

Rachel Carson's *Silent Spring* was published in 1962. Many consider the book's release a turning point in our understanding of the interconnections among the environment, the economy and social well-being. Since then, many milestones have marked the journey toward sustainable development. This timeline captures some of the key events.

From its inaugural edition in 1997 to the present, the Sustainable Development Timeline has been prepared by Heather Creech, Director, Global Connectivity and staff and associates.

Sustainable Development Timeline

1962 *Silent Spring*, by Rachel Carson, brings together research on toxicology, ecology and epidemiology to suggest that agricultural pesticides are building to catastrophic levels, linked to damage to animal species and human health.

1967 Environmental Defense Fund (EDF) is formed to pursue legal solutions to environmental damage. The EDF goes to court to stop the Suffolk County Mosquito Control Commission from spraying DDT on Long Island's marshes.
www.environmentaldefense.org

1968 Biosphere. Intergovernmental Conference for Rational Use and Conservation of the Biosphere (UNESCO) is held; early discussions occur on the concept of ecologically sustainable development.

1968 Paul Ehrlich publishes *The Population Bomb*, on the connection between human population, resource exploitation and the environment.

1969 Friends of the Earth forms as an advocacy organization dedicated to the prevention of environmental degradation, the preservation of diversity and the role of citizens in decision-making.
www.foe.org

1969 Partners in Development and IDRC (1970). Report of the Commission on International Development. This is the first of the international commissions to consider a new approach to development, focused on research and knowledge in the South. The report leads to the formation of Canada's International Development Research Centre.
www.idrc.ca

1969 Cuyahoga River, Ohio, United States catches on fire, with the cause attributed to pollution. This event brings political attention to the need for water pollution control policy and action, and leads to the Clean Water Act, the Great Lakes Water Quality Agreement and the creation of the United States Environmental Protection Agency—one of the first national departments of the environment in the world.

1969 National Environmental Policy Act is passed in the United States, making it one of the first countries to establish a national legislative framework to protect the environment. The law sets the basis for environmental impact assessment in the world.

1970 Natural Resources Defense Council forms with a staff of lawyers and scientists to push for comprehensive U.S. environmental policy. www.nrdc.org

1970 First Earth Day held as a national teach-in on the environment. An estimated 20 million people participate in peaceful demonstrations across the United States. www.earthday.net

1971 Greenpeace starts in Canada and launches an aggressive agenda to stop environmental damage through civil protests and non-violent interference. www.greenpeace.org

1971 International Institute for Environment and Development (IIED) established in the United Kingdom to seek ways for countries to make economic progress without destroying the environmental resource base. www.iied.org

1971 Polluter pays principle. Organisation for Economic Co-operation and Development (OECD) Council says those causing pollution should pay the resulting costs.

1971 Founex Report is prepared by a panel of experts calling for the integration of environment and development strategies.

1971 René Dubos and Barbara Ward write *Only One Earth*, which sounds an urgent alarm about the impact of human activity on the biosphere, but expresses optimism that shared concern for the planet could lead humankind to create a common future.

1972 Environnement et Développement du Tiers-Monde (ENDA) is established in Senegal, in 1978 becoming an international NGO concerned with empowering local peoples, eliminating poverty, and promoting southern research and training for sustainable development. www.enda.sn

1972 UN Conference on the Human Environment and UNEP. The Stockholm conference is rooted in the pollution and acid rain problems of northern Europe. It leads to the establishment of many national environmental protection agencies and the United Nations Environment Programme (UNEP). www.unep.org

1972 Club of Rome publishes the controversial *Limits to Growth*, which predicts dire consequences if growth is not slowed. Northern countries criticize the report for not including technological solutions; Southern countries are incensed because it advocates abandonment of economic development. www.clubofrome.org

1973 OPEC oil crisis fuels limits-to-growth debate.

1973 United States enacts the Endangered Species Act, becoming one of the first countries to implement legal protection for fish, wildlife and plants.

1973 Chipko movement is born in India in response to deforestation and environmental degradation. These women's actions influence forestry and women's participation in environmental issues.
www.rightlivelihood.org/chipko.html

1974 Rowland and Molina release work on chlorofluorocarbons (CFCs) in the scientific journal *Nature*, calculating that continued use of CFCs at current rates would critically deplete the ozone layer.

1974 Latin American World Model developed by the Fundación Bariloche. It is the South's response to *Limits to Growth* and calls for growth and equity for the Third World.
www.fundacionbariloche.org.ar/LP-mod-latinoam.htm

1975 Worldwatch Institute established in the United States to raise public awareness of global environmental threats and catalyze effective policy responses; begins publishing annual *State of the World* in 1984.
www.worldwatch.org

1975 CITES, the Convention on International Trade in Endangered Species of Flora and Fauna, comes into force.
www.cites.org

1976 Habitat, the UN Conference on Human Settlements, is the first global meeting to link the environment and human settlement.

1977 UN Conference on Desertification is held.

1977 Green Belt Movement starts in Kenya, using community tree planting to prevent desertification.
www.greenbeltmovement.org

1978 Amoco Cadiz oil spill occurs off the coast of Brittany.

1978 OECD Directorate of the Environment relaunches research on environmental and economic linkages. The work builds the foundation for the 1987 report, *Our Common Future*.

1979 Three Mile Island nuclear accident occurs in Pennsylvania, United States.

1979 Convention on Long-Range Transboundary Air Pollution is adopted.

1979 *Banking on the Biosphere*, an IIED report on practices of nine multilateral development agencies including the World Bank, sets the stage for reforms that are still underway.

1980 *World Conservation Strategy* released by the International Union for the Conservation of Nature (IUCN). The section "Towards Sustainable Development" identifies the main agents of habitat destruction as poverty, population pressure, social inequity and trading regimes. The report calls for a new international development strategy to redress inequities. www.iucn.org

1980 Independent Commission on International Development Issues publishes *North-South: A Programme for Survival* (Brandt Report), calling for a new economic relationship between North and South.

1980 *Global 2000 report* is released. It recognizes biodiversity for the first time as critical to the proper functioning of the planetary ecosystem. It asserts that the robust nature of ecosystems is weakened by species extinction.

1981 World Health Assembly unanimously adopts the *Global Strategy for Health for All by the Year 2000*, which affirms that the major social goal of governments should be for all peoples to attain a level of health that would permit them to lead socially and economically productive lives. www.who.org

1982 International debt crisis erupts and threatens the world financial system. It turns the 1980s into a lost decade for Latin America and other developing regions.

1982 World Resources Institute is established in the United States. It begins publishing biennial resource assessments in 1986. www.wri.org

1982 UN Convention on the Law of the Sea is adopted. It establishes material rules concerning environmental standards and enforcement provisions dealing with marine pollution. www.un.org/depts/los

1982 The UN World Charter for Nature adopts the principle that every form of life is unique and should be respected regardless of its value to humankind. It calls for an understanding of our dependence on natural resources and the need to control our exploitation of them. www.un.org/documents/ga/res/37/a37r007.htm

1983 Development Alternatives is established in India. It fosters a new relationship among people, technology and the environment in the South. www.devalt.org

1983 Grameen Bank is established to provide credit to the poorest of the poor in Bangladesh, launching a new understanding of the role of microcredit in development. www.grameen-info.org

1984 Bhopal toxic chemical leak leaves 10,000 dead and 300,000 injured in Bhopal, India. www.bhopal.net

1984 Drought in Ethiopia. Between 250,000 and 1 million people die from starvation.

1984 Third World Network is founded as the activist voice of the South on issues of economics, development and environment. www.twinside.org.sg

1985 Antarctic ozone hole discovered by British and American scientists.

1985 Responsible Care, an initiative of the Canadian Chemical Producers, provides a code of conduct for chemical producers that has now been adopted in many countries. www.ccpa.ca/ResponsibleCareHome.aspx

1985 Climate Change. Meeting in Austria of the World Meteorological Society, UNEP and the International Council of Scientific Unions reports on the buildup of carbon dioxide and other “greenhouse gases” in the atmosphere. They predict global warming. www.wmo.ch

1986 Chernobyl nuclear station accident generates a massive toxic radioactive explosion.

1987 OECD Development Advisory Committee creates guidelines for environment and development in bilateral aid policies. www.oecd.org/dac

1987 Montreal Protocol on Substances that Deplete the Ozone Layer is adopted. <http://ozone.unep.org>

1987 Our Common Future (Brundtland Report), a report of the World Commission on Environment and Development, weaves together social, economic, cultural and environmental issues and global solutions. It popularizes the term “sustainable development.”

1988 Chico Mendes, a Brazilian rubber tapper fighting the destruction of the Amazon rainforest, is assassinated. Scientists use satellite photos to document what the Amazon fires are doing to the rainforest www.chicomendes.com

1988 Intergovernmental Panel on Climate Change (IPCC) is established to assess the most up-to-date scientific, technical and socioeconomic research in the field. www.ipcc.ch

1989 Exxon Valdez tanker runs aground, dumping 11 million gallons of oil into Alaska's Prince William Sound.

www.evostc.state.ak.us

1989 Stockholm Environment Institute is established as an independent institute for carrying out global and regional environmental research. www.sei.se

1990 International Institute for Sustainable Development (IISD) is established in Canada and begins publishing the *Earth Negotiations Bulletin* in 1992. www.iisd.org

1990 Regional Environmental Centre for Central and Eastern Europe is established to address environmental challenges across the region, with an emphasis on the engagement of business as well as governments and civil society. www.rec.org

1990 UN Summit for Children is held, an important recognition of the impact of the environment on future generations. www.unicef.org/wsc

1991 The Canadian East Coast cod fishery collapses when only 2,700 tonnes of spawning biomass are left after a harvest of 190,000 tonnes.

1991 Hundreds of oil fires burn in Kuwait for months following the Persian Gulf War.

1991 Global Environment Facility is established, and in 1994, restructured to give more decision-making power to developing countries over billions of aid dollars for work on biodiversity, climate change, water, land degradation and pollutants. www.gefweb.org

1992 The Business Council for Sustainable Development publishes *Changing Course*, establishing the business interest in promoting sustainable development. www.wbcsd.org

1992 Earth Summit. UN Conference on Environment and Development (UNCED) is held in Rio de Janeiro. Agreements are reached on the action plan Agenda 21, the Rio Declaration, and the non-binding Forest Principles. Two "Rio Conventions" are opened for signature: the Convention on Biological Diversity and the Framework Convention on Climate Change. Negotiations on a third, the Convention to Combat Desertification, are called for.

1993 First meeting of the UN Commission on Sustainable Development, established to ensure follow-up to UNCED, enhance international cooperation and rationalize intergovernmental decision-making capacity. www.un.org/esa/sustdev

1994 China's Agenda 21, a white paper on the country's population, environment and development, is published. China sets an international example for national strategies for sustainable development.

1995 Execution of Ken Saro-Wiwa in Nigeria brings international attention to the links among human rights, environmental justice, security and economic growth.

1995 World Trade Organization (WTO) is established, with formal recognition of trade, environment and development linkages. www.wto.org

1995 World Summit for Social Development is held in Copenhagen. It is the first time the international community has expressed a clear commitment to eradicating absolute poverty. <http://www.un.org/esa/socdev/wssd/text-version/index.html>

1995 Fourth World Conference on Women is held in Beijing. Negotiations recognize that the status of women has advanced, but obstacles remain to the realization of women's rights as human rights. www.un.org/womenwatch/daw/beijing

1996 ISO 14001 is formally adopted as a voluntary international standard for corporate environmental management. www.iso.org

1997 Asian ecological and financial chaos. Land-clearing fires intensified by El Niño-induced drought result in a haze blanketing the region and cause US\$3 billion in health costs and fire-related damage. Concurrently, the market crashes, raising questions about currency speculation and the need for government economic reforms.

1998 Controversy over genetically modified (GM) organisms. Global environmental and food security concerns are raised, the European Union blocks imports of GM crops from North America, and farmers in developing countries rebel against "terminator technology," GM plants whose seeds will not germinate.

1998 Multilateral Agreement on Investment (MAI). Environmental groups and social activists effectively lobby against the MAI. This, along with disagreement by governments over the scope of the exceptions being sought, leads to the demise of the negotiations.

1999 Launch of the Dow Jones Sustainability Indexes. The first of its kind, the tool provides guidance to investors looking for profitable companies that follow sustainable development principles. www.sustainability-index.com

1999 Third WTO Ministerial Conference held in Seattle. Thousands of demonstrators protest the negative effects of globalization and the growth of global corporations. Along with deep conflicts among WTO delegates, they scuttle the negotiations. The first of many anti-globalization protests, they signal a new era of confrontation between disaffected stakeholders and those in power. www.iisd.org/trade/wto/seattleandsd.htm

2000 Miss Waldron's red colobus monkey is declared extinct, the first extinction in several centuries of a member of the primate order, to which humans belong. According to the *IUCN Red Book*, 11,046 species are now threatened with extinction.

2000 UN Millennium Development Goals. The largest-ever gathering of world leaders agrees to a set of time-bound and measurable goals for combating poverty, hunger, disease, illiteracy, environmental degradation and discrimination against women, to be achieved by 2015. www.un.org/millenniumgoals/

2001 9/11. Terrorists representing anti-Western, non-state interests and ideologies attack the World Trade Center and Pentagon, marking the end of an era of unhindered economic expansion. Stock markets and economies stumble, and the United States gears up for a war on terrorism.

2001 Fourth Ministerial Conference of the WTO, held in Doha, Qatar, recognizes environmental and development concerns in its final declaration. http://www.wto.org/english/thewto_e/minist_e/min01_e/min01_e.htm

2001 China joins the WTO, accelerating national structural economic changes. The accession signals China's emergence, together with India and Brazil, as major new forces in the global economy.

2002 World Summit on Sustainable Development is held in Johannesburg, marking 10 years since UNCED. In a climate of frustration at the lack of government progress, the summit promotes "partnerships" as a non-negotiated approach to sustainability. www.worldsummit2002.org

2002 Global Reporting Initiative releases guidelines for reporting on the economic, environmental and social dimensions of business activities. www.globalreporting.org

2004 HIV/AIDS pandemic in sub-Saharan Africa. In 2004 alone, 2.5 million people in the region die of AIDS, and over three million become newly infected. With only 10 per cent of the world's population, the region is home to more than 60 per cent of all people living with HIV. www.unaids.org

2004 Wangari Muta Maathai is awarded the Nobel Peace Prize. Founder of the Green Belt Movement in Kenya, she is the first environmentalist to be awarded a Nobel Prize. <http://nobelprize.org/peace/laureates/2004>

2004 Delhi mandates the use of compressed natural gas in city buses and auto rickshaws, responding to rising civil society pressure over air pollution.

2005 Kyoto Protocol enters into force, legally binding developed country parties to goals for greenhouse gas emission reductions, and establishing the Clean Development Mechanism for developing countries. Emissions reductions obligations expire at the end of 2012.

2005 Millennium Ecosystem Assessment is released. 1,300 experts from 95 countries provide scientific information concerning the consequences of ecosystem change for human well-being.

www.millenniumassessment.org

2005 Walmart institutes global sustainability strategy. One of the world's leading retail companies commits to: be supplied 100 per cent by renewable energy; create zero waste; and sell products that sustain people and the environment. The strategy begins to transform Walmart's global supply chain, and sets an example for other multinationals to follow.

2006 Svalbard Global Seed Vault is constructed in Norway to preserve the genetic diversity of the world's food crops for future generations.

<http://www.regjeringen.no/en/dep/lmd/campain/svalbard-global-seed-vault.html?id=462220>

2006 NASA reports that the ozone layer is recovering, due in part to reduced concentrations of CFCs, phased out under the Montreal Protocol. http://science.nasa.gov/headlines/y2006/26may_ozone.htm

2006 Stern Review makes the convincing economic case that the costs of inaction on climate change will be up to 20 times greater than measures required to address the issue today.

http://www.hm-treasury.gov.uk/sternreview_index.htm

2007 One of the first Chinese victories for civil society environmental protests. The municipal government of Xiamen suspends construction of a multi-billion dollar chemical plant after concerted action by local residents, much of which is orchestrated by mobile phones.

2007 Montreal Protocol on Substances that Deplete the Ozone Layer. Parties agree to an accelerated phase-out schedule for hydrochlorofluorocarbons (HCFCs). <http://www.unep.org/ozone/>

2007 Public attention to climate change increases. Former U.S. Vice President Al Gore's documentary, *An Inconvenient Truth*, wins an Academy Award, and the IPCC's alarming forecasts about the planet's health make headlines. The IPCC and Gore share the Nobel Peace Prize. www.ipcc.ch

2008 World food, fuel and financial crises converge. Global food prices increase 43 per cent in one year; growing energy demand in China, India and elsewhere sends energy prices soaring; financial institutions falter over the collapse of mortgage lending in the United States and markets tumble, sending the world into a recession.

2008 Increasing urbanization. For the first time in history, more than 50 per cent of the world's population lives in towns and cities. www.unfpa.org/pds/urbanization.htm

2008 Green economy ideas enter the mainstream. National governments invest a portion of their economic stimulus in environmental actions, and a low-carbon economy and green growth become new objectives for the future economy. www.oecd.org/dataoecd/58/34/44077822.pdf

2008 Internet economy ideas enter the mainstream. The OECD Ministerial acknowledges the increasingly critical role of the Internet in economies and society; national governments invest a portion of their economic stimulus in broadband and wireless sensor network infrastructure, with South Korea leading the way. www.oecd.org/futureinternet/

2008 Oceans' acidification correlated with increasing levels of atmospheric carbon dioxide. Scientists document that the oceans are growing more acidic at a faster rate than previously thought. Research over eight years leads to an understanding of the serious consequences for global ecosystems. www.pnas.org/content/105/48.toc

2009 Fire and ice headlines. Multiyear sea ice all but disappears from the Arctic Ocean, and the Australian drought that commenced in 2003 leads to the worst wildfires in history.

2009 G20 Pittsburgh Summit: G20 nations provide guidance for a 21st century global, sustainable and balanced economy. Leaders call for phasing out fossil fuel subsidies, and seek measures that will lead to sustainable consumption, while providing targeted support for the poorest people. <http://www.cfr.org/world/g20-leaders-final-statement-pittsburgh-summit-framework-strong-sustainable-balanced-growth/p20299>

2009 Copenhagen climate negotiations. A crescendo of expectations is dashed as the Conference of the Parties fails to reach an agreement on new GHG emissions reductions commitments beyond 2012 (the end of the Kyoto Protocol time frame). The international environmental community sees this as a watershed moment, with many arguing that the multilateral process is broken. Momentum begins to shift toward national and regional efforts to reduce emissions. www.iisd.ca/climate/cop15

2009 Scientists introduce the concept of "planetary boundaries" in a highly influential article in *Nature*. The concept quantifies our proximity to limits in nine areas, including biodiversity, chemicals, climate change, oceans acidification, fresh water and others. www.stockholmresilience.org/research/researchnews/tippingtowardstheunknown/thenineplanetaryboundaries.4.1fe8f33123572b59ab80007039.html

2009 Nobel Prize in Economics awarded to Elinor Ostrom for her work on the economic governance of the commons. Ostrom is the first woman to receive the award.

www.nobelprize.org/nobel_prizes/economics/laureates/2009/

2009 China overtakes the United States as the world's largest emitter of GHGs, but ranks only 78th in per capita emissions. Record increases in GHG emissions globally put emissions on track with the worst-case projections from the Intergovernmental Panel on Climate Change.

www.iwrpressdienst.de/iwr/Global-CO2-emissions-2008-renewable-energy-investment-plan.pdf

2010 More severe and erratic weather, as forecast by climate change models.

Massive, deadly heatwaves in Europe, first observed in 2003, reoccur, killing 55,000 people in western Russia and costing US\$15 billion in damages. The changing patterns of drought and floods are now widespread, including Pakistan, southern China and other parts of the world.

2010 The rise of wind power. China becomes the world's largest domestic market for wind power,

exceeding its target for installed capacity by 320 per cent. While wind power continues to expand at the fastest rate of renewable energy sources, it is still well below targeted levels for installed capacity by 2020 in OECD and emerging economies.

2010 Nations agree to the fair and equitable sharing of benefits arising from the utilization of genetic resources, under the Nagoya Protocol to the Convention on Biological Diversity

(CBD); nations also agree to the Cartagena Protocol on Biosafety.

www.cbd.int/abs/

2010 The Economics of Ecosystems and Biodiversity final report calls for wider recognition

of nature's contribution to human livelihoods, health, security and culture by decision-makers. www.teebweb.org

2010 BP Deepwater Horizon oil rig explosion leaks 5 million barrels of crude oil into the Gulf of

Mexico for 87 days before the well is sealed, damaging wildlife habitats, fisheries, tourism and the economy throughout the region.

www.bp.com/sectiongenericarticle800.do?categoryId=9036575&contentId=7067541

2011 The Arab Spring: Starting with Tunisia, people across the Arab region rise up to demand

sweeping democratic reforms in a number of countries.

2011 The world population reaches 7 billion, and is increasingly interconnected.

One third of those have Internet access; 80 per cent have mobile phones. Increasing the population by 1 billion took only 12 years.

2011 Climate change negotiations in Durban. The negotiations' outcome is a step forward in establishing an international agreement beyond Kyoto—one with mitigation commitments from all major emitters, including developed countries and several major developing countries. www.iisd.ca/download/pdf/enb12534e.pdf

2011 Japan earthquake and tsunami. Damage to nuclear power plants leads to global concerns about nuclear power safety and phase out of the plants in Japan.

2011 China begins shift to a "green economy." China's 12th Five Year Plan for economic development is based on sustainable development goals, including substantial reductions in pollution and carbon and energy intensities. The plan is backed by nearly half a trillion USD in proposed expenditures for environmental protection.

www.china-briefing.com/news/2011/04/05/12th-five-year-plan-hailed-as-greenest-fyp-in-chinas-history.html

2012 Trade disputes on solar and wind energy products. China's expanded manufacturing capacity and low prices make it a leader in global trade on wind turbines. The U.S. contests both solar and wind subsidies in China as unfair trade practices. The outcomes of these disputes may influence the future of cleantech energy sourcing and adoption.

2012 One of the first of the Millennium Development Goal targets is achieved, in advance of the 2015 deadline: the percentage of the world's people without access to safe drinking water is cut in half. www.un.org/millenniumgoals/

2012 Rio +20: Fifty years after Silent Spring, 40 years after Stockholm and 20 years after the Earth Summit, the global community reconvenes in an effort to secure agreement on "greening" world economies through a range of smart measures for clean energy, decent jobs and more sustainable and fair use of resources.

www.uncsd2012.org/rio20/

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