Macroeconomics and Health: Investing in Health for Economic Development

"…let me say that I hope we keep our voice clear and strong on the central task of raising the health of the poor. I can be 'realistic' and 'cynical' with the best of them—giving all the reasons why things are too hard to change. We must dream a bit, not beyond the feasible but to the limits of the feasible, so that we inspire. I think that we are an important voice speaking on behalf of the world's most voiceless people today—the sick and dying among the poorest of the poor. The stakes are high. Let's therefore speak boldly so that we can feel confident that we have fulfilled our task as well as possible."

Taken by the editor from emailed correspondence from Jeffrey Sachs to the Commissioners and others working on this effort.

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Macroeconomics and Health: Investing in Health for Economic Development

Report of the Commission on Macroeconomics and Health

Chaired by Jeffrey D. Sachs

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Macroeconomics and Health: Investing in Health for Economic Development

The Commission on Macroeconomics and Health (CMH) was established by World Health Organization Director-General Gro Harlem Brundtland in January 2000 to assess the place of health in global economic development. Although health is widely understood to be both a central goal and an important outcome of development, the importance of investing in health to promote economic development and poverty reduction has been much less appreciated. We have found that extending the coverage of crucial health services, including a relatively small number of specific interventions, to the world's poor could save millions of lives each year, reduce poverty, spur economic development, and promote global security.

This report offers a new strategy for investing in health for economic development, especially in the world's poorest countries, based upon a new global partnership of the developing and developed countries. Timely and bold action could save at least 8 million lives *each year* by the end of this decade, extending the life spans, productivity and economic well-being of the poor. Such an effort would require two important initiatives: a significant scaling up of the resources currently spent in the health sector by poor countries and donors alike; and tackling the non-financial obstacles that have limited the capacity of poor countries to deliver health services. We believe that the additional investments in health—requiring of donors roughly one-tenth of one percent of their national income—would be repaid many times over in millions of lives saved each year, enhanced economic development, and strengthened global security. Indeed, without such a concerted effort, the world's commitments to improving the lives of the poor embodied in the Millennium Development Goals (MDGs) cannot be met.

In many respects, the magnitude of the scaled-up effort reflects the extremely low levels of income in the countries concerned, the resulting paltry current levels of spending on health in those countries, and the costs required for even a minimally adequate level of spending on health.

Because such an ambitious effort cannot be undertaken in the health sector alone, this Report underscores the importance of an expanded aid effort to the world's poorest countries more generally. This appears to us of the greatest importance at this time, when there has been an enhanced awareness of the need to address the strains and inequities of globalization.

We call upon the world community to take heed of the opportunities for action during the coming year, by beginning the process of dramatically scaling up the access of the world's poor to essential health services. With bold decisions in 2002, the world could initiate a partnership of rich and poor of unrivaled significance, offering the gift of life itself to millions of the world's dispossessed and proving to all doubters that globalization can indeed work to the benefit of all humankind.

November 2001
Jeffrey D. Sachs, Chair

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Executive Summary of the Report

Technology and politics have thrust the world more closely together than ever before. The benefits of globalization are potentially enormous, as a result of the increased sharing of ideas, cultures, life-saving technologies, and efficient production processes. Yet globalization is under trial, partly because these benefits are not yet reaching hundreds of millions of the world's poor, and partly because globalization introduces new kinds of international challenges as turmoil in one part of the world can spread rapidly to others, through terrorism, armed conflict, environmental degradation, or disease, as demonstrated by the dramatic spread of AIDS around the globe in a single generation.

The world's political leaders have recognized this global interdependence in solemn commitments to improve the lives of the world's poor by the year 2015. The Millennium Development Goals (MDGs), adopted at the Millennium Summit of the United Nations in September 2000, call for a dramatic reduction in poverty and marked improvements in the health of the poor. Meeting these goals is feasible but far from automatic. Indeed, on our current trajectory, those goals will not be met for a significant proportion of the world's poor. Success in achieving the MDGs will require a seriousness of purpose, a political resolve, and an adequate flow of resources from high-income to low-income countries on a sustained and well-targeted basis.

The importance of the MDGs in health is, in one sense, self-evident. Improving the health and longevity of the poor is an end in itself, a fundamental goal of economic development. But it is also a *means* to achieving the other development goals relating to poverty reduction. The linkages of health to poverty reduction and to long-term economic growth are powerful, much stronger than is generally understood. The burden of disease in some low-income regions, especially sub-Saharan Africa, stands as a stark barrier to economic growth and therefore must be addressed frontally and centrally in any comprehensive development strategy. The AIDS pandemic represents a unique challenge of unprecedented urgency and intensity. This single epidemic can undermine Africa's development over the next generation, and may cause tens of millions of deaths in

Table 1. Life Expectancy and Mortality Rates, by Country Development Category, (1995–2000)

Development Category	Population (1999 millions)	Annual Average Income (US dollars)	Life Expectancy at Birth (years)	Infant Mortality (deaths before age 1 per 1,000 live births)	Under Five Mortality (deaths before age 5 per 1,000 live births)
Least-Developed Countries	643	296	51	100	159
Other Low-Income Countries	1,777	538	59	80	120
Lower-Middle-Income Countries	2,094	1,200	70	35	39
Upper-Middle-Income Countries	573	4,900	71	26	35
High-Income Countries	891	25,730	78	6	6
Memo: sub-Saharan Africa	642	500	51	92	151

Source: Human Development Report 2001, Table 8, and CMH calculations using World Development Indicators of the World Bank, 2001.

India, China, and other developing countries unless addressed by greatly increased efforts.

Our Report focuses mainly on the low-income countries and on the poor in middle-income countries.[1] The low-income countries, with 2.5 billion people—and especially the countries in sub-Saharan Africa, with 650 million people—have far lower life expectancies and far higher age-adjusted mortality rates than the rest of the world, as shown in the accompanying Table 1. The same is true for the poor in middle-income countries, such as China. To reduce these staggeringly high mortality rates, the control of communicable diseases and improved maternal and child health remain the highest public health priorities. The main causes of avoidable deaths in the low-income countries are HIV/AIDS, malaria, tuberculosis (TB), childhood infectious diseases, maternal and perinatal conditions, micronutrient deficiencies, and tobacco-related illnesses. If these conditions were controlled in conjunction with enhanced programs of family planning, impoverished families could not only enjoy lives that are longer, healthier, and more productive, but they would also choose to have fewer children, secure in the knowledge that their children would survive, and could thereby invest more in the education and health of each child. Given

the special burdens of some of these conditions on women, the well-being of women would especially be improved. The improvements in health would translate into higher incomes, higher economic growth, and reduced population growth.

Even though we focus mainly on communicable diseases and maternal and perinatal health, noncommunicable diseases (NCDs) are also of great significance for all developing countries; for many middle-income countries the mortality from communicable diseases has already been significantly reduced so that the NCDs tend to be the highest priority. Many of the noncommunicable diseases, including cardiovascular disease, diabetes, mental illnesses, and cancers, can be effectively addressed by relatively low-cost interventions, especially using preventative actions relating to diet, smoking, and lifestyle.[2] Our global perspective on priorities needs to be complemented by each country analyzing its own health priorities based on detailed and continually updated epidemiological evidence. Our argument for outcome-oriented health systems also implies substantial capacity to deal with a range of conditions not detailed here, such as low-cost case-management of mental illness, diabetes and heart attacks. The evidence also suggests that approaches required to scale up the health system to provide interventions for communicable diseases and reproductive health will also improve care for the NCDs.[3]

The feasibility of meeting the MDGs in the low-income countries is widely misjudged. On the one side of the debate are those optimists who believe that the health goals will take care of themselves, as a fairly automatic byproduct of economic growth. With the mortality rates of children under 5 in the least-developed countries standing at 159 per 1,000 births, compared with 6 per 1,000 births in the high-income countries,[4] these blithe optimists assume that it's just a matter of time before the mortality rates in the low-income world will converge with those of the rich countries. This is false for two reasons. First, the disease burden itself will slow the economic growth that is presumed to solve the health problems; second, economic growth is indeed important, but is very far from enough. Health indicators vary widely for the same income level. The evidence suggests that 73 countries are far behind in meeting the MDGs for infant mortality, and 66 are far behind for meeting the MDGs for child mortality.[5] The disease burden can be brought down in line with the MDGs only if there is a concerted, global strategy of increasing the access of the world's poor to essential health services.

On the other side of the debate are the pessimists, who underestimate the considerable progress that has been made in health (with the notable exception of HIV/AIDS) by most low-income countries and believe that their remaining high disease burden is a byproduct of corrupt and broken health systems beyond repair in poorly governed low-income countries. This alternative view is also filled with misunderstanding and exaggeration. The epidemiological evidence conveys a crucial message: the vast majority of the excess disease burden is the result of a relatively small number of identifiable conditions, each with a set of existing health interventions that can dramatically improve health and reduce the deaths associated with these conditions. The problem is that these interventions don't reach the world's poor. Some of the reasons for this are corruption, mismanagement, and a weak public sector, but in the vast majority of countries, there is a more basic and remediable problem. The poor lack the financial resources to obtain coverage of these essential interventions, as do their governments. In many cases, public health programs have not been modified to focus on the conditions and interventions emphasized here.

The key recommendation of the Commission is that the world's low- and middle-income countries, in partnership with high-income countries, should scale up the access of the world's poor to essential health services, including a focus on specific interventions. The low- and middle-income countries would commit additional domestic financial resources, political leadership, transparency, and systems for community involvement and accountability, to ensure that adequately financed health systems can operate effectively and are dedicated to the key health problems. The high-income countries would simultaneously commit vastly increased financial assistance, in the form of grants, especially to the countries that need help most urgently, which are concentrated in sub-Saharan Africa. *They would resolve that lack of donor funds should not be the factor that limits the capacity to provide health services to the world's poorest peoples.*

The partnership would need to proceed step by step, with actions in the low-income countries creating the conditions for donor financing, while ample donor financing creates the financial reality for a greatly scaled-up, more effective health system, with the shared program subject to frequent review, evaluation, verification, and mid-course corrections. The chicken-and-egg problem of deciding whether reform or donor financing must come first would be put aside with both donors and recipients frankly acknowledging that both finance and reform are needed at

each stage, and that both must be sustained by an intensive partnership. For lower-middle-income countries with large concentrations of poor, a prime task of national governments would be to mobilize additional resources to finance priority interventions that assure coverage of the poor within those societies.

The commitment of massive additional financial resources for health, domestic and international, may be a necessary condition for scaling up health interventions, but the Commission recognizes that such a commitment will not be sufficient. Past experience shows compellingly that political and administrative commitments on the part of both donors and countries are key to success. Building health systems that are responsive to client needs, particularly for poor and hard-to-reach populations, requires politically difficult and administratively demanding choices. Some issues, such as relative commitments to the health needs of rich and poor, relate to the health sector. Others, such as whether the public sector budget and procurement systems work or whether there is effective supervision and local accountability of public service delivery, are public management issues. Underlying these issues are broader questions of governance, conflict, and the relative importance of development and poverty reduction in national priorities.

The Commission recognizes the importance of these and other constraints and treats them in depth in several places in this Report. Success will require strong political leadership and commitment on the part of countries that can afford to contribute resources as well as from developing countries—in the private and public sectors and in civil society as well. It requires the evolution of an atmosphere of honesty, trust, and respect in donor-recipient interactions. Success requires special efforts precisely in those settings in which health conditions are most troubling and where public sectors are weak. Donor support should be readily forthcoming to help overcome these constraints. Where countries are not willing to make a serious effort, though, or where funding is misused, prudence and credibility require that large-scale funding should not be provided. Even here, though, the record shows that donor assistance can do much to help, by building local capacity and through the involvement of civil society and NGOs. This is a daunting challenge, yet one that is more than ever a strategically relevant objective. Governments and leaders who help stimulate and nurture these actions will be providing a specific antidote to the despair and hatred that poverty can breed.

The Commission worked hard to examine whether the low-income countries could afford to fund the health systems out of their own resources if they were to eliminate existing wasteful spending in health and other areas. Our findings are clear: *poverty itself imposes a basic financial constraint, though waste does exist and needs to be addressed*. The poor countries should certainly improve health-sector management, review the current balance among health-sector programs, and raise domestic resources for health within their limited means. We believe that it is feasible, on average, for low- and middle-income countries to increase budgetary outlays for health by 1 percent of GNP by 2007 and 2 percent of GNP by 2015 compared with current levels, though this may be optimistic given intense competing demands for scarce public resources. Low- and middle-income countries could also do more to make the current spending, public and private, more equitable and effective. Public spending should be better targeted to the poor, with priorities set on the basis of epidemiological and economic evidence. There is scope for private out-of-pocket spending in some cases being replaced with prepaid community financing schemes. Yet for the low-income countries, we still find a gap between financial means and financial needs, which can be filled only by the donor world if there is to be any hope of success in meeting the MDGs.

In most middle-income countries, average health spending per person is already adequate to ensure universal coverage for essential interventions. Yet such coverage does not reach many of the poor. Exclusion is often concentrated by region (e.g., rural western China and rural northeast Brazil), or among ethnic and racial minorities. For whatever reason, public-sector spending on health does not attend sufficiently to the needs of the poor. Moreover, since many middle-income countries provide inadequate financial protection for large portions of their population, catastrophic medical expenses impoverish many households. In view of the adverse consequences of ill health on overall economic development and poverty reduction, we strongly urge the middle-income countries to undertake fiscal and organizational reforms to ensure universal coverage for priority health interventions.[6] We also believe that the World Bank and the regional development banks, through nonconcessional financing, can help these countries to make a multi-year transition to universal coverage for essential health services.

The Commission examined the evidence relating to organizational requirements for scaling up and some of the key constraints that will have to be overcome. Fortunately, the essential interventions highlighted here

are generally not technically exacting. Few require hospitals. Most can be delivered at health centers, at smaller facilities that we refer to as health posts, or through outreach services from these facilities. We call these collectively the *close-to-client (CTC)* system, and this system should be given priority to make these interventions widely accessible. Producing an effective CTC system is no small task. National leadership, coupled with capacity and accountability at the local level, is vital. This will require new political commitments, increased organizational and supervisory capacity at both local and higher levels, and greater transparency in public services and budgeting—all backed by more funding. These, in turn, must be built on a foundation of strong community-level oversight and action, in order to be responsive to the poor, in order to build accountability of local services, and in order to help ensure that families take full advantage of the services provided.

Some recent global initiatives for disease control, including those for TB, leprosy, guinea-worm disease, and Chagas disease, have proved highly successful in delivering quality interventions and, in some cases, changing attitudes and behaviors in some very difficult situations over large geographical areas. An important feature of these initiatives is the inclusion of rigorous systems of monitoring, evaluation, reporting, and financial control as mechanisms for ensuring that objectives are met, problems are detected and corrected, and resources are fully accountable. The result is a growing body of evidence concerning both the degree of progress achieved and the operational and managerial strategies that contribute to success. Lessons from these experiences can provide useful operational guidance, especially for the delivery of interventions at the close-to-client level.

In most countries, the CTC system would involve a mix of state and nonstate health service providers, with financing guaranteed by the state. The government may directly own and operate service units, or may contract for services with for-profit and not-for-profit providers. Since public health systems in poor countries have been so weak and underfinanced in recent years, a considerable nongovernmental health sector has arisen that is built upon private practice, religiously affiliated providers, and nongovernmental organizations. This variety of providers is useful in order to provide competition and a safety valve in case of failure of the public system. It is also a fait accompli in almost all poor countries.

A sound global strategy for health will also invest in new knowledge. One critical area of knowledge investment is operational research regard-

ing treatment protocols in low-income countries.[7] There is still much to be learned about what actually works, and why or why not, in many low-income settings, especially where interventions have not been used or documented to date. Even when the basic technologies of disease control are clear and universally applicable, each local setting poses special problems of logistics, adherence, dosage, delivery, and drug formulation that must be uncovered through operational research at the local level. We recommend that as a normal matter, country-specific projects should allocate at least 5 percent of all resources to project-related operational research in order to examine efficacy, the optimization of treatment protocols, the economics of alternative interventions, and delivery modes and population/patient preferences.

There is also an urgent need for investments in new and improved technologies to fight the killer diseases. Recent advances in genomics, for example, bring us much closer to the long-sought vaccines for malaria and HIV/AIDS, and lifetime protection against TB. The science remains complex, however, and the outcomes unsure. The evidence suggests high social returns to investments in research that are far beyond current levels. Whether or not effective vaccines are produced, new drugs will certainly be needed, given the relentless increase of drug-resistant strains of disease agents. The Commission therefore calls for a significant scaling up of financing for global R&D on the heavy disease burdens of the poor. We draw particular attention to the diseases overwhelmingly concentrated in poor countries. For these diseases, the rich-country markets offer little incentive for R&D to cover the relatively few cases that occur in these rich countries.[8] We also stress the need for research into reproductive health—for example, new microbicides that could block the transmission of HIV/AIDS and improved management of life-threatening obstetric conditions.

We need increased investments in other areas of knowledge as well. Basic and applied scientific research in the biomedical and health sciences in the low-income countries needs to be augmented, in conjunction with increased R&D aimed at specific diseases. The state of epidemiological knowledge—who suffers and dies and of which diseases—must be greatly enhanced, through improved surveillance and reporting systems.[9] In public health, such knowledge is among the most important tools available to successful disease control. Surveillance is also critically needed in the case of many NCDs, including mental health, the impact of violence and accidents, and the rapid rise of tobacco and diet/nutrition-related diseases.

Finally, we need a greatly enhanced system of advising and training throughout the low-income countries, so that the lessons of experience in one country can be mobilized elsewhere. The international diffusion of new knowledge and "best practices" is one of the key forces of scaling up, a central responsibility of organizations such as the World Health Organization and the World Bank, and a goal now more readily achieved through low-cost methods available through the internet.

A war against disease requires not only financial resources, sufficient technology, and political commitment, but also a strategy, operational lines of responsibility, and the capacity to learn along the way. The Commission therefore devoted substantial effort to analyzing the organizational practicalities of a massive, donor-supported scaling up of health interventions in the low-income world. We started by noting the changes that will be needed on the ground within the countries themselves. After all, essential health interventions are delivered in the communities where poor people live. Scaling up must therefore start with the organization of the CTC delivery system at the local level. The role of community involvement, and more generally of mobilization of a broad partnership of public and private sectors and civil society, is crucial here. The CTC system should also be supported by nationwide programs for some major diseases, such as malaria, HIV/AIDS, and TB. Such focused programs have important advantages when properly integrated with community health delivery, by mobilizing communities of expertise not available at the community level, public attention and financing, political energies, and public accountability for specified results.

Since scaling up will require a significant increase in international financing, an effective partnership of donors and recipient countries, based on mutual trust and performance, is essential. In this context, the mechanisms of donor financing must change, a point that has been recognized in the international system in the past 3 years by the creative introduction of a new framework for poverty reduction, often termed the *Poverty Reduction Strategy Paper (PRSP) framework*.[10] The early results of the PRSP process to date are promising, and the Commission endorses this new process.[11] A concerted attack on disease along the lines that we recommend will help to ensure success of this emerging approach to donor–recipient relations. The strengths of the PRSP include: (1) deeper debt cancellation, (2) country leadership in the preparation of the national strategy, (3) explicit incorporation of civil society at each step of the process, (4) a comprehensive approach to poverty reduction, and (5) more

donor coordination in support of country goals. All of these are applicable—indeed vital—to the success of the health initiative proposed here. To achieve the potential benefits of the PRSP framework, donor and recipient countries must specify a sustainable financing scheme and investment plan for the health sector as an integral part of the PRSP scheme for health.

Though we advocate a greatly increased investment in the health sector itself, we stress the need for complementary additional investments in areas with an important impact on poverty alleviation (including effects on health). These include education, water and sanitation, and agricultural improvement. For example, education is a key determinant of health status, as health is of education status. Investments in these various sectors work best when made in combination, a point highlighted by the PRSP process. We did not, however, make cost estimates outside of the health sector.[12]

Within the context of the PRSP, the Commission recommends that each developing country establish a temporary National Commission on Macroeconomics and Health (NCMH), or its equivalent, chaired jointly by the Ministers of Health and Finance and incorporating key representatives of civil society, to organize and lead the task of scaling up.[13] Each NCMH would assess national health priorities, establish a multi-year strategy to extend coverage of essential health services, take account of synergies with other key health producing sectors, and ensure consistency with a sound macroeconomic policy framework. The plan would be predicated upon greatly expanded international grant assistance. The National Commissions would work together with the WHO and World Bank to prepare an epidemiological baseline, quantified operational targets, and a medium-term financing plan. Each Commission should complete its work within two years, by the end of 2003.

We recommend that each country will need to define an overall program of "essential interventions" to be guaranteed universal coverage through public (plus donor) financing. We suggest four main criteria in choosing these essential interventions: (1) they should be technically efficacious and can be delivered successfully; (2) the targeted diseases should impose a heavy burden on society, taking into account individual illness as well as social spillovers (such as epidemics and adverse economic effects); (3) social benefits should exceed costs of the interventions (with benefits including life-years saved and spillovers such as fewer orphans or faster economic growth); and (4) the needs of the poor should be stressed.

We estimate that by 2010 around 8 million lives *per year*, in principle, could be saved—mainly in the low-income countries—by the essential interventions against infectious diseases and nutritional deficiencies recommended here.[14] The CMH estimated the costs of this expanded coverage,[15] including related general costs of system expansion and supervision, for all countries with 1999 GNP per capita below $1,200, plus the remaining handful of countries in sub-Saharan Africa with incomes above $1,200 (see Table A2.B for the list of countries).[16] Total annual health outlays for this group of countries would rise by $57 billion by 2007 and by $94 billion by 2015 (Table A2.3). The countries in the aggregate would commit an additional $35 billion per year by 2007 and $63 billion per year by 2015.[17] The donors, on their part, would contribute grant financing of an additional $22 billion per year by 2007 and $31 billion per year by 2015 (Table A2.6).[18] Current official development assistance (ODA) is on the order of $6 billion.[19] Total donor spending, including both country-level programs and the supply of global public goods, would be $27 billion in 2007 and $38 billion in 2015. The increased donor financing for health would be additional to overall current aid flows, since aid should be increased in many areas outside of the health sector as well.

Most of the donor assistance would be directed at the least-developed countries, which need the most grant assistance to extend the coverage of health services. For those countries, total annual health outlays would rise by $17 billion by 2007 and $29 billion by 2015, above the level of 2002. Given the extremely low incomes in these countries, domestic resource mobilization would fall far short of need, however, rising by $4 billion by 2007 and $9 billion by 2015. The gap would be filled by donors, with grant assistance equal to $14 billion per year in 2007 and $21 billion per year in 2015. We also note that, on a regional basis, Africa would receive the largest proportion of donor assistance, a reflection both of Africa's poverty and its high disease prevalence. AIDS prevention and care would account for around half of the total cost of scaling up.[20]

To understand these sums, it is instructive to consider the costs of the health interventions on a per capita basis. We find that, on average, the set of essential interventions costs around $34 per person per year, a very modest sum indeed, especially compared with average per capita health spending in the high-income countries of more than $2,000 per year. The least developed countries can mobilize around $15 per person per year by 2007 (almost 5 percent of per capita income). The gap is therefore $19 per person per year. With 750 million people in the least-developed countries

in 2007, that comes to around $14 billion. The other low-income countries can mobilize around $32 per person on average (again roughly 5 percent of per capita income). Some of these countries will need donor aid to reach the $34 per person requirement, and others will not. The other low-income countries will have a combined population of around 2 billion in 2007, and when calculated on a country-by-country basis will need roughly $3 per capita on average to close the financing gap, therefore requiring a total level of donor aid of approximately $6 billion. The low-middle-income countries will need an additional $1.5 billion, mainly to cover the high costs of AIDS.

It is important to put the total donor assistance into perspective. Although the required assistance is large relative to current donor assistance in health, it would be only around 0.1 percent of donor GNP, and would leave ample room for significant increases in other areas of donor assistance as needed. We stress that the increased aid for health must be additional to current aid flows, since indeed increased aid will be needed not only in health but also in education, sanitation, water supply, and other areas. Also, although the donor flows look large in relation to current health spending, particularly in the poorest countries, this reflects how little they spend, which in turn reflects their low incomes. This expansion of aid to the health sector needs to be phased over time to ensure that resources are used effectively and honestly, which led us to the time path of increasing coverage shown in Table 7, which shows the basis of our costing. Note that the donor assistance will be required for a sustained period of time, perhaps 20 years, but will eventually phase out as countries achieve higher per capita incomes and are thereby increasingly able to cover essential health services out of their own resources.

This program would yield economic benefits vastly greater than its costs. Eight million lives saved from infectious diseases and nutritional deficiencies would translate into a far larger number of *years* of life saved for those affected, as well as a higher quality of life. Economists talk of disability-adjusted life years (DALYs) saved,[21] which add together the increased years of life and the reduced years of living with disabilities. We estimate that approximately 330 million DALYs would be saved for each 8 million deaths prevented. Assuming, conservatively, that each DALY saved gives an economic benefit of 1 year's per capita income of a projected $563 in 2015, the direct economic benefit of saving 330 million DALYs would be $186 billion per year, and plausibly several times that.[22] Economic growth would also accelerate, and thereby the saved

DALYs would help to break the poverty trap that has blocked economic growth in high-mortality low-income countries. This would add tens or hundreds of billions of dollars more per year through increased per capita incomes.

The $27 billion of total grant assistance in 2007 would be devoted to three goals: (1) assistance to low-income countries (and to a few middle-income countries for HIV/AIDS-related expenditures) to help pay for the scaling up of essential interventions and health system development ($22 billion, detailed in Appendix 2); (2) investments in research and development (R&D) devoted to the diseases of the poor ($3 billion); and (3) increased delivery of global public goods by the international institutions charged with coordinating the global effort, including the World Health Organization, the World Bank, and other specialized United Nations agencies ($2 billion). There would also be additional nonconcessional loan assistance for middle-income countries.[23] We believe that if well managed and phased in along the timetable that we recommend, these requisite flows could be absorbed by the developing countries without undue macroeconomic or sectoral destabilization.

These financial targets are a vision of what should be done, rather than a prediction of what will happen. We are all too aware of donor countries that neglect their international obligations despite vast wealth, and of recipient countries that abjure the governance needed to save their own people. Maybe little increased funding will take place; donors might give millions when billions are needed, and impoverished countries will fight wars against people rather than disease, making it impossible for the world community to help. We are not naïve: it is no accident that millions of people—voiceless, powerless, unnoticed by the media—die unnecessarily every year.[24]

The delivery of such large donor financing will require a new *modus operandi*. The Commission strongly supports the establishment of the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), which initially will focus on the global response to AIDS, malaria, and TB. We recommend that the GFATM be scaled up to around $8 billion per year by 2007 as part of the overall $22 billion of donor aid to country programs. Given the unique challenge posed by AIDS and its capacity to overturn economic development in Africa and other regions for decades, we believe that the GFATM should support a bold and aggressive program that focuses on prevention of new infections together with treatment for those already infected. Prevention efforts would aim at achieving a high

coverage of prevention programs for highly vulnerable groups including commercial sex workers and injection drug users, and achieving widespread access to treatment of sexually transmitted infections (STIs), voluntary counseling and testing (VCT), and interventions to interrupt mother-to-child transmission. Given the costs and challenges of scaling up treatment, especially using antiretroviral therapy (ART) effectively and without promoting viral resistance to the drugs, scaling up should be carefully monitored, science-based, and subject to intensive operational research. We endorse the estimates of UNAIDS and WHO's ART program that 5 million people can be brought under antiretroviral treatment in low-income settings by the end of 2006.[25]

To help channel the increased R&D outlays, we endorse the establishment of a new Global Health Research Fund (GHRF), with disbursements of around $1.5 billion per year. This fund would support basic and applied biomedical and health sciences research on the health problems affecting the world's poor and on the health systems and policies needed to address them. Another $1.5 billion per year of R&D support should be funded through existing channels. These include the Special Programme for Research and Training in Tropical Diseases (TDR), the Initiative for Vaccine Research (IVR), the Special Programme of Research, Development and Research Training in Human Reproduction (HRP) (all housed at WHO) and the public-private partnerships for AIDS, TB, malaria, and other disease control programs that have recently been established. In both cases, the predictability of increased funding would be vital, as the necessary R&D undertakings are long-term ventures. The existing Global Forum for Health Research could play an important role in the effective allocation of this overall assistance. To support this increased research and development, we strongly advocate the free internet-based dissemination of leading scientific journals, thereby increasing the access of scientists in the low-income countries to a vital scientific research tool.

The public sector cannot bear this burden on its own. The pharmaceutical industry must be a partner in this effort. The corporate principles that have spurred recent and highly laudable programs of drug donations and price discounts need to be generalized to support the scaling up of health interventions in the poor countries. The pharmaceutical industry needs to ensure that low-income countries (and the donors on their behalf) have access to essential medicines at near-production cost (sometimes termed the *lowest viable commercial price*) rather than the much higher prices that are typical of high-income markets. Industry is ready, in our

estimation, for such a commitment, enabling access of the poor to essential medicines, both through differential pricing and licensing their products to generics producers.[26] If industry cooperation is not enough or not forthcoming on a general and reliable basis, the rules of international trade involving access to essential medicines should be applied in a manner that ensures the same results. At the same time, it is vital to ensure that increased access for the poor does not undermine the stimulus to future innovation that derives from the system of intellectual property rights. Private industry outside of the pharmaceutical sector also has a role to play, including by ensuring that their own labor force—the heart of a firm's productivity—has access to the knowledge and medical services that ensure their survival and health. For example, the mining companies of southern Africa, at the epicenter of HIV/AIDS, have a special responsibility to help prevent transmission and to work with government and donors to ensure that their workers have access to care. The main findings of the Commission regarding the links of health and development are summarized in Table 2. An action agenda is summarized in Table 3. Our specific recommendations on increased international donor assistance and domestic financing are summarized in Table 4.

With globalization on trial as never before, the world must succeed in achieving its solemn commitments to reduce poverty and improve health. The resources—human, scientific, and financial—exist to succeed, but now must be mobilized. As the world embarks on a heightened struggle against the evils of terrorism, it is all the more important that the world simultaneously commit itself to sustaining millions of lives through peaceful means as well, using the best of our modern science and technology and the enormous wealth of the rich countries. This would be an effort that would inspire and unite peoples all over the world. We call upon the leaders of the international community—in donor and recipient nations, in international institutions such as the World Bank, the World Health Organization, the World Trade Organization, the Organisation for Economic Co-operation and Development, and the International Monetary Fund, in private enterprise, and in civil society—to seize the opportunities identified in this report. Now, united, the world can initiate and facilitate the global investments in health that can transform the lives and livelihoods of the world's poor.

Table 2. Key Findings on the Linkages of Health and Development

1. Health is a priority goal in its own right, as well as a central input into economic development and poverty reduction. The importance of investing in health has been greatly underestimated, not only by analysts but also by developing-country governments and the international donor community. Increased investments in health as outlined in this Report would translate into hundreds of billions of dollars per year of increased income in the low-income countries. There are large social benefits to ensuring high levels of health coverage of the poor, including spillovers to wealthier members of the society.

2. A few health conditions are responsible for a high proportion of the health deficit: HIV/AIDS, malaria, TB, childhood infectious diseases (many of which are preventable by vaccination), maternal and perinatal conditions, tobacco-related illnesses, and micronutrient deficiencies. Effective interventions exist to prevent and treat these conditions. Around 8 million deaths per year from these conditions could be averted by the end of the decade in a well-focused program.

3. The HIV/AIDS pandemic is a distinct and unparalleled catastrophe in its human dimension and its implications for economic development. It therefore requires special consideration. Tried and tested interventions within the health sector are available to address most of the causes of the health deficit, including HIV/AIDS.

4. Investments in reproductive health, including family planning and access to contraceptives, are crucial accompaniments of investments in disease control. The combination of disease control and reproductive health is likely to translate into reduced fertility, greater investments in the health and education of each child, and reduced population growth.

5. The level of health spending in the low-income countries is insufficient to address the health challenges they face. We estimate that minimum financing needs to be around $30 to $40 per person per year to cover essential interventions, including those needed to fight the AIDS pandemic, with much of that sum requiring budgetary rather than private-sector financing. Actual health spending is considerably lower. The least-developed countries average approximately $13 per person per year in total health expenditures, of which budgetary outlays are just $7. The other low-income countries average approximately $24 per capita per year, of which budgetary outlays are $13.

6. Poor countries can increase the domestic resources that they mobilize for the health sector and use those resources more efficiently. Even with more efficient allocation and greater resource mobilization, the levels of funding necessary to cover essential services are far beyond the financial means of many low-income countries, as well as a few middle-income countries with high prevalence of HIV/AIDS.

7. Donor finance will be needed to close the financing gap, in conjunction with best efforts by the recipient countries themselves. We estimate that a worldwide scaling up of health investments for the low-income countries to provide the essential interventions of $30 to 40 per person will require approximately $27 billion per year in donor grants by 2007, compared with around $6 billion per year that is currently provided. This funding should be additional to other donor financing, since increased aid is also needed in other related areas such as education, water, and sanitation.

8. Increased health coverage of the poor would require greater financial investments in specific health sector interventions, as well as a properly structured health delivery system that can reach the poor. The highest priority is to create a service delivery system at the local ("close-to-client") level, complemented by nationwide programs for some major diseases. Successful implementation of such a program requires political and administrative commitment, strengthening of country technical and administrative expertise, substantial strengthening of public management systems, and creation of systems of community accountability. It also requires new approaches to donor/recipient relations.

9. An effective assault on diseases of the poor will also require substantial investments in global public goods, including increased collection and analysis of epidemiological data, surveillance of infectious diseases, and research and development into diseases that are concentrated in poor countries (often, though not exclusively, tropical diseases).

10 Coordinated actions by the pharmaceutical industry, governments of low-income countries, donors, and international agencies are needed to ensure that the world's low-income countries have reliable access to essential medicines.

Table 3. An Action Agenda for Investing in Health for Economic Development

1. Each low- and middle-income country should establish a temporary National Commission on Macroeconomics and Health (NCMH), or its equivalent, to formulate a long-term program for scaling up essential health interventions as part of their overall framework in their Poverty Reduction Strategy Paper (PRSP). The WHO and the World Bank should assist national Commissions to establish epidemiological baselines, operational targets, and a framework for long-term donor financing. The NCMHs should complete their work by the end of 2003.

2. The financing strategy should envisage an increase of domestic budgetary resources for health of 1 percent of GNP by 2007 and 2 percent of GNP by 2015 (or less, if a smaller increase is sufficient to cover the costs of scaling up, as may be true in some middle-income countries). For low-income countries, this entails an additional budgetary outlay of $23 billion by 2007 and $40 billion by 2015, of which the least-developed countries account for $4 billion by 2007 and $9 billion by 2015 themselves, and the other low-income countries the balance. Countries should also take steps to enhance the efficiency of domestic resource spending, including a better prioritization of health services and the encouragement of community-financing schemes to ensure improved risk pooling for poor households.

3. The international donor community should commit adequate grant resources for low-income countries to ensure universal coverage of essential interventions as well as scaled-up R&D and other public goods. A few middle-income countries will also require grant assistance to meet the financial costs of expanded HIV/AIDS control. According to our estimates, total needs for donor grants will be $27 billion per year in 2007 and $38 billion per year in 2015. In addition, the World Bank and the regional development banks should offer increased nonconcessional loans to middle-income countries aiming to upgrade their health systems. The allocation of donor commitments would be roughly as follows:

	2007	2015
Country-level programs	$22 billion	$31 billion
R&D for diseases of the poor	$3 billion	$4 billion
Provision of other Global Public Goods	$2 billion	$3 billion
Total	$27 billion	$38 billion

The WHO and the World Bank, with a steering committee of donor and recipient countries, should be charged with coordinating and monitoring the resource mobilization process. Implementing this vision of greatly expanded support for health requires donor support for build-up of implementation capacity and for addressing governance or other constraints. Where funds are not used appropriately, however, credibility requires that funding be cut back and used to support capacity building and NGO programs.

4. The international community should establish two new funding mechanisms, with the following approximate scale of annual outlays by 2007: The Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), $8 billion; and the Global Health Research Fund (GHRF), $1.5 billion. Additional R&D outlays of $1.5 billion per year should be channeled through existing institutions such as TDR, IVR, and HRP at WHO, as well as the Global Forum for Health Research and various public-private partnerships that are currently aiming toward new drug and vaccine development. Country programs should also direct at least 5 percent of outlays to operational research.

5. The supply of other Global Public Goods (GPGs) should be bolstered through additional financing of relevant international agencies such as the World Health Organization and World Bank by $1 billion per year as of 2007 and $2 billion per year as of 2015. These GPGs include disease surveillance at the international level, data collection and analysis of global health trends (such as burden of disease), analysis and dissemination of international best practices in disease control and health systems, and technical assistance and training.

6. To support private-sector incentives for late-stage drug development, existing "orphan drug legislation" in the high-income countries should be modified to cover diseases of the poor such as the tropical vector-borne diseases. In addition, the GFATM and other donor purchasing entities should establish pre-commitments to purchase new targeted products at commercially viable prices.

7. The international pharmaceutical industry, in cooperation with low-income countries and the WHO, should ensure access of the low-income countries to essential medicines through commitments to provide essential medicines at the lowest viable commercial price in the low-income countries, and to license the production of essential medicines to generics producers as warranted by cost and/or supply conditions, as discussed in detail in the Report.

8. The WTO member governments should ensure sufficient safeguards for the developing countries, and in particular the right of countries that do not produce the relevant pharmaceutical products to invoke compulsory licensing for imports from third-country generics suppliers.

9. The International Monetary Fund and World Bank should work with recipient countries to incorporate the scaling up of health and other poverty-reduction programs into a viable macroeconomic framework.

Table 4. Recommended Donor and Country Commitments
(billions of constant 2002 US dollars)

	2001 (CMH estimates)	2007	2015
Donor Commitments			
Country-level programs:			
Least-Developed Countries	$1.5	$14	$21
Other-Low-Income Countries	$2.0	$6	$8
Middle-Income Countries	$1.5 ODA 0.5 Nonconcessional	$2	$2
of which: Global Fund to Fight AIDS, Tuberculosis, and Malaria	$0	$8	$12
Global Public Goods			
R&D	(<) $0.5	$3	$4
of which: Global Health Research Fund	0	$1.5	$2.5
International Agencies	$1	$2	$3
Total Donor Commitments	$7	$27	$38
Domestic Resources for Health			
Least-Developed Countries	$7	$11	$16
Other Low-Income Countries	$43	$62	$74
Country-Level Programs in Low-Income Countries			
Donor Commitments plus Domestic Resources	$53.5	$93	$119

Note: Recommendations are for annual commitments in a global scaled up program. As stressed throughout the Report, actual disbursements will depend on policy performance within recipient countries.