Ending Sustainable Development?

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INTO THIN AIR

One score but one year ago a new concept, "Sustainable Development," sprang forth in the public imagination. Boosting the economy and protecting natural resources were no longer opposites but essential partners.

Gro Brundtland's World Commission on Environment and Development, in its bestselling report *Our Common Future*, popularized the concept whose roots lie deep in the fields of ecology and economics. The Commission's logic was that ecosystems and economies are interlinked in complex ways. Most simply, greenery is vital for economic growth. In the extreme, as on Easter Island, denuding essential ecosystems would cause civilization to collapse. But the Commission's central point regarding sustainable development was more subtle: sustainable systems are marked by their *resiliency*. To thrive in times of stress, an interconnected economic and ecological system must have the capacity and fleetness of foot to substitute abundant resources for scarce. Human ingenuity as well as natural riches are essential to longevity.

As these central tenets of sustainable development have spread into practice, something has gone horribly wrong. The watchwords of nimbleness, resilience, and ingenuity have given way to a vast apparatus marked by bureaucracy, specialization, and mandates. Rather than becoming suffused throughout the practice of human policy and economic affairs—as Brundtland and her generation had implored—sustainable development has become its own special interest.

The self-destruction of sustainable development was probably unavoidable. Because it stresses the interconnection of all, sustainability has from the very outset been particularly vulnerable to dispersion and wooly thinking. Indeed, as the concept has gained public appeal, a vast army of special interests has attached itself. Today, sustainable development embraces everyone and everything from human rights advocates to the chemical industry and the governments of low-lying island nations; from green architects to the engineers of windmills and nuclear power plants. Rather than creating a seamless whole, however, the purveyors of these special interests—small island states, human rights, women, renewable energy, HIV/AIDS, and so on—have each carved out "their" piece of the sustainable development agenda. Like a compass that points in all directions, sustainable development has found practical expression not in the interconnections of nature and economy but in an array of checklists, targets, and special mandates. Resiliency, innovation, and the interconnections of complex adaptive systems

have given way to a paroxysm of micro-interests. "Sustainable development" has assumed the opposite of its original meaning and is now diffusing into irrelevance.

This ascent into thin air matters not only because a meaningless sustainable development agenda is wasting enormous human and financial resources. It is worrisome because "sustainable development" as it stands has become useless has a framework for guiding policy, and the efforts that it inspires are exactly contrary to the original goals of sustainable development. Lacking a reliable compass, the apparatus of sustainable development is unable to set rational priorities. Drifting from relevance it is unable to exert leverage on the choices of firms, individuals, and governments. Fixing this mess requires first understanding how sustainable development lost its groove and then charting a path back to the future.

WHAT WENT WRONG?

It is easiest to trace the descent of sustainable development into oblivion by following how the UN has embraced the concept of sustainability. For it was the UN's own Commission on Environment and Development, headed by Gro Brundtland, that really put sustainable development on the map as a concept with political traction. That Commission led directly to the 1992 "Earth Summit" in Rio, whose Secretary-General Maurice Strong, proclaimed that "The Earth Summit is not an end in itself but a new beginning…on a new pathway to our common future."

Rio was seen at the time as a huge success. It involved over 170 governments, 130 heads of state, (2,400 NGO representatives), and nearly 10,000 journalists. Success kindled demand for encores, and a decade of summits followed. Roughly one gala per year covered the gamut of topics—some of which were already on the UN's agenda—such as population (1994), women (1995), social development (1995), cities (1996), and sundry other topics. The system cried mercy and capped the decade of summitry in 2002 with The World Summit on Sustainable Development in Johannesburg.

The summits all followed a model similar Rio's whereby they typically each produced two documents: an extensive agenda for action and a crisper visionary statement that folks outside the apparatus might read. (In Rio, these twin products were called "Agenda 21" and the "Rio Declaration.")

Such documents have become the locus of enormous diplomatic activity of dubious durability and leverage. The action plans are huge documents that gain consensus through the lack of discipline—they are Christmas trees on which every interest was allowed to hang its ornament. A costing exercise on Agenda 21 found that implementing the plan might cost $600b *per year* in new spending, of which $125b would be needed from foreign donors. (For comparison, the total amount of new foreign aid committed at Rio was about $6b.) Nobody has even bothered to tally the costs of subsequent summit plans. The process is something like what every American child

experienced upon seeing the FAO Schwartz catalog and imagining life with an infinite bank account.

The statements of principles, too, have not had any effect—but for the opposite reason. Intended as visionary and brief, the statements are the work of lawyers serving as poets—they are meant, in a single brief document, to convey inspiration while not trampling any sharp interest. Thus the Rio Declaration offered a fresh interpretation of the age-old contest between a nation's sovereign freedom and its responsibilities to others:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. (*Rio Declaration on Environment and Development*, Principle #2)

Nobody really knows what this principle means—does it endorse sovereign freedom of action, or does it create duties beyond borders? Ambiguity is often a good strategy for survival.

Rio created not just documents but also institutions. It created two new legally binding treaties, each with new secretariats, offices, and mandates—one focused on climate change and the other on biological diversity. They will reappear in our story later. And it created a new UN body called the Commission on Sustainable Development (CSD). Ever since, the CSD has held a summit-like annual meeting plus sundry other activities. Ostensibly the CSD was established to follow-up the commitments made in Rio; in practice, it has assumed a life of its own. The CSD is staffed by sustainable development experts; its decisions are the diplomatic handiwork of governments whose own diplomatic staff has become specialized in CSD matters. Next year, the 14th year of CSD's operations, will focus on energy and climate (energy, climate, air pollution, and industrial development). Indeed, as Maurice Strong had predicted, the Earth Summit proved not to be the end but the beginning—an anchor for an array of new institutions and processes.

This orgasm of activity in the UN system has counterparts at nearly every level of government. They are less visible and less easy to encapsulate and thus harder to criticize. (That has always been an affliction for the UN system whose sole star is bright and sits high above the horizon—an easy target.) In part, governments embraced the sustainable development agenda so that they could feed the UN processes. NGOs, as well, have ingrained themselves into the apparatus. And firms have folded sustainable development into a broad movement for "corporate social responsibility (CSR)" that aim to change business practices so that they might become more sustainable. Wisely skeptical analysts have found that "corporate social responsibility" hasn't provided much leverage to firms or their shareholders, except where the mandates are focused and

connected to a specific purpose. BP, for example, has focused on its own CO_2 emissions as part of the firm's effort to set an example by leading the industry in cutting the gases that cause climate change. The results have been striking—just by getting managers to count their emissions and identify money-saving ways to reduce them, BP cut emissions ten percent in a few years.

It is striking how little has been achieved through the apparatus of sustainable development.. The existing system has run into trouble on three fronts.

First, the most striking failure has been its lack of realism. As the apparatus has drifted into ever-thinner air it has embraced goals that have no relationship to achievement. Rio's Agenda 21 embraced every goal imaginable, but since it set no specific targets the agenda's relevance is hard to ascertain.. As the summit marathon wore on, however, the targets have become clearer. This is most evident in the capstone from the decade of summits: the "Millennium Development Goals (MDGs)" that were the main administrative output from the 2002 World Summit on Sustainable Development.

The MDGs consist of 8 broad goals which are parsed into 17 targets and 48 specific indicators. They call for the eradication of extreme poverty, universal primary education, a fuller equality for women, and other worthy and pressing aspirations. Of the 48 indicators, table 1 summarizes the situation today. Most are moving in the correct direction, the dismal story of HIV/AIDS being a notable exception. Practically none of the indicators are tracking to compliance. The big story, however, is that there is no relationship between the indicators (and their underlying goals) and the areas where the apparatus of sustainable development has leverage. Consider goal #8, which is the area where the MDGs so far have made most progress. One of the indicators, debt relief, measures activities that governments can affect directly. And two of the indicators concern cell phones and personal computers, which but for a few aid programs (of dubious value) are the function entirely of commercial activity outside the sustainability apparatus. It is worrisome for the relevance of this whole process that, by far, the MDGs' biggest success story concerns these two indicators which are furthest removed from the sustainability orbit. Neither the cell phone and computer companies, nor their customers, pay attention to the UN's goals.

The lack of realism in the MDGs reflects that the apparatus is working without a theory. The goals and their metrics are the byproducts of diplomatic skills and the pressing of special interests. There is no underlying theory that inspires priorities. Should $1 be put into water treatment or into poverty or into structural adjustment? Is debt relief better than a cell phone? It is better to treat symptoms (e.g., the lack of health care) or the primal causes of under-development such as corruption? These are questions rarely posed inside the apparatus, and in a consensus oriented system the response to dissent is to widen the tent. That's why we have 48 indicators rather than a handful. That's why each special interest focuses on advancing its indicators, and why in the vacuum of theory no strategy has emerged. Shortly, that vacuum will fill with frustration

at the lack of achievement. It is also striking that the indicators are focused almost entirely on measures for progress in the developing world.

These concerns have been raised by the World Bank in a series of remarkable studies that assessed the effectiveness of development assistance. Those studies generally found that investing in a few key areas—such as combating corruption, imposing discipline on government budgets, and opening to competition through foreign trade—explain why some countries flourish as others stumble. None of these factors—corruption, budget discipline, and openness of trade policy—figures on the list of 48 indicators even though these are primal causes for economic growth. (Nor has the Bank, itself, properly heeded the advice of its own research department. Unpacking the pathology of that failure would take us astray.)

A second failure of the apparatus stems from its environmental bias. To first order approximation, the apparatus of sustainability has been created and paid for by advanced industrialized nations—in particular, those nations' interest groups that are principally concerned with protecting the environment. As the decade of summits wore on that tent has become larger, but sustainability first and foremost has been a cover for greenery. In recent years, especially, one issue—climate change—has dominated attention.

This was not Brundtland's vision, nor was it the vision of the developing countries that cautiously embraced the concept of "sustainable development." Their interest lay mainly in economic development and human infrastructure. This contest for the focus of sustainable development is evident in the linguistics of the apparatus and where it spends its money.

Linguistically, it is worth noting that the Rio Summit was formally called the "United Nations Conference on Environment and Development." The last two words, "and Development," were inserted at the insistence of developing countries. But that didn't stop everyone, even honcho Maurice Strong, from calling the gala the "Earth Summit." And it is telling that the two binding treaties that were signed at Rio both reflected the environmental priorities of the advanced industrialized world—one on global climate change (the UN's Framework Convention on Climate Change) and the other on biological diversity (the Convention on Biological Diversity). A clique of industrialized countries had been preparing a third treaty—on forests—but the developing countries, rich in forests and wary of intrusion, got themselves well enough organized to kill that one. The result, instead, was a set of forest principles that spawned a string of new institutions that today are known as the UN Forum on Forests (UNFF). Though it has produced meetings and documents, the UNFF has had no effect on behavior. This, more or less, was by design. The developing countries, hoodwinked at Rio, ensured that the 2002 summit didn't even have the term "environment" in the title—it is called the World Summit on Sustainable Development. And the MDGs largely reflect the priorities of the developing countries—they are, mainly, about development. It is a pity that by 2002 the whole apparatus was already in the thin air.

The environmental bias has proved surprising durable in the areas where the North has more leverage—money. The apparatus has little money of its own, but one new pot was created early in the decade of summits: the Global Environment Facility (GEF). Today, GEF funds projects in six areas: climate change, biodiversity, international waters, land degradation (notably forests), ozone depletion, and persistent organic pollutants. These six match exactly the top diplomatic priorities of the industrialized nations. In climate change, which will be relevant later in this essay, the spending has focused on renewable energy and efficiency— darling causes for the industrialized nations that are somewhat disconnected from the real energy priorities in developing countries. For the 1.6 billion people who lack electricity—a group that, ironically, is often invoked as reason for funding of energy programs—the GEF's priorities are ill-suited. GEF has focused on technologies that are much more costly than those utilized in developing countries' own programs for electrifying the poor. GEF's rationale is that these exotic technologies will become cheaper with experience, an argument of dubious future value and little immediate relevance. GEF has pushed for technologies (e.g., solar and wind, and aggressive energy efficiency) that are the darlings of environmentalists in the North. These technologies are part of the story, but any integrated strategy for electrification must also give prized places to the less sexy but often more cost-effective and attractive options (e.g., diesel generators and grid extensions).

The third front for trouble in sustainable development has been administration. Just as the concept of sustainable development lost its groove over the last decade, the money devoted to the concept has started flowing. In the developing countries this has created a dilemma that has been resolved, in the main, by treating sustainable development not as a philosophy of governance but as a special channel for overseas funding. In general, the countries that have been most successful at this effort are those that have specialized. These countries have attracted funding earmarked for "capacity building" and built their own apparatus of ministries and project officers whose ostensible purpose is to put sustainable development into practice but whose clientele is, in fact, the grantmaking arms of the industrialized countries, the CSR departments of big firms, and the specialized NGOs.

This specialization advantage has created many perverse effects. One is that the system has rewarded large countries that, because of the economies of scale, have been able to create specialized bureaucracies. The countries that are most talented at creating institutions have reaped the largest rewards; yet it is the countries where institutions are weak that need the greatest help. The poorest and least well governed—notably the countries of Africa – have the greatest need for and are least attractive to funding. The fastest and largest rewards have gone to countries whose bureaucracies have become most quickly tailored to the interests of their clients, which has meant that "sustainable development" has become an increasingly peripheral activity in the real work of governance. The ministries and agencies that have principal responsibility for roads, electricity and other core infrastructure are, by definition, unable to orient themselves to the interests and fads of external clients. The external funding agencies want identifiable projects—ideally bearing the moniker "sustainable development"—and have little

interest in the diffuse and less visibly rewarding work of mainstreaming sustainability that was central to Brundtland's vision.

ATTAINING LEVERAGE

No villains or smoking guns are evident in sustainability's descent from reality. A broad and wooly concept with political traction, sustainable development inevitably attracted interest groups that each sought to seize their share. The theory of sustainable development was never strong enough to fend off twisting and contorting pressures. And as the apparatus of sustainable development has drifted into the thin margins of real decision-making it has, inevitably, been unable to set realistic goals or exert leverage.

The remedies for these troubles lie in returning to the original vision of sustainable development. The aim, as envisioned by Brundtland, was to integrate ecology and economy. And the purpose of integration was to offer a more effective means of governance. Let's take each in turn—first integration then governance.

First, the fallacy of global action plans and universal principles lies in the idea that integration is an activity with a universal optimum. In fact, integration is a highly political activity and is governed by interests that vary enormously. In the extreme, integration of nature and economic activity requires close sensitivity to the local interests of each place. Each society will choose its own mix of tangible and natural capital as there is no universal rule for sustainable development. This fact has given rise to two tensions. One is the greenery that is the bedrock for the most ardent supporters of sustainability. By their view, nature is so fragile that is must take priority. Another tension, even more fundamental, is between local and global planning. The most ardent supporters of sustainability have argued that global interconnections require global plans, which may help explain the eternal appeal of global climate change in the sustainability circuit. Intrinsically global, the problem of climate change is eternally attractive to global optimizers. Yet in most of the world—including nearly the entire developing world—it is the localists who dominate, for they set priorities differently and economic growth generally rises higher on the agenda. These localists typically worry about global phenomena only to the extent that these are byproducts of the human system (e.g., tariffs, trade, and other factors that affect economic flows directly).

These two disconnections—one between the globalists and the localists, the other between greenery and economy—fall on the same axis and help to explain why the practical agenda for sustainable development has been stillborn. The two sides frame problems completely differently. In the debate about global climate change, for example, a growing chorus of interests in the advanced industrialized world is calling for the developing countries to "engage" in solving the problem and commit to controlling emissions. These efforts have come to naught; indeed, they have produced a backlash that has seen the Chinese government categorically refuse to accept any limits on its emissions.

A successful way forward entails probing how developing countries are integrating economy and environment—how they, in effect, define sustainable development. Most place a special priority on local air pollution and other acute phenomena—just as the big cities of the advanced industrialized world focused, first, on cleaning the local air and water before they invested in more diffuse regional pollution abatement. As nations have become fragmented in their rule, examination of the process of integration at the level of a whole nation becomes less relevant. In China the three large cities of Beijing, Guanghzhou, and Shanghai are weighing pollution differently (and much more seriously) than is the hinterland. These cities are not only more exposed to pollution on account of their size, but are also much wealthier and keen to attain the cleanliness expected of a modern city.

This diversity suggests that the global optimizers have been approaching the problem of climate change—and, to varying degrees, every other global ecological challenge—in the wrong way. They have imagined global solutions, such as a global allocation of emission credits, and then found themselves frustrated that such solutions are not politically viable.

Instead, we should turn the tables and start with the local optimizer. We should find all the ways that local expressions of "sustainable development" can be aligned with global objectives. For example, the three Chinese cities are each in the midst of transitioning their energy systems reliance upon coal to natural gas, which is cleaner locally and also yields much lower emissions of the global pollutant CO_2. To the extent that aligning local priorities with the global interests of the advanced industrialized countries, the latter will need to offer compensation. In other areas of international law—such as the successful effort to control emissions that deplete the ozone layer—efforts to align local and global priorities revealed no overlap, with the result that regulations went forward only when the industrialized countries were willing to pay 100% of the cost. For climate change there have been hardly any serious attempts to discern the extent to which priorities align. My example of gas in China is but one; if we look closely we will find many others.

This localized approach is important for the mission of sustainable development because it allows each society to set its own ordering of priorities. In a world where international institutions are generally weak, agreements must to a large extent be self-enforcing. That is why my colleagues Tom Heller and P.R. Shukla have been advocating a "development first" approach to the problem of climate change. By their estimation, it is development that orients the priorities of the major developing countries, and efforts to cut carbon emissions will be feasible only insofar as they align with development.

Second, sustainable development must become severely practical about governance. The enormous political attention to sustainable development is not animated by academic curiosity about the interconnections across complex economic and ecological systems. Rather, it is inspired by the desire to govern—to influence the choices of technology and behavior. The apparatus of sustainable development has drifted into thin air, I argue, because it has become disconnected from any leverage over these choices. It sets goals that bear no relation to actions and builds action plans that

bear no relation to resources because it has become confident that way up in the stratosphere these is no system of accountability.

Again, to discern a path for more effective leverage we can look to the difficulties encountered in addressing the problem of climate change. In their simplest form, many of the troubles with governance on the problem of climate change stem from lack of realistic goals. The Kyoto Protocol ran into trouble, notably in the United States, because it set (with the U.S.'s consent) commitments that were unattainable. Today, U.S. emissions are about 15% above 1990 levels, although the Kyoto treaty called for a 7% cut. Only an Enron-like system of swaps with Russia could bring the U.S. into formal compliance; yet that would do little for the goal of reducing global emissions and was never politically viable. It is hard to have leverage through a binding instrument that offers no means of compliance. For countries that take law seriously there is no option but to exit, and that is exactly what the U.S. did. Part of the solution is to devise more realistic goals.

The root source of better global governance is grounding the efforts in practical local solutions. In the debate over Kyoto this is most evident in the difficulties with emission trading. At Kyoto—again, with the U.S. as cheerleader—the diplomats envisioned a scheme for international emission trading. This scheme would begin with 38 countries that were part of the Kyoto targets and would eventually include the rest of the world. The economic logic was impeccable, but the practice of global trading is laughable because none of the institutions that are essential for trading—such as monitoring and enforcement, without which the emission credits lack integrity and value—can be performed at the global level.

While the Kyoto vision of emission trading has been stillborn, a much more important set of activities is emerging from the bottom up. Trading mechanisms are maturing in places where institutions are strong and populations are concerned about climate change. In Europe, where the population is most exercised, the trading volumes are highest, the institutions are strongest, and the prices the most lofty. In the U.S., where public concern remains low, a voluntary system with different rules has taken shape. In New South Wales yet another system is forming despite the fact that the Australian government has sworn off targets for the country as a whole. Leverage comes from matching interests and capabilities. Almost always, these form at regional and local levels and then aggregate, with time, towards a global scale. Starting with the global institutions is a recipe for eventual irrelevance.

This fragmented nature of governance is evident not only in geography but also in the actors and institutions that exert leverage over choices. These help us understand two difficult to anticipate yet often enormously important ways that policies affect decisions. First, most issues that comprise the agenda of sustainable development are shrouded in uncertainty. The magnitude and wiring of interconnections between environment and development are unknown and political feasibility is in flux. In these areas, policy decisions matter not merely for their content but for their signals about future direction. This is especially evident in matters related to energy and other long-lived infrastructures

where decision-makers such as investors, bankers, and regulators must contend with the likelihood that critical policy decisions will change over the commercial lifetime of their hardware. In these settings the predictability and credibility of decisions matter often more than the particular content. In developing countries where governments have been able to signal a credible environment for investors, there has been an influx of private (usually foreign) investment in new energy systems. These are usually deploying the latest technology and at much lower emissions of local and global air pollutants than their predecessors. In the U.S., credibility will help to explain a curious result of most economic models: while few observers think it is feasible to adopt a limit on CO_2 that is more costly than about $10 per ton, nearly all the models show that none of the system-changing technologies for low carbon (e.g., coal gasification with sequestration, or advanced nuclear power plants) will come into the market unless carbon prices are much higher. Yet some companies are already planning these investments because they see a positive price for carbon on the horizon and they are assured by their regulators that carbon should figure in their decision-making. I suspect that the actual price of carbon matters a lot less than the perception of a trajectory, and the actual investments in low-carbon technologies will run earlier and more rapidly than the standard models predict because this factor of credibility is not one that the technical analysts have included in their assessments.

The other curious effect of fragmentation is the growing irrelevance of formal government decision-making to some areas of policy and some choices of technology. Across Europe, public opposition to genetically engineered foods led formal policies to keep those foods from market—government policy helped to finish the job rather than start it. (And now government policy is trying to reopen the market with great difficulty.) Food irradiation got stuck in a niche market (spices and a few other specialty applications), despite government studies and decision-making processes that had embraced irradiation as a way to make a safer food chain. And so, too, some of the key technologies in the business of controlling carbon may find themselves relegated to the sidelines despite favorable "rational" assessments from government. The dangers are perhaps most striking for carbon sequestration, which entails pumping large volumes of CO_2 underground. This technology is familiar and widely used in oil and gas operations already, though the volumes will be much larger. The risks are not zero, however. Current regulatory regimes for controlling underground injection have been erratic in their performance, and there are dangers of faulting and even catastrophic leaks. The industry would do well to imagine a variety of scenarios for this technology and cut its teeth on those that are least likely to fan the public's imagination for danger. As soon as people feel it is unsafe to live atop a deep aquifer that has been the site for CO_2 sequestration the battle is probably lost, regardless of the technical merits of the elegant engineering.

BACK TO THE FUTURE

The apparatus of sustainable development may not be worth saving. In the thin air it will find difficulty in growing and reproducing. Eventually, the apparatus will have spread itself so fully to the margins of relevance that it will dissipate without notice.

Yet there are dangers in not redirecting the apparatus, not least that the challenges of attaining sustainable development will not solve themselves. They demand articulation with real and achievable goals and they require governance by institutions that are designed for effect.

I have offered a pathologist's report on how sustainable development migrated from a powerful animating concept to a collection of special interests that is distorting the real priorities of development. Fixing the system requires going back to the original concept of sustainability which stressed integration of economic and ecological systems but left political units to make their own choices about priority. Because those choices are inherently local and fragmented, so too a vision for sustainable development must be built from the bottom up. For too long, the global apparatus of sustainability and its various expressions in policy, such as treaties, have imagined that global choices have simple extensions to the local level when, in fact, most real leverage arises in the opposite direction.

Table 1

Goal 1. Eradicate extreme poverty and hunger		
Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	• Indicator 1. Population below $1 purchasing power parity (PPP) per day • Indicator 2. Poverty gap ratio • Indicator 3. Share of poorest quintile in national consumption	Poverty reduction in Asia was dramatic, while the number of poor in Africa is rising. Percentage of population in develolping countries living below $1 per day was 27.9 in 1990 and 21.3 in 2001
Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger	• Indicator 4. Prevalence of underweight children under-five years of age • Indicator 5. Proportion of population below minimum level of dietary energy consumption	Poor progress: Setbacks are nearly outweighing progress and the decline in hunger is slowing
Goal 2. Achieve universal primary education		
Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	• Indicator 6. Net enrolment ratio in primary education	Primary-level enrolees per 100 children of enrolment age was 81.6 in 1990 and 84.2 in 2001
	• Indicator 7. Proportion of pupils starting grade 1 who reach grade 5	Percentage of students enrolled in the final grade of primary school was 83.3 in 1998 and 85.0 in 2001
	• Indicator 8. Literacy rate of 15–24 year–olds	The world literacy rate was 84.3 in 1990 and averaged 87.3 from 2000 - 2004

Goal 3. Promote gender equality and empower women

Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	• Indicator 9. Ratio of girls to boys in primary, secondary and tertiary education • Indicator 10. Ratio of literate women to men, 15–24 year–olds • Indicator 11. Share of women in wage employment in the non-agricultural sector • Indicator 12. Proportion of seats held by women in national parliament	Poor progress: Gender disparities persist at all levels of education. Men continue to have a larger share of jobs and dominate decision-making at high levels

Goal 4. Reduce child mortality

Target 5. Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	• Indicator 13. Under-five mortality rate • Indicator 14. Infant mortality rate • Indicator 15. Proportion of 1-year-old children immunized against measles	Poor progress: Child mortality reduction has slowed and drastic reduction is needed in sub-Saharan Africa and Southern Asia

Goal 5. Improve maternal health

Target 6. Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	• Indicator 16. Maternal mortality ratio • Indicator 17. Proportion of births attended by skilled health personnel	Fair: Global Maternal mortality has decreased, but not in countries most affected

Goal 6. Combat HIV/AIDS, malaria and other diseases

Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS	• Indicator 18. HIV/AIDS prevalence • Indicator 19. Condom use rate of the contraceptive prevalence rate • Indicator 20. Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14	Very Poor: HIV prevalence in all regions has increased as the AIDS epidemic worsens.
Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	• Indicator 21. Prevalence and deaths associated with malaria • Indicator 22. Population in malaria risk areas using effective malaria prevention and treatment measures • Indicator 23. Prevalence and death rates associated with tuberculosis • Indicator 24. Proportion of tuberculosis cases detected and cured under directly observed treatment strategy (DOTS)	

Goal 7. Ensure environmental sustainability

Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	• Indicator 25. Proportion of land area covered by forest	30.3% in 1990, 29.6% in 2000
	• Indicator 26. Area protected to maintain biological diversity	11.2% in 1994, 12.9% in 2004
	• Indicator 27. Energy use (kg oil equivalent) per $1 GDP (PPP)	259 in 1990, 216 in 2002

	• Indicators 28. Carbon dioxide emissions and consumption of ozone-depleting chloroflourocarbons (CFCs) • Indicator 29. Proportion of population using solid fuels	Metric tons per capita emissions were 4.05 in 1990, 3.91 in 2002
Target 10. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	• Indicator 30. Proportion of population with sustainable access to an improved water source, urban and rural	77% in 1990, 83% in 2002
	• Indicator 31. Proportion of population with access to improved sanitation, urban and rural	49% in 1990, 58% in 2002
Target 11. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers	Indicator 32. Proportion of households with access to secure tenure	Percentage of urban population living in slums was 31.6% in 1990 and the same in 2001

Goal 8. Develop a global partnership for development

Target 12. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system. Includes a commitment to good governance, development, and poverty reduction – both nationally and internationally		

Target 13. Address the special needs of the least developed countries. Includes: tariff and quota free access for least developed countries' exports; enhanced programme of debt relief for HIPC and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction **Target 14.** Address the special needs of landlocked countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly) **Target 15.** Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	• Indicator 33. Net ODA, to all developing and least developed countries • Indicator 34. Proportion of bilateral, sector-allocable ODA of OECD/DAC donors allocated to basic social services (basic education, primary health care, nutrition, safe water and sanitation) • Indicator 35. Proportion of bilateral official development assistance of OECD/DAC donors that is untied • Indicator 36. ODA received in landlocked developing countries as a proportion of their gross national incomes	A debt-relief program has reduced the debt of 27 of the most heavily indebted countries by $54 billion - bringing these countries' payments down to roughtly 10% of export earnings. However, even this reduces level is problematic for these countries.

	• Indicator 37. ODA received in small island developing States as a proportion of their national incomes • Indicator 38. Proportion of total developed country imports (by value and excluding arms) from developing countries and least developed coutries, admitted free of duty • Indicators 39. Average tariffs imposed by developed countries on agricultural products and textiles and clothing from developing countries • Indicator 40. Agricultural support estimate for OECD countries as a percentage of their gross domestic product • Indicator 41. Proportion of ODA provided to help build trade capacity • Indicator 42. Total number of countries that have reached their HIPC decision points and number that have reached their HIPC completion points • Indicator 43. Debt relief committed under HIPC initiative • Indicator 44. Debt service as a percentage of exports of goods and services	
Target 16. In co-operation with developing countries, develop and	• Indicator 45. Unemployment rate of young people aged 15–24 years	11.7 in 1993, 14.4 in 2003

implement strategies for decent and productive work for youth	• Indicator 45a. Ratio of youth unemployment rate to adult unemployment rate, 1993-2003	3.2 in 1993, 3.0 in 2003
	• Indicator 45b. Share of youth unemployment in total unemployment, 1993-2003	51.5% in 1993, 46.8% in 2003
Target 17. In cooperation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries	• Indicator 46. Population with access to affordable essential drugs on a sustainable basis	
	• Indicator 47. Telephone lines and cellular subscribers	Number of telephone lines and cellular subscribers per 100 population was 10.1 in 1990 and 40.5 in 2003
	• Indicator 48. Personal computers and Internet users	Number of personal computers per 100 population was 2.5 in 1990 and 10.1 in 2003

Sources: UN, *2005 Millennium Development Goals Report* (New York: UN), online at http://unstats.un.org/unsd/mi/pdf/MDG%20Book.pdf. For the targets and indicators see http://millenniumindicators.un.org/unsd/mi/mi_goals.asp.