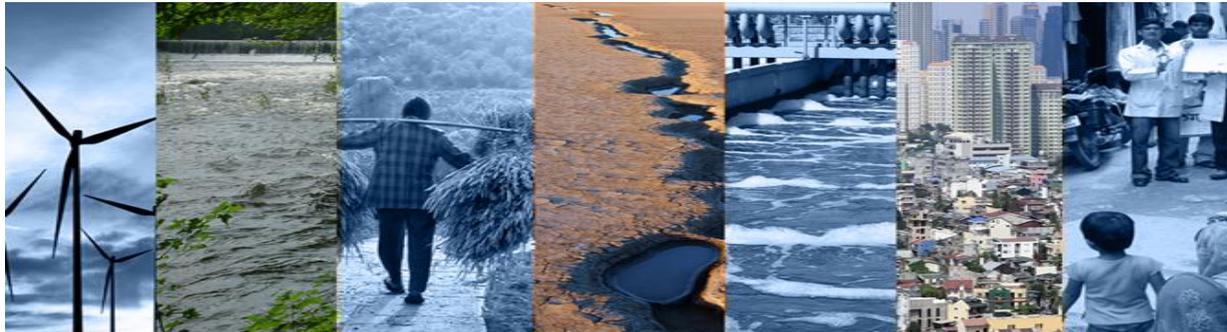


Sustainable Development Timeline



"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

— from the World Commission on Environment and Development's (Brundtland Commission) report [*Our Common Future*](#), Oxford University Press, 1987

Svante Arrhenius, a Swedish scientist, was the first person to claim in 1896 that fossil fuel combustion may eventually result in enhanced global warming. In 1992, the *Earth Summit* marked a milestone with agreement by more than 178 countries on *Agenda 21*, the visionary blueprint for sustainable development. Several such significant developments and events have marked the journey toward sustainable development. This chronology covers some of the milestones that have considerable bearing on the interlinked components of sustainable development.

1896	▪ Swedish chemist Svante Arrhenius's paper quantifies the contribution of carbon dioxide to the greenhouse effect. Arrhenius proposed a relation between atmospheric carbon dioxide concentrations and temperature. He found that the average surface temperature of the earth is about 15°C because of the infrared absorption capacity of water vapor and carbon dioxide.
1954	▪ The Vietnam War that went on till 1975 had significant economic impact as well as environmental implications due to use of chemical agents.
1956	▪ M King Hubbert presents his theory of Peak Oil . According to the Peak Oil theory, the global crude production may be at or near its limit.
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.

1968	<ul style="list-style-type: none"> Paul Ehrlich's book, The Population Bomb, deals with the linkages between human population, resource exploitation and the environment.
1972	<ul style="list-style-type: none"> Polluter pays principle —Organisation for Economic Co-operation and Development (OECD) says those causing pollution should pay the resulting costs. Club of Rome's study The Limits of Growth on "the predicament of mankind" predicts age of permanent shortages. UN Conference on the Human Environment held in Stockholm centres on pollution and acid rain problems. <ul style="list-style-type: none"> - Leads to the establishment of the United Nations Environment Programme in 1973. - In particular, a speech made by the then Prime Minister of India Indira Gandhi was a foundation stone for much of the co-operation, disagreement and politics that would develop around climate change.
1973	<ul style="list-style-type: none"> US President Richard Nixon calls for Project Independence, a plan to wean the United States off foreign oil. Japan's Sunshine Project launched to reduce dependence on foreign oil. OPEC oil crisis, triggered by the Arab oil embargo, fuels limits-to-growth debate. Chipko Movement begins in India in response to deforestation and environmental degradation.
1974	<ul style="list-style-type: none"> International Energy Agency founded in response to the 1973/4 oil crisis in order to help countries co-ordinate a collective response to major disruptions in oil supply through the release of emergency oil stocks to the markets. Chemists Sherwood Rowland and Mario Molina publish their landmark findings that chlorofluorocarbons can destroy ozone molecules and may threaten to erode the Earth's protective ozone layer.
1975	<ul style="list-style-type: none"> The Convention on International Trade in Endangered Species of Wild Flora and Fauna comes into effect. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.
1977	<ul style="list-style-type: none"> Green Belt Movement starts in Kenya, using community tree planting to prevent desertification. The United Nations Conference on Desertification, held in Nairobi, Kenya, raises awareness of desertification - the destruction of the biological productivity of the land which

	ultimately leads to a desert-like condition - and produces an international plan of action.
1978	<ul style="list-style-type: none"> ▪ Public Utility Regulatory Policies Act (PURPA) passed by US Congress, promoting renewable energy development.
1979	<ul style="list-style-type: none"> ▪ Convention on Long-Range Transboundary Air Pollution adopted to limit and, as far as possible, gradually reduce and prevent air pollution including long-range transboundary air pollution.
1982	<ul style="list-style-type: none"> ▪ UN Convention on the Law of the Sea adopted. The Convention defines the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources.
1984	<ul style="list-style-type: none"> ▪ Bhopal toxic chemical leak leaves over 3500 dead and about 500,000 injured in Bhopal, India. ▪ Drought in Ethiopia leads to death due to starvation of 250,000 to 1 million people.
1985	<ul style="list-style-type: none"> ▪ Antarctic ozone hole discovered by British Antarctic Survey.
1986	<ul style="list-style-type: none"> ▪ Chernobyl nuclear station accident generates a massive toxic radioactive explosion. It is considered as the world's worst nuclear disaster.
1987	<ul style="list-style-type: none"> ▪ Montreal Protocol on Substances that Deplete the Ozone Layer adopted. The Protocol is designed to reduce the production and consumption of ozone depleting substances in order to reduce their abundance in the atmosphere, and thereby protect the earth's ozone layer. ▪ Our Common Future (Brundtland Report), a report of the World Commission on Environment and Development, popularizes the term "sustainable development".
1988	<ul style="list-style-type: none"> ▪ Intergovernmental Panel on Climate Change (IPCC) formed to collate and assess up-to-date scientific, technical and socioeconomic research in the field of climate change. ▪ Brazilian labor and environmental leader Chico Mendes was murdered by cattle ranchers. Representing 70,000 rubber tappers, Mendes had advocated the sustainable use of Brazil's forests as extractive reserves rather than clearing them for timber and grazing. The killing brings international attention to the widespread liquidation of tropical rainforests.
1989	<ul style="list-style-type: none"> ▪ Exxon Valdez tanker runs aground, dumping 11 million gallons of oil into Alaska's Prince William Sound, eventually leading to marine pollution and loss of biodiversity in the region. ▪ The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal adopted by the Conference of Plenipotentiaries in Basel, Switzerland, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts

	<p>of the developing world of deposits of toxic wastes imported from abroad.</p> <ul style="list-style-type: none"> ▪ Tim Berners-Lee invents the World Wide Web, about 20 years after the first connection was established over what is today known as the Internet. Since then, the Web has become a powerful communication medium. ▪ The Basel Convention, which controls movement of hazardous wastes across international borders, was adopted to prevent "toxic traders" from shipping hazardous waste from industrial to developing countries.
1990	<ul style="list-style-type: none"> ▪ Iraq invades Kuwait, setting off Gulf Crisis. ▪ IPCC publishes First Assessment Report. The report concludes that temperatures have risen by 0.3-0.6 °C over the last century, that humanity's emissions are adding to the atmosphere's natural complement of greenhouse gases, and that the addition would be expected to result in warming.
1991	<ul style="list-style-type: none"> ▪ During the Gulf War, military forces set fire to oil wells in Kuwait and released oil into the Persian Gulf as part of its "scorched earth" policy near the end of Gulf War. As many as one billion barrels of oil were burned or released to the environment, making these acts the single largest oil-related environmental disaster in history.
1992	<ul style="list-style-type: none"> ▪ UN Conference on Environment and Development (UNCED) or the Earth Summit, was held in Rio de Janeiro. Agreements are reached on the action plan Agenda 21, the Rio Declaration, and the non-binding Forest Principles. ▪ Countries join the United Nations Framework Convention on Climate Change (UNFCCC) to cooperatively consider what they could do to limit average global temperature increases and the resulting climate change, and to cope with the impacts.
1993	<ul style="list-style-type: none"> ▪ Convention on Biological Diversity enters into force. The Convention is a global agreement addressing all aspects of biological diversity: genetic resources, species, and ecosystems.
1994	<ul style="list-style-type: none"> ▪ The World Conservation Union (IUCN) publishes the revised Red List of endangered and threatened species, creating a world standard for gauging threats to biodiversity. Later versions report that one in four mammal species and one in eight bird species faces a high risk of extinction in the near future.
1995	<ul style="list-style-type: none"> ▪ IPCC's Second Assessment Report concludes that the balance of evidence suggests "a discernible human influence" on the Earth's climate. ▪ World Trade Organization was established, with formal recognition of trade, environment

	and development linkages.
1997	<ul style="list-style-type: none"> ▪ Kyoto Protocol was adopted that commits its Parties by setting internationally binding emission reduction targets.
2000	<ul style="list-style-type: none"> ▪ At the Millennium Summit, the largest gathering of world leaders in history adopted the UN Millennium Declaration, committing their nations to a new global partnership to reduce extreme poverty and setting out a series of time-bound targets, with a deadline of 2015, which have become known as the Millennium Development Goals. ▪ Cartagena Protocol on Biosafety adopted to address issue of genetically modified organisms.
2001	<ul style="list-style-type: none"> ▪ IPCC's Third Assessment Report finds "new and stronger evidence" that humanity's emissions of greenhouse gases are the main cause of the warming seen in the second half of the 20th century. ▪ The Stockholm Convention on Persistent Organic Pollutants adopted by the Conference of Plenipotentiaries in Stockholm, Sweden. The Convention entered into force in 2004. The Convention is a global treaty to protect human health and environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, and have harmful impacts on human health or on the environment.
2004	<ul style="list-style-type: none"> ▪ Wangari Maathai, founder of the Green Belt Movement, was awarded the Nobel Peace Prize 2004 for her contribution to "sustainable development, democracy and peace".
2005	<ul style="list-style-type: none"> ▪ The Kyoto Protocol becomes international law, legally binding developed country parties to goals for greenhouse gas emission reductions, and establishing the Clean Development Mechanism for developing countries.
2006	<ul style="list-style-type: none"> ▪ 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 presently. ▪ The Clean Development Mechanism, a key mechanism under the Kyoto Protocol, opens for business. This allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. ▪ US and India sign the Indo-US nuclear deal that opens the door for India to have civil nuclear cooperation as an equal partner with the USA and the rest of the world. It will

	enable the country to meet the twin challenges of energy security and environmental sustainability.
2007	<ul style="list-style-type: none"> ▪ The Kyoto Protocol mechanism Joint Implementation starts. This allows a country with an emission reduction or limitation commitment under the Protocol to earn emission reduction units from an emission-reduction or emission removal project in another country with similar commitments. ▪ The IPCC's Fourth Assessment Report concludes that it is more than 90% likely that humanity's emissions of greenhouse gases are responsible for modern-day climate change. ▪ The Nobel Peace Prize 2007 was awarded jointly to IPCC and Albert Arnold (Al) Gore Jr. "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change."
2009	<ul style="list-style-type: none"> ▪ Nobel Prize in Economics 2009 was awarded to Elinor Ostrom for her work on the economic governance of the commons. Ostrom challenged the conventional wisdom by demonstrating how local property can be successfully managed by local commons without any regulation by central authorities or privatization.
2012	<ul style="list-style-type: none"> ▪ United Nations Conference on Sustainable Development (Rio+20), held in Rio de Janeiro. One of the main outcomes was the agreement by Member States to launch a process to develop a set of <i>Sustainable Development Goals</i>. ▪ At the Eighteenth Conference of the Parties, the Doha Amendment was adopted, launching a second commitment period of the <i>Kyoto Protocol</i>.
2013	<ul style="list-style-type: none"> ▪ The IPCC releases the Working Group 1 contribution to its Fifth Assessment Report, on the Science of Climate Change.
2014	<ul style="list-style-type: none"> ▪ The IPCC releases the Working Group 2 and 3 contributions to its Fifth Assessment Report, on Impacts, Adaptation and Vulnerability & Mitigation of Climate Change.
2015	<ul style="list-style-type: none"> ▪ The Paris Agreement builds upon the UNFCCC and, for the first time, brings all nations into a common cause to undertake take ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so.

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