</i>	0.03	0.07	0.15	0.16	0.25	0.35	0.56	1.56
<i>Essential drugs</i>	0.35	0.65	0.95	1.18	1.49	1.88	2.32	8.83
Human Resources	0.33	0.59	0.82	1.53	2.60	3.29	4.19	13.35
<i>Salary</i>	0.27	0.47	0.63	1.18	2.03	2.58	3.32	10.48
<i>Incentives</i>	0.01	0.04	0.07	0.20	0.37	0.43	0.51	1.63
<i>In-service training</i>	0.05	0.09	0.12	0.16	0.20	0.28	0.35	1.24
Health financing	0.15	0.15	0.15	0.23	0.23	0.71	0.74	2.36
<i>Insurance</i>	0.15	0.15	0.15	0.23	0.23	0.69	0.69	2.30
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.08	0.13	0.16	0.23	0.28	0.37	0.42	1.68
HMIS	0.03	0.06	0.11	0.16	0.25	0.36	0.54	1.49
Governance, accreditation and regulation	0.31	0.53	0.70	0.92	1.09	1.48	1.80	6.83
Administration	0.17	0.33	0.49	0.83	1.38	1.96	2.93	8.10
Total	4.30	5.65	7.31	12.64	18.61	26.62	36.48	111.62

Table E-10 Estimated additional resource requirement by traded versus non-traded classification in the 49 countries (in billion US\$), Medium scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	2.80	3.20	3.92	6.20	7.75	12.99	14.68	51.54
Buffer Stocks	0.47	0.53	0.64	0.44	0.62	0.90	1.18	4.79
Contraceptives	0.09	0.13	0.17	0.23	0.26	0.39	0.55	1.82
Vaccines	0.03	0.06	0.09	0.46	0.82	1.05	1.28	3.79
Drugs	0.62	1.22	1.95	2.45	3.41	3.94	4.69	18.27
<i>Malaria</i>	0.16	0.31	0.49	0.55	0.68	0.67	0.66	3.51
<i>HIV/AIDS</i>	0.08	0.19	0.35	0.56	0.99	1.05	1.15	4.37
<i>TB</i>	0.03	0.07	0.15	0.16	0.25	0.35	0.56	1.56
<i>Essential drugs</i>	0.35	0.65	0.95	1.18	1.49	1.88	2.32	8.83
ITNs	0.84	0.42	0.14	1.15	0.49	2.43	1.04	6.52
Equipment	0.13	0.17	0.21	0.61	1.21	1.59	3.10	7.02
Transport	0.10	0.11	0.12	0.13	0.15	0.44	0.53	1.58
Warehouse, equipment and vehicle	0.52	0.56	0.60	0.74	0.78	2.24	2.31	7.75
Non-traded	1.49	2.46	3.39	6.44	10.87	13.63	21.81	60.09
Infrastructure	0.29	0.38	0.49	1.85	3.73	2.99	5.89	15.63
Human Resources	0.46	0.87	1.30	2.22	3.90	5.75	9.49	23.99
<i>Salary</i>	0.27	0.47	0.63	1.18	2.03	2.58	3.32	10.48
<i>Incentives</i>	0.01	0.04	0.07	0.20	0.37	0.43	0.51	1.63
<i>In-service training</i>	0.05	0.09	0.12	0.16	0.20	0.28	0.35	1.24
<i>Pre-service training</i>	0.13	0.28	0.49	0.69	1.30	2.46	5.30	10.65
Health financing	0.15	0.15	0.15	0.23	0.23	0.71	0.74	2.36
<i>Insurance</i>	0.15	0.15	0.15	0.23	0.23	0.69	0.69	2.30
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.08	0.13	0.16	0.23	0.28	0.37	0.42	1.68
HMIS	0.03	0.06	0.11	0.16	0.25	0.36	0.54	1.49
Governance, accreditation and regulation	0.31	0.53	0.70	0.92	1.09	1.48	1.80	6.83
Administration	0.17	0.33	0.49	0.83	1.38	1.96	2.93	8.10
Total	4.30	5.65	7.31	12.64	18.61	26.62	36.48	111.62

153. 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

154. 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

	Minimum Scenario		Medium Scenario		Maximum Scenario	
	Total	percent	Total	percent	Total	percent
Health Facilities	32,886	100.0	77,125.73	100.0	92,421	100.0
Health Post	29,272	89.0	60,585.22	78.6	72,923	78.9
<i>New</i>	11,894	36.2	29,144.54	37.8	34,670	37.5
<i>Rehab</i>	17,377	52.8	31,440.67	40.8	38,253	41.4
Health Centre	2,435	7.4	12,879.49	16.7	14,675	15.9
<i>New</i>	1,594	4.8	8,217.86	10.7	9,318	10.1
<i>Rehab</i>	841	2.6	4,661.63	6.0	5,357	5.8
District Hospital	897	2.7	2,818.23	3.7	3,848	4.2
<i>New</i>	432	1.3	1,599.84	2.1	2,152	2.3
<i>Rehab</i>	464	1.4	1,218.40	1.6	1,696	1.8
Regional Hospital	283	0.9	842.79	1.1	976	1.1
<i>New</i>	225	0.7	505.52	0.7	600	0.6
<i>Rehab</i>	57	0.2	337.27	0.4	376	0.4
Health Workers	1,299,680	100.0	2,585,894	100.0	2,933,739	100.0
Community based health & nutrition promoters	372,228	28.6	1,441,929	55.8	1,599,479	54.5
Health extension workers	170,561	13.1	200,147	7.7	247,224	8.4
Junior, assistant, assistant midwife nurse (1 year training)	176,222	13.6	160,478	6.2	249,092	8.5
Technicians (lab, x-ray, pharmacy)	116,988	9.0	158,790	6.1	166,082	5.7
Registered nurse/midwives (at least 3 yr training)	167,238	12.9	203,013	7.9	237,816	8.1
Health officer	14,597	1.1	23,226	0.9	20,694	0.7
Physician/MD	29,020	2.2	35,879	1.4	41,599	1.4
Specialist	8,954	0.7	6,236	0.2	12,713	0.4
Administrative staff	210,535	16.2	306,803	11.9	298,722	10.2
District and provincial managers	33,338	2.6	49,392	1.9	60,317	2.1

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\$ 113.4billion under the assumptions of the first fiscal space scenario, around US\$ 111.4billion 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\$ 16.9billion 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)

Available incremental funding (49 countries) billion constant US\$	2009	2010	2011	2012	2013	2014	2015	Total
Scenario 1: Optimistic	2.41	7.03	11.20	15.85	20.94	26.54	29.45	113.42
... government	2.18	5.97	9.02	12.47	16.26	20.53	22.39	88.82
... external	0.04	0.64	1.39	2.34	3.41	4.51	5.35	17.69
... private	0.19	0.42	0.78	1.03	1.26	1.50	1.72	6.91
Scenario 2: Gleneagles doubling and Abuja 15% commitment	2.34	6.91	11.01	15.58	20.58	26.09	28.91	111.41
... government	2.18	5.97	9.02	12.47	16.26	20.53	22.39	88.82
... external	-0.03	0.52	1.20	2.08	3.06	4.05	4.80	15.68
... private	0.19	0.42	0.78	1.03	1.26	1.50	1.72	6.91
Scenario 3: Intermediate - ODA 50% and government 12%	1.20	4.46	7.64	11.09	14.82	18.94	20.76	78.91
... government	1.25	3.95	6.27	8.87	11.70	14.86	16.00	62.89
... external	-0.24	0.09	0.59	1.19	1.86	2.58	3.05	9.11
... private	0.19	0.42	0.78	1.03	1.26	1.50	1.72	6.91
Scenario 4: Status Quo	-0.31	0.58	1.83	3.11	4.44	5.86	6.23	21.74
... government	-0.02	0.55	1.23	1.98	2.78	3.65	3.68	13.84
... external	-0.48	-0.39	-0.18	0.10	0.40	0.72	0.83	0.99
... private	0.19	0.42	0.78	1.03	1.26	1.50	1.72	6.91
Scenario 5: Pessimistic	-1.33	-0.89	1.50	2.72	3.98	5.28	5.62	16.88
... government	-0.56	-0.42	0.99	1.69	2.41	3.17	3.17	10.46
... external	-0.87	-0.79	-0.18	0.10	0.40	0.72	0.83	0.20
... private	0.10	0.33	0.68	0.93	1.16	1.40	1.61	6.21

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\$)

	Sources of additional funding			MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario		
	Gov't	ODA	Private	Total	Cost	Gap	Cost	Gap	Cost	Gap
All countries	88.82	17.69	6.91	113.42	226.60	113.18	111.62	-1.80	67.46	-45.96
Optimistic	88.82	15.68	6.91	111.41	226.60	115.19	111.62	0.21	67.46	-43.95
Doubling	62.89	9.11	6.91	78.91	226.60	147.69	111.62	32.71	67.46	-11.45
Intermediate	13.84	0.99	6.91	21.74	226.60	204.86	111.62	89.88	67.46	45.72
Status Quo	10.46	0.20	6.21	16.88	226.60	209.72	111.62	94.74	67.46	50.58
Pessimistic										

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 included²⁷. 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

²⁷ Benin, Burkina Faso, Burundi, Central African Republic, Chad, Comoros, Congo Democratic Republic, Cote d'Ivoire, Eritrea, Ethiopia, Gambia, Ghana, Guinea-Bissau, Guinea-Conakry, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Tanzania United Republic, Togo, Uganda, Zambia, and Zimbabwe.

- 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

	Maximum		Medium		Minimum	
	Estimate	%countries reaching target	Estimate	% countries reaching target	Estimate	% countries reaching target
Additional Deaths Averted in 2015²⁸						
Under five deaths (including infant and neonatal)	3,602,486		3,266,864		2,702,083	
Newborn deaths (included above in U5 deaths)	850,855		756,519		620,959	
Maternal deaths	219,254		193,205		150,804	
Malaria deaths in adults	70,483		60,395		53,094	
HIV/AIDS deaths in adults	172,587		163,413		104,329	
Tuberculosis deaths	222,789		206,456		147,086	
Total number of deaths averted	4,287,599		3,890,333		3,157,396	
Decrease in # births	9,236,760		6,850,173		5,051,069	
Total # stunting prevented (12-23 Months)	5,933,152		5,073,945		3,895,601	
% progress towards MDG4 and 5 from 1990/95 baselines						
MDG4: U5MR reduction from 1990 by two-thirds	79%	88%	73%	79%	63%	39%
MMR reduction from 1990/1995 baseline	74%	45%	66%	29%	53%	9%
Countries reaching 70% MMR reduction		61%		36%		24%
1 in Lifetime Risk of Dying reduction *	82%	91%	74%	62%	62%	3%
% progress towards MDG1 malnutrition goal since 2005-8 baseline						
Anemia*	69%	100%	59%	97%	46%	18%
Reduction of Low Birth weight*	49%	36%	43%	0%	34%	0%
Estimated reduction in stunting children 12-23 months	27%	0%	19%	0%	11%	0%
% progress towards MDG4 child survival goal since 2005-8 baseline						
Average % reduction in U5MR*	75%	88%	67%	79%	55%	39%
IMR reduction *	72%		64%		52%	
NNMR reduction *	65%		57%		46%	
% progress towards MDG5 reproductive health goal since 2005-8 baseline						
Average % reduction in MMR *	69%	45%	59%	29%	45%	9%
% of total demand for Family Planning Met*	103%	100%	100%	100%	83%	67%
% progress towards MDG6 communicable disease goal since 2005-8 baseline (3)						
Reduction of Malaria Mortality in adults	90%	100%	82%	100%	72%	100%
Reduction in Malaria Incidence*	84%	100%	72%	100%	53%	81%
Reduction in AIDS mortality *	20%	3%	9%	0%	1%	0%
Reduction in HIV/AIDS incidence	64%	73%	54%	53%	19%	0%
Change in HIV/AIDS prevalence	39%	18%	44%	38%	20%	3%
Reduction in TB Mortality *	66%	91%	53%	82%	37%	9%
% progress towards MDG7 WASH goal since 2005-8 baseline						
Quality of drinking water increase*	48%		30%		0%	
Access to improved sanitation*	100%	100%	82%	100%	56%	39%
Access to an improved source of drinking water*	100%	100%	56%	15%	56%	15%

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.

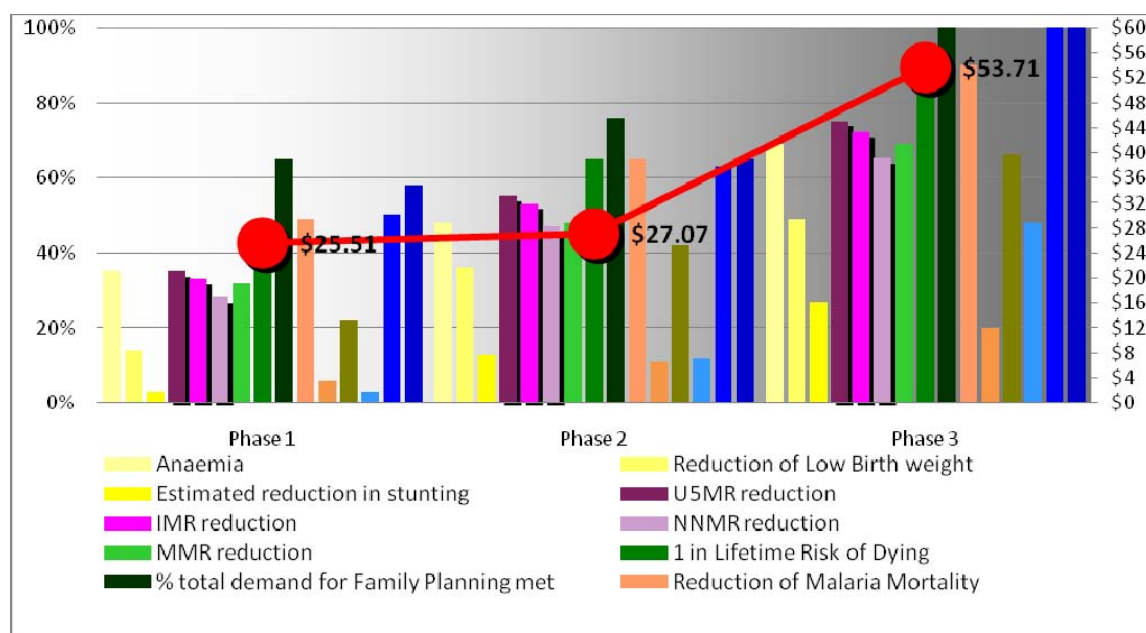
171. During **Phase One** (2009-11), child mortality would be reduced by 40 percent and maternal mortality by 35 percent, low birth weight by 15 percent and stunting by less than 5 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 30 percent and AIDS Mortality by 5 percent. Additional 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



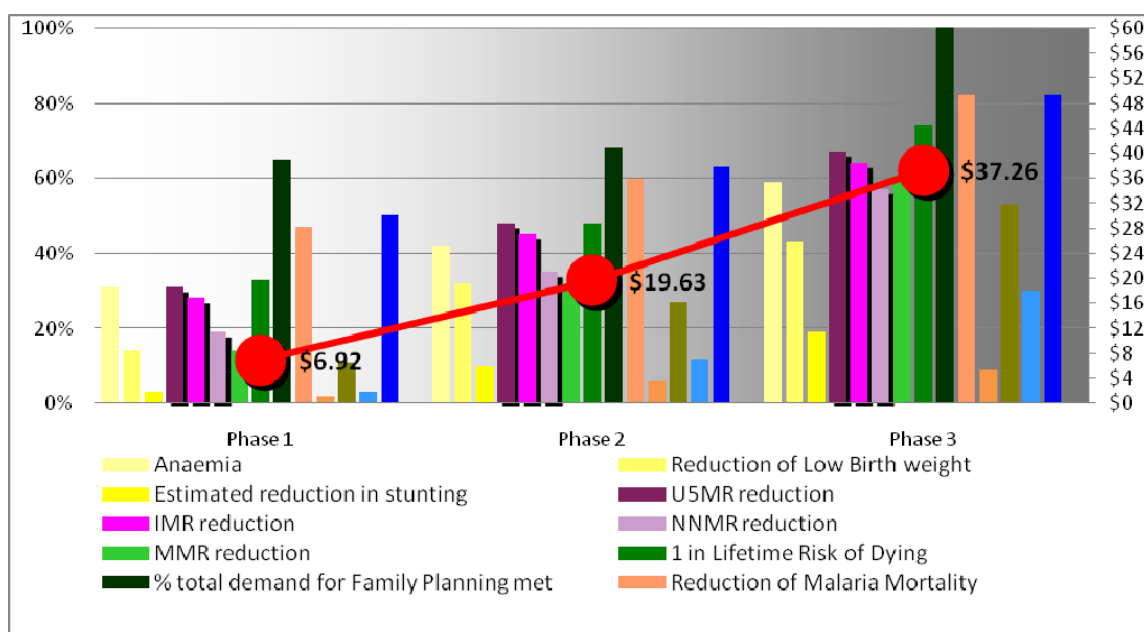
Medium Scenario

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.

Figure E-2: Estimated impacts & Costs Framework (SSA countries), Medium Scenario



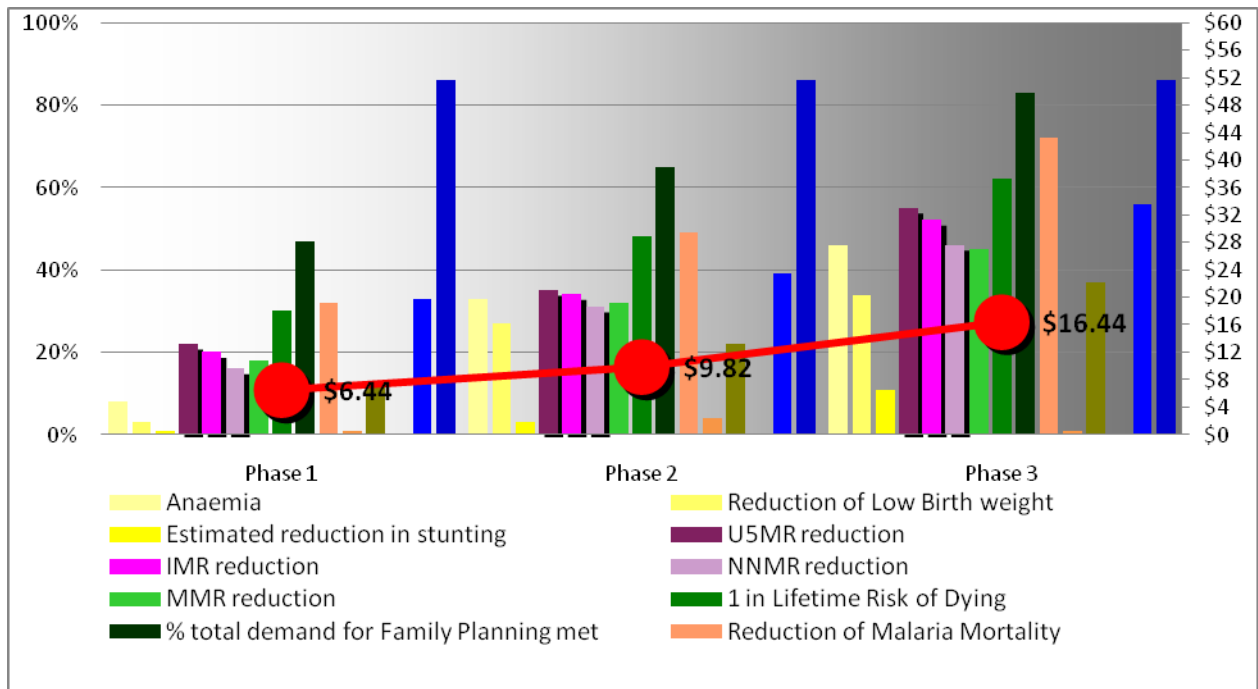
Minimum scenario

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.

Figure E-3: Estimated impacts & Costs Framework (SSA countries), Minimum Scenario



E.2.2 Overall additional costs

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)

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

E.2.3 Cost distribution by service delivery mode

181. 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 of 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

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	0.68	0.57	0.46	1.51	1.09	2.79	1.86	8.96	18.6
1.0 HR, infrastructure and equipment	0.16	0.22	0.24	0.43	0.47	0.73	0.77	3.01	6.2
1.1 Family preventive/WASH services	0.42	0.22	0.09	0.89	0.41	1.78	0.80	4.60	9.5
1.2 Family neonatal care	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.13	0.3
1.3 Infant and child feeding	0.08	0.10	0.10	0.15	0.16	0.22	0.23	1.04	2.1
1.4 Community illness management	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.18	0.4
2. Population oriented schedulable services	0.26	0.44	0.65	0.78	1.13	1.65	2.33	7.25	15.0
2.0 HR, infrastructure and equipment	0.17	0.29	0.42	0.41	0.58	0.68	0.92	3.47	7.2
2.1 Preventive care for adolescents & adults	0.03	0.04	0.05	0.09	0.13	0.17	0.20	0.71	1.5
2.2 Preventive pregnancy care	0.02	0.03	0.06	0.13	0.21	0.21	0.25	0.91	1.9
2.3 HIV/AIDS prevention and care	0.01	0.02	0.03	0.04	0.07	0.10	0.13	0.39	0.8
2.4 Preventive infant & child care	0.04	0.07	0.10	0.11	0.14	0.50	0.82	1.77	3.7
3. Individual oriented clinical services	0.85	1.80	3.31	3.06	4.58	5.42	7.64	26.66	55.2
3.0 HR, infrastructure and equipment	0.41	0.93	1.71	1.44	2.19	3.19	5.47	15.33	31.7
3.1 Maternal and neonatal care at primary clinical level	0.01	0.02	0.03	0.06	0.09	0.16	0.22	0.59	1.2
3.2 Management of illnesses at primary clinical level	0.36	0.65	1.13	1.18	1.60	1.57	1.56	8.06	16.7
3.3 Clinical first referral care	0.05	0.15	0.32	0.26	0.53	0.31	0.15	1.76	3.7
3.4 Clinical second referral care	0.02	0.05	0.12	0.12	0.16	0.19	0.25	0.92	1.9
District, provincial and national governance and management	0.21	0.29	0.37	0.66	0.87	1.41	1.60	5.42	11.2
Total	2.00	3.10	4.79	6.01	7.67	11.27	13.44	48.29	100.0

Table E-17 Estimated additional cost by service packages and delivery level for SSA countries (in billion US\$), Medium Scenario

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	0.08	1.37	1.22	2.34	1.92	4.01	3.09	14.03	15.7
1.0 HR, infrastructure and equipment	0.02	0.66	0.73	0.94	1.03	1.39	1.53	6.31	7.1
1.1 Family preventive/WASH services	0.05	0.40	0.17	1.04	0.50	2.13	1.01	5.28	5.9
1.2 Family neonatal care	0.00	0.02	0.02	0.03	0.03	0.03	0.03	0.16	0.2
1.3 Infant and child feeding	0.01	0.16	0.16	0.19	0.20	0.28	0.30	1.30	1.5
1.4 Community illness management	0.00	0.13	0.14	0.15	0.16	0.19	0.22	0.98	1.1
2. Population oriented schedulable services	0.06	0.85	1.27	1.41	2.03	2.45	3.08	11.16	12.5
2.0 HR, infrastructure and equipment	0.05	0.46	0.68	0.46	0.59	0.75	1.02	4.01	4.5
2.1 Preventive care for adolescents & adults	0.00	0.07	0.10	0.11	0.13	0.21	0.25	0.88	1.0
2.2 Preventive pregnancy care	0.00	0.18	0.29	0.32	0.44	0.53	0.67	2.44	2.7
2.3 HIV/AIDS prevention and care	0.00	0.03	0.05	0.07	0.11	0.14	0.20	0.59	0.7
2.4 Preventive infant & child care	0.01	0.11	0.16	0.45	0.75	0.82	0.95	3.24	3.6
3. Individual oriented clinical services	0.02	0.72	1.32	4.41	9.29	10.47	19.13	45.35	50.9
3.0 HR, infrastructure and equipment	0.00	0.18	0.36	3.21	7.19	8.29	16.49	35.72	40.1
3.1 Maternal and neonatal care at primary clinical level	0.00	0.01	0.01	0.06	0.11	0.20	0.27	0.67	0.8
3.2 Management of illnesses at primary clinical level	0.01	0.39	0.66	0.81	1.21	1.22	1.25	5.54	6.2
3.3 Clinical first referral care	0.00	0.13	0.28	0.25	0.55	0.45	0.54	2.21	2.5
3.4 Clinical second referral care	0.00	0.01	0.01	0.08	0.21	0.31	0.58	1.21	1.4
District, provincial and national governance and management	0.08	1.14	1.34	1.80	2.03	4.46	4.85	15.70	17.6
Total	3.19	4.07	5.15	9.96	15.27	21.40	30.15	89.19	100.0

182. 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

183. 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.

184. 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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	1.11	1.50	2.25	3.41	4.03	5.89	5.43	23.62
Child health	0.10	0.17	0.23	0.34	0.49	0.54	0.58	2.44
Immunization	0.03	0.05	0.07	0.09	0.11	0.45	0.75	1.55
Water, sanitation and hygiene	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.03
Nutrition	0.07	0.08	0.09	0.17	0.22	0.26	0.29	1.18
Maternal health	0.05	0.11	0.20	0.25	0.36	0.48	0.60	2.04
Family planning	0.06	0.12	0.21	0.13	0.19	0.24	0.33	1.28
HIV/AIDS	0.22	0.37	0.57	0.84	1.42	1.35	1.27	6.05
TB	0.02	0.04	0.08	0.09	0.12	0.16	0.22	0.73
Malaria	0.57	0.56	0.79	1.50	1.11	2.39	1.39	8.32
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	0.89	1.60	2.55	2.60	3.64	5.38	8.00	24.67
Human resources	0.31	0.71	1.32	1.13	1.68	2.70	4.61	12.46
<i>Pre-service training</i>	0.20	0.39	0.65	0.26	0.47	1.29	2.86	6.12
<i>Salary</i>	0.11	0.32	0.67	0.87	1.21	1.41	1.76	6.34
<i>Incentives</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Infrastructure, equipment and transport	0.33	0.53	0.79	0.79	1.11	1.36	1.87	6.79
<i>Infrastructure</i>	0.20	0.35	0.55	0.40	0.62	0.61	0.94	3.68
<i>Equipment</i>	0.07	0.12	0.17	0.23	0.33	0.39	0.57	1.89
<i>Transport</i>	0.06	0.06	0.07	0.16	0.16	0.36	0.36	1.22
Logistics	0.10	0.10	0.10	0.12	0.13	0.34	0.34	1.21
<i>Buffer stocks</i>	0.07	0.07	0.07	0.04	0.04	0.16	0.16	0.62
<i>Warehouse, equipment and vehicle</i>	0.03	0.03	0.03	0.08	0.08	0.18	0.18	0.60
HMIS	0.02	0.04	0.08	0.11	0.16	0.21	0.28	0.89
Governance, accreditation and regulation	0.14	0.22	0.27	0.45	0.56	0.77	0.90	3.32
Health financing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.00	3.10	4.79	6.01	7.67	11.27	13.44	48.29

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.

186. 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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	1.58	1.88	2.41	4.08	5.08	7.41	7.40	29.84
Child health	0.13	0.21	0.27	0.36	0.50	0.59	0.67	2.72
Immunization	0.04	0.08	0.12	0.43	0.71	0.77	0.89	3.03
Water, sanitation and hygiene	0.02	0.03	0.03	0.08	0.09	0.23	0.25	0.73
Nutrition	0.14	0.19	0.23	0.21	0.24	0.32	0.37	1.71
Maternal health	0.08	0.17	0.27	0.41	0.64	0.87	1.18	3.62
Family planning	0.08	0.15	0.25	0.16	0.22	0.30	0.44	1.60
HIV/AIDS	0.23	0.41	0.63	0.94	1.53	1.65	1.92	7.31
TB	0.02	0.03	0.05	0.09	0.15	0.22	0.36	0.92
Malaria	0.85	0.61	0.55	1.41	1.00	2.45	1.33	8.20
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	1.60	2.19	2.74	5.88	10.19	13.99	22.75	59.35
Human resources	0.32	0.59	0.87	1.57	2.89	4.57	7.96	18.78
Pre-service training	0.10	0.22	0.39	0.61	1.15	2.36	5.11	9.95
Salary	0.22	0.37	0.48	0.96	1.74	2.21	2.85	8.83
Incentives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Infrastructure, equipment and transport	0.41	0.51	0.62	2.65	5.42	5.55	10.52	25.66
Infrastructure	0.22	0.29	0.36	1.91	4.01	3.55	6.95	17.29
Equipment	0.10	0.13	0.15	0.61	1.26	1.60	3.09	6.94
Transport	0.08	0.09	0.11	0.13	0.14	0.40	0.48	1.43
Logistics	0.42	0.44	0.46	0.57	0.60	1.75	1.79	6.04
Buffer stocks	0.06	0.06	0.06	0.06	0.06	0.19	0.19	0.70
Warehouse, equipment and vehicle	0.36	0.38	0.40	0.51	0.54	1.56	1.60	5.34
HMIS	0.02	0.04	0.08	0.12	0.20	0.29	0.44	1.18
Governance, accreditation and regulation	0.29	0.47	0.57	0.74	0.86	1.16	1.36	5.45
Health financing	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
Insurance	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
Conditional cash transfer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.19	4.07	5.15	9.96	15.27	21.40	30.15	89.19

187. 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

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	1.29	1.49	1.90	2.00	2.07	4.60	5.69	19.05
Infrastructure	0.17	0.28	0.42	0.23	0.39	0.35	0.61	2.46
Equipment	0.07	0.10	0.14	0.19	0.28	0.33	0.50	1.62
Transport	0.06	0.05	0.06	0.15	0.14	0.33	0.33	1.13
Pre-service training	0.20	0.39	0.65	0.26	0.47	1.29	2.86	6.12
Buffer Stocks	0.37	0.43	0.54	0.23	0.34	0.40	0.47	2.78
Warehouse, equipment, and vehicles	0.03	0.03	0.03	0.08	0.08	0.18	0.18	0.60
ITNs	0.40	0.20	0.07	0.85	0.37	1.72	0.74	4.35
Recurrent	0.71	1.61	2.89	4.02	5.60	6.66	7.75	29.24
Contraceptives	0.03	0.04	0.05	0.09	0.11	0.15	0.18	0.66
Vaccines	0.02	0.03	0.05	0.06	0.07	0.32	0.57	1.13
Drugs	0.25	0.65	1.30	1.64	2.29	2.35	2.34	10.82
<i>Malaria</i>	0.05	0.22	0.54	0.58	0.67	0.65	0.61	3.31
<i>HIV/AIDS</i>	0.08	0.19	0.36	0.54	0.95	0.91	0.78	3.81
<i>TB</i>	0.01	0.03	0.07	0.07	0.10	0.13	0.18	0.60
<i>Essential drugs</i>	0.11	0.21	0.34	0.45	0.58	0.66	0.77	3.11
Human Resources	0.14	0.37	0.73	1.06	1.58	1.86	2.28	8.02
<i>Salary</i>	0.11	0.32	0.67	0.87	1.21	1.41	1.76	6.34
<i>Incentives</i>	0.00	0.01	0.01	0.10	0.25	0.27	0.31	0.95
<i>In-service training</i>	0.02	0.04	0.06	0.09	0.12	0.17	0.22	0.72
Health financing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand promotion	0.05	0.08	0.12	0.17	0.21	0.26	0.28	1.18
HMIS	0.02	0.04	0.08	0.11	0.16	0.21	0.28	0.89
Governance, accreditation and regulation	0.13	0.22	0.28	0.47	0.61	0.81	0.95	3.47
Administration	0.08	0.17	0.28	0.41	0.56	0.71	0.86	3.07
Total	2.00	3.10	4.79	6.01	7.67	11.27	13.44	48.29

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

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	1.22	1.54	2.24	3.29	3.69	5.78	5.32	23.08
Buffer Stocks	0.37	0.43	0.54	0.23	0.34	0.40	0.47	2.78
Contraceptives	0.03	0.04	0.05	0.09	0.11	0.15	0.18	0.66
Vaccines	0.02	0.03	0.05	0.06	0.07	0.32	0.57	1.13
Drugs	0.25	0.65	1.30	1.64	2.29	2.35	2.34	10.82
<i>Malaria</i>	0.05	0.22	0.54	0.58	0.67	0.65	0.61	3.31
<i>HIV/AIDS</i>	0.08	0.19	0.36	0.54	0.95	0.91	0.78	3.81
<i>TB</i>	0.01	0.03	0.07	0.07	0.10	0.13	0.18	0.60
<i>Essential drugs</i>	0.11	0.21	0.34	0.45	0.58	0.66	0.77	3.11
ITNs	0.40	0.20	0.07	0.85	0.37	1.72	0.74	4.35
Equipment	0.07	0.10	0.14	0.19	0.28	0.33	0.50	1.62
Transport	0.06	0.05	0.06	0.15	0.14	0.33	0.33	1.13
Warehouse, equipment and vehicle	0.03	0.03	0.03	0.08	0.08	0.18	0.18	0.60
Non-traded	0.78	1.56	2.56	2.72	3.99	5.48	8.12	25.21
Infrastructure	0.17	0.28	0.42	0.23	0.39	0.35	0.61	2.46
Human Resources	0.34	0.76	1.38	1.32	2.05	3.15	5.14	14.14
<i>Salary</i>	0.11	0.32	0.67	0.87	1.21	1.41	1.76	6.34
<i>Incentives</i>	0.00	0.01	0.01	0.10	0.25	0.27	0.31	0.95
<i>In-service training</i>	0.02	0.04	0.06	0.09	0.12	0.17	0.22	0.72
<i>Pre-service training</i>	0.20	0.39	0.65	0.26	0.47	1.29	2.86	6.12
Health financing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand promotion	0.05	0.08	0.12	0.17	0.21	0.26	0.28	1.18
HMIS	0.02	0.04	0.08	0.11	0.16	0.21	0.28	0.89
Governance, accreditation and regulation	0.13	0.22	0.28	0.47	0.61	0.81	0.95	3.47
Administration	0.08	0.17	0.28	0.41	0.56	0.71	0.86	3.07
Total	2.00	3.10	4.79	6.01	7.67	11.27	13.44	48.29

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

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	1.88	1.80	1.93	4.78	7.32	10.98	17.07	45.75
Infrastructure	0.21	0.26	0.31	1.71	3.49	2.73	5.49	14.20
Equipment	0.10	0.11	0.13	0.55	1.12	1.41	2.81	6.23
Transport	0.08	0.08	0.09	0.11	0.12	0.38	0.45	1.30
Pre-service training	0.10	0.22	0.39	0.61	1.15	2.36	5.11	9.95
Buffer Stocks	0.34	0.39	0.49	0.34	0.50	0.59	0.77	3.42
Warehouse, equipment, and vehicles	0.36	0.38	0.40	0.51	0.54	1.56	1.60	5.34
ITNs	0.70	0.35	0.12	0.95	0.41	1.95	0.84	5.30
Recurrent	1.31	2.27	3.22	5.18	7.95	10.42	13.09	43.44
Contraceptives	0.05	0.07	0.10	0.11	0.11	0.18	0.23	0.85
Vaccines	0.03	0.05	0.08	0.33	0.58	0.64	0.70	2.40
Drugs	0.34	0.71	1.19	1.64	2.45	2.82	3.32	12.48
<i>Malaria</i>	0.08	0.17	0.33	0.37	0.50	0.47	0.44	2.35
<i>HIV/AIDS</i>	0.07	0.17	0.32	0.51	0.93	0.98	1.06	4.03
<i>TB</i>	0.01	0.02	0.03	0.06	0.11	0.18	0.30	0.72
<i>Essential drugs</i>	0.19	0.35	0.51	0.69	0.92	1.20	1.52	5.38
Human Resources	0.27	0.46	0.61	1.21	2.17	2.76	3.53	11.02
<i>Salary</i>	0.22	0.37	0.48	0.96	1.74	2.21	2.85	8.83
<i>Incentives</i>	0.01	0.01	0.03	0.12	0.26	0.30	0.37	1.10
<i>In-service training</i>	0.05	0.08	0.10	0.14	0.17	0.25	0.31	1.09
Health financing	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
<i>Insurance</i>	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand promotion	0.07	0.11	0.13	0.19	0.24	0.31	0.35	1.39
HMIS	0.02	0.04	0.08	0.12	0.20	0.29	0.44	1.18
Governance, accreditation and regulation	0.26	0.43	0.55	0.72	0.85	1.12	1.33	5.26
Administration	0.13	0.24	0.35	0.64	1.13	1.63	2.51	6.64
Total	3.19	4.07	5.15	9.96	15.27	21.40	30.15	89.19

Table E-23 Estimated additional resource requirement by traded versus non-traded classification for SSA countries (in billion US\$), Medium scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	1.98	2.16	2.60	4.54	5.82	9.52	10.71	37.33
Buffer Stocks	0.34	0.39	0.49	0.34	0.50	0.59	0.77	3.42
Contraceptives	0.05	0.07	0.10	0.11	0.11	0.18	0.23	0.85
Vaccines	0.03	0.05	0.08	0.33	0.58	0.64	0.70	2.40
Drugs	0.34	0.71	1.19	1.64	2.45	2.82	3.32	12.48
<i>Malaria</i>	0.08	0.17	0.33	0.37	0.50	0.47	0.44	2.35
<i>HIV/AIDS</i>	0.07	0.17	0.32	0.51	0.93	0.98	1.06	4.03
<i>TB</i>	0.01	0.02	0.03	0.06	0.11	0.18	0.30	0.72
<i>Essential drugs</i>	0.19	0.35	0.51	0.69	0.92	1.20	1.52	5.38
ITNs	0.70	0.35	0.12	0.95	0.41	1.95	0.84	5.30
Equipment	0.10	0.11	0.13	0.55	1.12	1.41	2.81	6.23
Transport	0.08	0.08	0.09	0.11	0.12	0.38	0.45	1.30
Warehouse, equipment and vehicle	0.36	0.38	0.40	0.51	0.54	1.56	1.60	5.34
Non-traded	1.21	1.92	2.55	5.42	9.45	11.88	19.44	51.86
Infrastructure	0.21	0.26	0.31	1.71	3.49	2.73	5.49	14.20
Human Resources	0.38	0.69	1.00	1.83	3.32	5.12	8.64	20.97
<i>Salary</i>	0.22	0.37	0.48	0.96	1.74	2.21	2.85	8.83
<i>Incentives</i>	0.01	0.01	0.03	0.12	0.26	0.30	0.37	1.10
<i>In-service training</i>	0.05	0.08	0.10	0.14	0.17	0.25	0.31	1.09
<i>Pre-service training</i>	0.10	0.22	0.39	0.61	1.15	2.36	5.11	9.95
Health financing	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
<i>Insurance</i>	0.14	0.14	0.14	0.22	0.22	0.67	0.67	2.23
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demand promotion	0.07	0.11	0.13	0.19	0.24	0.31	0.35	1.39
HMIS	0.02	0.04	0.08	0.12	0.20	0.29	0.44	1.18
Governance, accreditation and regulation	0.26	0.43	0.55	0.72	0.85	1.12	1.33	5.26
Administration	0.13	0.24	0.35	0.64	1.13	1.63	2.51	6.64
Total	3.19	4.07	5.15	9.96	15.27	21.40	30.15	89.19

192. 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

	Minimum Scenario		Medium Scenario		Maximum Scenario	
	Total	%	Total	%	Total	%
Health Facilities	31,188	100.0	38,778	100.0	44,331	100.0
Health Post	21,196	68.0	26,496	68.3	29,960	67.6
<i>New</i>	12,187	39.1	15,318	39.5	17,222	38.8
<i>Rehab</i>	9,010	28.9	11,179	28.8	12,738	28.7
Health Centre	7,919	25.4	9,842	25.4	11,195	25.3
<i>New</i>	4,980	16.0	6,257	16.1	7,042	15.9
<i>Rehab</i>	2,938	9.4	3,585	9.2	4,153	9.4
District Hospital	1,866	6.0	1,928	5.0	2,603	5.9
<i>New</i>	1,116	3.6	1,173	3.0	1,556	3.5
<i>Rehab</i>	750	2.4	754	1.9	1,046	2.4
Regional Hospital	208	0.7	512	1.3	573	1.3
<i>New</i>	0	0.0	251	0.6	279	0.6
<i>Rehab</i>	208	0.7	261	0.7	294	0.7
Health Workers	585,737	100.0	1,675,798	100.0	1,906,774	100.0
Community based health & nutrition promoters	0	0.0	918,460	54.8	1,068,768	56.1
Health extension workers	97,474	16.6	122,414	7.3	137,665	7.2
Junior, assistant, assistant midwife nurse (1 year training)	88,111	15.0	119,363	7.1	124,546	6.5
Technicians (lab, x-ray, pharmacy)	77,530	13.2	96,361	5.8	109,630	5.7
Registered nurse/midwives (at least 3 yr training)	125,954	21.5	159,725	9.5	178,554	9.4
Health officer	8,427	1.4	12,377	0.7	11,921	0.6
Physician/MD	13,902	2.4	20,483	1.2	19,914	1.0
Specialist	3,099	0.5	3,973	0.2	4,383	0.2
Administrative staff	148,615	25.4	188,571	11.3	210,466	11.0
District and provincial managers	22,626	3.9	34,069	2.0	40,927	2.1

E.2.7 Fiscal space and funding gaps

195. 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 E-25 Incremental fiscal space for SSA countries (billion US\$) (2009-2015)

Available incremental funding (SSA countries) billion constant US\$	2009	2010	2011	2012	2013	2014	2015	Total
Scenario 1: Optimistic	1.24	4.01	6.49	9.20	12.23	15.54	17.42	66.14
... government	1.10	3.33	5.07	7.00	9.16	11.58	12.75	50.00
... external	0.03	0.45	0.97	1.62	2.36	3.12	3.71	12.26
... private	0.11	0.24	0.45	0.58	0.71	0.83	0.96	3.88
Scenario 2: Gleneagles doubling and Abuja 15% commitment	1.20	3.93	6.36	9.02	11.99	15.22	17.04	64.76
... government	1.10	3.33	5.07	7.00	9.16	11.58	12.75	50.00
... external	-0.01	0.36	0.83	1.44	2.12	2.81	3.33	10.88
... private	0.11	0.24	0.45	0.58	0.71	0.83	0.96	3.88
Scenario 3: Intermediate - ODA 50% and government 12%	0.50	2.43	4.30	6.26	8.44	10.83	12.03	44.78
... government	0.54	2.12	3.43	4.85	6.44	8.21	8.94	34.54
... external	-0.16	0.07	0.41	0.83	1.29	1.79	2.12	6.37
... private	0.11	0.24	0.45	0.58	0.71	0.83	0.96	3.88
Scenario 4: Status Quo	-0.34	0.13	0.83	1.48	2.19	2.93	3.17	10.38
... government	-0.13	0.16	0.48	0.82	1.18	1.58	1.61	5.71
... external	-0.32	-0.26	-0.11	0.08	0.29	0.52	0.60	0.80
... private	0.11	0.24	0.45	0.58	0.71	0.83	0.96	3.88
Scenario 5: Pessimistic	-0.79	-0.79	0.52	1.12	1.79	2.47	2.68	7.01
... government	-0.27	-0.45	0.22	0.51	0.83	1.17	1.17	3.17
... external	-0.58	-0.53	-0.10	0.09	0.30	0.52	0.61	0.31
... private	0.07	0.19	0.40	0.53	0.66	0.78	0.90	3.53

196. 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.

197. 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.

198. 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\$)

	Sources of additional funding				MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario	
SSA	Government	ODA	Private	Total	Cost	Gap	Cost	Gap	Cost	Gap
Optimistic	50.00	12.26	3.88	66.14	172.47	106.33	89.19	23.05	48.29	-17.85
Doubling	50.00	10.88	3.88	64.76	172.47	107.71	89.19	24.43	48.29	-16.47
Intermediate	34.54	6.37	3.88	44.78	172.47	127.69	89.19	44.41	48.29	3.51
Status Quo	5.71	0.80	3.88	10.38	172.47	162.09	89.19	78.81	48.29	37.91
Pessimistic	3.17	0.26	3.53	6.96	172.47	165.51	89.19	82.23	48.29	41.33

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

199. 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

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

201. 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.

202. 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)

	Maximum		Medium		Minimum	
	Estimate	% countries reaching target	Estimate	% countries reaching target	Estimate	% countries reaching target
Additional Deaths Averted in 2015³⁰						
Under five deaths (including infant and neonatal)	1,175,529		1,021,655		820,572	
Newborn deaths (included above in U5 deaths)	567,310		504,400		388,904	
Maternal deaths	78,020		66,178		49,275	
Malaria deaths in adults	4,955		3,355		2,820	
HIV/AIDS deaths in adults	18,589		13,404		12,026	
Tuberculosis deaths	60,402		28,671		22,079	
Total number of deaths averted	1,337,495		1,133,263		906,772	
Decrease in # births	7,089,783		5,024,319		2,080,924	
Total # stunting prevented (WHO 12-59 Months; MBB:12-23 Months)~	4,005,739		3,258,565		2,295,018	
% 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 (3)						
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.

204. 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.

205. 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.

206. 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.

207. 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.

208. 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

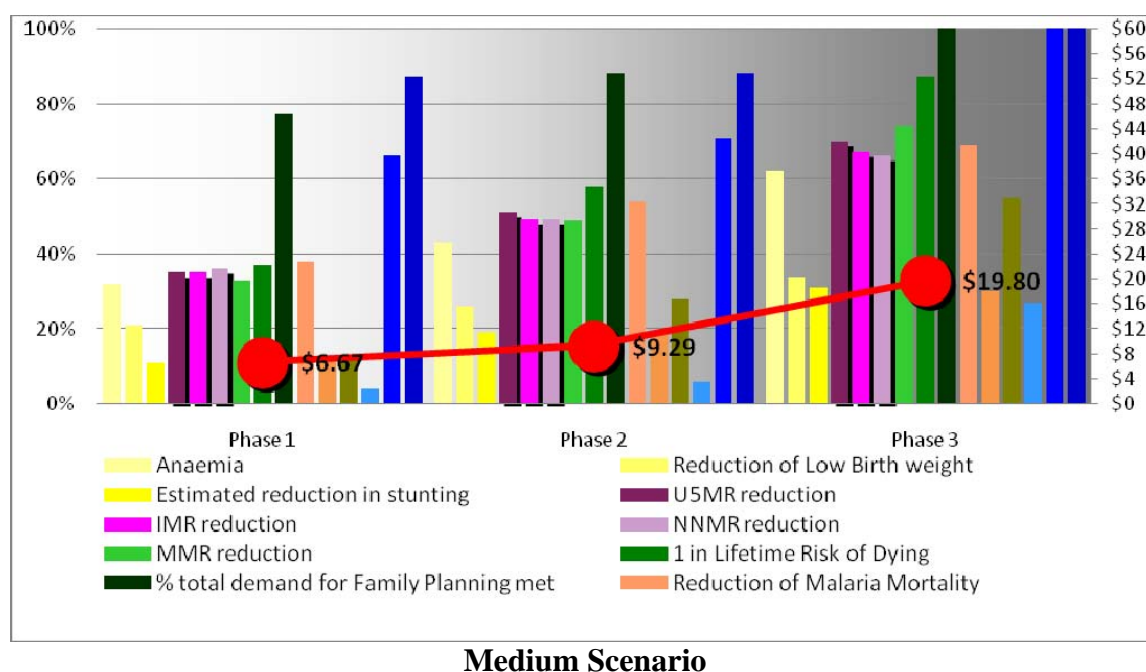
209. During **Phase One** (2009-11), child mortality would be reduced by 30 percent and maternal mortality by 40 percent, low birth weight by 30 percent and stunting by 30 percent. Malaria mortality would be reduced by 55 percent, TB mortality by 15 percent

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



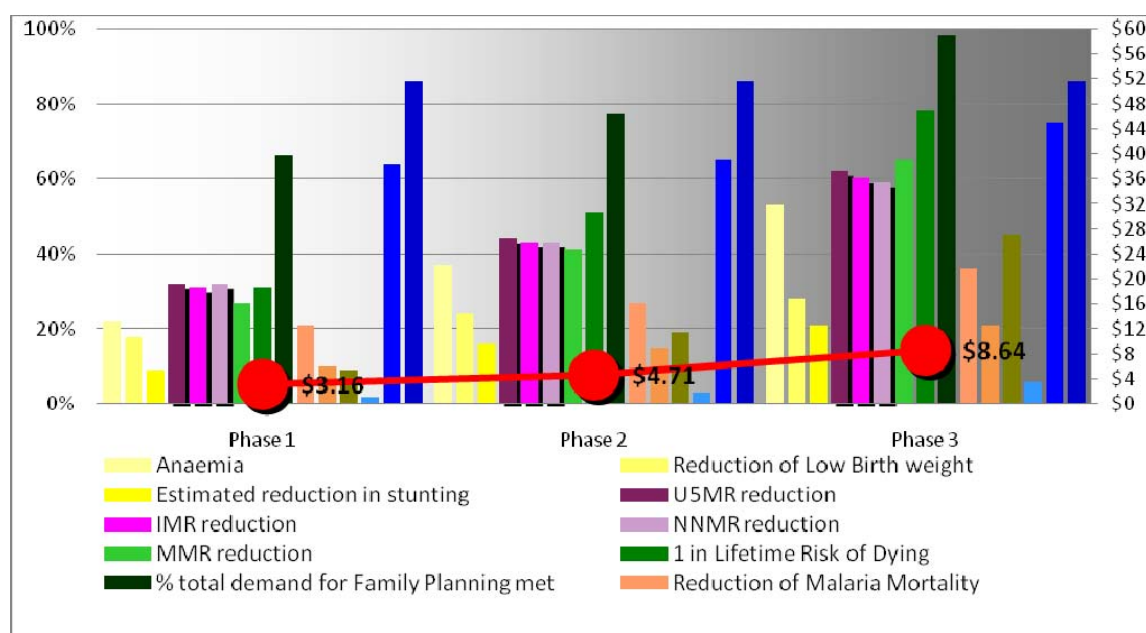
212. During **Phase One** (2009-11), child mortality would be reduced by 30 percent and maternal mortality by 35 percent, low birth weight by 30 and stunting by 15 percent. Malaria mortality would be reduced by 50 percent, TB mortality by 10 percent and AIDS mortality by 10 percent. Additional annual 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



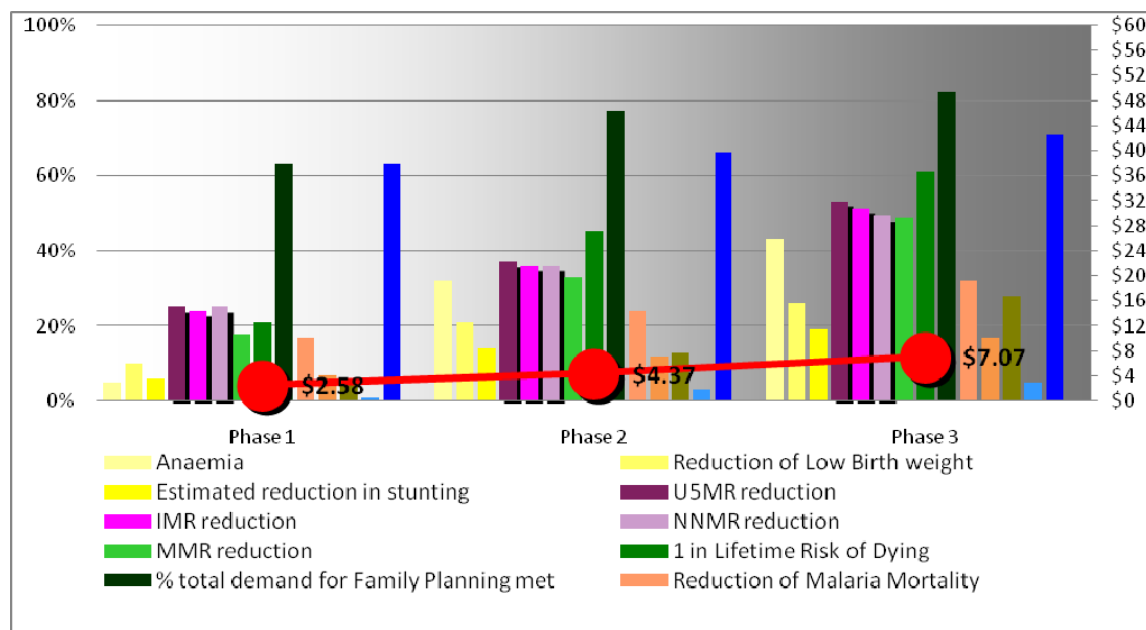
Minimum Scenario

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.

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.

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



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.

Table E-28 Additional costs by year for non Sub-Saharan Africa (total and per capita)

	2009	2010	2011	2012	2013	2014	2015	Total
Total (in US\$ billions)								
MBB Maximum Scenario	\$2.77	\$3.45	\$4.58	\$5.72	\$6.60	\$16.94	\$14.07	\$54.13
MBB Medium Scenario	\$1.11	\$1.58	\$2.17	\$2.68	\$3.35	\$5.22	\$6.33	\$22.43
MBB Minimum Scenario	\$0.95	\$1.32	\$1.77	\$2.46	\$3.11	\$4.38	\$5.18	\$19.17
Per capita (in US\$)								
MBB Maximum Scenario	\$4.04	\$5.02	\$6.67	\$8.05	\$9.29	\$23.11	\$19.20	\$76.64
MBB Medium Scenario	\$1.62	\$2.31	\$3.16	\$3.77	\$4.71	\$7.12	\$8.64	\$31.76
MBB Minimum Scenario	\$1.39	\$1.92	\$2.58	\$3.46	\$4.37	\$5.98	\$7.07	\$27.14

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 of 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

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	0.45	0.47	0.44	0.71	0.63	1.06	0.86	4.61	24.1
1.0 HR, infrastructure and equipment	0.04	0.06	0.07	0.11	0.12	0.18	0.19	0.78	4.1
1.1 Family preventive/WASH services	0.25	0.21	0.17	0.37	0.25	0.59	0.36	2.20	11.5
1.2 Family neonatal care	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.08	0.4
1.3 Infant and child feeding	0.14	0.17	0.17	0.20	0.21	0.24	0.25	1.39	7.2
1.4 Community illness management	0.01	0.02	0.02	0.03	0.03	0.03	0.03	0.18	0.9
2. Population oriented schedulable services	0.17	0.29	0.43	0.60	0.88	1.28	1.74	5.38	28.1
2.0 HR, infrastructure and equipment	0.09	0.16	0.24	0.22	0.31	0.36	0.47	1.85	9.6
2.1 Preventive care for adolescents & adults	0.02	0.02	0.03	0.06	0.08	0.09	0.10	0.42	2.2
2.2 Preventive pregnancy care	0.04	0.07	0.11	0.13	0.19	0.20	0.24	0.98	5.1
2.3 HIV/AIDS prevention and care	0.00	0.01	0.01	0.02	0.02	0.02	0.03	0.11	0.6
2.4 Preventive infant & child care	0.02	0.03	0.04	0.16	0.28	0.60	0.89	2.02	10.5
3. Individual oriented clinical services	0.13	0.31	0.60	0.66	1.01	0.94	1.36	5.02	26.2
3.0 HR, infrastructure and equipment	0.06	0.14	0.27	0.33	0.56	0.40	0.61	2.37	12.4
3.1 Maternal and neonatal care at primary clinical level	0.01	0.02	0.03	0.05	0.08	0.11	0.14	0.43	2.2
3.2 Management of illnesses at primary clinical level	0.02	0.03	0.05	0.05	0.04	0.05	0.07	0.32	1.7
3.3 Clinical first referral care	0.02	0.05	0.12	0.09	0.14	0.15	0.23	0.79	4.1
3.4 Clinical second referral care	0.03	0.07	0.13	0.15	0.20	0.22	0.31	1.11	5.8
District, provincial and national governance and management	0.20	0.25	0.30	0.50	0.59	1.10	1.22	4.16	21.7
Total	0.95	1.32	1.77	2.46	3.11	4.38	5.18	19.17	100.0

Table E-30 Estimated additional cost by service packages and delivery level for non SSA countries (in billion US\$), Medium Scenario

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	0.47	0.49	0.46	0.72	0.64	1.18	0.95	4.91	21.9
1.0 HR, infrastructure and equipment	0.05	0.07	0.07	0.11	0.13	0.20	0.22	0.84	3.8
1.1 Family preventive/WASH services	0.25	0.21	0.17	0.35	0.24	0.66	0.39	2.28	10.1
1.2 Family neonatal care	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.08	0.3
1.3 Infant and child feeding	0.15	0.19	0.20	0.22	0.23	0.27	0.29	1.55	6.9
1.4 Community illness management	0.01	0.02	0.02	0.02	0.03	0.03	0.03	0.16	0.7
2. Population oriented schedulable services	0.18	0.31	0.46	0.66	0.96	1.44	1.95	5.96	26.6
2.0 HR, infrastructure and equipment	0.08	0.15	0.22	0.23	0.33	0.45	0.62	2.09	9.3
2.1 Preventive care for adolescents & adults	0.02	0.03	0.04	0.07	0.08	0.14	0.18	0.57	2.5
2.2 Preventive pregnancy care	0.05	0.09	0.14	0.14	0.18	0.25	0.34	1.19	5.3
2.3 HIV/AIDS prevention and care	0.00	0.01	0.02	0.02	0.02	0.02	0.03	0.12	0.6
2.4 Preventive infant & child care	0.02	0.03	0.04	0.20	0.34	0.57	0.79	1.99	8.9
3. Individual oriented clinical services	0.17	0.39	0.76	0.72	1.08	1.18	1.83	6.13	27.3
3.0 HR, infrastructure and equipment	0.08	0.19	0.35	0.32	0.55	0.53	0.87	2.88	12.8
3.1 Maternal and neonatal care at primary clinical level	0.02	0.03	0.04	0.06	0.09	0.12	0.15	0.51	2.3
3.2 Management of illnesses at primary clinical level	0.02	0.03	0.06	0.05	0.04	0.05	0.08	0.33	1.5
3.3 Clinical first referral care	0.02	0.06	0.13	0.10	0.16	0.19	0.29	0.94	4.2
3.4 Clinical second referral care	0.04	0.09	0.18	0.19	0.24	0.29	0.45	1.47	6.5
District, provincial and national governance and management	0.30	0.39	0.48	0.58	0.67	1.42	1.60	5.44	24.2
Total	1.11	1.58	2.17	2.68	3.35	5.22	6.33	22.43	100.0

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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	0.59	0.76	0.98	1.46	1.74	2.62	3.03	11.19
Child health	0.04	0.06	0.08	0.13	0.15	0.18	0.22	0.87
Immunization	0.01	0.01	0.03	0.16	0.26	0.58	0.86	1.90
Water, sanitation and hygiene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nutrition	0.16	0.19	0.21	0.20	0.23	0.25	0.28	1.51
Maternal health	0.04	0.10	0.18	0.22	0.31	0.37	0.46	1.68
Family planning	0.04	0.06	0.08	0.14	0.17	0.19	0.24	0.92
HIV/AIDS	0.03	0.07	0.12	0.16	0.23	0.30	0.38	1.28
TB	0.01	0.04	0.09	0.08	0.11	0.14	0.19	0.67
Malaria	0.26	0.22	0.19	0.39	0.28	0.62	0.39	2.35
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	0.37	0.56	0.79	0.99	1.37	1.76	2.15	7.98
Human resources	0.05	0.11	0.18	0.34	0.51	0.43	0.57	2.18
<i>Pre-service training</i>	0.00	0.00	0.00	0.10	0.21	0.08	0.15	0.54
<i>Salary</i>	0.05	0.10	0.17	0.22	0.29	0.34	0.40	1.57
<i>Incentives</i>	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.07
Infrastructure, equipment and transport	0.15	0.25	0.38	0.28	0.42	0.48	0.67	2.64
<i>Infrastructure</i>	0.09	0.16	0.25	0.19	0.29	0.26	0.36	1.59
<i>Equipment</i>	0.04	0.07	0.10	0.07	0.11	0.15	0.23	0.77
<i>Transport</i>	0.02	0.02	0.03	0.03	0.03	0.06	0.08	0.28
Logistics	0.13	0.14	0.15	0.25	0.27	0.62	0.64	2.20
<i>Buffer stocks</i>	0.02	0.02	0.02	0.02	0.02	0.08	0.08	0.27
<i>Warehouse, equipment and vehicle</i>	0.11	0.12	0.13	0.23	0.25	0.54	0.56	1.93
HMIS	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.22
Governance, accreditation and regulation	0.03	0.05	0.06	0.10	0.13	0.17	0.21	0.73
Health financing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.95	1.32	1.77	2.46	3.11	4.38	5.18	19.17

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.

224. 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

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	0.65	0.90	1.21	1.65	1.93	3.00	3.50	12.85
Child health	0.04	0.07	0.10	0.13	0.16	0.19	0.23	0.92
Immunization	0.01	0.02	0.03	0.19	0.32	0.54	0.75	1.86
Water, sanitation and hygiene	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nutrition	0.17	0.23	0.25	0.22	0.23	0.30	0.34	1.73
Maternal health	0.05	0.12	0.23	0.26	0.34	0.43	0.56	2.00
Family planning	0.05	0.07	0.10	0.14	0.17	0.27	0.41	1.21
HIV/AIDS	0.05	0.11	0.19	0.23	0.29	0.39	0.50	1.75
TB	0.02	0.06	0.12	0.10	0.14	0.18	0.27	0.90
Malaria	0.25	0.22	0.20	0.38	0.28	0.70	0.44	2.47
Non-MDGs basic services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health systems	0.46	0.68	0.95	1.03	1.41	2.22	2.83	9.58
Human resources	0.07	0.15	0.26	0.30	0.46	0.49	0.68	2.42
<i>Pre-service training</i>	0.02	0.05	0.10	0.07	0.15	0.10	0.19	0.69
<i>Salary</i>	0.05	0.10	0.16	0.22	0.29	0.38	0.47	1.65
<i>Incentives</i>	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.07
Infrastructure, equipment and transport	0.15	0.24	0.35	0.31	0.49	0.66	0.97	3.17
<i>Infrastructure</i>	0.09	0.15	0.22	0.21	0.34	0.37	0.55	1.92
<i>Equipment</i>	0.04	0.06	0.09	0.08	0.12	0.21	0.33	0.92
<i>Transport</i>	0.02	0.03	0.04	0.03	0.03	0.08	0.10	0.33
Logistics	0.19	0.21	0.22	0.25	0.27	0.77	0.80	2.71
<i>Buffer stocks</i>	0.03	0.03	0.03	0.02	0.02	0.09	0.09	0.30
<i>Warehouse, equipment and vehicle</i>	0.17	0.18	0.20	0.23	0.25	0.68	0.71	2.41
HMIS	0.01	0.02	0.03	0.04	0.05	0.07	0.10	0.31
Governance, accreditation and regulation	0.04	0.06	0.09	0.12	0.14	0.21	0.25	0.91
Health financing	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.07
<i>Insurance</i>	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.07
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.11	1.58	2.17	2.68	3.35	5.22	6.33	22.43

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

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	0.52	0.53	0.61	0.84	0.98	1.66	1.76	6.90
Infrastructure	0.08	0.13	0.19	0.12	0.20	0.16	0.23	1.12
Equipment	0.04	0.06	0.09	0.05	0.08	0.12	0.19	0.63
Transport	0.02	0.02	0.03	0.02	0.03	0.06	0.07	0.24
Pre-service training	0.00	0.00	0.00	0.10	0.21	0.08	0.15	0.54
Buffer Stocks	0.13	0.13	0.15	0.10	0.13	0.28	0.37	1.27
Warehouse, equipment, and vehicles	0.11	0.12	0.13	0.23	0.25	0.54	0.56	1.93
ITNs	0.15	0.07	0.02	0.22	0.09	0.42	0.18	1.15
Recurrent	0.43	0.79	1.16	1.62	2.13	2.73	3.42	12.27
Contraceptives	0.04	0.04	0.05	0.12	0.15	0.16	0.18	0.74
Vaccines	0.00	0.00	0.00	0.10	0.20	0.43	0.67	1.40
Drugs	0.25	0.45	0.64	0.71	0.87	0.98	1.15	5.05
<i>Malaria</i>	0.08	0.13	0.16	0.17	0.18	0.19	0.20	1.12
<i>HIV/AIDS</i>	0.00	0.01	0.03	0.04	0.06	0.06	0.08	0.29
<i>TB</i>	0.01	0.04	0.09	0.07	0.11	0.13	0.18	0.63
<i>Essential drugs</i>	0.15	0.26	0.36	0.43	0.53	0.60	0.68	3.01
Human Resources	0.06	0.13	0.21	0.31	0.41	0.48	0.56	2.16
<i>Salary</i>	0.05	0.10	0.17	0.22	0.29	0.34	0.40	1.57
<i>Incentives</i>	0.01	0.02	0.04	0.08	0.10	0.12	0.13	0.49
<i>In-service training</i>	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.10
Health financing	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.01	0.02	0.02	0.03	0.04	0.06	0.06	0.24
HMIS	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.22
Governance, accreditation and regulation	0.03	0.06	0.09	0.14	0.19	0.27	0.34	1.11
Administration	0.04	0.08	0.13	0.18	0.23	0.29	0.34	1.27
Total	0.95	1.32	1.77	2.46	3.11	4.38	5.18	19.17

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

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	0.73	0.89	1.11	1.55	1.79	2.99	3.37	12.43
Buffer Stocks	0.13	0.13	0.15	0.10	0.13	0.28	0.37	1.27
Contraceptives	0.04	0.04	0.05	0.12	0.15	0.16	0.18	0.74
Vaccines	0.00	0.00	0.00	0.10	0.20	0.43	0.67	1.40
Drugs	0.25	0.45	0.64	0.71	0.87	0.98	1.15	5.05
<i>Malaria</i>	0.08	0.13	0.16	0.17	0.18	0.19	0.20	1.12
<i>HIV/AIDS</i>	0.00	0.01	0.03	0.04	0.06	0.06	0.08	0.29
<i>TB</i>	0.01	0.04	0.09	0.07	0.11	0.13	0.18	0.63
<i>Essential drugs</i>	0.15	0.26	0.36	0.43	0.53	0.60	0.68	3.01
ITNs	0.15	0.07	0.02	0.22	0.09	0.42	0.18	1.15
Equipment	0.04	0.06	0.09	0.05	0.08	0.12	0.19	0.63
Transport	0.02	0.02	0.03	0.02	0.03	0.06	0.07	0.24
Warehouse, equipment and vehicle	0.11	0.12	0.13	0.23	0.25	0.54	0.56	1.93
Non-traded	0.23	0.43	0.66	0.91	1.31	1.39	1.81	6.74
Infrastructure	0.08	0.13	0.19	0.12	0.20	0.16	0.23	1.12
Human Resources	0.06	0.13	0.21	0.42	0.62	0.56	0.71	2.71
<i>Salary</i>	0.05	0.10	0.17	0.22	0.29	0.34	0.40	1.57
<i>Incentives</i>	0.01	0.02	0.04	0.08	0.10	0.12	0.13	0.49
<i>In-service training</i>	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.10
<i>Pre-service training</i>	0.00	0.00	0.00	0.10	0.21	0.08	0.15	0.54
Health financing	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
<i>Insurance</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.01	0.04	0.06
Demand promotion	0.01	0.02	0.02	0.03	0.04	0.06	0.06	0.24
HMIS	0.00	0.01	0.02	0.03	0.04	0.05	0.07	0.22
Governance, accreditation and regulation	0.03	0.06	0.09	0.14	0.19	0.27	0.34	1.11
Administration	0.04	0.08	0.13	0.18	0.23	0.29	0.34	1.27
Total	0.95	1.32	1.77	2.46	3.11	4.38	5.18	19.17

229. 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

	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
<i>Malaria</i>	0.08	0.13	0.16	0.17	0.18	0.20	0.22	1.16
<i>HIV/AIDS</i>	0.01	0.02	0.04	0.05	0.06	0.07	0.09	0.34
<i>TB</i>	0.02	0.05	0.12	0.10	0.13	0.17	0.26	0.84
<i>Essential drugs</i>	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
<i>Salary</i>	0.05	0.10	0.16	0.22	0.29	0.38	0.47	1.65
<i>Incentives</i>	0.01	0.02	0.04	0.08	0.11	0.12	0.14	0.53
<i>In-service training</i>	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
<i>Insurance</i>	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.07
<i>Conditional cash transfer</i>	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

	2009	2010	2011	2012	2013	2014	2015	Total
Traded	0.83	1.04	1.32	1.67	1.93	3.47	3.96	14.21
Buffer Stocks	0.14	0.14	0.16	0.10	0.13	0.30	0.41	1.37
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
<i>Malaria</i>	0.08	0.13	0.16	0.17	0.18	0.20	0.22	1.16
<i>HIV/AIDS</i>	0.01	0.02	0.04	0.05	0.06	0.07	0.09	0.34
<i>TB</i>	0.02	0.05	0.12	0.10	0.13	0.17	0.26	0.84
<i>Essential drugs</i>	0.17	0.30	0.44	0.49	0.57	0.68	0.80	3.46
ITNs	0.14	0.07	0.02	0.20	0.09	0.49	0.21	1.22
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
Warehouse, equipment and vehicle	0.17	0.18	0.20	0.23	0.25	0.68	0.71	2.41
Non-traded	0.28	0.54	0.84	1.02	1.42	1.75	2.37	8.22
Infrastructure	0.08	0.12	0.18	0.15	0.25	0.26	0.40	1.43
Human Resources	0.08	0.18	0.31	0.39	0.58	0.63	0.85	3.02
<i>Salary</i>	0.05	0.10	0.16	0.22	0.29	0.38	0.47	1.65
<i>Incentives</i>	0.01	0.02	0.04	0.08	0.11	0.12	0.14	0.53
<i>In-service training</i>	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.15
<i>Pre-service training</i>	0.02	0.05	0.10	0.07	0.15	0.10	0.19	0.69
Health financing	0.01	0.01	0.01	0.01	0.01	0.03	0.06	0.13
<i>Insurance</i>	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.07
<i>Conditional cash transfer</i>	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

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

	Minimum Scenario		Medium Scenario		Maximum Scenario	
	Total	percent	Total	percent	Total	percent
Health Facilities	32,881	100.0	38,347.71	100.0	48,090	100.0
Health Post	29,272	89.0	34,088.72	88.9	42,962	89.3
<i>New</i>	11,894	36.2	13,826.59	36.1	17,448	36.3
<i>Rehab</i>	17,377	52.9	20,262.13	52.8	25,514	53.1
Health Centre	2,435	7.4	3,037.95	7.9	3,479	7.2
<i>New</i>	1,594	4.8	1,961.29	5.1	2,275	4.7
<i>Rehab</i>	841	2.6	1,076.66	2.8	1,204	2.5
District Hospital	891	2.7	890.57	2.3	1,246	2.6
<i>New</i>	427	1.3	426.54	1.1	596	1.2
<i>Rehab</i>	464	1.4	464.03	1.2	650	1.4
Regional Hospital	283	0.9	330.47	0.9	402	0.8
<i>New</i>	225	0.7	254.08	0.7	321	0.7
<i>Rehab</i>	57	0.2	76.39	0.2	82	0.2
Health Workers	713,943	100.0	910,096	100.0	1,026,965	100.0
Community based health & nutrition promoters	372,228	52.1	523,468	57.5	530,711	51.7
Health extension workers	73,087	10.2	77,733	8.5	109,559	10.7
Junior, assistant, assistant midwife nurse (1 year training)	88,111	12.3	41,115	4.5	124,546	12.1
Technicians (lab, x-ray, pharmacy)	39,459	5.5	62,429	6.9	56,452	5.5
Registered nurse/midwives (at least 3 yr training)	41,284	5.8	43,288	4.8	59,262	5.8
Health officer	6,170	0.9	10,849	1.2	8,773	0.9
Physician/MD	15,118	2.1	15,396	1.7	21,685	2.1
Specialist	5,854	0.8	2,263	0.2	8,330	0.8
Administrative staff	61,921	8.7	118,232	13.0	88,256	8.6
District and provincial managers	10,712	1.5	15,323	1.7	19,390	1.9

E.3.7 Fiscal space and funding gaps

232. 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)

Available incremental funding (non SSA countries) billion constant US\$	2009	2010	2011	2012	2013	2014	2015	Total
Scenario 1: Optimistic	1.17	3.02	4.71	6.64	8.71	11.01	12.04	47.28
... government	1.08	2.64	3.95	5.47	7.10	8.95	9.63	38.82
... external	0.01	0.20	0.43	0.72	1.05	1.39	1.64	5.43
... private	0.08	0.19	0.33	0.45	0.56	0.67	0.76	3.03
Scenario 2: Gleneagles doubling and Abuja 15% commitment	1.14	2.98	4.64	6.56	8.60	10.86	11.86	46.65
... government	1.08	2.64	3.95	5.47	7.10	8.95	9.63	38.82
... external	-0.01	0.16	0.37	0.64	0.94	1.24	1.47	4.80
... private	0.08	0.19	0.33	0.45	0.56	0.67	0.76	3.03
Scenario 3: Intermediate - ODA 50% and government 12%	0.70	2.03	3.35	4.83	6.38	8.11	8.74	34.13
... government	0.70	1.83	2.84	4.02	5.26	6.65	7.05	28.35
... external	-0.08	0.02	0.17	0.36	0.56	0.78	0.92	2.74
... private	0.08	0.19	0.33	0.45	0.56	0.67	0.76	3.03
Scenario 4: Status Quo	0.03	0.44	1.01	1.63	2.26	2.94	3.06	11.36
... government	0.11	0.39	0.75	1.16	1.59	2.07	2.07	8.13
... external	-0.15	-0.13	-0.07	0.01	0.11	0.20	0.23	0.20
... private	0.08	0.19	0.33	0.45	0.56	0.67	0.76	3.03
Scenario 5: Pessimistic	-0.53	-0.10	0.98	1.61	2.20	2.82	2.94	9.92
... government	-0.29	0.02	0.77	1.19	1.58	2.00	2.00	7.28
... external	-0.28	-0.26	-0.07	0.01	0.11	0.20	0.23	-0.05
... private	0.03	0.14	0.28	0.40	0.51	0.62	0.71	2.69

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\$)

Non-SSA	Sources of additional funding				MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario	
	Gov't	ODA	Private		Cost	Gap	Cost	Gap	Cost	Gap
Optimistic	38.82	5.43	3.03	47.28	54.13	6.85	22.43	-24.85	19.17	-28.11
Doubling	38.82	4.80	3.03	46.65	54.13	7.48	22.43	-24.22	19.17	-27.48
Intermediate	28.35	0.00	3.03	31.39	54.13	22.74	22.43	-8.96	19.17	-12.22
Status Quo	8.13	0.20	3.03	11.36	54.13	42.77	22.43	11.07	19.17	7.81
Pessimistic	7.28	-0.05	2.69	9.92	54.13	44.21	22.43	12.51	19.17	9.25

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

	<i>Count down Countries</i>		<i>National Health Strategic Plan</i>	<i>MTEF</i>	<i>SWAP</i>	<i>Compact</i>	<i>Strategic Analysis/CSSA</i>	<i>Investment Case/MDG needs Assessment</i>	<i>Child Survival Strategy</i>	<i>Maternal, Newborn and Child Health Strategy</i>	<i>Sub National Health Strategic Planning/ District Evidences Planning and Budgeting</i>	<i>National Training</i>	<i>No. of Areas of support</i>
		WCAR											
*	1	Benin	F	F		O		F	F		P	P	7
	1	Burkina Faso	F	O		O		F	F		P		6
*		Cameroon	P	O			F	F			P		5
		Cape Verde						P				P	2
		CAR		P			F	O	F				4
*		Chad	O	P			O						3
		Congo					O	O					2
		Cote d'Ivoire					O	O					2
*		DRC											0
		Equatorial Guinea											0
		Gabon					F	F					2
		Gambia											0
*	1	Ghana	F		F	P	F	F				P	6
*		Guinea	P										1
		Guinea-Bissau					F	O			P		3
		Liberia	F				F	F					3
*	1	Mali	O	F		O	F		O			P	6
		Mauritania		F		P	F	F				P	5
*	1	Niger					F	F			P		3
*	1	Nigeria					F			F			2
		Sao Tome & Principe											0
		Senegal					F	F		F	P		4
*		Sierra Leone	F				F	F					3
		Togo	O	P			O	F		F	P		6

	Count down Countries		National Health Strategic Plan	MTEF	SWAP	Compact	Strategic Analysis/CSSA	Investment Case/MDG needs Assessment	Child Survival Strategy	Maternal, Newborn and Child Health Strategy	Sub National Health Strategic Planning/ District Evidences Planning and Budgeting	National Training	No. of Areas of support
													0
		Finalized	5	3	1	0	12	11	3	3	0	0	29
		Ongoing	3	2	0	3	4	4	1	0	0	0	9
		Planned/Requested	2	3	0	2	0	1	0	0	7	5	13
		Total WCAR	10	8	1	5	16	16	4	3	7	5	
		ESAR											
*		Angola						F					1
		Botswana	O				P	F					3
*	1	Burundi				O		O				F	3
		Comoros				P		O					2
		Eritrea											0
*	1	Ethiopia	F			F		F	F		O		5
*	1	Kenya					O						1
		Lesotho		O									1
*	1	Madagascar	O	O		O	F	F	F				6
*		Malawi						F					1
		Mauritius											0
*	1	Mozambique	O	O		F		F					4
		Namibia	P										1
*		Rwanda		F				F			O		3
		Seychelles											0
		Somalia											0
		South Africa									O	F	2
		Swaziland		O									1
*		Tanzania	O		O	P						P	4
*		Uganda							F			P	2
*	1	Zambia	O			O	P	P					4
		Zimbabwe											0
		Finalized	1	1	0	2	1	7	3	0	0	2	13

	Count down Countries		National Health Strategic Plan	MTEF	SWAP	Compact	Strategic Analysis/CSSA	Investment Case/MDG needs Assessment	Child Survival Strategy	Maternal, Newborn and Child Health Strategy	Sub National Health Strategic Planning/ District Evidences Planning and Budgeting	National Training	No. of Areas of support
		Ongoing	5	4	1	3	1	2	0	0	3	0	6
		Planned/Requested	1	0	0	2	2	1	0	0	0	2	5
		Total ESAR	7	5	1	7	4	10	3	0	3	4	
		EAPR											
*	1	Cambodia	P	P			F						3
	1	China											0
*	1	Indonesia									P		1
	1	Korea, DPR					P						1
	1	Laos					F	P					2
	0	Malaysia											0
	0	Mongolia					F	P			P		3
*	1	Myanmar					F	P					2
	1	Papua New Guinea					P						1
	1	Philippines					F				P		2
	0	Solomon					P						1
	0	Thailand											0
	0	Timor Leste					F						1
	0	Vietnam	O				F	O				F	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	
		RSA											
*	1	Afghanistan											0
*	1	Bangladesh	P				F				P		3
	0	Bhutan											0
*	1	India					F				O		2
	0	Maldives											0

	<i>Count down Countries</i>		<i>National Health Strategic Plan</i>	<i>MTEF</i>	<i>SWAP</i>	<i>Compact</i>	<i>Strategic Analysis/CSSA</i>	<i>Investment Case/MDG needs Assessment</i>	<i>Child Survival Strategy</i>	<i>Maternal, Newborn and Child Health Strategy</i>	<i>Sub National Health Strategic Planning/ District Evidences Planning and Budgeting</i>	<i>National Training</i>	<i>No. of Areas of support</i>
*	1	Nepal	O			O	F				P		4
*	1	Pakistan					F	P			P		3
	0	Sri Lanka											0
		Finalized	0	0	0	0	4	0	0	0	0	0	4
		Ongoing	1	0	0	1	0	0	0	0	1	0	1
		Planned/Requested	1	0	0	0	0	1	0	0	3	0	4
		Total RSA	2	0	0	1	4	1	0	0	4	0	9
		GLOBAL											
		Finalized	6	4	1	2	24	18	6	3	0	3	54
		Ongoing	10	6	1	7	5	7	1	0	4	0	17
		Planned/Requested	5	4	0	4	5	6	0	0	13	7	31
		Total	21	14	2	13	34	31	7	3	17	10	

Annex 2: Generic list of interventions included in the MBB tool, by service delivery level

Water and Sanitation						
Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Quality of drinking water	x					% Families using an improved source for drinking water
Supply of safe drinking water	x					% Families with access to safe drinking water
Use of sanitary latrine	x					% Families using improved, not shared sanitary facility
Hand washing by mother	x					% Mothers washing hands after defecation and before feeding child
Nutrition						
Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Breastfeeding for children 0-5 months	x					% children exclusively breastfed for 6 months
Breastfeeding for children 6-11 months	x					% children aged 12-15 months receiving breast milk.
Complementary feeding	x					% children 6-9 months receiving complementary food and continued breastfeeding
Therapeutic Feeding	x					% malnourished children receiving supplementary food
Vitamin A – supplementation		x				% 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
Zinc preventive		x				% children under five who received zinc supplements
Maternal Health/Reproductive Health						
Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Clean delivery and cord care	x					% deliveries with trained and equipped community health workers or TBA with 4 cleans and temperature care
Family planning		x				WRA currently using any method
Preconceptual folate supplementation		x				% Women receiving folate supplements around conception
Basic emergency obstetric care (B-EOC)			x	x	x	% complicated pregnancy treated in quality EOC facility (B-EOC or C-EOC)
Normal delivery by skilled attendant			x	x	x	% deliveries assisted by auxiliary-nurse, nurse, midwife or physician with life saving skills
Active management of the third stage of labor			x	x	x	
Antenatal steroids for preterm labor			x	x	x	% preterm labor treated with prenatal steroids in a hospital (first level referral)
Antibiotics for Preterm/Prelabour Rupture of Membrane (P/PROM)			x	x	x	% premature membrane ruptures during preterm (P/PROM) treated with antibiotics in hospital (first level referral)
Detection and management of (pre)ecclampsia (Mg Sulphate)			x	x	x	% (pre) eclampsia cases treated in hospital (first level referral)
Comprehensive emergency obstetric care (C-EOC)				x	x	% CS conducted In 24 hour C-EOC facility with low case fatality rate

Neonatal

Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Early breastfeeding and temperature management	x					% newborns breastfed within 1 hour of birth
Universal extra community-based care of LBW infants	x					% LBW infants receiving extra care
Community based management of neonatal sepsis	x					% newborn with pneumonia who are not receiving clinical care but receiving antibiotics at home or community level
Antenatal Care		x				% pregnant women who received their first ANC in first trimester during their pregnancy
Calcium supplementation in pregnancy		x				% pregnant women who received full dose of calcium supplements during their pregnancy
Tetanus toxoid		x				% pregnant women whose last birth was protected against neonatal tetanus
Deworming in pregnancy		x				% pregnant women who received antithelmics (deworming) during their pregnancy
Detection and treatment of asymptomatic bacteriuria		x				% pregnant women with bacteriuria screened and treated with antibiotics
Treatment of syphilis in pregnancy		x				% pregnant women with syphilis screened and treated with antibiotics
Prevention and treatment of iron deficiency anemia in pregnancy		x				% pregnant women receiving Iron supplementation
Intermittent preventive treatment (IPTp) for malaria in pregnancy		x				% pregnant women who received 2 doses of IPT during their pregnancy
Balanced protein energy supplements for pregnant women		x				% stunting pregnant women receiving supplementary food
Supplementation in pregnancy with multi-micronutrients		x				0
Neonatal Vitamin A supplementation		x				% pregnant women receiving Vitamin A within 2 months after birth
Resuscitation of asphyxic newborns at birth			x	x	x	% resuscitation cases or asphyxia treated in hospitals (first level referral)
Management of neonatal infections			x	x	x	% neonatal infections treated in hospital (first level referral)
Clinical management of neonatal jaundice				x	x	% neonates with jaundice treated in hospital (first or second line)
Universal emergency neonatal care (asphyxia aftercare, management of serious infections, management of the VLBW infant)				x	x	% new born with asphyxia, severe infection of low birth weight treated in hospital (first or second line) quality neonatal care

Child Health

Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Oral Rehydration Therapy	x					% children with diarrhea cases given increased fluids and same or more food
Measles immunization		x				% children 12-23 months fully immunized before first birthday with safe injection
BCG immunization		x				% children 12-23 months who received BCG vaccine
OPV immunization		x				% children 12-23 months who received OPV vaccine
DPT immunization		x				% children 12-23 months who received DPT3
Pentavalent (DPT-HiB-Hepatitis) immunization		x				% children 12-23 months who received Pentavalent
Hib immunization		x				% children 12-23 months who received 2 doses of Hib

Hepatitis B immunization	X				% children 12-23 months receiving hepatitis vaccine
Yellow fever immunization	X				% children 12-23 months who received yellow fever vaccine
Meningitis immunization	X				% children 12-23 months received meningitis vaccine
Pneumococcal immunization	X				% children 12-23 months who received 3 doses of pneumococcal vaccine
Rotavirus immunization	X				% children 12-23 months who received rotavirus
Antibiotics for U5 pneumonia	X		X	X	% ARI cases and dysentery treated in a hospital (first level referral)
Antibiotics for dysentery and enteric fevers			X	X	% diarrhea and enteric fever cases treated in a hospital (first level referral)
Vitamin A - Treatment for measles	X		X	X	% children with measles treated with Vitamin A in a hospital (first level referral)
Zinc for diarrhea management	X		X	X	% diarrhea cases treated in a hospital (first level referral)
Other emergency acute care				X	% acute non obstetric emergencies managed correctly at second line referral facilities

Malaria

Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Insecticide Treated Mosquito Nets	X					% under-five children who slept under Insecticide Treated Net
Indoor Residual Spraying (IRS)	X					% household sprayed in the twelve months before the survey
Intermittent Presumptive Treatment (IPT) for children*		X				% children 12-23 months receiving 2 doses IPT infant in last 6 months
Chloroquine for malaria (P.vivax)	X		X	X		% malaria cases treated with chloroquine in a hospital (first level referral)
Artemisinin-based Combination Therapy for children	X		X	X	X	% malaria cases treated with chloroquine in a hospital (first level referral)
Artemisinin-based Combination Therapy for pregnant women	X		X	X	X	% malaria cases treated with chloroquine in a hospital (first level referral)
Artemisinin-based Combination Therapy for adults	X		X	X	X	% malaria cases treated with chloroquine in a hospital (first level referral)
Management of complicated malaria (2nd line drug)			X	X	X	% complicated malaria cases treated in a hospital (first or second line drug)
Management of severe malaria				X	X	

HIV/AIDS

Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
PMTCT		X				% HIV+ pregnant women receiving a complete course of ARV prophylaxis to reduce MTCT
VCT		X				0
Condom use		X				% of men aged 15-59 who reported using a condom at last higher-risk intercourse
Cotrimoxazole prophylaxis for HIV+ mothers		X				% eligible HIV+ pregnant women receiving cotrimoxazole prophylaxis
Cotrimoxazole prophylaxis for HIV+ adults		X				% eligible HIV+ adults receiving cotrimoxazole prophylaxis
Cotrimoxazole prophylaxis for children of HIV+ mothers		X				% of infants born of HIV+ mothers receiving cotrimoxazole prophylaxis
Detection and management of STI			X	X	X	
Management of opportunistic infections			X	X	X	% malaria cases treated with chloroquine in a hospital (first level referral)

Male circumcision	X	X	X	% circumcised men 15-24
First line ART for children with HIV/AIDS	X	X	X	% eligible children receiving ART
First-line ART for pregnant women with HIV/AIDS	X	X	X	% eligible HIV+ pregnant women receiving ART
First-line ART for adults with AIDS	X	X	X	% eligible HIV+ adults receiving ART
Children second-line ART		X	X	
Adult second-line ART		X	X	% first line ART failures receiving adequate second line ART regimen
Management 2nd line ART failure			X	% complicated AIDS cases managed in second line referral facilities

Tuberculosis

Intervention	Delivery level:					MBB - indicator of effective quality coverage
	C	O	P	F	S	
Detection and treatment of TB with first line drugs (category 1 and 3)			X	X	X	% TB cases receiving DOTS by a skilled health worker
Re-treatment of TB patients with first line drugs (category 2)			X	X	X	% complicated TB cases receiving combined treatment
MDR treatment with second line drugs			X	X	X	

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

Maximum

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
1. Family oriented community based services						
1.1 Family preventive/WASH services						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
1.2 Family neonatal care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
1.3 Infant and child feeding						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
1.4 Community illness management						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
2. Population oriented schedulable services						
2.1 Preventive care for adolescents & adults						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	60%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	60%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	60%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	60%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	60%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	60%
2.2 Preventive pregnancy care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
2.3 HIV/AIDS prevention and care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
2.4 Preventive infant & child care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	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%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
3.2 Management of illnesses at primary clinical level						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
3.3 Clinical first referral care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%
3.4 Clinical second referral care						
Essential commodities availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Human resources availability bottleneck reduction	30%	50%	70%	30%	50%	70%
Accessibility bottleneck reduction	30%	50%	70%	30%	50%	70%
Initial utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Timely continuous utilization bottleneck reduction	30%	50%	70%	30%	50%	70%
Effective quality bottleneck reduction	30%	50%	70%	30%	50%	70%

Medium

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
1. Family oriented community based services						
1.1 Family preventive/WASH services						
Essential commodities availability bottleneck reduction	50%	65%	90%	17%	33%	77%

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
Human resources availability bottleneck reduction	50%	65%	90%	17%	33%	77%
Accessibility bottleneck reduction	50%	65%	90%	17%	33%	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	100%	100%	97%	50%	63%	77%
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%	57%	80%
Effective quality bottleneck reduction	50%	65%	90%	50%	57%	80%
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						
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%

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
Initial utilization bottleneck reduction	57%	68%	90%	50%	63%	77%
Timely continuous utilization bottleneck reduction	57%	68%	90%	50%	63%	77%
Effective quality bottleneck reduction	57%	68%	90%	50%	63%	77%
3. Individual oriented clinical services						
3.1 Maternal and neonatal care at primary clinical level						
Essential commodities availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Human resources availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Accessibility bottleneck reduction	0%	50%	90%	27%	50%	87%
Initial utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Timely continuous utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Effective quality bottleneck reduction	50%	65%	90%	50%	63%	87%
3.2 Management of illnesses at primary clinical level						
Essential commodities availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Human resources availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Accessibility bottleneck reduction	0%	50%	90%	27%	50%	87%
Initial utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Timely continuous utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Effective quality bottleneck reduction	50%	65%	90%	50%	63%	87%
3.3 Clinical first referral care						
Essential commodities availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Human resources availability bottleneck reduction	0%	50%	90%	27%	50%	87%
Accessibility bottleneck reduction	0%	50%	90%	27%	50%	87%
Initial utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Timely continuous utilization bottleneck reduction	50%	65%	90%	50%	63%	87%
Effective quality bottleneck reduction	50%	65%	90%	50%	63%	87%
3.4 Clinical second referral care						
Essential commodities availability bottleneck reduction	0%	0%	90%	27%	50%	87%
Human resources availability bottleneck reduction	0%	0%	90%	27%	50%	87%
Accessibility bottleneck reduction	0%	0%	90%	27%	50%	87%
Initial utilization bottleneck reduction	0%	50%	90%	50%	63%	87%
Timely continuous utilization bottleneck reduction	0%	50%	90%	50%	63%	87%
Effective quality bottleneck reduction	0%	50%	90%	50%	63%	87%

Minimum

	All African countries			All non African countries		
Effective interventions	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
1. Family oriented community based services						
1.1 Family preventive/WASH services						
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	100%	75%	100%	50%	70%	100%
1.2 Family neonatal care						
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	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
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%
1.3 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	Phase one	Phase two	Phase three	Phase one	Phase two	Phase three
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%	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%
3.3 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

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	5.95	4.25	2.91	8.99	5.85	33.41	17.37	78.74	34.75
1.0 HR, infrastructure and equipment	0.87	0.95	0.92	1.49	1.52	2.56	2.44	10.75	4.74
1.1 Family preventive/WASH services	4.33	2.32	0.95	6.13	2.84	28.81	12.70	58.09	25.64
1.2 Family neonatal care	0.02	0.03	0.03	0.05	0.05	0.06	0.06	0.31	0.14
1.3 Infant and child feeding	0.28	0.36	0.37	0.50	0.55	0.71	0.76	3.51	1.55
1.4 Community illness management	0.45	0.60	0.64	0.83	0.89	1.28	1.40	6.08	2.68
2. Population oriented schedulable services	1.20	1.99	2.88	3.21	4.92	5.68	7.16	27.02	11.92
2.0 HR, infrastructure and equipment	0.78	1.24	1.74	1.23	1.71	1.76	2.41	10.85	4.79
2.1 Preventive care for adolescents & adults	0.08	0.13	0.18	0.23	0.26	0.37	0.45	1.71	0.75
2.2 Preventive pregnancy care	0.18	0.36	0.57	0.59	0.79	0.94	1.16	4.59	2.03
2.3 HIV/AIDS prevention and care	0.02	0.05	0.09	0.11	0.16	0.19	0.24	0.86	0.38
2.4 Preventive infant & child care	0.13	0.21	0.30	1.05	2.00	2.41	2.90	9.01	3.98
3. Individual oriented clinical services	3.48	7.97	14.91	8.82	13.08	13.85	21.28	83.38	36.80

3.0 HR, infrastructure and equipment	2.57	5.87	10.75	5.07	8.20	9.04	16.07	57.57	25.41
3.1 Maternal and neonatal care at primary clinical level	0.18	0.28	0.42	0.47	0.63	0.73	0.83	3.54	1.56
3.2 Management of illnesses at primary clinical level	0.40	0.73	1.25	1.21	1.57	1.33	1.08	7.57	3.34
3.3 Clinical first referral care	0.19	0.66	1.51	1.11	1.43	1.37	1.48	7.74	3.42
3.4 Clinical second referral care	0.14	0.43	0.98	0.97	1.24	1.37	1.83	6.95	3.07
District, provincial and national governance and management	2.11	2.49	2.87	3.41	3.81	11.04	11.74	37.46	16.53
Total	\$12.73	16.70	23.57	24.43	27.66	63.97	57.54	226.60	100.00

Annex 5: Distribution of estimated additional resource requirement by disease, program and health system (in billion US\$), Maximum Scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	6.58	6.55	7.91	14.17	13.60	41.16	26.86	116.84
Child health	0.27	0.48	0.67	0.89	1.19	1.23	1.20	5.93
Immunization	0.06	0.12	0.20	1.00	1.93	2.28	2.71	8.30
Water, sanitation and hygiene	3.29	1.68	0.60	4.44	2.00	25.73	11.37	49.12
Nutrition	0.34	0.45	0.53	0.50	0.56	0.72	0.83	3.93
Maternal health	0.20	0.46	0.83	1.02	1.37	1.60	1.89	7.38
Family planning	0.16	0.29	0.48	0.34	0.42	0.57	0.77	3.02
HIV/AIDS	0.47	1.01	1.82	1.75	2.21	2.55	2.90	12.72
TB	0.05	0.14	0.29	0.28	0.39	0.50	0.72	2.38
Malaria	1.25	1.03	1.07	2.36	1.63	3.71	1.79	12.84
Non-MDGs basic services	0.49	0.88	1.43	1.57	1.91	2.27	2.67	11.22
Health systems	6.15	10.14	15.65	10.26	14.05	22.81	30.68	109.76
Human resources	0.83	1.75	3.00	2.66	3.57	5.50	8.89	26.21
<i>Pre-service training</i>	0.37	0.72	1.19	0.41	0.77	2.15	4.82	10.43
<i>Salary</i>	0.45	0.98	1.69	2.11	2.63	3.15	3.81	14.82
<i>Incentives</i>	0.02	0.05	0.12	0.14	0.17	0.20	0.26	0.96
Infrastructure, equipment and transport	3.45	6.18	10.14	4.53	7.07	7.39	11.29	50.04
<i>Infrastructure</i>	2.56	5.02	8.47	3.48	5.74	4.67	7.77	37.72
<i>Equipment</i>	0.72	0.97	1.46	0.79	1.05	2.01	2.78	9.77
<i>Transport</i>	0.18	0.19	0.21	0.26	0.27	0.71	0.75	2.56
Logistics	1.20	1.25	1.31	1.49	1.54	6.76	6.85	20.40
<i>Buffer stocks</i>	0.49	0.49	0.49	0.61	0.61	4.02	4.02	10.72
<i>Warehouse, equipment and vehicle</i>	0.71	0.77	0.82	0.88	0.93	2.74	2.83	9.68
HMIS	0.04	0.11	0.20	0.26	0.36	0.47	0.65	2.09
Governance, accreditation and regulation	0.37	0.60	0.75	1.06	1.26	1.74	2.05	7.83
Health financing	0.25	0.25	0.25	0.26	0.26	0.96	0.96	3.19
<i>Insurance</i>	0.25	0.25	0.25	0.26	0.26	0.96	0.96	3.19
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	12.73	16.70	23.57	24.43	27.66	63.97	57.54	226.60

Annex 6: Estimated additional resource requirement by capital and recurrent classification (in billion US\$), Maximum scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	9.73	10.63	13.47	11.35	10.79	43.16	33.23	132.37
Infrastructure	5.57	6.21	8.15	6.60	6.27	27.00	16.17	75.97
Equipment	0.69	0.88	1.27	0.57	0.79	1.70	2.39	8.29
Transport	0.17	0.17	0.18	0.23	0.23	0.67	0.69	2.34
Pre-service training	0.37	0.72	1.19	0.41	0.77	2.15	4.82	10.43
Buffer Stocks	1.32	1.43	1.70	1.16	1.16	5.92	5.04	17.72
Warehouse, equipment, and vehicles	0.71	0.77	0.82	0.88	0.93	2.74	2.83	9.68
ITNs	0.90	0.45	0.16	1.50	0.65	2.99	1.29	7.94
Recurrent	3.00	6.06	10.09	13.08	16.87	20.81	24.31	94.23
Contraceptives	0.10	0.15	0.20	0.26	0.30	0.41	0.52	1.93
Vaccines	0.03	0.06	0.09	0.48	0.86	1.11	1.36	4.01
Drugs	1.14	2.52	4.44	5.14	6.25	7.21	8.20	34.90
<i>Malaria</i>	0.19	0.40	0.70	0.75	0.85	0.73	0.50	4.10
<i>HIV/AIDS</i>	0.15	0.45	0.96	1.10	1.40	1.47	1.61	7.13
<i>TB</i>	0.04	0.12	0.26	0.24	0.33	0.43	0.63	2.05
<i>Essential drugs</i>	0.76	1.55	2.53	3.05	3.68	4.59	5.47	21.61
Human Resources	0.66	1.40	2.36	2.97	3.68	4.39	5.24	20.72
<i>Salary</i>	0.45	0.98	1.69	2.11	2.63	3.15	3.81	14.82
<i>Incentives</i>	0.15	0.32	0.54	0.67	0.81	0.88	0.99	4.37
<i>In-service training</i>	0.06	0.10	0.13	0.20	0.25	0.35	0.44	1.53
Health financing	0.25	0.25	0.25	0.72	1.43	2.14	2.15	7.19
<i>Insurance</i>	0.25	0.25	0.25	0.26	0.26	0.96	0.96	3.19
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.45	1.17	1.18	1.19	3.99
Demand promotion	0.10	0.18	0.24	0.32	0.36	0.45	0.48	2.14
HMIS	0.04	0.11	0.20	0.26	0.36	0.47	0.65	2.09
Governance, accreditation and regulation	0.36	0.62	0.82	1.14	1.38	1.89	2.29	8.50
Administration	0.32	0.78	1.48	1.79	2.24	2.74	3.42	12.77
Total	12.73	16.70	23.57	24.43	27.66	63.97	57.54	226.60

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\$)

SSA	Sources of additional funding				MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario	
	Government	ODA	Private	Total	Cost	Gap	Cost	Gap	Cost	Gap
Gleneagles	11.57	7.22	1.75	20.54	54.95	34.42	33.22	12.68	22.38	1.85
Doubling	11.57	5.17	0.78	17.53	54.95	37.42	33.22	15.68	22.38	4.85
No Change	3.81	1.09	0.78	5.68	54.95	49.27	33.22	27.53	22.38	16.70
Crises	3.12	1.09	0.32	4.54	54.95	50.42	33.22	28.68	22.38	17.85

Non-SSA	Sources of additional funding				MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario	
	Government	ODA	Private	Total	Cost	Gap	Cost	Gap	Cost	Gap
Gleneagles	13.28	3.23	1.53	18.04	17.39	-0.65	9.04	-9.00	6.33	-11.71
Doubling	13.28	2.30	0.59	16.17	17.39	1.22	9.04	-7.12	6.33	-9.84
No Change	2.56	0.45	0.59	3.60	17.39	13.79	9.04	5.44	6.33	2.73
Crises	2.07	0.46	0.33	2.85	17.39	14.54	9.04	6.19	6.33	3.47

All countries	Sources of additional funding				MBB Maximum Scenario		MBB Medium Scenario		MBB Minimum Scenario	
	Government	ODA	Private	Total	Cost	Gap	Cost	Gap	Cost	Gap
Gleneagles	24.85	10.44	3.28	38.58	72.35	33.77	42.26	3.68	28.71	-9.87
Doubling	24.85	7.48	1.37	33.70	72.35	38.65	42.26	8.56	28.71	-4.99
No Change	6.37	1.55	1.37	9.28	72.35	63.06	42.26	32.98	28.71	19.43
Crises	5.19	1.55	0.65	7.39	72.35	64.96	42.26	34.87	28.71	21.32

Annex 8: Estimated additional cost by service packages and delivery level for SSA countries (in billion US\$), Maximum scenario

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	4.47	3.07	2.00	6.93	4.40	24.10	12.46	57.44	33.3
1.0 HR, infrastructure and equipment	0.67	0.78	0.78	1.25	1.30	2.08	2.05	8.90	5.2
1.1 Family preventive/WASH services	3.39	1.75	0.64	4.85	2.17	20.81	9.11	42.72	24.8
1.2 Family neonatal care	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.20	0.1
1.3 Infant and child feeding	0.13	0.18	0.18	0.26	0.28	0.38	0.40	1.81	1.1
1.4 Community illness management	0.27	0.36	0.38	0.55	0.61	0.79	0.85	3.81	2.2
2. Population oriented schedulable services	0.86	1.40	2.02	2.03	2.97	3.24	4.15	16.67	9.7
2.0 HR, infrastructure and equipment	0.60	0.92	1.28	0.90	1.27	1.20	1.66	7.82	4.5
2.1 Preventive care for adolescents & adults	0.05	0.08	0.12	0.14	0.16	0.22	0.27	1.03	0.6
2.2 Preventive pregnancy care	0.11	0.22	0.36	0.40	0.55	0.65	0.81	3.10	1.8
2.3 HIV/AIDS prevention and care	0.02	0.04	0.07	0.09	0.13	0.16	0.20	0.70	0.4
2.4 Preventive infant & child care	0.08	0.14	0.20	0.51	0.86	1.01	1.22	4.02	2.3
3. Individual oriented clinical services	3.05	6.93	12.86	7.23	10.90	11.69	18.41	71.07	41.2
3.0 HR, infrastructure and equipment	2.38	5.42	9.93	4.66	7.56	8.48	15.21	53.65	31.1
3.1 Maternal and neonatal care at primary clinical level	0.09	0.14	0.21	0.26	0.37	0.45	0.50	2.03	1.2
3.2 Management of illnesses at primary clinical level	0.38	0.69	1.18	1.15	1.52	1.28	1.03	7.23	4.2
3.3 Clinical first referral care	0.12	0.42	0.95	0.59	0.75	0.72	0.68	4.24	2.5
3.4 Clinical second referral care	0.07	0.25	0.59	0.56	0.70	0.76	0.98	3.92	2.3
District, provincial and national governance and management	1.58	1.84	2.10	2.52	2.79	8.00	8.46	27.28	15.8
Total	9.96	13.25	18.99	18.71	21.06	47.03	43.47	172.47	100.0

Annex 9: Distribution of estimated additional resource requirement by disease, program and health system in SSA countries (in billion US\$), Maximum Scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	4.89	4.59	5.36	10.05	8.97	28.38	17.47	79.71
Child health	0.23	0.40	0.56	0.73	0.97	0.99	0.95	4.82
Immunization	0.05	0.10	0.15	0.49	0.82	0.95	1.13	3.68
Water, sanitation and hygiene	2.66	1.35	0.47	3.59	1.60	18.43	8.12	36.22
Nutrition	0.16	0.22	0.26	0.26	0.30	0.39	0.45	2.04
Maternal health	0.12	0.27	0.49	0.65	0.91	1.10	1.34	4.87
Family planning	0.09	0.19	0.33	0.19	0.23	0.31	0.42	1.77
HIV/AIDS	0.41	0.87	1.59	1.46	1.82	2.03	2.24	10.41
TB	0.03	0.07	0.14	0.16	0.21	0.28	0.40	1.30
Malaria	0.91	0.75	0.83	1.87	1.29	2.91	1.30	9.87
Non-MDGs basic services	0.23	0.36	0.54	0.67	0.81	1.00	1.13	4.74
Health systems	5.07	8.66	13.63	8.66	12.09	18.65	26.00	92.76
Human resources	0.70	1.47	2.54	2.26	3.05	4.98	8.27	23.27
<i>Pre-service training</i>	0.32	0.62	1.02	0.37	0.68	2.14	4.81	9.96
<i>Salary</i>	0.37	0.81	1.41	1.77	2.22	2.66	3.22	12.45
<i>Incentives</i>	0.01	0.05	0.10	0.12	0.16	0.18	0.23	0.86
Infrastructure, equipment and transport	2.96	5.49	9.17	4.01	6.37	6.30	9.92	44.23
<i>Infrastructure</i>	2.32	4.59	7.80	3.18	5.28	4.19	7.03	34.38
<i>Equipment</i>	0.51	0.77	1.23	0.63	0.88	1.56	2.30	7.86
<i>Transport</i>	0.13	0.14	0.15	0.21	0.21	0.56	0.59	1.98
Logistics	0.86	0.89	0.92	1.06	1.09	4.72	4.77	14.30
<i>Buffer stocks</i>	0.38	0.38	0.38	0.48	0.48	2.91	2.91	7.92
<i>Warehouse, equipment and vehicle</i>	0.48	0.51	0.54	0.58	0.61	1.81	1.86	6.38
HMIS	0.03	0.08	0.16	0.21	0.29	0.38	0.53	1.69
Governance, accreditation and regulation	0.31	0.51	0.63	0.89	1.05	1.44	1.70	6.53
Health financing	0.21	0.21	0.21	0.23	0.23	0.83	0.83	2.74
<i>Insurance</i>	0.21	0.21	0.21	0.23	0.23	0.83	0.83	2.74
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	9.96	13.25	18.99	18.71	21.06	47.03	43.47	172.47

Annex 10: Estimated additional resource requirement by capital and recurrent classification in SSA countries (in billion US\$), Maximum scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	7.84	8.91	11.64	9.28	9.05	32.31	26.47	105.51
Infrastructure	4.80	5.55	7.47	5.62	5.60	19.89	12.71	61.64
Equipment	0.49	0.70	1.07	0.45	0.66	1.30	1.98	6.65
Transport	0.13	0.13	0.13	0.19	0.18	0.53	0.54	1.83
Pre-service training	0.32	0.62	1.02	0.37	0.68	2.14	4.81	9.96
Buffer Stocks	0.93	1.06	1.29	0.88	0.81	4.24	3.53	12.74
Warehouse, equipment and vehicles	0.48	0.51	0.54	0.58	0.61	1.81	1.86	6.38
ITNs	0.70	0.35	0.12	1.20	0.51	2.40	1.03	6.31
Recurrent	2.11	4.34	7.35	9.43	12.00	14.72	17.00	66.96
Contraceptives	0.05	0.07	0.10	0.13	0.14	0.20	0.25	0.93
Vaccines	0.03	0.06	0.09	0.34	0.59	0.70	0.80	2.60
Drugs	0.62	1.46	2.71	3.26	4.05	4.54	4.99	21.65
<i>Malaria</i>	0.09	0.25	0.52	0.56	0.64	0.51	0.27	2.84
<i>HIV/AIDS</i>	0.15	0.43	0.91	1.04	1.31	1.37	1.49	6.69
<i>TB</i>	0.02	0.06	0.12	0.12	0.17	0.23	0.33	1.05
<i>Essential drugs</i>	0.36	0.73	1.18	1.54	1.93	2.44	2.90	11.08
Human Resources	0.56	1.18	2.00	2.50	3.11	3.71	4.43	17.50
<i>Salary</i>	0.37	0.81	1.41	1.77	2.22	2.66	3.22	12.45
<i>Incentives</i>	0.14	0.29	0.48	0.56	0.68	0.74	0.83	3.72
<i>In-service training</i>	0.05	0.09	0.11	0.17	0.22	0.31	0.38	1.33
Health financing	0.21	0.21	0.21	0.36	0.59	1.17	1.12	3.86
<i>Insurance</i>	0.21	0.21	0.21	0.23	0.23	0.83	0.83	2.74
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.13	0.36	0.34	0.29	1.11
Demand promotion	0.08	0.15	0.20	0.26	0.30	0.36	0.38	1.73
HMIS	0.03	0.08	0.16	0.21	0.29	0.38	0.53	1.69
Governance, accreditation and regulation	0.29	0.49	0.63	0.87	1.04	1.39	1.65	6.37
Administration	0.25	0.63	1.24	1.50	1.88	2.28	2.85	10.63
Total	9.96	13.25	18.99	18.71	21.06	47.03	43.47	172.47

Annex 11: Estimated additional cost by service packages and delivery level for non SSA countries (in billion US\$), Maximum scenario

	2009	2010	2011	2012	2013	2014	2015	Total	%
1. Family oriented community based services	1.48	1.18	0.91	2.06	1.45	9.31	4.91	21.30	39.3
1.0 HR, infrastructure and equipment	0.20	0.17	0.14	0.24	0.22	0.48	0.39	1.84	3.4
1.1 Family preventive/WASH services	0.94	0.58	0.31	1.28	0.67	7.99	3.60	15.37	28.4
1.2 Family neonatal care	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.12	0.2
1.3 Infant and child feeding	0.14	0.18	0.19	0.24	0.26	0.33	0.36	1.70	3.1
1.4 Community illness management	0.18	0.24	0.26	0.28	0.28	0.49	0.54	2.27	4.2
2. Population oriented schedulable services	0.34	0.58	0.86	1.18	1.95	2.43	3.01	10.35	19.1
2.0 HR, infrastructure and equipment	0.19	0.32	0.46	0.33	0.43	0.56	0.75	3.03	5.6
2.1 Preventive care for adolescents & adults	0.03	0.05	0.07	0.09	0.10	0.15	0.18	0.67	1.2
2.2 Preventive pregnancy care	0.07	0.13	0.22	0.19	0.23	0.29	0.36	1.50	2.8
2.3 HIV/AIDS prevention and care	0.01	0.01	0.02	0.02	0.03	0.03	0.03	0.16	0.3
2.4 Preventive infant & child care	0.04	0.07	0.10	0.54	1.15	1.41	1.68	4.99	9.2
3. Individual oriented clinical services	0.43	1.04	2.04	1.59	2.18	2.16	2.87	12.31	22.7
3.0 HR, infrastructure and equipment	0.19	0.45	0.82	0.41	0.64	0.56	0.86	3.92	7.2
3.1 Maternal and neonatal care at primary clinical level	0.09	0.14	0.21	0.21	0.26	0.29	0.32	1.52	2.8
3.2 Management of illnesses at primary clinical level	0.02	0.04	0.07	0.05	0.06	0.05	0.05	0.34	0.6
3.3 Clinical first referral care	0.06	0.24	0.56	0.51	0.68	0.66	0.80	3.51	6.5
3.4 Clinical second referral care	0.06	0.18	0.39	0.40	0.55	0.61	0.85	3.03	5.6
District, provincial and national governance and management	0.53	0.65	0.76	0.90	1.02	3.03	3.28	10.17	18.8
Total	2.77	3.45	4.58	5.72	6.60	16.94	14.07	54.13	100.0

Annex 12: Distribution of estimated additional resource requirement by disease, program and health system in non SSA countries (in billion US\$), Maximum Scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Program and disease	1.70	1.96	2.55	4.12	4.64	12.78	9.39	37.13
Child health	0.05	0.08	0.11	0.17	0.21	0.24	0.25	1.11
Immunization	0.01	0.03	0.04	0.52	1.11	1.33	1.57	4.61
Water, sanitation and hygiene	0.63	0.33	0.13	0.85	0.39	7.31	3.25	12.90
Nutrition	0.18	0.23	0.26	0.24	0.27	0.34	0.38	1.90
Maternal health	0.08	0.19	0.35	0.37	0.47	0.50	0.56	2.52
Family planning	0.06	0.10	0.15	0.16	0.19	0.25	0.35	1.26
HIV/AIDS	0.06	0.14	0.23	0.30	0.39	0.52	0.67	2.30
TB	0.02	0.07	0.15	0.13	0.17	0.22	0.32	1.08
Malaria	0.33	0.28	0.24	0.49	0.34	0.81	0.49	2.98
Non-MDGs basic services	0.26	0.51	0.89	0.90	1.10	1.27	1.54	6.48
Health systems	1.08	1.48	2.02	1.60	1.97	4.16	4.68	16.99
Human resources	0.13	0.28	0.46	0.40	0.52	0.53	0.62	2.94
<i>Pre-service training</i>	0.05	0.10	0.17	0.05	0.09	0.01	0.01	0.47
<i>Salary</i>	0.09	0.18	0.28	0.34	0.41	0.50	0.59	2.38
<i>Incentives</i>	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.10
Infrastructure, equipment and transport	0.50	0.68	0.97	0.52	0.70	1.09	1.37	5.82
<i>Infrastructure</i>	0.24	0.43	0.67	0.30	0.47	0.49	0.74	3.34
<i>Equipment</i>	0.21	0.20	0.23	0.16	0.17	0.45	0.47	1.90
<i>Transport</i>	0.04	0.05	0.06	0.05	0.06	0.15	0.16	0.58
Logistics	0.34	0.37	0.39	0.43	0.45	2.04	2.08	6.10
<i>Buffer stocks</i>	0.11	0.11	0.11	0.13	0.13	1.11	1.11	2.80
<i>Warehouse, equipment and vehicle</i>	0.23	0.26	0.28	0.30	0.32	0.93	0.98	3.29
HMIS	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.39
Governance, accreditation and regulation	0.05	0.09	0.12	0.17	0.21	0.29	0.36	1.30
Health financing	0.04	0.04	0.04	0.03	0.03	0.13	0.13	0.45
<i>Insurance</i>	0.04	0.04	0.04	0.03	0.03	0.13	0.13	0.45
<i>Conditional cash transfer</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.77	3.45	4.58	5.72	6.60	16.94	14.07	54.13

Annex 13: Estimated additional resource requirement by capital and recurrent classification in non SSA countries (in billion US\$), Maximum scenario

	2009	2010	2011	2012	2013	2014	2015	Total
Capital investment	1.88	1.72	1.83	2.07	1.74	10.85	6.76	26.85
Infrastructure	0.77	0.66	0.68	0.98	0.68	7.11	3.46	14.32
Equipment	0.20	0.19	0.20	0.12	0.13	0.40	0.41	1.64
Transport	0.04	0.05	0.05	0.04	0.05	0.13	0.15	0.51
Pre-service training	0.05	0.10	0.17	0.05	0.09	0.01	0.01	0.47
Buffer Stocks	0.39	0.37	0.41	0.28	0.34	1.68	1.50	4.99
Warehouse, equipment, and vehicles	0.23	0.26	0.28	0.30	0.32	0.93	0.98	3.29
ITNs	0.20	0.10	0.04	0.30	0.14	0.59	0.26	1.63
Recurrent	0.89	1.73	2.75	3.65	4.87	6.09	7.32	27.28
Contraceptives	0.05	0.07	0.10	0.14	0.16	0.21	0.28	1.01
Vaccines	0.00	0.00	0.01	0.14	0.27	0.42	0.56	1.41
Drugs	0.52	1.05	1.73	1.88	2.20	2.67	3.21	13.25
Malaria	0.09	0.15	0.18	0.19	0.20	0.22	0.23	1.27
HIV/AIDS	0.01	0.02	0.06	0.06	0.09	0.09	0.11	0.44
TB	0.02	0.06	0.14	0.12	0.16	0.20	0.30	1.00
Essential drugs	0.40	0.82	1.35	1.50	1.75	2.15	2.57	10.54
Human Resources	0.10	0.22	0.36	0.47	0.57	0.68	0.81	3.22
Salary	0.09	0.18	0.28	0.34	0.41	0.50	0.59	2.38
Incentives	0.01	0.03	0.06	0.10	0.13	0.14	0.16	0.65
In-service training	0.01	0.01	0.02	0.02	0.03	0.04	0.06	0.19
Health financing	0.04	0.04	0.04	0.36	0.84	0.97	1.03	3.33
Insurance	0.04	0.04	0.04	0.03	0.03	0.13	0.13	0.45
Conditional cash transfer	0.00	0.00	0.00	0.33	0.81	0.84	0.90	2.88
Demand promotion	0.02	0.03	0.04	0.06	0.06	0.09	0.10	0.41
HMIS	0.01	0.02	0.04	0.05	0.07	0.09	0.12	0.39
Governance, accreditation and regulation	0.07	0.13	0.19	0.27	0.34	0.49	0.64	2.13
Administration	0.07	0.15	0.24	0.29	0.36	0.46	0.57	2.14
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:

Cluster 1	Guinea Bissau	Cluster 2	Kyrgyzstan
	Rwanda		Mongolia
	Mauritania		Uzbekistan
	Senegal		Lao People's Democratic Republic
	Benin		Pakistan
	Guinea		India
	Nigeria		Tajikistan
	Burundi		Bangladesh
	Burkina Faso		Viet Nam
	Mali		Myanmar
	Gambia		Cambodia
	Madagascar		North Korea
	Ghana		Nepal
	Mozambique		Timor Lest
	Zambia		Philippines
	Kenya		Afghanistan
	United Republic of Tanzania		Haiti
	Cameroon		Papua New Guinea
	Togo		Yemen
	Zimbabwe		Salomon Islands
	Angola		
	Liberia		
	Malawi	Cluster 3	Botswana
	Côte d'Ivoire		South Africa
	Chad		Gabon
	Ethiopia		
	Uganda	Cluster 4	Niger
	Eritrea		Sierra Leone
	Somalia		Central African Republic

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

Cluster	1	2	3	4
Infant_mortality_2005	99	65	67	143
U5_mortality_2005	163	87	93	244
MMR_adjusted	895	432	433	1627
HIV_prevalance	5	1	17	1
Life_expectancy_at_birth	51	63	52	47
GDP per capita (USD)	465	549	5592	266
GDP_per_capita_ppp	1372	1989	10150	937
Gini_index	40	36	49	58
Skilled_attendant_briths	45	51	91	34
percent_safety_concern	1.2%	0.7%	0.5%	1.7%