Organisation for Economic Co-operation and Development

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Sustainable Development

ROUND TABLE ON SUSTAINABLE DEVELOPMENT

Preparing for the World Summit: Some Information about Sustainable Development

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This document is a background paper for the Round Table on Sustainable Development, which has as its theme "Preparing for the World Summit on Sustainable Development." The meeting will take place at OECD Headquarters, 2, rue André Pascal, 75016 Paris on 11 July 2002, starting at 09.00 am.

The views expressed do not necessarily represent those of the OECD or any of its Member countries.

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Sustainable Development: The Global Environment

Climate Change

Key International Commitments

- Montreal Protocol (1987, amended 1990,1991 and 1992): *Elimination of CFCs and halocarbons*[1].
- Framework Convention on Climate Change (1992): *Prevent dangerous human interventions in the global climate.*[2]
- Kyoto Protocol (1997): *Emission reductions by a range of industrialised countries of at least 5% below 1990 levels, by 2008-2012*[3]***. (not in force)***

Agenda 21 (Rio 1992)

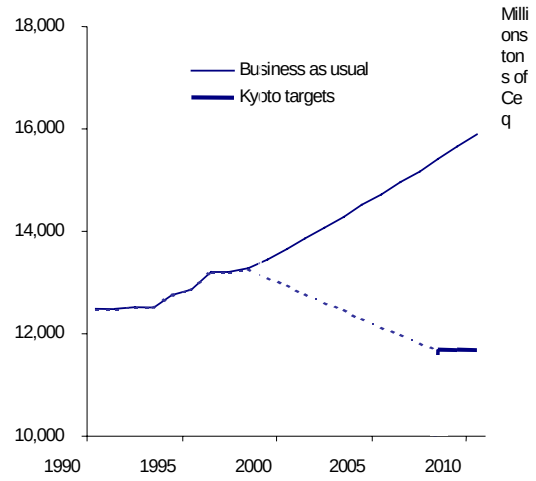
- Protecting the Atmosphere (chapter 9): *Clarifying the science; improving energy use; reducing stratospheric ozone depletion; and trans-boundary pollution*[4]

Key Knowledge/Information Gaps

- The international scientific consensus is clear: global climate change is occurring as a consequence of human activity. Nevertheless, the implications of this for the stability of the climate remain uncertain. [5]
- Information about the chemistry of the atmosphere and its reaction to human pressures is currently insufficient and one Nobel Laureate for science has described the atmosphere as the 'Achilles heels' of Earth's life support system.[6]
- The consequences of the apparent slowing or shutting-down of the North Atlantic thermohaline circulation and an accompanying shift in the Gulf Stream as a consequence of human consumption patterns and climatic changes remain unclear.[7]
- ***In short, the science is uncertain about whether we have crossed or are poised to cross a global threshold that will lead to rapid climate change with attendant consequences for human life.***

Projections

- CO2 emissions from OECD countries are projected to rise by 33% by 2020.[8]
- CO2 emissions from developing countries are projected to rise by 100% by 2020.[9]
- Climate change models suggest that by 2100 the mean surface temperature on earth will rise between 1.4 and 5.8 degrees Celsius.[10]
- In order to stabilise greenhouse gas concentrations at "safe" levels, reductions in global emissions in the range of 45-60% from the base of 1990 will be required by 2050.[11] Recent trends, however, are far from these targets.



- *Greenhouse Gas Emissions In OECD Countries: Kyoto Compared with 'Business as Usual' Projections*[12] ***Upward Trend to Continue***

Projections Continued

- Global energy use is expected to expand by more than 50% by 2020.[13]
- Demand for energy in China and East Asia will expand more quickly than elsewhere at a rate of more around 2-3% per annum.[14]
- Demand for energy in the former Soviet Union is likely to rapidly increase again to 2020 by between 1 and 4 % per annum.[15]
- By 2020, transport alone will account for more than half of global oil demand.[16]
- The non-renewable fossil fuels resource base is expected to be sufficient to meet demand to 2020, though problems beyond that point are foreseen for natural gas, and possibly oil. Difficulties are not foreseen for coal.[17]

Economic Issues

- ***The likely annual cost in 2010 of fulfilling Kyoto targets if fully implemented amounts to US$56 billion, or 0.22% of the combined GDP of OECD members.***[18]
- ***Achieving a 350ppm target would delay a ten-fold increase in global GDP by only 2-3 years. In other words, meeting a stringent target like 350ppm means that global income would be ten times greater than today by 2102 rather than 2100.***[19]
- US non-participation in Kyoto is likely to lead to a sharp drop in the value of CO2 emission permit prices. Lower permit prices are expected to discourage investments in alternative technologies.[20]
- The World Bank has estimated that every gallon of petrol consumed imposes a US$0.10 on the US economy as a whole in terms of the damage caused by air pollution. The range of costs imposed across the country are locationally distributed. In urban centres the economic cost of consuming a gallon of gasoline can rise as high as US$0.62.[21]
- Total fossil fuel subsidies by OECD economies: US$57 billion
- Total fossil fuel subsidies in non-OECD countries: US$94 billion
- Total subsidies for renewable energy sources (including nuclear power) in OECD countries, are US$25 billion, while in developing countries the figure is negligible.[22]
- ***Through the provision of such support, Governments are effectively subsidising pollution and global warming, as more than 60% of all subsidies flow to oil, coal and gas.***[23]

Fresh Water

Agenda 21 (Rio 1992)

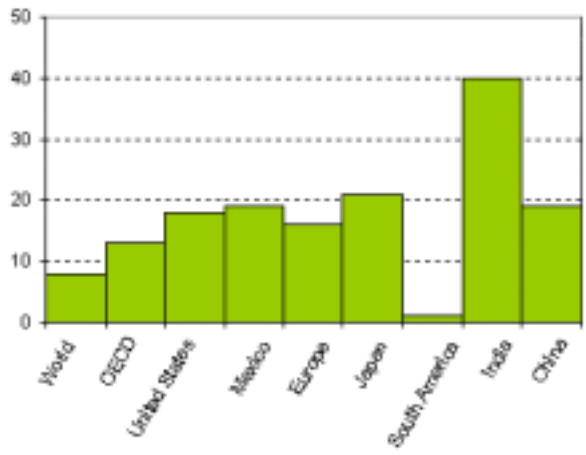
- Freshwater Resources (chapter 18): *Satisfy basic human needs, protect ecosystem and implement. national water conservation programmes designed to prevent water pollution and protect groundwater sources.*[24]

Key Knowledge/Information Gap

- Problems remain in assessing the true state of global freshwater supplies and the thresholds beyond which such sources are likely to be in terminal collapse.[25]

Current Situation

- In 1950, the global per capita availability of fresh water stood at 17,000 m3. By 1995, this figure had fallen to 7,000 m3.[26]
- Most ground water sources are being replenished at recharge rates ranging between 0.1% and 0.5%.[27]



- *Annual Fresh Water Withdrawals, 1997 (expressed as a percentage of the average annual flow of internal renewable resources*[28] ***India and China's demand for water is currently the highest and likely to rise in line with population growth***

- Almost 20% of the world's population currently depends on water supplies to meet their daily needs which do not meet WHO basic standards for freshwater.[29]
- 2 billion people (nearly 35% of the world's population) experience medium-high to high water stress.[30]
- Two billion people are at risk from water-related diseases , such as malaria[31]

Projections

- ***Global water withdrawals are expected to increase by 31% between 1995 and 2020.***[32]
- At least 25 developing countries encompassing a quarter of a billion people will suffer "high water stress" by 2020.[33]
- The number of people living in regions affected by 'severe water stress' is expected to more than double by 2020 to between 4 and 5 billion, or up to two-thirds of the world's population, depending on the scenario used.[34]

Economic Issues

- Water subsidies in developed countries amount to at least US$15 billion.[35]
- Water subsidies(primarily for irrigation) in developing countries amount to between US$43 and US$45 billion[36]
- Public drinking water subsidies do not favour the urban or rural poor in developing countries due to connectivity and efficiency difficulties. For instance, despite heavy subsidisation of water in Jakarta, less than 15% of households receive their water directly from the municipal system.[37]
- Water prices are kept so low in arid areas in developing countries that it is often more profitable for farmers in developing countries to grow corn for animal feed instead of food for human consumption.[38]

Fishery Resources

Key International Commitment

- UN Convention on the Law of the Sea (1982): *Ensure the optimum sustainable yield of fish and living resources.*[39]
- FAO Agreement To Promote Compliance With International Conservation And Management Measures By Fishing Vessels On The High Seas (1993) ***(not in force)***[40]
- UN Straddling and Highly Migratory Fish Stocks Agreement (1995): *Regime for the conservation and management of straddling and highly migratory fish stocks*[41] ***(in force, but at May 2002 only 31 countries have ratified the Agreement)***
- FAO Code of Conduct for Responsible Fisheries (1995): *International standards for management and development of living aquatic resources* ***(non-binding)***[42]

Agenda 21 (Rio 1992)

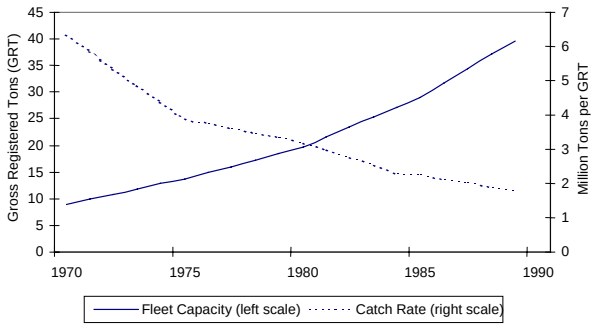
- Protection of the Oceans (chapter 17): *reduce harmful fishing practices; implementation of coastal management programmes; commitment to strengthen international and regional agreements on fishing; controlling marine pollution; restructuring coastal fisheries; and improving sustainability prospects of small island states.*[43]

Key Knowledge/Information Gaps

- Ghost fishing (fish caught by lost gear floating around the ocean) is on the increase and catch numbers may significantly under-report the decline in global fish resources.[44]
- Recent evidence suggests that statistical mis-reporting may also mask more serious declines in global fish stocks.[45]

Current Situation

- Fish provide for nearly a fifth of animal protein in the world's food[46]
- ***Only 2% of the global fishery resource is on the road to recovery.***[47]
- Nearly 50% of all fish stocks are already fully exploited. Over 20% are either over–exploited or depleted.[48]
- ***The level of by-catch remains a major problem. The US National Research Council estimates that by-catch of less favoured species exceeds 25 million tonnes a year, or nearly a third of the overall annual fish take.***[49]
- Common commercial species like Atlantic haddock and cod are threatened with commercial extinction.[50]



- *Global Fleet Capacity And Catch Rate*[51]
  Too Many Boats Chasing too Few Fish.

Projections

- ***FAO projections indicate that world capture fishery production may actually decrease by 80 million tonnes per annum by 2010.***[52]

- It is estimated that, in the late 1980s, the maximum sustainable yield of global commercial fish stocks was exceeded by nearly 30%. Ongoing increases in the world fleet size and improvements in technology are expected to worsen this situation.[53]

Economic Issues

- ***Fisheries-related subsidies in developed countries*, which contribute to the worsening state of the global fishery, particularly where fisheries management remains inadequate*, amounted to somewhere between US$5.8 and 6.3 billion in 1997. This represented nearly 20% of the landed value of the entire catch that year.***[54]

- Over-fishing and depleted fisheries rebound on the sector by reducing employment and other prospects. When heavily subsidised fishing off Newfoundland and New England was closed due to over fishing, for instance, the economic costs included a loss of 42,000 jobs and led to US$8.1 billion in unemployment payments.[55]

Forestry Resources

Annual gross and net changes in forest area, 1990-2000 (million ha)[56]			
Domain	**Deforestation**	**Increase in forest area[57]**	**Net change in forest area**
Tropics	-14.2	+1.9	-12.3
Non-tropics	-0.4	+3.3	+2.9
World	-14.6	+5.2	-9.4

Key International Commitment

- UNCED (1992), "Statement of Principles on Forests": *All countries should implement sustainable forest management policies.*[58] ***(non-binding)***
- Tropical Timber Agreement (1994): *promote trade in tropical timber from sustainable sources.*[59]

Agenda 21 (1992)

- Combating Deforestation (chapter 11): *conserve existing forest cover, conduct research on forest resources, promote broader participation in forest-related activities; encourage technology transfer and training in forestry management.*[60]

Key Knowledge/Information Gap

- Predictions about the true state of global timber resources and projections of future trends in deforestation compared with natural and plantation regrowth have been fraught with difficulties.[61]

Current Situation

- ***By the end of the 1990s, nearly 17 million hectares of tropical forests – four Switzerlands – were cleared annually.***[62]
- Forests currently cover about 30% of the globe's land area, with tropical and subtropical forests comprising 56% of all forests, while temporal and boreal forests account for the remainder.[63]
- The estimated net annual change in forest area globally in the past decade was – 9.4 million hectares, representing the difference between the annual rate of deforestation of 14.6 million hectares and the estimated annual rate of aforestation and natural re-growth of 5.2 million hectares.[64]
- The global figures obscure significant differences in forest cover change among regions and countries. Thus, net deforestation rates were highest in Africa and South America. The loss of natural forests in Asia was also high, but was offset (in terms of area) by forest plantation establishment. This resulted in a more moderate rate of change of total forest area in the region.

Projections

- On current trends, by 2025 nearly 15% of all tropical forest species will be extinct.[65]
- ***World demand for industrial wood (ie non-fuel) is expected to increase by up to 70% to 2020 and current projections suggest that plantation forests are unlikely to be able to meet this increased demand.[66]***

Economic Costs

- Commercial logging in and of itself is rarely the primary cause of deforestation. Rather, forest loss tends to be driven by economic development imperatives whereby forest cover is converted to other uses, including most notably agriculture. Such conversions may not be particularly efficient or effective. A study in West Kalimantan, Indonesia, for instance, found that 95% of the forests in the province have an agricultural opportunity cost of less than US$2 per hectare per year. Other benefits have been estimated as being significantly greater[67]
- Estimates of the value of the ecological services[68] provided by forests also overshadow agricultural opportunity costs. These functions include watershed protection (around US$10 per hectare per year), erosion prevention (US$2-28 per year), fisheries protection (US$12-14) and flood prevention (US$2).[69]
- Global forestry subsidies are between US$30-US$35 billion, of which nearly US$30 billion is in non-OECD countries.[70]
- ***Forestry subsidies have doubly perverse effects; they can stimulate deforestation, soil degradation, biodiversity loss and aggravate climate change and global warming.[71]***

Biodiversity

Key International Commitments

- Convention on Biological Diversity (1992): *conserve biological diversity*[72]
- UN Convention to Combat Desertification (1992): *combat global desertification, with particular emphasis on the African continent.*[73]

Agenda 21(Rio 1992)

- Sustaining Biological Diversity (chapter 15): *support the Convention on Biological Diversity; foster traditional and indigenous knowledge; share the benefits of biological resources, including biotechnology, develop national strategies for conservation of biodiversity; use environmental impact assessments for projects likely to affect biological diversity.*[74]

Key Knowledge/Information Gaps

- Global change research suggests that biodiversity is much more important than had been previously thought for the functioning of the global environment. In particular, there is increasing evidence, but not conclusive knowledge, that the complex webs of life on land and in the sea are not only of aesthetic value, but also crucially important in maintaining the habitability of the planet.[75]

Current Situation[76]

- 11% of birds, between 18%[77] and 24%[78] of mammals, 5% of fishes and 8% of plants are estimated to be threatened by extinction.[79]

- According to the Living Planet Index, taken together, forest, fresh water and marine species have declined by 37% between 1970 and 2000.[80]

- Habitat degradation has negative implications for biodiversity. Currently, nearly 2 billion hectares, or 22% of the total cropland, pasture, forest and woodland in the world have been degraded such that this land no longer support indigenous species or even basic food production.[81]

Economic Issues

- Ten of the top twenty-five top selling pharmaceutical drugs worldwide were derived from natural sources.[82]

- The global market value of pharmaceuticals derived from genetic sources is estimated in the range of US$75,000-150,000 million per year.[83]

- Nearly three quarters of the global population rely for health care on traditional medicines derived directly from natural sources.[84]

Sustainable Development: Global Social Development
Demographics

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- Demographic Dynamics and Sustainability (Chapter 5): *research relationship between demographics and life-support systems; implement national population strategies; and raise awareness of demographic pressures and wider linkages.*[85]

Current Situation and Projections

- Global population tripled in the past fifty years to more than 6 billion.
- According to projections based on a medium fertility rate, global population will be between 6.8 and 7.9 billion by 2020.[86]
- By 2050, global population is expected to grow in the range between 7.7 and 10.8 billion by 2050, with the greatest increases in developing and least developed countries.
- The proportion of the world's population which will be urbanised by 2025 will rise from 46% (2000) to 58% by 2020.

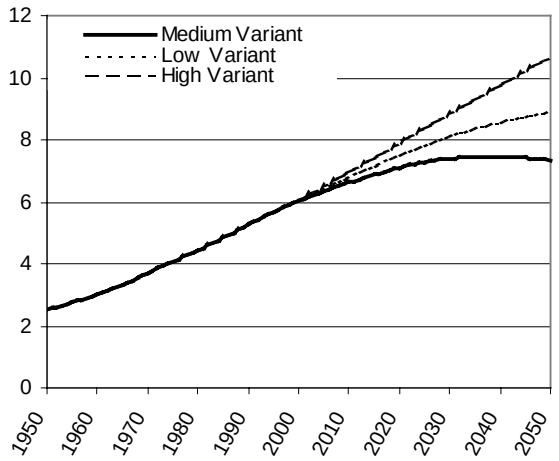
Implications

- Population pressures in developing countries have led to an expansion in the global numbers of migrants from 75 million in 1965 to more than 130 million in 1999.[87]

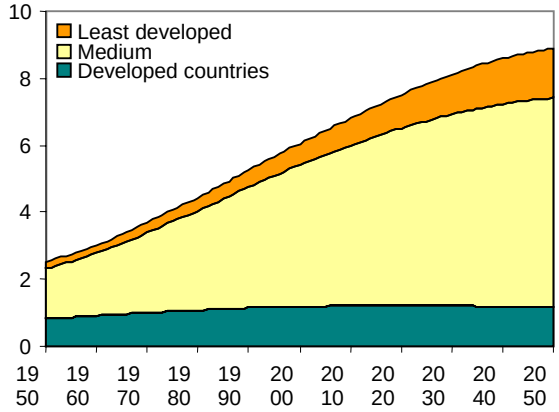
- The US and the European Union between them are the destination of choice of around 1 million migrants each per annum.[88]

- ***Declining population in developed economies, combined with strains on the social welfare system are likely to place increased pressure on such countries to ease immigration restrictions.***[89]

- If the five leading economies of the G7 approved work permits for an inflow of migrant workers equivalent to 4% of their current work force, the returns to developing country economies alone could be in the range of US$160-200 billion.[90]



- *World Population Projections (billions)*[91]



- *Historical and Projected Population Trends in OECD and Non-OECD Countries (billions)*[92] ***Continued Rises in Developing Countries, but Stabilisation in the OECD membership***

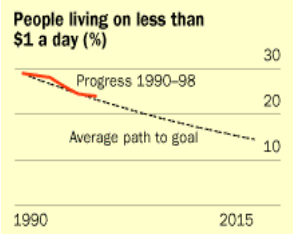
Development

Agenda 21 (Rio 1992)

- Combating Poverty (chapter 3)/Protecting and Promoting Human Health (chapter 6): *more resources required to: reduce poverty; increase education prospects; improve health care, including for children and maternity care.*[93]

Key International Commitment[94]

- Millennium Development Goal: *Reduce the proportion of people living in extreme poverty by half between 1990 and 2015 (ie move the numbers of people living on US$1 a day to something above that figure).*[95]



Current Status

- 1.2 billion people live on less than one U.S. dollar per day and a further 1.6 billion on less than two. More than one billion people therefore cannot meet even the most basic consumption requirements, and some 840 million people on the planet are severely malnourished.[96]
- 60 percent of the world's poorest people live in ecologically vulnerable areas.[97]
- Nearly three million people per year die from air pollution and more than five million die of diarrhoeal disease caused by unsafe water supplies.[98]

Projection

- Some cause for optimism that this Millennium Development Goal may be achieved by 2015.

- ***Cost of halving poverty and hunger: between US$20 and US$32 billion[99]…***
- ***…the annual incremental average estimate cost of meeting basic health care to meet this MDG: US$26 billion by 2007, US$46 billion by 2015.[100]***

Key International Commitment

- Millennium Development Goal: *Enrol all children in primary school by 2015*

Current Status

- 113 million primary age children in developing countries do not attend school[101] and the current trend suggests that some 100 million primary school age children will not be in school by 2015.[102]
- Nearly 60% of children not in school are girls.[103]
- While enrolment rates are gradually improving (though not in line with the target), the quality of education is not. Funding for infrastructure, teacher training and updated teaching materials continues to decline in real terms in countries encompassing nearly one billion people.[104]

Projection

- Likely to fall short of the Millennium Development Goal.

- ***Cost of enrolling all children in primary school are to meet this MDG in the range of US$8-15 billion by 2015.[105]***

Key International Commitment

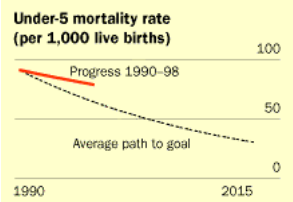
- Millennium Development Goal (MDG): *Reduce infant and child mortality rates by two-thirds between 1990 and 2015*

Current Status

- Between 1960 and 1990, mortality rates for children under five and infants fell by more than 50%.[106]
- The rate of progress has slowed. For countries covering some 600-800 million people, infant and child mortality rates have fallen behind the target.[107]

Projection

- Likely to fall short of the Millennium Development Goal.



- ***Average annual incremental cost of intervening in childhood illnesses: US$5 billion by 2007, US$12 billion by 2015.***

Key International Commitment

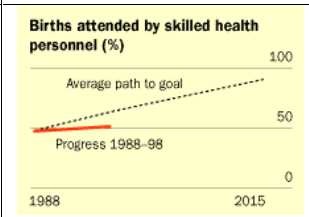
- Millennium Development Goal: *Reduce maternal mortality ratios by three-quarters between 1990 and 2015*

Current Status

- More than half a million maternal deaths occur every year.[108]
- The maternal mortality ratio remains more or less at 1990 levels. The goal for all pregnant women to have access to prenatal care and trained attendants during childbirth has not materialised. Only 29 per cent of South Asian births and 37 per cent of sub-Saharan African births are attended.[109]
- This year UNICEF has concluded that this target is unlikely to be met since "no other changes in global maternity ratios have been shown."[110]

Projection

- Likely to fall short of the Millennium Development Goal.



- ***Average annual incremental cost of intervening in maternity related illnesses to meet this MDG: US$4 billion by 2007 or US$5 by 2015[111]***

Health Care

- In 1998, up to 45% of deaths in Africa and South east Asia are thought to have been the result of infectious diseases.[112]

- For all low and middle income countries, almost 33% of deaths were the result of preventable/and or treatable conditions, maternal and perinatal conditions and nutritional deficiencies. The annual death toll from these disease is 16 million.[113]

- In just 20 years, HIV/AIDS has caused an estimated 22 million deaths and infected a total of 58 million people.[114]

Costs of Meeting Basic Health Targets

- ***The health prospects of the poorest billion could be radically improved by spending US$26 billion on*** (figures cited are US$ 2002 and are the average annual incremental costs to 2007):[115]
  - HIV/AIDS prevention/care/treatment: ***US$14 billion***
  - Malaria treatment/prevention: ***US$2.5 billion***
  - Tuberculosis treatment: ***US$0.5 billion***
  - Childhood related illnesses treatment/immunisation: ***US$4 billion***
  - Maternity related illnesses treatment/immunisation: ***US$5 billion***

Sustainable Development: The Economy

Official Development Assistance

Key International Commitments

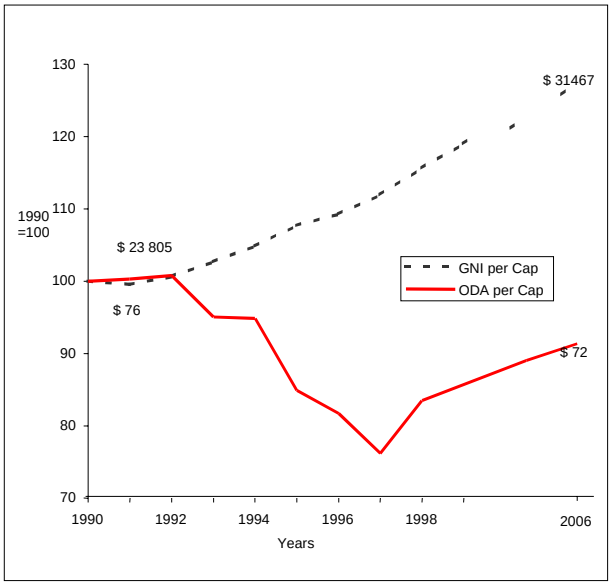
- The Pearson Commission Report (1969): *industrialised countries to provide 0.7 percent of their gross national product as official development assistance*.[116]
- Millennium Development Goals (2000): *re-affirmed the Pearson Target*[117]

Agenda 21 (Rio 1992)

- Financial Resources and Mechanisms (chapter 33): *reaffirmed Pearson Target*[118]

Current Situation

- ***In 1992 the year of the Rio Summit, ODA amounted to $60.8 billion.***[119] ***In 2000, the same figure in adjusted US$ was US$53.7 billion.***[120]
- Only five members of the DAC, comprising approximately 12% of total OECD GDP, actually achieved the Pearson target in 2000.[121]
- Recent US and EU initiatives[122] to expand ODA over time are positive signals, but will not meet the Pearson targets any time soon.[123]
- Relatively little ODA actually reaches the poorest countries. In 1999 and 2000, for instance, only 0.10 percent of the average GNI of the 22 members of the OECD DAC actually found its way to low income countries and a mere 0.05 percent flowed to the least developed countries.[124]



- *Relationship between OECD Member per capita Income and per capita ODA Outflows Projected to 2006*[125] **Developed world incomes rise, but generosity increases only slightly.**

- In 1999, sub-Saharan African countries received nearly 65 percent of all their net external finance from ODA.[126]
- Donor assistance for environmental protection and basic social services in developing countries has declined to less than 15 percent of all ODA compared with nearly 35% at the time of the Rio Conference.[127]

Projections

- If every country contributed 0.7 percent of their gross national product as ODA, nearly US$160 billion would be released.[128]

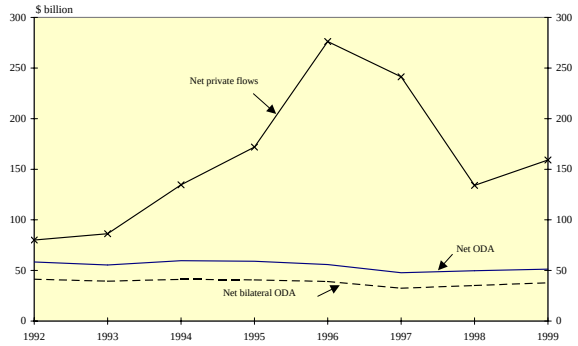
Foreign Direct Investment

Agenda 21 (Rio 1992)

- Financial Resources and Mechanisms (chapter 33): *increased private funding and direct investment encouraged through national policies and joint ventures.*[129]

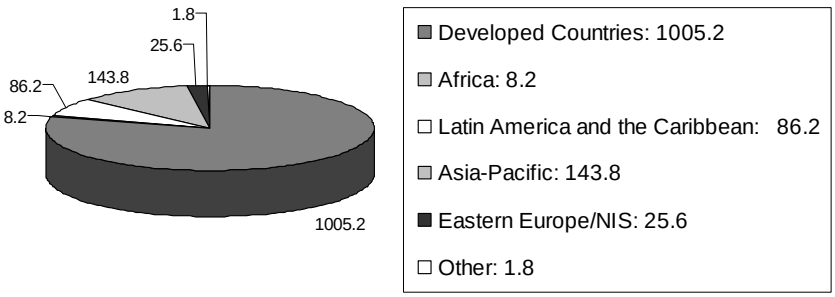
Current Situation

- In 1914, at the end of what has been described as a 'previous phase of globalisation,' nearly 40 percent of western European FDI flows found their way to Latin America, Asia and Africa. In the 1990s, less than half that amount found its way to those regions. In short, western European FDI flows were more globally oriented at the beginning of the last century than at its close. [130]
- At the time of the Rio Conference in 1992, FDI flows to developing countries stood at around US$36 billion. By 2000, this figure had more than quadrupled to nearly US$160 billion.[131]
- Developed countries account for 90% of global FDI outflows.[132]



- *Net Resource flows from DAC Members and multilateral agencies to developing countries*[133] ***ODA Remains Static and is dwarfed by Private Flows.***

Regional Distribution of FDI Inflows in 2000 (US$billions)



Trends

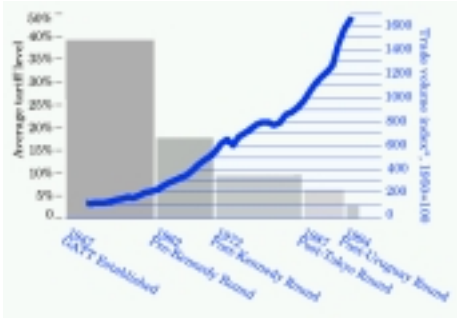
- ***Nearly eighty percent of all global FDI flows went to developed countries in 2000, the remainder is unevenly spread, with relatively little trickling down to the least developed economies. In 2000, for instance, the entire African continent received less than 1 percent of global FDI flows.***[134]

- Ten middle-income developing countries accounted for nearly 80 percent of all FDI received by developing countries in the past decade. China alone has absorbed 45 percent of all of the investment flowing to the Asian region since 1990.[135]

Trade

Key International Commitments

- Millennium Development Goals: *developed countries to grant duty and quota free access for products from the least developed countries*.
- WTO Agreements (Uruguay Round 1994): *commitments to improve market access for goods and services and reductions of support for agriculture and other subsidies*
- Doha Ministerial Declaration: *commitment to undertake a "broad and balanced Work Programme" including negotiations relating to trade in agricultural products, services, textiles, the relationship between trade and the environment and trade and development etc.*[136]



- ***When Global Border Protection Declines Merchandise Trade Rises.***[137]

Current Situation

- In 2001, New Zealand implemented duty free access for all products from least developed countries. The EU followed suit with their "everything but arms" initiative and the US has offered unrestricted access to its markets for exporters from African countries with per capita incomes of less than US$1,500. *Note: LDC countries have limited export potential, account for 0.5% of world GNP and comprise barely 10% of the world population.*[138]
- UNCTAD has estimated that full preferential access (as indicated by the MDGs) for the least developed countries to the Quad economies alone would raise per capita incomes by nearly 4%. Overall this would lead to a small global welfare gain of around US$1 billion.[139]
- Tariff peaks in developed countries disproportionately affect developing and least developed countries. Between one-sixth and one third of the tariff peaks extant in Quad economies exceed 30% and can reach as high as 800%.[140]
- Global subsidies amount to between US$400 billion and US$1 trillion per year, [141] between 2 and 4% of world GNP. Developed world subsidies are worth six times more than ODA flows and about three times the value of FDI flows to developing countries.
- Overall tariffs and subsidies in the developed world cause annual welfare losses of almost US$20 billion for developing countries.[142] This is equal to some 40% of annual ODA provided by OECD countries to the developing world.[143]
- Complete liberalisation of trade would have welfare effects for developing countries in the range of anything between US$200 billion to more than US$800 billion a year.[144]

***Enlightened Self Interest: Gains from Agriculture Reform For Developing Countries AND Gains for the Developed World*[145]**		
	(US$1997bn)	
Countries/Regions	**Removal of border protection**	**Removal of all protection**
Low and middle income countries	**22.3**	**26.0**
Western Europe	**21.4**	**17.0**
United States	**4.3**	**5.0**

Agriculture

- Agriculture is a mainstay of many developing country exports. Yet, since the Uruguay Round Agreement on Agriculture came into force, subsidies for agriculture in developed economies which have a negative impact on developing country exports have barely been dented.[146]

- The agriculture sector alone absorbs some $335 billion a year in subsidies from OECD countries, or around 1.2% of those countries' GNP.[147] (The Pearson Target of 0.7% of GNP assistance for developing countries, is met by only 5 DAC members).

- Annually, the EU spends nearly US$2 billion on subsidising its sugar farmers to produce a product, which can be produced more efficiently and cheaply in the developing world.[148] In the US, oilseed farmers received nearly US$12,000 per year in income support.[149] Compare this income support to the modest aim of achieving the Millennium Development Goal of raising developing world incomes above US$1 a day.

- Despite a commitment in Doha to "substantial reductions in trade-distorting"[150] support for the agriculture sector, subsidies for US farmers will increase by 70% (some US$173.5 billion) over the coming decade.[151] EU and Japanese support for farmers is still greater than that of the US.

END NOTES

[1] The full text of the Montreal Protocol is available at http://www.unep.org/ozone/pdf/Montreal-Protocol2000.pdf. Other key agreements on a similar theme include the Nitrogen Oxide Protocol (1988) which aimed to reduce emissions to 1987 levels. It is available at http://environment.harvard.edu/guides/intenvpol/indexes/treaties/NOX.html The Volatile Organic Compounds Protocol (1991) sought to *reduce emissions by between 30 and 100% of 1988 levels and is available at* http://www.tufts.edu/departments/fletcher/multi/texts/BH994.txt The Sulphur Protocol (1994) seeks to reduce deposits of oxidised sulphur below critical thresholds and can be downloaded at: http://environment.harvard.edu/guides/intenvpol/indexes/treaties/SOX.html#text

[2] The full text of the Framework Convention is available at: http://unfccc.int/resource/conv/conv.html

[3] The full text of the Kyoto Protocol is available at: http://unfccc.int/resource/docs/convkp/kpeng.pdf

[4] Chapter 9 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-09.htm

[5] IPCC (2001), *"Climate Change 2001: The Scientific Basis"*, Working Group I Third Assessment Report, IPCC, Geneva. See also, the report by the US National Research Council (2001) *Climate Change Science: An Analysis of Some Key Questions*, USNRC, Washington. The report notes that "Greenhouse gases are accumulating in the earth's atmosphere as a result of human activities causing surface air temperatures and subsurface ocean temperatures to rise." The report is available at http://www.epa.gov/globalwarming/publications/actions/us_position/nas_ccsci_01.pdf

[6] Crutzen, P., (1995) My life with O3, NOx and other YZOxs. *Les Prix Nobel* (The Nobel Prize) 1995. Stockholm: Almqvist & Wiksell International, pp. 123-157.

[7] Hansen, B., Turrell, W.R. and Oesterhus, S., (2001) Decreasing Overflow From The Nordic Seas Into The Atlantic Ocean Through The Faroe Bank Channel Since 1950, *Nature* 411, pp. 927-930.

[8] Figures based on data contained in: International Energy Agency (2000a) *World Energy Outlook*, IEA, Paris; IEA (ibid); Burniax, J. M. (2000) "A Multigas Assessment of the Kyoto Protocol, *Economics Department Working Paper* No 270, OECD Paris; OECD (2001b) *OECD Environmental Outlook*, OECD, Paris.

[9] Figures based on data contained in IEA (ibid), Burniax (ibid) and OECD (ibid).

[10] Figures cited are also in the range reported by the Intergovernmental Panel on Climate Change (IPCC). See, in particular, IPCC (2001).

[11] These figures are within the range of the data contained in IEA (2000a) and OECD (2001b).

[12] This graph is from OECD (2001a) *Sustainable Development: The Critical Issues*, OECD, Paris, but has been adjusted slightly by drawing together the calculations for the GREEN model (derived in turn from IEA (1999) *World Energy Outlook – 1999 Insights: Looking at Energy Subsidies: Getting the Prices Right*, OECD, Paris) IPCC (2000) Special Report on Emissions Scenarios, A Special Report of Working Group III of IPCC, Cambridge University Press, Geneva and more recent work undertaken by the Pew Centre on Global Climate Change (S Schneider and C Azar (October 2001) Are Uncertainties in Climate and Energy Systems a Justification for Stronger Near-Term Mitigation Policies? Pew Centre on Global Climate Change.

[13] IEA (2000a) and OECD (2001b)

[14] IEA (2000a) and IEA (2000b) Key Energy Statistics, IEA Paris

[15] See in particular Persson (ibid), Persson and Azar (ibid), but also OECD (2001b).

[16] IEA (2000a) and World Business Council on Sustainable Development (2001) *Mobility 2001: World Mobility at the End of the Twentieth Century and its Sustainability*, WBCSD, Geneva.

[17] IEA (2000a). Please Note: The IEA assessment is premised on a steady price increase in oil to US$28/barrel in 2020 to facilitate further capital investments. There is some debate as to whether this assumption is realistic (for the most recent consideration of this see in particular Persson (ibid)).

[18] These figures are ***indicative*** only, but are based on the best available estimations. See for instance (IEA (2000), OECD (2001b),

[19] See in particular the detailed work undertaken by Schneider and Azar (ibid) and, more recently, C Azar and S Schneider (2002) *Are the Economic Costs of Stabilising the Atmosphere Prohibitive?* Ecological Economics, forthcoming.

[20] T A Persson (2002) *Modelling Energy Systems and International Trade in CO2 Emission Quota*s, Department of Physical Resource Theory, Masters Thesis, Chalmers University, April and also T A Persson and C Azar (2002) *The Cost of Meeting the Kyoto Protocol – Dealing with the Carbon Surplus in Russia and Ukraine*, Working Paper, Department of Physical Resource Theory.

[21] World Bank (1996) *Sustainable Transport: Priorities for Policy Reform*, Washington DC, World Bank

[22] All figures for the value of the subsidies cited are from Van Beers and de Moor (2001) and International Energy Agency (1999) Looking at Energy Subsidies: Getting the Prices Right, *World Energy Outlook*, Paris, IEA

[23] Van Beers and de Moor (ibid).

[24] Chapter 18 of Agenda 21 can be downloaded at: http://www.igc.org/habitat/agenda21/a21-18.htm

[25] UNEP (2002) Global Environmental Outlook 3, UNEP, London

[26] OECD (2001b).

[27] World Resources Institute, United Nations Environment Programme, United Nations Development Programme and the World Bank (1999), *World Resources 1998-99*, Oxford University Press, New York

[28] This table shows 1997 data (the most complete set available) and has been drawn from UNDP, UNEP, the World Bank and World Resources Institute (2001), *World Resources, 2000-2001*, Washington D.C. It also appears in OECD (2001a). *The caveat applying to the original table applies equally to this amended version:* The data is presented as a percentage of the average annual flow of internal renewable resources. Internal renewable resources refers to the average annual *flow* of rivers and recharge of groundwater aquifers generated from endogenous precipitation (i.e., rain and snow that falls within the country's borders). Caution should be used when comparing different countries because the estimates are based on differing sources and dates, and because averages disguise large seasonal, inter-annual, and long-term variations. Total withdrawals may exceed 100 percent due to groundwater draw downs, withdrawals from river inflows, and the operation of desalinization plants.

[29] Idem.

[30] OECD (2001a) and P. Rashin, P Gleick, P Kirshen, G Pontius and K Strzepek (1997*) Water Future: Assessment of Long Range Patterns and Problems, background paper for UN Comprehensive Assessment of the Freshwater Resources of the World*, Stockholm Environment Institute, Stockholm.

[31] GEO3 (2002).

[32] Figure taken from the Reference Scenario cited in OECD (2001b).

[33] "High water stress" is defined as a situation where the ratio of withdrawals (minus wastewater returns) to renewable resources exceeds 0.4. OECD (2001b).

[34] This figure is drawn from the range provided in the modelling results presented by Alcamo, J., Henrichs, T., Roesch, T., (2000), *World Water in 2025: Global Modelling and Scenario Analysis for the World Commission on Water for the 21st Century*, Centre for Environmental Systems Research, University of Kassel and Raskin et al (ibid). Internationally, the sustainability of fresh water resources is measured in a number of ways. The sources used for the data provided in this paper utilise the standard use-to-resource ratio. According to this indicator, water stress is considered 'high' when this ratio exceeds 20%. Beyond this ratio, the weakened availability of fresh water has a significantly negative impact on economic development (Raskin et al idem).

[35] This figure is **indicative only** and is based on the data cited in OECD (1999) *Agricultural Water Pricing in OECD Countries* ENV/EPOC/GEEI(98)12/FINAL, OECD, Paris and Beers van, C., and de Moor, A., (2001) *Policy Subsidies and Policy Failures*, Edward Elgar Publishing, Cheltenham

[36] These figures are **indicative only**. They are based on the data and range compiled by de Moor, A (1997) *Perverse Incentives*, Earth Council Report, The Hague, Institute for Research on Public Expenditure and Myers, N. (1998) *Perverse Subsidies: Taxes Undercutting our Economies and Environments Alike*, Winnipeg, Canada: International Institute for Sustainable Development.

[37] Beers and de Moor (2001).

[38] Idem.

[39] The full text of the United Nations Convention on Law of the Sea is available at http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm

[40] The text of this Agreement can be accessed at: http://www.fao.org/legal/treaties/012t-e.htm

[41] The text is available at: www.un.org/Depts/los/convention_agreements/convention_overview_fish_stocks.htm

[42] The Code of Conduct can be accessed at: http://www.fao.org/fi/agreem/codecond/ficonde.asp

[43] Chapter 17 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-17.htm

[44] H.A Carr and J. Harris (1997) *Ghost Fishing Gear: Have Fishing Practices During The Past Few Years Reduced The Impact?* In: Coe, J.M. and D.B. Rogers (eds.), Marine debris: Sources, impacts, and solutions. New York City: Springer-Verlag. pp. 141-151; DL Alverson, M.H. Freeberg, S.A. Murawski, and J.G. Pope. (1994) *A Global Assessment Of Fisheries By-Catch And Discards*. FAO Fisheries Technical Paper 339. Rome, Italy: Food and Agriculture Organisation of the United Nations and see also the useful summary of recent findings available at: http://state-of-coast.noaa.gov/bulletins/html/ief_03/download.html

[45] See for instance, R Watson and D Pauly (2001) *Systematic Distortions In World Fisheries Catch Trends*, Nature, 414, 534 – 536.

[46] World Resources Institute et al (idem)

[47] idem.

[48] Food and Agriculture Organisation (2000) *The State of World Fisheries and Aquaculture*, FAO, Rome (see also: www.fao.org/DOCREP/003/X8002E/X8002E00.htm)

[49] US National Research Council (1999) *Sustaining Marine Fisheries*, National Academy Press, Washington DC

[50] OECD (2001b).

[51] McGinn, A. P. (1998) Rocking the Boat: Conserving Fisheries and Protecting Jobs, *Worldwatch Paper 142*, Worldwatch Institute, Washington DC *and* OECD (2001b)

[52] Food and Agriculture Organisation (1998)*The State of the World Fisheries and Aquaculture* 1998, FAO, Rome.

[53] McGinn (ibid)

[54] OECD (2001b).

[55] N Myers (1998) *Perverse Subsidies: Taxes Undercutting Our Economies And Environments Alike*, Winnipeg, Canada, International Institute for Sustainable Development

[56] Table drawn from Global Forest Resource Assessment (2000), Food And Agriculture Organisation, Rome and updated with the data from Food and Agriculture Organisation (2001) The State of the World's Forests, FAO, Rome and

[57] Please note: Increase in forest area represents the sum of natural expansion of forest and afforestation

[58] UNCED (ibid). The full text of the "Statement of Principles on Forests" can be accessed at http://www.igc.apc.org/habitat/agenda21/forest.html.

[59] The full text can be accessed at: http://sedac.ciesin.org/entri/texts/ITTA.1994.txt.html A useful summary of the agreement is contained in http://www.greenyearbook.org/agree/nat-con/itta.htm

[60] Chapter 11 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-11.htm

[61] See for instance, UNEP (1997) *Report of the UNEP/RIVM/PE Workshop on Global and Regional Modelling of Food Production, Land Use and the Long term Impact of Land and Water Resources*, Bilthovan, the Netherlands, Environment Information and Assessment Meeting Report 2, Nairobi, Kenya and Wageningen the Netherlands, UNEP and Wageningen Agricultural University and UNECE/FAO (United Nations Economic Commission for Europe/Food And Agriculture Organisation) 2000 Temperate and Boreal Forest Resources Assessment 2000, FAO, Rome. See also, http://www.forest.org/resources/choices/wood/value3.html

[62] See IMF, OECD, UN and World Bank Group (2000) *A Better World for All: Progress towards the International Development Goals*, Washington, Paris and New York.

[63] FAO (2001)

[64] GFRA (ibid) and FAO (2001).

[65] OECD (2001c), *The DAC Journal: Development Co-operation 2000 Report*, OECD, Paris.

[66] OECD (2001b) and Chomitz, K. and Kumari, K. (1998) The Domestic Benefits of Tropical Forests, *World Bank Research Observer*, 13 (1), pp. 13-35

[67] Chomitz and Kumari (ibid)

[68] Economic benefits include the use of timber in manufacturing, pulp for paper, cork, rubber etc. Environmental services include carbon sinks, erosion control and air and water purification.

[69] Lampietti, J and Dixon, J. (1995) To see the Forests for the Trees: A Guide to Non-Timber Forest Benefits, Paper 13, Environment Department, World Bank, Washington DC. Needless to say, the figures cited vary from forest to forest, but the provides another perspective on forest conversion policies.

[70] Beers and de Moor ibid.

[71] Myers (ibid), for instance argues that the carbon sink function of forests alone is worth some US$3,700 billion compared to the US$400 billion of commercial logging.

[72] The text of this agreement is available at: http://www.biodiv.org/doc/legal/cbd-en.pdf

[73] The Convention is available at: http://www.unccd.int/convention/text/convention.php

[74] Chapter 15 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-15.htm

[75] See in particular, UNEP (ibid), OECD (ibid) and P Vitousek and J Aber, R W Howarth, G E Likens, P A Matson, D W Schindler, W H Schlesinger and G D Tilman (1997) *Human Alternation of the Global Nitrogen Cycle: Causes and Consequences*, Issues in Ecology, 1.

[76] Though there is general agreement that biodiversity is being lost, some biologists disagree arguing that, since it remains unknown precisely how many species exist (around one million have been documented, wheras it is believed that between 3-100 million are thought to exists), it is not easy to estimate how many are being lost. Additionally, some biologists argue that extinction rates are natural and that there is a standard "background rate" ,and therefore distinguishing the rate of human intervention is nearly impossible. Notwithstanding this, scientific estimates have improved to account for these criticisms, including on background rates. In short, while estimates have changed, it is clear that the rate of extinction is higher than it has ever been. For a good outline of the main arguments see OECD (2002) *Special Session on Biodiversity: Issues Paper*, Environment Directorate, Paris (ENV/EPOC(2002)6. See also the useful summary in W W Gibbs (2001) On the Termination of Species, *Scientific American*, November.

[77] UNEP (2002) and C Hilton-Taylor (2000) *2000 IUCN Red List of Threatened Species*, The World Conservation Union, Paris.

[78] OECD (2001a)

[79] Idem and See in particular G M Mace (1995) Classification of Threatened Species and its Role in Conservation Planning, in J H Lawton and RM May (eds) *Extinction Rates*, Oxford, Oxford University Press; and R M May, J H Lawton and N E Stork (1995) Assessing Extinction Rates, in J H Lawton and RM May (eds) *Extinction Rates*, Oxford, Oxford University Press. Please note, these species trends and assessments/projection need to be used with some caution. Most such projections use the IUCN Red List as its starting point. This needs to be used with care since the Red List criteria has changed over time and some of the changes in status reflect, for instance, taxonomic revisions.

[80] J Loh (2002) The Living Planet Index, WWF, Geneva. Also available at: http://www.panda.org/livingplanet/lpr/

[81] J. Chen, J Z Chen, M Tan, Z Gong (2002) *Soil Degradation: A Global Problem Endangering Sustainable Development*, Journal of Geographical Sciences, 12, 2.

[82] UNEP (2002)

[83] UNDP, UNEP, World Bank, WRI (2000) World resources 2000-2001, WRI, Washington DC

[84] UNEP(2002) and UNDP, UNEP, World Bank, WRI (ibid)

[85] Chapter 5 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-05.htm

[86] See in particular, United Nations (2001) World Population Prospects 1950-2050, United Nations, Geneva and, specifically, the updated data, which can be accessed via http://www.un.org/esa/population/unpop.htm.

[87] Author's calculations derived from data contained in UNFPA (1998, 1999, 2000, 2001) The State of the World Population, UNFPA, New York and UN (ibid). These figures are at the lower end (and may be an under-estimate) of those cited by B Ghosh (1998) *Huddled Masses and Uncertain Shore: Insights into Irregular Migration*, The Hague, Kluwer International and

B Ghosh (ed) (2000) *Managing Migration: Time for a New International Regime?* Oxford University Press, Oxford

[88] Idem.

[89] On the pressures declining populations place on immigration, see in particular chapters 2, 3 and 5 of B Ghosh (ibid) and N. Harris (2002) *Thinking the Unthinkable: The Immigration Myth Exposed*, Tauris, London.

[90] Please note these figures are the author's calculations and do not include estimates of global welfare returns. Figures based on the assumption that the five leading economies of the G7 approved work permits for an inflow of migrant workers equivalent to 4% of their current work force. Estimating the impact of such changes is always difficult and vulnerable to the vagaries of econometric models. The figures used here have been pulled together from data held by the International Migration Organisation (2000) and the International Labour Organisation (see in particular Stalker, P., (2000) *Workers without Frontiers*, ILO, Geneva). The distribution of projected migration flows was based on past flows to the economies concerned and a breakdown of the skilled, semi and unskilled worker categories, with the proportions used for the 4% increase mirroring the growth/origin trajectories for immigration extant in the preceding three years and weighted accordingly. Some of the figures have been revised downwards in light of concerns expressed in the literature about the competing methodologies. On the contribution of immigration earnings for development compared with capital and human resources, see for instance, L Hendricks (2002) *How Important is Human Capital for Development? Evidence from Immigrant Earnings*, American Economic Review, vol 92 (1).

[91] These figures are drawn and updated from the range of studies undertaken on the subject including United Nations (1998) *World Population Prospects, 1998* revised version, UN, New York and United Nations (2001).

[92] This graph is taken from OECD (2002) Working Together for Sustainable Development, OECD, Paris. It has, however, been adapted and updated to take into account work undertaken recently by the UN on the issue of population, in particularly the revised data at United Nations (2001) and http://www.un.org/esa/population/unpop.htm.

[93] Chapter 3 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-03.htm and chapter 6 of Agenda 21 is available at:

[94] All side graphs and some of the figures cited regarding the MDGs have been sourced directly from IMF, OECD et al (ibid). The key results of this analysis can also be accessed at www.paris21.org/betterworld/home.htm Please note, for space reasons only a selection of the MDGs were used in this outline.

[95] The Millennium Development Goals can be accessed at: http://www.un.org/millenniumgoals/

96 OECD (2001c*), The DAC Journal: Development Co-operation 2000 Report*, OECD, Paris.

[97] United Nations Development Programme (1999) *Human Development Report*, UNDP, New York.

98 Idem.

[99] This figure is drawn from studies undertaken by P Collier and D Dollar (2000) *Can the World Cut Poverty in Half?* World Bank, Washington, UNCTAD (1999) *Capital Flows and Growth in Africa*, New York, UNCTAD, and the

High Level Panel on Financing for Development (2001) *High Level Panel Report on Financing for Development*, United Nations, New York, June

[100] Unless otherwise advised, all figures in this and the following side panels (on health costs) are 2002 US$ and are calculated from the detailed data presented in J D Sachs (2001) *Macroeconomics and Health: Investing in Health for Economic Development*, Report of the Commission on Macroeconomics and Health, WHO, Geneva

[101] See in particular United Nations (2000) Freedom From Want, United Nations, New York

[102] OECD (2001c) *The DAC Journal: Development Cooperation*: 2000 Report, OECD, Paris

[103] UN (2000)

[104] Author's calculations based on the data contained in UNESCO (2001) *Monitoring Report on Education for All*, Paris, October and UNESCO/UNICEF (2000). The UNESCO/UNICEF report also revealed that in many sub-Saharan schools primary schools didn't have adequate furniture, running water or basic teaching materials, such as blackboards, exercise books. See also OECD (2001c)

[105] These figures are within the range cited by a range of authoritative sources, including UNESCO (2001), OECD (2001d) *ODA Demand and Supply: Current Perspectives*, OECD, Paris (DCD/DAC(2001)29/REV2) and by the High Level Panel on Financing for Development (ibid) (particularly the appendix, downloadable at http://www.un.org/reports/financing/report_full.htm#appendix)

[106] IMF et al (ibid)

[107] Author's calculations based on data contained in UNICEF (2002) The State of the World's Children, UNICEF, New York

[108] UNICEF (ibid)

[109] Idem.

[110] UNICEF (ibid)

[111] Sachs (ibid)

[112] Sachs (ibid)

[113] Idem.

[114] Idem

[115] These are drawn directly from Sachs (ibid), though his list is longer and includes widespread causes of child mortality, malnutrition which exacerbates those diseases, other vaccine-preventable deaths and tobacco-related disease. For reasons of space these have not been included.

[116] Lester B. Pearson (1969) *Partners in Development: Report of the Commission on International Development*, Praeger Publishers, New York, 1969

117 See http://www.un.org/News/Press/docs/2001/pi1380.doc.htm

[118] Chapter 33 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-33.htm

[119] OECD (2002) *The DAC Journal: Development Co-operation 2001 Report*, OECD, Paris (forthcoming).

[120] idem.

[121] OECD (2001b) and (2002b) The DAC Journal Development Cooperation. 2001 Report, OECD, Paris. Only Norway, the Netherlands, Sweden and Denmark met the 0.7 percent target in 1999. Luxembourg joined this group in 2000.

[122] At Monterrey developed economies committed to increasing their ODA. Taken together these would raise overall ODA flows in real terms by about US$13 billion by 2006 from US$53.7 billion in 2000. The Economist, (23 March 2002) provides a useful overview of both initiatives.

123 A final version of the Monterey Consensus is available at http://www.un.org/ffd.

124 OECD (2002). Low-income countries are those with a per capita income of US$760 or less in 1998. Least developed countries are countries on the UN's 2000 list of that name.

[125] This graph from SG/SD (2002)3/ANN1 has been substantively updated by the author to take into account the announcements in Monterey and the latest DAC Statistics and projections of world economy growth described in IMF(2002) World Economic Outlook, IMF, Washington (and available at http://www.imf.org/external/pubs/ft/weo/2002/01/index.htm).

[126] World Bank (2000) *Global Development Finance*, World Bank, Washington.

[127] Hjertholm, P., and White, H., (2000) *Survey of Foreign Aid: History Trends and Allocation*, Institute of Economics, University of Copenhagen, Discussion Paper, March. See also Commission for Sustainable Development (2001) *Financial Flows Statistics*, United Nations Department of Economics and Social Affairs, Background Paper Number 19, April

[128] Author's calculations adjusted to current prices and exchange rates, based on data from OECD (idem).

[129] Chapter 33 of Agenda 21 is available at: http://www.igc.org/habitat/agenda21/a21-33.htm

[130]Madison, A., (1995) *Monitoring the World Economy 1820-1992*, OECD, Paris (table 3.30). Please note, in this example, "western Europe" comprises the UK, France, Germany, Belgium, the Netherlands and Switzerland.

131The figures cited are drawn from UNCTAD (1996) *Report on Least Developed Countries*, United Nations, New York. and IMF (2000 and 2002) *World Economic Outlook*, Washington IMF.

[132] OECD (2002) *Good Governance and Best Practices for Investment Policy and Promotion*, UNCTAD Workshop paper, 6-7 June 2002

[133] OECD DAC statistics and SG/SD(2002)3/ANN1.

134 Author's pie chart based on data drawn from annex tables B1 and B2 (pp 291-296) in UNCTAD (2001) *World Investment Report: Promoting Linkages*, UNCTAD, New York.

[135] idem.

[136] The Doha Declaration can be accessed at http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm

[137] OECD (1998*) The Benefits of Trade and Investment Liberalisation*, OECD, Paris. Original graph replicated from WTO (1995) *Trading into the Future*, World Trade Organisation, Geneva and WTO (1997) *Annual Report*, WTO, Geneva

[138] UNCTAD (2001) *Statistical Profiles of the Least Developed Countries*, UNCTAD, New York.

[139] UNCTAD (2001)

[140] Hoekman and Koestecki (2001) *The Political Economy of the World Trading System: The WTO and Beyond* Oxford University Press. See also the striking data contained in Table 7 of SG/SD(2003)3/ANN1

[141] The lower figure is derived from the author's calculations based on the following reports on specific sectors: water (Xie, J., (1999) *Water Subsidies, Water Use and the Environment*, World Bank, Washington); energy (OECD (1998) *Improving the Environment through Reducing Subsidies*, Paris, OECD (2 volumes)); fisheries (Milazzo, M., (1998) Subsidies in World Fisheries: A Re-examination, World Bank Technical Paper 406, World Bank, Washington); transport (OECD idem); agriculture (OECD (1999 and 2000), *Agricultural Policies in OECD Countries: Monitoring and Evaluation*, OECD, Paris). The higher figure is drawn from Beers van, C., and de Moor, A., (ibid).

[142] Idem.

[143] World Bank (2000) *World Economic Outlook*, World Bank, Washington.

[144] For the range of results see in particular, World Bank (2001) *Building Institutions for Markets*, World Bank, Washington, K Anderson (2001) The cost of rich (and poor) country protection to developing countries, Journal of African Economics, P Dee and K Honslow (2000) Multilateral liberalisation of Services Trade, Australian Productivity Commission Research Paper, Canberra, S K Dessus, K Fukasaku and R Safadi (1999) *Multilateral Tariff Liberalisation and Developing Countries*, OECD Development Centre, Policy Brief No 18. See also the useful table (27) contained in SG/SD(2002)2/ANN1 which details the specific results of partial and complete liberalisation of modelling work undertaken.

[145] Table adapted from J Beghin, D Roland-Holst and D van der Mensbrugge (2002) *Global Agricultural Trade and the Doha Round, What are the Implications for North and South?* Paper presented to the OECD/World Bank Global Forum on Agriculture, May 23-24, Paris, OECD. Caveats to the results cited in the original paper (p.9), apply equally to this version.

[146] OECD (2000), *Agricultural Policies in OECD Countries: Monitoring and Evaluation*, OECD, Paris.

[147] Idem.

[148] Idem.

[149] Idem.

[150]The Doha Ministerial Declaration is available at: www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.pdf

[151] For more information on the US farm bill, see http://www.usda.gov/farmbill/