

CHAPTER 2

Environmental Education in the Historical Process - International Collaborations to Prevent Environmental Problems

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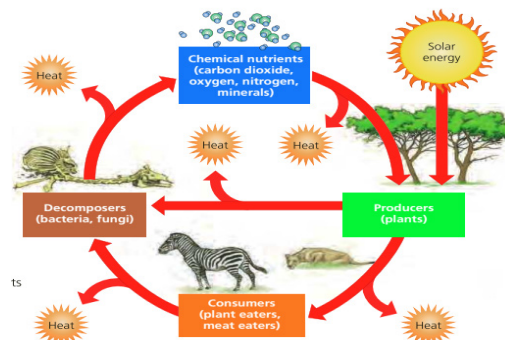
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Main Mechanism for Environmental Problems

Earth's life system has four major components: Atmosphere, hydrosphere, the geosphere, and the biosphere. The biosphere and the ecosystems include biotic and abiotic components i.e., living things, plants and animals, soil, water, atmosphere, heat. On the other hand, main components of an ecosystem are energy, chemicals, and organisms. Nutrient cycling and energy flow are key for a sustainable ecosystem. Figure 1 indicates the main components and relations between components of a sustainable ecosystem (Miller & Spoolman, 2018).

Figure 1.

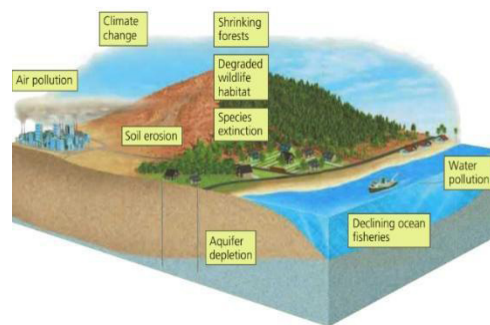
Main Components of an Ecosystem (Miller & Spoolman, 2018)



Most scientific evidence indicates that people are living unsustainably. This is also known as environmental degradation. Figure 2 schematizes environmental degradation or also called as natural capital degradation. Major causes of environmental degradation include population increase, inefficient and unsustainable resource usage, poverty, absence of the detrimental environmental and health costs of goods and services in market prices, increasing isolation from nature, and competing environmental worldviews (Miller & Spoolman, 2018).

Figure 2.

Environmental Degradation or Natural Capital Degradation (Miller & Spoolman, 2018)



Human activities often damage on environment irreversibly. Scientific discovery and technological development promised to decrease disease, hunger, and poverty. However, such advances were not cost-free due to finite resources (Union of Concerned Scientists, 1992; Howard Louis, 1998). Throughout history, humans have encountered unfavourable environmental circumstances; environmental problems became more common for this century especially after the 1960s. The source of environmental problems can be explained as industrial revolution, technology development and urbanisation. Air and water pollution from factories and other dependent problems such as erosion, pesticide contamination, deforestation, declining animals' and species' populations (Rees, 1995; Erten, 2012; Dunlap & Jorgenson, 2012; Harper & Snowden, 2017). The demands of human beings are changing. The changes in human demand on the global ecosystem can be illustrated as Figure 3 and Figure 4 (Dunlap 2007).

Figure 3.
Competing Functions of The Environment
(Dunlap, 2007)

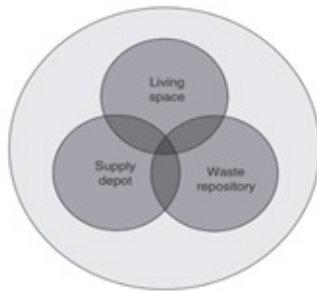
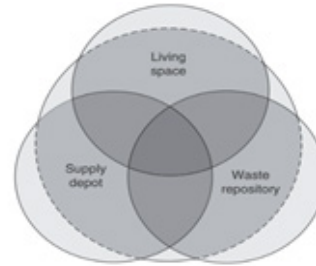
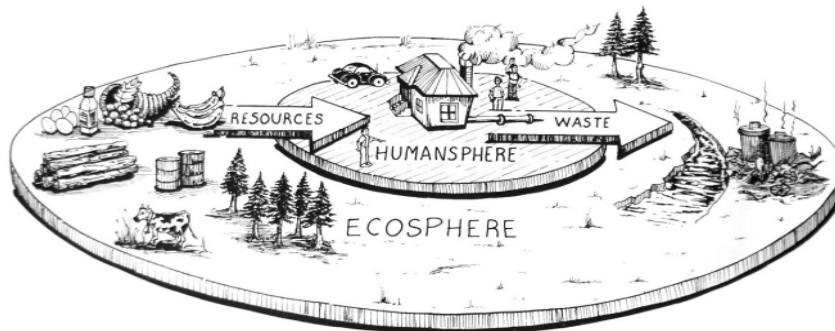


Figure 4.
Competing Functions of The Environment- Current Station
(Dunlap, 2007)



Areas of largest circle symbolize global carrying capacity in Figure 3 and areas of largest circle indicate human load in excess of global carrying capacity in Figure 4 (Dunlap, 2007). Figure 5 indicates the relationship between ecosphere, resources, waste, and human sphere (Wackernagel et. al., 1997: 3)

Figure 5.
The Ecological Footprint Measures Our Dependence n Nature (Wackernagel et. al., 1997: 3)



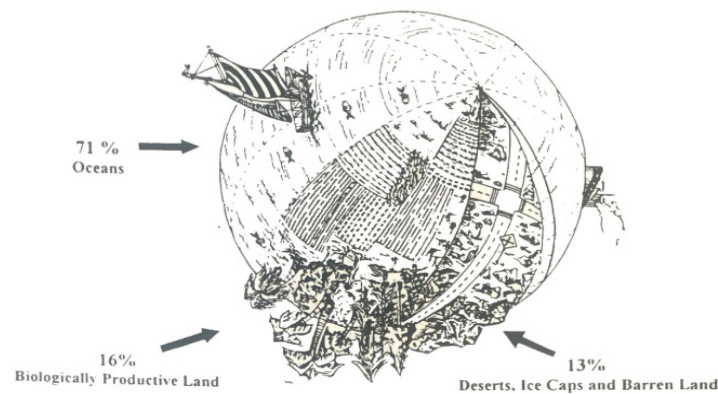
At this point there are two important concepts: Ecological footprint (EF) and biologic capacity. The concepts are also related sustainability and sustainable development (SD) which was defined as “is development that meets the needs of the present without compromising the ability of future generations to meet their own need” (WCED, 1987, p.43). Sustainability can be measured by ecological footprint which is a criterion first calculated by Wackernagel and Rees (1996). The notion denotes the amount of biologically productive land and water area necessary to generate all the resources used by an individual, society, or activity, as well as absorb the wastes produced (particularly carbon dioxide) by present technology and resource use practices (Rudolph & Figge, 2017).

By comparing resource consumption and waste creation to the capacity of the earth to regenerate, EF measures how well use natural sources are used. Six main categories

were defined related to EF: Fossil energy land, arable land, pasture, forest, built-up areas, and the sea. Fossil fuels release CO₂ and toxic chemicals. Fossil energy land is related CO₂ emission, fossil fuel consumption and emissions from chemical processes. Arable land is related productive land. Pasture is related grazing land and cattle farming. Forest is related farmed or natural forest which is the source of timber products. Built-up areas refer to human settlements and roads. The sea is related fish and sea products (Wackernagel et. al., 1997; Wackernagel, Lewan, & Hannson, 1999). The Earth has a biological capacity. Figure 6 indicates the biologically productive areas (Wackernagel et. al., 1997: 5)

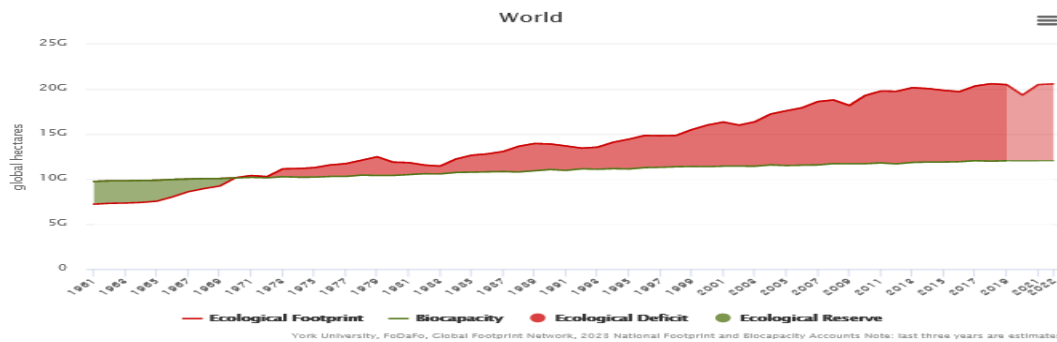
Figure 6.

Biologically Productive Areas on Our Planet (Wackernagel et. al., 1997: 5)

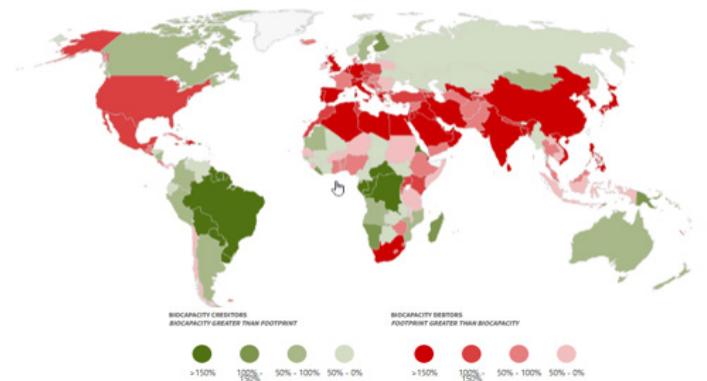


EF is related to consumption, productive area, and population. Figure 6 explains that Earth has a surface area approximately 51 billion hectares (36.3 billion are sea and 14.7 billion are land). Only 8.3 billion hectares of the land area are biologically productive. Biologically productive areas are limited. However, fossil fuel consumption for industry and daily life, population and demands are increasing day by day. This is the basic mechanism for starting point of environmental problems (Wackernagel et. al., 1997).

Ecosystem can restore at a certain rate. The problem is that people use and consume renewable sources of the ecosystem in an unconscious way. Now a new term should be explained: Biocapacity. Biocapacity and EF generally are presented together. Biocapacity measures the bio productive supply that is available within a certain area such as fossil energy land, arable land, built-up areas. If EF is larger than biocapacity then this results in a deficit. This is the disruption of the ecological balance. Environmental problems lead to disruption of food chain and energy pyramid. They are all related with each other (European Communities, 2006). Some statistics will be shared in terms of concretizing the content. Figure 7 indicates World trends for ecological footprint and biocapacity (Global Footprint Network (GFN), 2023a).

Figure 7.*World Trends for Ecological Footprint and Biocapacity (gha) (GFN, 2023a)*

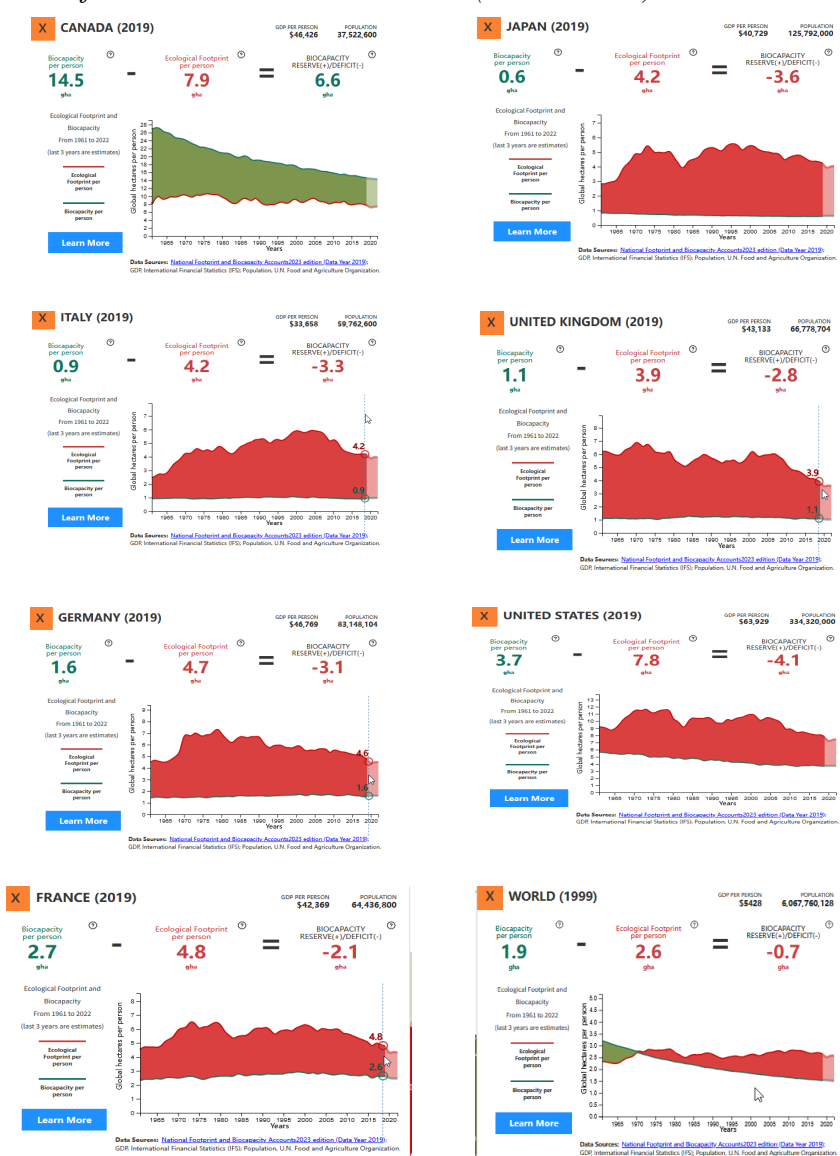
Global hectare is the unit for the EF and biocapacity. In Figure 7 red area under the line indicates ecological deficit and green area indicates ecological reserve. According to graph it can be interpreted that ecological deficit increases year by year (note: last three years are estimates) (GFN, 2023b). Figure 8 indicates ecological deficit and ecologic reserve lands.

Figure 8.*Ecological Deficit/ Reserve Lands (GFN, 2023b)*

National yields, world yields, and yield factors for all countries by land type and equivalence factors are calculation factors (GFN, 2023b). According to Figure 7 some countries' biocapacity exceeds their ecological footprint i.e., Congo (635%) Bahamas (447%), Gabon (811%). Some countries have negative notes. Table 1 indicates trends for Group of Seven (G7) countries and for more detailed information Figure 9 may be examined.

Table 1.*Trends for G7 countries (GFN, 2023b)*

Countries with Biocapacity Deficit	Percentage that ecological footprint exceeds biocapacity
Canada	84%
Japan	-570%
Italy	-350%
United Kingdom	-240%
Germany	-190%
United States	-110%
France	-80%

Figure 9.*More detailed information about G7 countries (GFN, 2023b)*

For Table 1 and Figure 9; 2019's data were compared since there is a note for 2020, 2021 and 2022 data: Estimate. To compare graphs World's biocapacity and EF per person data also interpreted. As one will notice that Canada is different from other G7 countries:

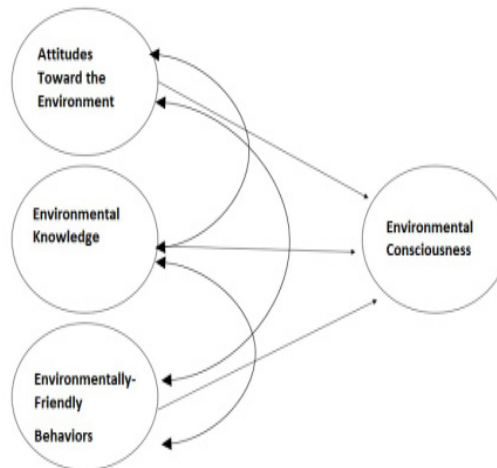
Biocapacity for person was 14.5 gha, ecological footprint for person was 7.9 gha. World's average ecological footprint 1.9 gha and ecological footprint for person was 2.6 gha in 1999. G7 countries are generally far from the ecological footprint concept. Until this part of the chapter, the causes of environmental problems have been tried to be explained. Finally, role of environmental education and its historical process can be explained.

The Origins of Environmental Education: International Collaborations

According to Tbilisi Declaration, which was a milestone for environmental education, 1977 the environmental education is “a learning process that increases people’s knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action” (Educational, Scientific and Cultural Organization (UNESCO, 1977). Environmental education is a tool to raise the environmental consciousness, increase environmental literacy, and solve the environmental problems. The key for the environmental education is environmental consciousness. The environmental consciousness can be explained relationship between environmental knowledge, attitudes toward the environment and environmentally beneficial behaviours in Figure 10 (De Haan, 1996; Erten 2004; Erten 2012).

Figure 10.

Environmental Consciousness and Subfactors Relationship



As mentioned previously source of environmental problems is human beings' activities. Especially 1960s and 1970s were important to be examined for industrialization and fossil fuels using. 22 April 1970 was an important day since the day marks the anniversary of environmental movement (Network, 2006). After this date some international collaborations were organized to draw attention to environmental problems.

At the international level, the United Nations (UN) is the first organization to protect

environment in a broad framework. The UN held the first meeting called The United Nations Conference on the Human Environment in Stockholm and the starting date of this conference, 5 June 1972, is celebrated in all countries with various activities every year as World Environment Day (14th plenary meeting | 13 June 1972). The conference is also known as Stockholm Declaration. 113 states were invited to conference:

“Afghanistan, Algeria, Argentina, Australia, Austria, Bahrein, Bangladesh, Belgium, Bolivia, Botswana, Brazil, Burundi, Cameroon, Canada, Central African Republic, Ceylon, Chad, Chile, China, Colombia, Congo, Costa Rica, Cyprus, Dahomey, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Federal Republic of Germany, Fiji, Finland, France, Gabon, Ghana, Greece, Guatemala, Guinea, Guyana, Haiti, Holy See, Honduras, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libyan Arab Republic, Liechtenstein, Luxembourg, Madagascar, Malawi, Malaysia, Malta, Mauritania, Mauritius, Mexico, Monaco, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Pakistan, Panama, Peru, Philippines, Portugal, Republic of Korea, Republic of Viet-Nam, Romania, San Marino, Senegal, Singapore, South Africa, Spain, Sudan, Swaziland, Sweden, Switzerland, Syrian Arab Republic, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkiye, Uganda, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, United States of America, Uruguay, Venezuela, Yemen, Yugoslavia, Zaire and Zambia” (United Nations, 1972, p. 43).

Six studies of subject areas were discussed during the conference:

- Planning and management of human settlements for environmental quality (subject area I)
- Environmental aspects of natural resources management (subject area II)
- Identification and control of pollutants of broad international significance (subject area III)
- Educational, informational, social, and cultural aspects of environmental issues (subject area IV)
- Development and environment (subject area V)
- International organizational implications of action proposals (subject area VI)

Three committees discussed the report. The conference resulted in important outcomes. Declaration of the United Nations Conference on the Human Environment which included 26 principles (16 June 1972) and Action Plan for the Human Environment with

109 recommendations. Subject areas and related recommendations were following as:

- “Planning and Management of Human Settlement or Environmental Quality: R1-R18
- Environmental Aspects of Natural Resources Management: R19-R69
- Identification and Control of Pollutants of Broad International Significance
 - Pollution Generally: R70-R85
 - Marine Pollution: R86-R94
- Educational, Informational, Social and Cultural Aspects of Environmental Issues: R95-R101
- Development and Environment: R102-R109” (United Nations, 1972, p. 6- p. 27)

Educational, informational, social, and cultural aspects of environmental issues included between Recommendation 95 and Recommendation 101. Recommendation 96 was related establishment of an international educational programme, interdisciplinary in approach both in and out school. The establishment of The United Nations Environment Programme (UNEP) was the one of the major results of the Stockholm conference. Information programme should be designed to create environmentally conscious people. This programme also should include: Making a list of the existing educational systems, which should incorporate environmental education; sharing knowledge about these systems, particularly the distribution of the findings of teaching experiments; professional workers are trained and retrained in a variety of fields at various levels, including teacher training; to facilitate the exchange of experience between nations with comparable environmental conditions and levels of development, it is considered to form groups of experts in environmental disciplines and activities, the creation and evaluation of novel materials and approaches at all levels and types of environmental education (United Nations, 1972).

The Stockholm Declaration identified an educational need. As mentioned in Recommendation 96 addressed environmental education in 1972. International Workshop on Environmental Education was also known as The Belgrade Charter: A Framework for Environmental Education was held on 13-22 October 1975. The charter outlines the main structure and characteristics of environmental education. The basic principles of this new environmental education programmes must depend on the outcomes of United Nations Declaration on the New International Economic Order. The Belgrade Charter explained eight principles to guide environmental education programmes: Environment should be considered totally-natural and man-made, ecological, political, economic etc., a continuous life-long process, interdisciplinary in its approach, emphasize active

participation in both preventing and solving environmental problems, examine major environmental issues from a world point of view and pay attention to regional differences, focus on both current and future environmental situations, examine development and growth from an environmental perspective and promote the value of cooperation to solve environmental problems (UNESCO-UNEP, 1975). In this context,

“The goal of environmental action is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems” (UNESCO-UNEP, 1975, p.3).

In Tbilisi (USSR) between 14 and 26 October 1977 Intergovernmental Conference on Environmental Education was organized by UNESCO in partnership with UNEP. The Tbilisi Conference was the first intergovernmental conference on environmental education. The final report of conference includes five annexes: “Annex I: Agenda, Annex II: Opening speeches, Annex III: Closing speeches, Annex IV: List of documents and Annex V: List of participants” (UNESCO, 1977, p.55-p.101). The conference focused on major environmental problems, role of education to solve environmental problems, current efforts, strategies, and cooperation for development of educational environment. 265 delegates and 65 representatives and observers participated in the conference (UNESCO, 1977). The Tbilisi Declaration stated that:

Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. By adopting a holistic approach, rooted in a broad interdisciplinary base, it recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent. It helps reveal the enduring continuity which links the acts of today to the consequences for tomorrow. It demonstrates the interdependencies among national communities and the need for solidarity of all mankind (UNESCO, 1977, p.24).

The World Commission on Environment and Development (WCED) first met in October 1984. Our Common Future report also known as the Brundtland Report (the Commission’s chairwoman was Norwegian Prime Minister Gro Harlem Brundtland) was published in April 1987. The report included three parts and two annexes: Part I. Common Concerns, Part II. Common Challenges, Part III. Common Endeavours,

Annexe 1. Summary of Proposed Legal Principles for Environmental Protection and Sustainable Development Adopted by the WCED Experts Group on Environmental Law” and Annexe 2. (WCED, 1987). The Commission and its Work. The Commission of Environment and Development selected eight key issues: Perspectives on population, Environment and Sustainable Development; Energy; Industry; Food Security, Agriculture and Forestry; Human Settlements; International Economic Relations: Environment and Development; Decision Support Systems for Environmental Management and International Cooperation” (WCED, 1987, p.296).

The report was influenced by “World Conservation Strategy-Living Resource Conservation for Sustainable Development”. It was the first international document on living resource conservation produced with inputs from governments, non-governmental organizations, and other experts. International Union for Conservation of Nature and Natural Resources (IUCN-was founded in 1948), United Nations Environment Programme (UNEP-as mentioned, was founded in 1972) and World Wildlife Fund (WWF-was founded in 1961) prepared the World Conservation Strategy in collaboration with the “Food and Agriculture Organization of the United Nations (FAO)” and “the United Nations Educational, Scientific and Cultural Organization (UNESCO)” in 1980 (IUCN-UNEP-WWF, 1980; WCED, 1987). Figure 11 explains the symbol of World Conservation Strategy.

Figure 11.

The Symbol of World Conservation Strategy (IUCN-UNEP-WWF, 1980)



The symbol summarized the World Conservation Strategy report. According to symbol, “the circle symbolizes the biosphere and the three interlocking, overlapping arrows symbolize the three aims of conservation: Maintenance of essential ecological processes and life-support systems, preservation of genetic diversity and sustainable utilization of species and ecosystems” (IUCN-UNEP-WWF, 1980, p.2). World conservation strategy is needed since current essential resources are being destroyed increasingly, time problem for regeneration, disproportionate consumption of resources by the affluent i.e. One Swiss consumes as much as 40 Somalis. Conservation is a process. Both conservation and development are for people. Conservation’s concern for maintenance and sustainability is a rational response to the nature of living resources (IUCN-UNEP-WWF, 1980). The

Commission proposed the concept of sustainable development as an ideal for the global economy and corporations. Sustainable development:

“is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of ‘needs’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs” (WCED, 1987, p. 37).

The United Nations Conference on Environment and Development (UNCED) was held on Rio de Janeiro, Brazil, from 3-14 June 1992. The conference was also known as Earth Summit. The report of the United Nations Conference on Environment and Development included three volumes: Volume I: Resolutions Adopted by the Conference; Volume II: Proceedings of the Conference; Volume III: Statements Made by Heads of the State or Government at the Summit Segment of the Conference. Report of the conference included 27 principles (United Nations, 1993). The Rio de Janeiro conference highlighted (Principle 1) “Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.”; Principle 3 stated that “The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.” (United Nations, 1993, p.3). Principle 8 stated that “To achieve sustainable development and a higher quality of life for all people, states should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.” (United Nations, 1993, p.4). Principle 23 stated that “The environment and natural resources of people under oppression, domination and occupation shall be protected” (United Nations, 1993, p.7). One of the important results of the UNCED Conference was Agenda 21.

Agenda 21 was a dynamic programme and focused on the pressing problems of today. Aim of it was to prepare the world for 21st century. It was a global consensus for development and environment cooperation. Strategies, plans, policies, and processes are important to achieve the aim. Agenda 21 was grouped into 4 sections: “Section I: Social and Economic Dimensions; Section II: Conservation and Management of Resources for Development; Section III: Strengthening the Role of Major Groups and Section IV: Means of Implementation” (United Nations, 1993, p.14- p.479).

Section I included international cooperation to accelerate sustainable development, poverty, changing consumption patterns, demographic dynamics and sustainability, human health conditions, sustainable human settlement development and integrating environment and development in decision-making. Section II more focused on environment i.e., protection of atmosphere, combating deforestation, managing fragile

ecosystem, conservation of biological diversity, protection of the oceans, all kind of seas, freshwater resources. Major groups are defined women, children and youth, indigenous people, local authorities, workers, business, industry, scientific and technological community in Section III. Section IV. Means of Implementation part explained financial resources and mechanisms, science for sustainable development promoting education, public awareness and training, international institutional arrangements, and legal instruments etc. (United Nations, 1993).

Chapter 36 in Agenda 21 report is important for this book chapter. Program areas described in Chapter 36: Promoting Education, Public Awareness and Training chapter are: Reorienting education towards sustainable development; Increasing public awareness and Promoting training (United Nations, 1993). Report explained the role of education. Education was expressed critical for SD:

“Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. While basic education provides the underpinning for any environmental and development education, the latter needs to be incorporated as an essential part of learning. Both formal and non-formal education are indispensable to changing people’s attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills, and behaviour consistent with sustainable development and for effective public participation in decision-making. To be effective, environment and development education should deal with the dynamics of both the physical/biological and socio-economic environment and human (which may include spiritual) development, should be integrated in all disciplines, and should employ formal and non-formal methods and effective means of communication” (United Nations, 1993, p.439).

In the report activities four objectives were proposed in Chapter 36 Programme Areas “A. Reorienting education towards sustainable development part”; (a) all countries are encouraged to endorse the recommendations of the Jomtien Conference. The conference was known as World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs. It was held in Jomtien, Thailand, from 5-9 March 1990 The concept of Education for All is generally associated with The Jomtien Conference which is a guide to design and carry out policies and strategies for governments, international organizations, educator, and development professionals. Some 1500 participants met in the conference including policy makers, specialists in education and other major sectors,

officials, specialists (UNESCO, 1990).

The Jomtien conference emphasized “education is a fundamental right for all people, women and men, of all ages, throughout our world” (UNESCO, 1990, p.2); education is important for a safer, healthier, more prosperous and environmentally sound world, and cultural progress, tolerance, and international cooperation, Education is a key for personal and social improvement, the value of traditional knowledge and indigenous cultural heritage, basic education is fundamental to strength higher levels of education, scientific and technological literacy and capacity, (b) to achieve environmental and development awareness as soon as possible, (c) to endeavour for the accessibility of environmental and development education to social education; for all groups of people from primary school to adulthood, (d) to promote integration of environment and development concepts with especially the causes of major environment and development issues and to give special emphasis to further training of decision makers (UNESCO, 1990). 36.5 part of Agenda 21 included 15 activities (a, b, c, ...m, n, o). For more detailed information the related part of the report should be reviewed. Examples of activities will be shared in this chapter (United Nations, 1993):

(b) Governments should strive to update or prepare strategies aimed at integrating environment and development as a cross cutting issue into education at all levels within the next three years ...

(c) Countries are encouraged to set up national advisory environmental education coordinating bodies or round tables representative of various environmental, developmental, educational, gender and other interests, including non-governmental organizations, to encourage partnerships, help mobilize resources, and provide a source of information and focal point for international ties.

(e) Relevant authorities should ensure that every school is assisted in designing environmental activity work plans, with the participation of students and staff...

(f) Educational authorities should promote proven educational methods and the development of innovative teaching methods for educational settings... (p. 441).

The United Nations Convention on Climate Change (United Nations, 1992a) and the United Nations Convention on Biological Diversity (United Nations, 1992b) were also signed in 1992. According to report (1992a) parties acknowledged Earth's climate change and this is common concern of people, human activities increased the amount of greenhouse gases, developed countries are the source of the largest share of greenhouse gases, terrestrial and marine ecosystems play important role for marine ecosystems of sinks and greenhouse gases' reservoirs, recalled the importance of Stockholm Conference,

recognized that states should enact effective environmental legislation, recalled related provisions of General Assembly resolutions. 26 articles were explained in the report i.e., Article 1. Definitions (Adverse effects of climate change, climate change, climate system, emissions, greenhouse gases, regional economic integration organization ...), Article 2. Objective (is to stabilize the greenhouse gas concentrations in the atmosphere at a level), Article 3. Principles, Article 4. Commitments, ..., Article 26. Authentic Texts. Article 6 is related Education, Training and Public Awareness.

According to report (United Nations, 1992b) the contracting parties were conscious about intrinsic value and importance of biological diversity. The parties affirmed conservation of biological diversity is a common concern for people. States have sovereign rights over their own biological resources and are responsible for conserving their biological diversity and using their biological resources sustainably, concerned human activities reduce biological diversity. Article 13 is related Public Education and Awareness. The contracting parties shall use propagation through media and educational programs to promote and encourage the importance of and measures for biological diversity, and they shall collaborate in creating educational and public awareness programs with other state and international organizations.

After five years Earth Summit was held in New York by the United Nation General Assembly in a special session in 1997. The session was known as Rio+5. The General Assembly reaffirmed special session for implementation of Agenda 21 and in full respect of Rio Declaration. The date was 20 January 1997 and this was the fifty-first session (United Nations, 1997a). After nine months (19 September 1997) programme for the further implementation of Agenda 21 was adopted by the United Nations General Assembly in nineteenth special session. According to report “The United Nations Conference on Environment and Development” was a landmark event. The focus for the special session was to accelerate the implementation of Agenda 21 for achieving SD. The commission committed multi-year programme of work for the commission on SD, 1998-2002. Sustainable development’s components are economic, social development, and environmental protection. The components are interdependent and mutually reinforce SD. Non-governmental organizations, educational institutions, scientific community, and media increased the public awareness. Universities and other academic centres must be supported and strengthened to promote cooperation (United Nations, 1997b).

In 1998 the Millennium Assembly of the United Nations decided to designate 55 session of the Generally Assembly as “The Millenium Assembly of the United Nations”. The commission decided fifty-fourth session a sub item The Millennium Assembly of the United Nations under the titled United Nations reform: measures and proposals (United Nations, 1999). In 2000 the Millennium Declaration was organized in New York; this was the fifty-four session (A/54/2000). The motto was that: “We the peoples: the role of the United Nations in the twenty first century”. The topics for sustaining our future

part were that: coping with climate change, confronting the water crisis, defending the soil, preserving forests, fisheries, and biodiversity, and building a new ethic of global stewardship (United Nations, 2000).

“World Summit on Sustainable Development” held in Johannesburg, South Africa, 26 August-4 September 2002. The Summit held 17 plenary meetings. Many governmental and non-governmental organizations were attended the World Summit. More than a hundred states i.e., Turkiye, Uzbekistan, Afghanistan, Chad, Chile, Colombia ...; five associate members of the regional commissions were represented; Timor-Leste and Palestine States were received an invitation as an observers; five economic and social commissions’ secretariats were represented, United Nations bodies and programmes were presented i.e., United Nations Environment Programme, “United Nations Children’s Fund”, “United Nations Development Programme”, “United Nations University”; the secretariats of conventions were presented i.e., “Convention of Biological Diversity”, “United Nations Framework Convention on Climate Change”, “United Nations Convention to Combat Desertification in Those Countries, Experiencing Serious Drought and/or Desertification”, Particularly in Africa, “Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal”; specialized agencies and related organisations were represented i.e., “World Health Organization”, “International Fund for Agricultural Development”, “World Meteorological Organization”, “World Tourism Organization”, “World Trade Organization”; intergovernmental organisations were represented i.e., African Development Bank, Asian Development Bank, Latin American Economic System. The topics were health and environment, biodiversity and ecosystem management, agriculture, cross-sectoral issues (finance/trade, technology transfer, information/education/science, consumption patterns and capacity-building), water and sanitation and energy in Chapter III. According to report, action is needed at all levels, partnerships between governments and non-governmental organizations are needed and follow-up is needed for each WEHAB (Water, Energy, Health, Agriculture and Biodiversity) areas (United Nations, 2002). In fifty-seventh session General Assembly decided to adopt sustainable development as a key element for United Nations activities, to achieve development goals on 21 February 2003 (United Nations, 2003).

The 2005 World Summit was held on 14-16 September 2005, in New York. The General Assembly resolved to create a more peaceful, prosperous, and democratic world and focus on these problems to provide multilateral solutions: Development, peace and collective security, human rights and the rule of law and strengthening of the United Nations. Education for all programmes as a tool to achieve the millennium development goal universal primary education by 2015 and committed to promote education for peace and human development. Sustainable consumption and production patterns will be promoted and the efforts related to recycling economy will be supported for developing countries. Committee acknowledge partnerships for advance action on clean energy and climate

change, including bilateral, regional, and multilateral initiatives. Sound management of chemicals and hazardous wastes will be promoted (United Nations, 2005).

In 2005 as mentioned United Nations adopted the Millennium Declaration (United Nations, 2000). 2015 Declaration was the deadline for achievement of most of its commitments. The eight Millennium Development Goals provided a framework and in 2008, trends are assessed. These development goals were that:

“Goal 1. Eradicate extreme poverty and hunger, Goal 2. Achieve universal primary education, Goal 3. Promote gender equality and empower women, Goal 4. Reduce child mortality, Goal 5. Improve maternal health, Goal 6. Combat HIV/AIDS, malaria and other diseases, Goal 7. Ensure environmental sustainability, Goal 8. Develop a global partnership for development” (United Nations, 2008, p1).

Millennium Development Goals Summit was held on 20-22 September 2012 in New York (United Nations, 2010). United Nations Conference on Sustainable Development in Rio which was also known as Rio+20 due to twenty years after the Earth Summit. The motto was: The future we want. General Assembly reaffirmed Declaration of the United Nations Conference on the Human Environment adopted previous declarations, outcomes of meetings and action plans. There are important points i.e., Commission emphasized the need to make progress in implementing previous commitments. Poverty is a still important problem. Climate change is a cross-cutting and persistent crisis. Green economy policies should be promoted. Strengthening the three dimensions of sustainable development and intergovernmental arrangements for sustainable development are important. Thematic areas and cross-sectoral issues were defined Commission reaffirmed the Millennium Development Goals are useful however the goals should address and incorporate all three dimensions of sustainable development (United Nations, 2012). In 2013 the Millennium Development Goals Report was published and this special event defined as it will add momentum for 2015 and the challenges of sustainable development (United Nations, 2013).

United Nations on Sustainable Development summit was held on 25-27 September 2015 in New York. The motto was: Transforming our world: the 2030 Agenda for Sustainable Development. This Agenda was explained as a plan of action for people, planet, and prosperity. Eradicating poverty is the greatest challenge for sustainable development. 17 Sustainable Development Goals and related 169 targets were announced and adopted “win-win” cooperation to bring huge gains for all countries and world. New goals will be a guide next 15 years’ decisions. The positive contribution of migrants was recognized. Climate change and environmental degradation were addressed. Social and economic development depend on sustainable management and usage of natural resources. Commission determined to conserve and sustainable usage of water resources,

biodiversity, ecosystems. Sustainable urban development is a crucial issue. Peace and security are keys for SD (United Nations, 2015a). Figure 12 indicates the 17 Sustainable Development Goals (SDG) (United Nations, 2015b).

Figure 12.

Sustainable Development Goals (United Nations, 2015b)



“SDG1. End poverty in all its forms everywhere, SDG2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture, SDG 3. Ensure healthy lives and promote well-being for all at all ages, SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, SDG 5. Achieve gender equality and empower all women and girls, SDG 6. Ensure availability and sustainable management of water and sanitation for all, SDG 7. Ensure access to affordable, reliable, sustainable, and modern energy for all, SDG 8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all, SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, SDG 10. Reduce inequality within and among countries, SDG 11. Make cities and human settlements inclusive, safe, resilient, and sustainable, SDG 12. Ensure sustainable consumption and production patterns, SDG 13. Take urgent action to combat climate change and its impacts, SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development, SDG 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss, SDG 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective,

accountable, and inclusive institutions at all levels, SDG 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development” (United Nations, 2015a, p.14).

Paris Conference on Climate Change was held in same year. It was also known as COP21. The conference was the 21st yearly session of the Conference of Parties (COP). Paris Agreement was done at Paris on 12 December 2015. It entered into force on 4 November 2016. Aim of the agreement was to strength global response for the reduction of climate change: “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change” (United Nations, 2015c, p. 3). Koseoglu and Erten explained that how environmental education must be according to the Paris Agreement. As a result of the analysis, the results of the Paris Agreement were coded as nine codes. These codes included basic ecological concepts, environmental problems and features, global warming, climate change, food and agricultural safety, environmental education and environmentally friendly behaviours, technology in solving environmental problems, sustainable development, social justice, and climate justice (Koseoglu & Erten, 2022).

Stockholm+50 was held on 2 and 3 June 2022. The motto was that: A healthy planet for the prosperity of all- our responsibility, our opportunity. Four plenary meetings and 3 leadership dialogues were held during the process. Many speakers alluded to historical importance of Stockholm Conference which was held in 1972 and emphasized the international environmental agreements from 1972 to 2022; particularly the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification and the Convention on Biological Diversity. According to report, to raise awareness and create positive public consciousness for both environment and climate action, environmental awareness should be integrated to education systems. Environmental education should be introduced from a young age (United Nations, 2022).

Curriculums are updated from time to time in line with needs. There are three basic areas of knowledge and competence regarding teaching. These are content knowledge, pedagogy knowledge and pedagogical content knowledge. In this context there are two courses related to environment and related topics: “Environmental Education” and Sustainable Development and Education. Content of Environmental Education course includes in Turkiye:

Basic ecological concepts and principles, ecosystems, food chains, food web, habitat, competition; partner life and mutual living, energy flow, circulation of matter, population growth, ecological impact, erosion, soil and water resources, environmental awareness, studies on environmental awareness in the world, institutions, and organizations; Environmental

education in primary education programs (Council of Higher Education, 2018, p. 14).

Content of Sustainable Development and Education course includes in Türkiye:

The concept of sustainability and its usage areas; sustainability in terms of social sciences and sciences; sustainability in the context of social change; education and sustainability; the future of humanity and sustainability; migration, poverty and inequality; sustainable environment; ecology, global environment issues and sustainability; sustainable society in harmony with nature; population, economic system and natural environment; technological developments, consumption habits and environment; social responsibility work sustainability in terms of tangible and intangible cultural heritage; human-nature relations Rethinking on the axis of sustainability (Council of Higher Education, 2018, p.18).

The process of updating teacher training undergraduate programs has been completed in 2018. It may be said that the course contents and the contents in the reports are parallel. The world has changed in many ways. From Stockholm Declaration to Stockholm+50 there are many international conferences and agreements. In this chapter it has been endeavoured to explain the relations between these, the historical process, and the relation between outcomes of reports and environmental education. Some of these meetings are directly related to environmental education; some are related to sustainable development.

References

- Council of Higher Education. (2018). Fen Bilgisi Öğretmenliği Lisans Programı. https://www.yok.gov.tr/Documents/Kurumsal/egitim_ogretim_dairesi/Yeni-Ogretmen-Yetistirme-Lisans-Programlari/Fen_Bilgisi_Ogretmenligi_Lisans_Programi.pdf
- De Haan, G. (1996). Umweltbewusstsein. *Denken und Handeln in Umweltkriesen. Opladen.*
- Dunlap, R. E., & Jorgenson, A. K. (2012). Environmental problems. *The Wiley-Blackwell Encyclopedia of Globalization.*
- Dunlap, R.E. (2007) Environmental problems. In: Ritzer, George (ed.) *Blackwell Encyclopaedia of Sociology.* Blackwell Reference Online. <http://www.sociologyencyclopedia.com/public/>
- Erten, S. (2004). Environmental education and awareness, how should environmental education be? (Çevre eğitimi ve çevre bilinci nedir, çevre eğitimi nasıl olmalıdır?). *Çevre ve İnsan Dergisi*, 65/66.
- Erten, S. (2012). Environmental consciousness among turkish and azeri candidate. *Education and Science*, 37(166), 88-100. <http://egitimvebilim.ted.org.tr/index.php/EB/article/view/1353/443>
- European Communities. (2006). Ecological footprint and biocapacity. <https://ec.europa.eu/eurostat/documents>
- GFN/ Global Footprint Network (2023a). Explore data. <https://data.footprintnetwork.org>

- GFN/ Global Footprint Network (2023b). *Countries with biocapacity reserve/ deficit* <https://data.footprintnetwork.org/#/>
- Harper, C. & Snowden, M. (2017). *Environment and society: Human perspectives on environmental issues*. Routledge.
- Howard, M. & Louis, W.R. (1998). *Oxford History of the Twentieth Century* (Oxford University Press) xix–xxii.
- IUCN-UNEP-WWF. (1980). World conservation strategy-living resource conservation for sustainable development. <https://portals.iucn.org/library/efiles/documents/WCS-004.pdf>
- Köseoğlu, P. & Erten, S. (2022). How environmental education must be according to the Paris Agreement? *The Journal of Buca Faculty of Education*, 54, 1528-1544.
- Miller, G. T. & Spoolman, S. (2018). *Living in the environment: principles, connections, and solutions*. Cengage Learning.
- Network, E. D. (2006). The history of earth day. Earth Day Network.
- Rees W. E. (1995). Cumulative environmental assessment and global change, *Environmental Impact Assessment Review*, 15(4), 295-309.
- Rudolph, A. & Figge, L. (2017). Determinants of ecological footprints: What is the role of globalization? *Ecological Indicators*, 81, 348-361.
- UNESCO. (1977). Intergovernmental Conference on Environmental Education organized by UNESCO in co-operation with UNEP Tbilisi (USSR). 14-26 October 1977. http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf
- UNESCO. (1990). World declaration on education for all and framework for action to meet basic learning needs. <https://unesdoc.unesco.org/ark:/48223/pf0000127583>
- UNESCO-UNEP. (1975). The Belgrade Charter: A framework for environmental education. <https://www.eusteps.eu/wp-content/uploads/2020/12/Belgrade-Charter.pdf>
- Union of Concerned Scientists. (1992). *World scientists' warning to humanity. Statement available from the Union of Concerned Scientists*, Cambridge.
- United Nations. (1972). Report of the United Nations conference on the human environment, Stockholm, 5-16 June 1972. <http://www.un-documents.net/aconf48-14r1.pdf>
- United Nations. (1992a). United nations convention on climate change. https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf
- United Nations. (1992b). United nations convention on biological diversity. <https://www.cbd.int/doc/legal/cbd-en.pdf>
- United Nations. (1993). Rio declaration on environment and development. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N92/836/55/PDF/N9283655.pdf?OpenElement>
- United Nations. (1997a). Resolution adopted by the general assembly [on the report of the second committee (A/51/605/Add.2)]. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N97/762/13/PDF/N9776213.pdf?OpenElement>
- United Nations. (1997b). Resolution adopted by the general assembly [without reference to a Main Committee (A/ S-19/29)]. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N97/774/73/PDF/N9777473.pdf?OpenElement>
- United Nations. (1999). Resolution adopted by the general assembly [without reference to a main committee(A/53/L.73)]. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N99/765/13/PDF/N9976513.pdf?OpenElement>

- United Nations. (2000). We the peoples: the role of the United Nations In the twenty-first century. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N00/388/97/IMG/N0038897.pdf?OpenElement>
- United Nations. (2002). Report of the World Summit on sustainable development. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N02/636/93/PDF/N0263693.pdf?OpenElement>
- United Nations. (2003). Resolution adopted by the General Assembly [on the report of the Second Committee (A/57/532/Add.1)]. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N02/556/06/PDF/N0255606.pdf?OpenElement>
- United Nations. (2005). Resolution adopted by the General Assembly on 16 September 2005 [without reference to a Main Committee (A/60/L.1)] 60.1. 2005 world summit outcome. The 2005 world summit outcome. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N05/487/60/PDF/N0548760.pdf?OpenElement>
- United Nations. (2008). Millennium Development Goals: 2008 Progress chart. https://www.un.org/millenniumgoals/2008highlevel/pdf/newsroom/MDG_Report_2008_Progress_Chart_en_r8.pdf
- United Nations. (2010). Keeping the promise: a forward-looking review to promote an agreed action agenda to achieve the Millennium Development Goals by 2015 Report of the Secretary-General. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N10/238/02/PDF/N1023802.pdf?OpenElement>
- United Nations. (2012). Resolution adopted by the General Assembly on 27 July 2012 [without reference to a Main Committee (A/66/L.56)] 66/288. The future we want. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N11/476/10/PDF/N1147610.pdf?OpenElement>
- United Nations. (2013). The Millennium development goals report. <https://www.un.org/millenniumgoals/pdf/report-2013/mdg-report-2013-english.pdf>
- United Nations. (2015a). Resolution adopted by the General Assembly on 25 September 2015 [without reference to a Main Committee (A/70/L.1)] 70.1. Transforming our world: the 2030 Agenda for Sustainable Development. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/291/89/PDF/N1529189.pdf?OpenElement>
- United Nations. (2015b). #Envision2030: 17 goals to transform the world for persons with disabilities. <https://www.un.org/development/desa/disabilities/envision2030.html>
- United Nations. (2015c). Paris agreement. https://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf
- United Nations. (2022). Stockholm +50: a healthy planet for the prosperity of all- our responsibility, our opportunity report. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/K22/117/97/PDF/K2211797.pdf?OpenElement>
- Wackernagel, M. & Rees, W. (1996). Our ecological footprint: Reducing human impact on the earth. Gabriola Island: New Society Publishers.
- Wackernagel, M., Lewan, L. & Hansson, C. B. (1999). Evaluating the use of natural capital with the ecological footprint: applications in Sweden and subregions. *Ambio*, 604-612.
- Wackernagel, M., Onisto, L., Bello, P., Linares, A. C., Falfán, I. S. L., García, J. M., ... & Guerrero, M. G. S. (1997). Ecological footprints of nations: how much nature do they use? –how much nature do they have? Universidad Anahuac de Xalapa, Centro de Estudios para la Sustentabilidad. 1-9.
- WCED/World Commission on Environment and Development. (1987). Our common future, <http://www.un-documents.net/our-common-future.pdf>

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