First United Nations Report on Problems of Human-Environment

Subjects: Environmental Sciences

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The 1969 UN Report “Problems of the Human Environment” was a seminal work that first highlighted environmental problems at a global scale. This report underpinned a series of subsequent international summits and conventions of the 1992 Rio Earth Summit and the subsequent three global conventions on Biodiversity, Climate Change and Desertification. Many issues of that day have declined in importance or been superseded, and several major environmental problems (including climate change and plastic pollution) were not foreseen. Most of the report’s predictions proved to be much more conservative than proved by reality (a criticism that has also been levelled at contemporary IPCC reports).

Keywords: sustainable development ; UN report ; conventions ; institutions

1. Introduction—Context of the 1969 Report

After World War II, an economic race commenced among both war-affected and non-affected countries (e.g., a rapid growth in the US between 1950 and 1973: [1]). Similarly, the Western European countries experienced an economic ‘golden age’ during the 1950s–60s [2]. At the time, there was no reason to believe growth would be short-lived, nor any argument for their deceleration, or cessation. It was a time of prosperity and pop culture [3]. Voracious demands of a growing population (2% per annum in the late 1960s: [4]), seeking to reconstruct or modernise ruined European infrastructure and create a new, modern lifestyle left no option but to invest, create, generate, and manufacture more and more (e.g., UK: [5]).

The term “Frontier economics” suggested by Kenneth Boulding which “treats nature as an infinite supply of physical resources (raw materials, energy, water, soil, and air) to be used for human benefit…” ([6], p. 8) prevailed in industrial countries until the late 1960s. Oil and gas as industrial-scale energy sources became alternatives to coal [7] and propelled the economic engine for many nations. The consumption of coal as a fuel decreased from 62% in 1940 to 23% in 1970, while oil and natural gas increased from 26% to almost 70% [7], substituting one polluter (coal) by another (oil).

During this period of economic prosperity of the 1960s [1] the environmental crisis started looming on the horizon [4] and new environmental movements were formed in some countries (e.g., USA: [8]; Germany: [9]). Amid the economic gains, the environment was seen as a victim of human dominance on a scale had not been seen before. Since the early 1960s, concepts of environment and pollution became part of public awareness [10]. Moreover, increasing population growth and the need for more food and energy sources become contentious issues [10]. Media publicity (Films, TV programmes) exposed ecological disasters [4][5]. In the US, dam building in wilderness areas during the 1950s and the publication of “Silent Spring” in 1962 enticed the formation of the environmental movement [8].

In Germany, environmental policy was developed into an independent policy area based on a comprehensive concept of environmental protection in 1969 [9] and likewise, the environment became a separate policy area in Sweden [11]. Other countries started to establish Departments of Environment in the 1970s (e.g., 2010; Canada in 1971: [12]; Iran in 1972: [13]). The international environmental organisation ‘Greenpeace’ was founded in Vancouver, Canada in 1971 [3]. Words such as ecology and pollution became commonplace [5].

These growing environmental concerns were noted by the United Nations General Assembly on 3 December 1968. Paragraphs 2 and 3 of resolution 2398 (XXIII) called for action on the problems of the human environment. It was decided to convene a United Nations Conference on the Human Environment in 1972 and the Secretary-General was requested to prepare a report for convening that Conference [14]. Consequently a 1969 report was compiled on the problems of the human environment. The report reflected the public mood and political and economic circumstances at a time when industries were enjoying rising profits and western societies were experiencing rapid development.

2. Cross-Checking of Keywords

2.1. Carbon

The UN report refers to carbon only in three locations: "…a 10 percent increase in atmospheric carbon dioxide… increase in carbon dioxide, particulate matter, and …regulations for maximum admissible levels of carbon monoxide…" ([15], p. 15). Interestingly, these three mentions were attributed only to exhaustion and combustion of vehicles. The report missed the most important sources of pollutants on Earth, such as power plants, domestic housing, agriculture, etc. Carbon is now one of the most frequent words in the vocabulary in online and offline media, especially concerning climate change.

2.2. Coal

Throughout the UN report, coal was referred to only in a few instances: "London has improved the quality of its air through restricting the use of coal…waste products from the coal industry" ([15], p. 9). As it is evident, even these rare references to coal were limited to a city (London) and specific circumstances (coal waste). Critical words such as 'temperature rise' and 'global warming' were not attributed to coal-burning. In the 1960s, the world had already started to transition from coal to oil [16], though coal still was used widely as an energy source. Coal consumption for electricity generation has not subsided as it constitutes the third global sources. Todays' sentiments on coal are reiterated loudly both inside and outside the countries. Demonstrations of people worldwide oppose coal-mining and coal-burnt power plants to be developed. The UN Secretary-General António Guterres' statement on the Intergovernmental Panel on Climate Change (IPCC) in 2021: "There must be no new coal plants built after 2021".

2.3. Oil

The word "Oil" was repeated in the report several times but in all cases referred to the role of oil in polluting marine ecosystems, not oil as a significant fossil fuel in increasing greenhouse gas emissions: "Oil has been in existence since 1954, oil pollution remains a major concern...Pollution of the sea stemming from sub-sea mineral exploitation, notably the danger of blow-outs of off-shore oil drilling" ([15], p. 43). The situation has not improved. According to IPBES [17], ocean mining has expanded since 1981 to 6500 offshore oil and gas installations in 53 countries.

2.4. Pesticides/Herbicides

The UN report emphasizes high applications of DDT or other agricultural chemicals as factors polluting soil and water resources at that time. In several instances in the report, their wide usage is fortified by some figures to highlight the relevant impacts on the environment. Since then, the usage of pesticides and herbicides have increased with severe consequences on soil and marine biological systems (e.g., [17]).

2.5. Urbanisation

The report's overarching theme evolves around urbanisation and its growing impacts. It provides various examples and evidence from cities to explain the issues. It directly emphasises land use planning to resolve urban problems. The UN report rightly warned of the increasing impact of waves of urbanisation through the expansion of slums: "In the large cities, slums of the most wretched nature often become the environment of people who once lived in greater dignity and better health on rural lands" ([15], pp. 4–5). According to the recent report of UN-Habitat [18], slums have become typical dwellings for 1 billion people of the urban population.

2.6. Air Pollution

The UN report explicitly refers to air pollution "resulting from the combustion of fossil fuels for space heating, industrial power, or transportation …" ([15], p. 9). Exemplifying two cities, London and Los Angeles, the report highlights these two cities' ineffectiveness to cope with air pollution. In 1952, the 'Great London Smog' episode killed thousands, prompting the UK government to introduce the first Clean Air Act (1956) [3].

2.7. Rural Areas

The UN report underlines two challenges for rural areas: first, a decline in the number of people wishing to live close to their farms or villages; and second, increasing desires of people to acquiring a second residence in the county for weekends and recreation [15]. These issues are still relevant to the contemporary era [19].

2.8. Polar Regions

Arctic and Antarctic regions are mentioned in the UN report but not from the modern viewpoint. In a few places, the report mentions the Arctic region. In one particular notion, the report refers to its environmental problems resulting from human activity, which are few and highlights the role of shared research. Moreover, in another place, it refers to the Antarctic continent, which is “only of marginal immediate concern to man” ([15], p. 26). 50 years later the condition of polar ice sheets is high in the global consciousness. The average annual land surface air temperature north of 60° N for October 2019-September 2020 was the second-highest on record since at least 1900, and the end of summer sea ice extent in 2020 was the second-lowest in the 42-year satellite record [20].

2.9. Water

Water is one of the most frequent keywords in the report. Water-related problems are mentioned from various perspectives including management, health, pollution, and distribution. For instance, referring to large-scale water transfer schemes, the report rightly stresses that in these projects, “the broader environmental impact is inadequately considered” ([15], p. 12). Currently, both quantity and quality of water continue to be real concerns across the globe. Frequent droughts and floods have caused and continue to cause disturbances both in agricultural and urban settings and access to clean drinking water remains a major challenge.

2.10. Radioactivity

The UN report refers to environmental pollutions of nuclear power plants. “Pollution from radioactive material is a danger which could become of greater significance as increased reliance is placed on nuclear power and, eventually, if nuclear explosives for engineering purposes were to be used” ([15], p. 15). The prediction was correct as the world has witnessed two significant incidences in Ukraine and Japan since then. Still, the nuclear energy is an on-going option for electricity generation.

2.11. Marine Ecosystems

The report, in several paragraphs, also noted marine environments. The report specifically highlights the issue of over-exploitation in the fisheries industry: “The decline of certain species of whales and seals, of sea turtles, of the Pacific sardine and Atlantic salmon fisheries) as well as the continuing over-exploitation of the eastern Pacific anchoveta fishery are examples” [15], p. 15). Moreover, the report underscores oil pollution as a major concern. Since then, several oil leakage incidences have occurred, notably in the USA.

2.12. Malaria

The UN report highlights diseases such as malaria. It has been a real problem globally. According to WHO [21], only 11 countries have been certified so far as Malaria-free countries in the world. In 2019, there were an estimated 229 million cases and 409,000 deaths of malaria worldwide [21].

3. Missing Keywords—Unanticipated Problems of the Human Environment

3.1. Ecosystem Services

The report does not explicitly mention ecosystem services, but it is probably the first indirect notion of this term in an official document. It is read: “Urbanization…providing goods and services in quantity and diversity…” ([15], p. 4). In fact, the provision of goods and services is a pivotal block of the structure of the modern term ‘ecosystem services’. Moreover, the report refers indirectly to another function of ecosystem services: “Areas of natural beauty … have a social function of providing recreation facilities for city-dwellers, beside their intrinsic value as part of a common heritage” (Ibid p. 8). It refers to “rural lands while preserving …their plant and animal life and the aesthetic, scientific and recreational values of their landscapes” (Ibid p. 12). The report even suggests monetary assessment of the environment: “The economic evaluation of the effects of environmental deterioration is … seldom integrated with the other elements of a given development programme … cost-benefit analysis is applied on … water quality management in the Ohio valley and Delaware estuary” (Ibid p. 19).

3.2. Climate Change

As expected, no direct mention of the ‘climate change’ term was recorded in the UN report. Human cannot count this as a shortcoming as, for instance, the report reminds all of “The need for continual monitoring to detect changes in the earth’s atmosphere and its weather and climate” ([15], p. 16). Moreover, the report stresses “the problem of changes of climate” in another related sentence. There is no agreement when the ‘climate change’ term has been quoted directly for the first time. The first possible reference comes from the Swedish chemist Svante Arrhenius at the end of the 19th century, who mentioned that emissions of carbon dioxide could warm the earth in the long run [11]. For the contemporary era, however, the first combination of climate and change can be referred to Intergovernmental Panel on Climate Change (IPCC) that was formed in 1988 [22].

3.3. Food Security

The UN report does not refer directly to food security. Still, it provides evidence: “Food supplies may be inadequate, badly distributed, or prepared and sold under unhygienic conditions. Malnutrition is not uncommon” ([15], p. 8). Such issues are still relevant to the contemporary world. While many people are starving, large amounts of food are lost during production, transportation and storage.

3.4. Temperature

A missing term in the UN report is ‘temperature’ or any notion of ‘warming’. There is no doubt that the warming and temperature rise were relevant as industrialisation could not occur without generating heating. Such voracious industries and manufacturing processes could result in severe temperature rise during the 1960s.

3.5. Biodiversity

Biodiversity or biological diversity are not mentioned directly in the UN report. Nevertheless, the report emphasised some of its elements such as wildlife and plant resources.

3.6. Desertification/Deforestation

The word desertification did not appear in the UN report. However, the report mentioned vocabulary such as erosion, soil deterioration, destruction of farming lands which, per se, indicate desertification. The report also mentioned deforestation in two instances, though ‘destruction of valuable forest resources’ and ‘the exploitation of forests for timber’ were reiterated. Moreover, words such as ‘afforestation’, ‘reafforestation’ and ‘the establishment and protection of forests’ were noted in the report. Deforestation is under scrutiny across the countries and is related to their economic policies (e.g., [23]).

3.7. Environmental Impact Assessment

The term “Environmental Impact Assessment (EIA)” was not coined at that time, but the UN report indirectly highlights the need for EIA in many projects. During that time, “Environmental impact statements” were institutionalised [6]. EIA is an important undertaking nowadays, though the issue has been systematically ignored in drylands over the past [24].

3.8. Ozone Layer

The UN report does not mention about the Ozone layer depletion, though it refers to “carbon dioxide, particulate matter, and various toxic and radioactive materials in the atmosphere which could have long-term deleterious effects” ([15], p. 14). It was not until 1974 when scientists suggested, for the first time, that chlorofluorocarbons (CFCs) may be causing a thinning of the ozone layer [3]. Later, the Ozone depletion problem became global on 15 September 1987 when ‘the Montreal Protocol’ became the only UN treaty ever that had been ratified by every country on Earth (Montreal Protocol 2021). The Parties to the Protocol have phased out 98% of ozone depleting substances (ODS) globally compared to 1990 levels (Ibid). Without this treaty, ozone depletion would have increased tenfold by 2050 compared to current levels and resulted in millions of additional cases of melanoma, other cancers and eye cataracts (Ibid).

3.9. Coral Reefs

Coral reefs are not mentioned in the UN report. However, the report highlights the consequences of “the release of radioactive isotopes, the discharge of toxic materials, excessive nutrients, or heated water into estuaries of coastal waters on which the productivity of the oceans is dependent” ([15], p. 14). Worldwide, coral reefs are threatened, lost and projected to decline by a further 70–90% at global warming of 1.5 °C [17].

3.10. Renewable Energy

The UN report does not consider renewables, though hydroelectric dams had been developed extensively worldwide in the 1920s [25]. The construction of dams in developed nations was stopped in the late 1960s (Ibid), but large dams were expanded elsewhere in developing countries (e.g., China and Iran). The world must wait longer to see some tangible signs of progress in renewable energies (mainly solar and wind energies) until the early 2000s.

3.11. Plastics

The word “plastic” is not mentioned in the UN report, despite being invented a century ago. Apparently, the usage of plastics was not widespread, and thus, their impacts on land and marine ecosystems were not measured or studied in the 1960s. Currently, non-biodegradable plastics and micro-plastics have become severe environmental challenges that are polluting the soils and oceans while entering food chains (e.g., [26]). The current oceans and marine ecosystems are experiencing the highest pollution level, possibly in the entire recorded history. The extinct and endangered marine species are substituted by a diverse shape and size of plastics and debris. Marine plastic pollution has increased tenfold since 1980, affecting at least 267 species, including 86% of marine turtles, 44% of seabirds and 43% of marine mammals [17].

3.12. Coronavirus

Clearly, the report does not mention the coronavirus diseases (including SARS or COVID-19). However, it uses the surrogate word of respiratory infections disease to highlight the growing overcrowding of urban areas that “encourage upper respiratory infections and venereal disease. This pattern in the propagation of disease overtaxes the whole medical care organization” ([15], p. 8). In particular, the notion of ‘overtaxes of medical institutions’ reminds people of the recent burdens of medical staff and hospitals to tackle the COVID-19 Pandemic. Compared to 1969, contemporary societies face more diverse medical problematic issues, notably zoonotic diseases due to converting natural habitats to urban areas. Contagious diseases could be one of the side effects of rising urbanisation while rural areas are deteriorating and lost [19].

3.13. Science-Policy Interface

Like what people see today [27], the UN report highlights the weak link between scientists and policymakers. It states that: “… appropriate arrangements do not seem to exist for the provision of such information to the authorities and personalities responsible for management and control of the environment” ([15], p. 19). The first effective contact between science and policymaking and the political processes occurred after World War II in the US when a science and technology advisor was appointed in 1957 [27]. However, the term ‘Science-Policy Interface’ is a 21st century vocabulary.

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