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THE EUROPEAN EXPERIENCE

A Multi-Perspective History
of Modern Europe, 1500-2000



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4.4.3 Understanding and Controlling the Environment in Contemporary History (ca. 1900–2000)

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Introduction

Over the course of the twentieth century, Europeans, the European environment, and their mutual relationship underwent dramatic changes. The acceleration of industrialisation at the turn of the century amplified existing problems like water and air pollution. So, too, did two catastrophic World Wars which dramatically affected humans and their environment: bombshell-scared landscapes are still seen today; phosphor from sunken munitions is often mistaken for amber on the beaches on the Baltic Sea.

As the Cold War developed, Europe was separated into two opposing blocs—communist and capitalist-democratic. As much as these two were ideologically opposed, both sides still shared a strong faith in planning, which would have an important impact on the environment. Belief in a ‘scientific-technological revolution’ in the East and systematic modelling of the future in the West led to the construction of large-scale infrastructure projects, which exacerbated environmental problems that had already emerged with industrialisation in the nineteenth century.

The world beyond Europe had also been environmentally divided into North and South. A mechanised, chemically intensive agricultural sector and the development of mass consumption generated new environmental questions regarding waste deposits and energy supplies, for example, or the ‘outsourcing’ of environmental problems from richer to poorer countries. By the 1970s the environmental crisis had caught up with European societies: the environment became established as a political field, an object of diplomacy, a topic of public as well as scientific debate, and an issue for social movements.

The Environmental Consequences of Agriculture and Food Consumption

Before the Second World War, industrialisation, mining, and urbanisation had already visibly depleted particular natural resources and destroyed parts of the natural landscape. After 1945, the threatening impact of Fordist capitalism on the environment was apparent, as mass production and mass consumption necessitated extractive processes throughout the world. As these extractive practices accelerated in the 1950s and 1960s to supply an ever-expanding commodities market, so too did the accumulation of waste.

In the nineteenth century and especially in the first four decades of the twentieth century, public and private research centres transformed longstanding practices of plant and animal selection and hybridisation (which meant combining organisms of different breeds, varieties, species or genera to obtain new plants or animals). After the Second World War, Marshall Plan subsidies led to the introduction of agricultural technological packages (seeds, fertilisers, pesticides, and machinery, with precise instructions for their combined use, the calendar and features of tasks) developed by American agribusiness in the 1930s and 1940s. Throughout non-communist Europe, agricultural agencies and multinational firms diffused high-yield crop varieties, which enabled a rapid rise in the production of certain outputs, thanks to the use of more non-agricultural inputs (including fertilisers, pesticides, and antibiotics to fight animal diseases). Agri-scientists from the Soviet Union and elsewhere in the Communist Bloc constructed similar packages with similar contents which were adopted in socialist countries.

This new biotechnological model thus spread in Europe and was eventually exported to Asia and Africa under the label of the ‘green revolution’ in the 1960s. It had a large impact in agro-environmental terms: local varieties, well-adapted to local conditions, were replaced—and often disappeared entirely. Beyond agriculture, biodiversity in general suffered as well. Living organisms of all types were destroyed by pesticides, and the increased use of fertilisers polluted underground and surface waters. Although access to more plentiful foodstuffs clearly improved health standards in Europe, new chemical inputs brought about immediate harm and most likely mid-term increases in allergies and degenerative diseases.

The post-war period also saw other, significant changes in agricultural equipment. From the nineteenth century onwards, new industrial machines and tools were introduced in the European countryside. However, most of these machines were propelled by human force and especially by draft animals, which placed a limit on mechanisation, since more animals necessarily required more land dedicated to feeding them. After the Second World War,

tractors and combustion engines—which had been extremely scarce before the war—began to replace animals through a generalised process of motorisation which affected nearly all European farms by the 1970s. Hence, agriculture that had previously been autonomous in terms of energy, since it transformed solar power into biomass, started its transition to an energy-consuming activity based upon mineral fuels and inputs.

The subordination of agriculture to agro-industrial concerns which sold inputs and/or bought final products went hand-in-hand with the so-called ‘modernisation’ of agriculture (which might be summed up as ‘biotechnology plus tractors’). The internationalisation of productive and commercial chains, especially after the 1970s, fostered new transformations in the types of technology created for agrarian production. New international flows started to deliver food globally, food which was produced in places where the balance of factors among prices, technology, and environmental regulations made it cheapest or where it enabled goods to be supplied year-round (thus reducing seasonal limitations on production). This was the continuation of a trend which can be traced back to the eighteenth century and, on a larger scale, to the age of empire. Through its import of foodstuffs, Europe began to consume more and more natural resources from around the world. It increased the energy consumed and the waste produced by agricultural production on other continents. The split between places of consumption and production thus contributed to the concentration of environmental degradation and enabled Europeans to export their environmental costs. This happened not just in agribusiness, but also in the case of a pan-European electrical grid as well as—for instance—in the production of uranium, first mined within Europe, and later (in the context of globalisation) overseas. For example, France closed its mines for safety reasons and now imports fuel for its nuclear power stations from Africa.

Since the twentieth century, certain trends (as well as some countervailing tendencies) have become more pronounced. The development of genetically modified organisms means that the control and centrality of agribusiness within the agricultural sector has increased through the production of seeds for plants which do not reproduce and which thus make farmers more dependent on agribusiness corporations. Transgenic agriculture demands more external inputs (although it can also eliminate some of them), favours soil destruction, and tends to reduce biodiversity. At the same time, new consumer and socio-political movements—some linked to green parties and associations and some linked to health or consumer protection—are demanding a more eco-friendly agriculture. They are promoting the consumption of local seasonal products, grown with fewer or no inorganic inputs, and pushing for livestock to be raised extensively (in open-air pastures) instead of intensively (in high-density ‘factory farms’ that require heavy capital investment).

Scientific Expertise

With a recognition of the growing complexity of environmental issues faced by rapidly industrialising countries in the twentieth century, as discussed with regard to the agricultural sector above, science and scientific expertise played ever more dominant roles in both environmental management and public debate. In their quest for control over their respective territories, European nations eagerly but selectively employed scientific knowledge. Growing armies of engineers and scientists within state bureaucracies served the state’s mission to outpace other nations in mobilising national natural resources with the aim of maximising output.

Driven by the modernist dream of controlling and exploiting the natural environment for the benefit of the nation, these ‘Prometheans’ transformed natural hydrological networks and river basins into artificial water systems, which facilitated energy transition first by harnessing water power and later by introducing nuclear power plants. While these efforts were initially shaped by national frameworks, experts have also cooperated at the European level since the early twentieth century.



Fig. 1: Viktor Govorkov, “We can defeat drought too!” (1949), Public Domain, *Seventeen Moments in Soviet History*, <http://soviethistory.msu.edu/1947-2/famine-of-1946-1947/famine-of-1946-1947-images/#>. In this propaganda image from 1949, Stalin leans triumphantly over an illustrated map and plan for the reforestation of Russia.

States used the power of science and technology to subdue the natural environment and thereby legitimate their power and their existence. As a radical version of modernist technocratic ideology, Soviet communism indeed identified applied science as a crucial instrument for the transformation of

both man and nature. The famous motto of Russian agricultural scientist Ivan V. Michurin (1855–1935) captured these feelings clearly: “We cannot expect favours from nature; it is our job to take them from her!” Following such a motto, the Soviet Union attempted a bold, large-scale environmental transformation scheme known as ‘Stalin’s Plan for the Transformation of Nature’. When the USSR faced extreme drought under Stalin in the late 1940s, experts developed a plan to redirect water streams from the southern USSR in order to change local climates and soils elsewhere, and also to enable the growth of forests and the agricultural use of the country’s arid steppes. Gradually abandoned after Stalin’s death in 1953, the project achieved limited success in increasing the production of rice and cotton, but significantly contributed to ecological catastrophes like the desertification of the Aral Sea, which has since shrunk to less than ten percent of its original size. Paradoxically, it appears that Soviet planners tried to establish a new, sustainable ecological balance while simultaneously worsening the same landscape as a result of political and economic pressures, pressures which demonstrated the limits of scientific knowledge and capabilities. The Soviet scheme represents an extreme case, but in principle, the attitudes of other European governments—including capitalist ones—did not differ greatly, especially in the period since the Great Depression of the 1930s.

However, science simultaneously helped to undermine faith in the omnipotence of human reason. From the 1950s onward, voices emphasising a cautious approach to the environment moved slowly from dissent to the mainstream. Leading thinkers of ecological science such as the German Ernst Haeckel (1834–1919) hinted early on at the mutual interdependence of various elements of nature, organisms and their surroundings, and the immense complexity of the natural world. The Russian Vladimir Vernadsky (1863–1945) and the Englishman Arthur Tansley (1871–1955) further developed the argument in the interwar period. In effect, post-war economic reconstruction brought not only massive pressure on the environment, but also the emergence of ecology as a universally accepted field of science. The harmful effects of industrial waste on ecosystems suddenly became widely discussed in terms of pollution. As poisoned air and toxic water easily crossed national borders, it became a matter at the international level.

Environmental Policy and International Diplomacy

Neither environmental problems nor environmentalist traditions were unique to the twentieth century. One approach to environmentalism, which emerged in the nineteenth century and whose influence continued into the twentieth, came from ‘nature protection societies’. These societies were comprised of

members who drew on scientific training and who regarded both nation-states and the international system as relevant arenas for action. The interwar period even fostered their direct engagement in international politics through the League of Nations (1920–1946), which provided the first bureaucratic infrastructure for international environmentalism. Modernist belief in the human ability to master nature had been shaken by the rise of pollution, and critical scientists were among the first to perceive its negative consequences. After 1945, Europe witnessed an increase in international scientific exchange and the entry of this exchange as a relevant factor in politics and policy fields. For example, scientists from industrialised countries met regularly to discuss measures to fight air pollution, such as after ‘the Great Smog of London’ in 1952. However, policy mostly focused on end-of-pipe solutions that tackled problems like air pollution by building chimneys to disperse smoke rather than reducing the problem at its source by installing filters or reducing the consumption of coal.

While environmentalist ideas, grievances, and organisations thus had deep roots, it was not until after the Second World War that ecological issues became the object of intense political contention. Concerned scientists like the American Rachel Carson (1907–1964), whose book *Silent Spring* (1962) led to the banning of dangerous pesticides, helped place certain problems on the political agenda.

But policy changes, especially at the international level, always suffered a certain time lag. Oil pollution in the sea is a case in point. While technical solutions like oil separators in ships already existed at the beginning of the twentieth century, their implementation long remained a political and economic matter. An International Convention on Oil Pollution Preparedness, Response and Co-operation was only agreed in 1990, though the League of Nations had tried to address the problem as early as the interwar period. This conflict over oil pollution lasted half a century for two reasons: on the one hand, the sea as a transnational space long remained an unlegislated *terra nullius*, in which state and non-state actors alike dumped chemical, nuclear, plastic, and other hazardous waste, which only began to be regulated with the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention). On the other hand, the question of who would pay for the costs of pollution remained unresolved.

As environmental problems are borderless, societies increasingly recognised that they were interdependent. One key turning point at the international level was the discovery by Swedish scientists that air pollution from industrial centres in West Germany, the United Kingdom, and countries in Eastern Europe like the German Democratic Republic or Poland caused the acidification of Swedish lakes and rivers. This became one reason for the United Nations to convene the Conference on the Human Environment (UNCHE) in

1972, hosted by the Swedish government in Stockholm. Most of the Western and former 'Third World' countries took part in the Stockholm conference, but the Soviet Union and its allies mainly boycotted it for Cold War diplomatic reasons. At the conference, the UN established its Environment Programme (UNEP), which is now based in Nairobi, Kenya. The conference adopted a declaration whose ecological ideas had first been introduced at the UN Conference on Man and the Biosphere in 1968 in Paris. One of its principles was the 'Polluter Pays Principle' (PPP), by which those who cause pollution—and not those who have to suffer its consequences—are responsible for covering the costs of eliminating or compensating for the resulting problems. But the PPP and other recommendations of the UNCHE did not become international law in the 1970s. Even today, introducing preventive technology remains a controversial topic.

The UNCHE in 1972 was a starting point for the establishment of national environmental institutions like ministries or agencies as well as international environmental diplomacy, management, and law. In the last three decades of the twentieth century, Conventions on the Protection of the Wetlands (1971), on World Heritage (1972), on Flora and Fauna (1973), on Long-range Transboundary Air Pollution (1979), on the Protection of the Ozone Layer (1987) and on the Regulation of the Disposal of Hazardous Waste (1989) were adopted. The second worldwide UN Conference on Environment and Development in Rio de Janeiro in 1992 enshrined the concept of 'sustainable development' in international law. A direct, successful consequence of this conference was the 1997 Kyoto Protocol, a major diplomatic contribution to the fight against global warming.

Environmentalism: Popularisation and Protest

Environmentalism was not, however, simply a question of science or a matter of high politics, but a set of concerns that also animated social movements across Europe and beyond. Environmentalists have sometimes worked closely with governments and often used science in order to create pressure for political action. However, they have just as frequently challenged state policies and worked to develop their own, independent expertise in order to call industry scientists into question.

After the Second World War, environmental problems became increasingly difficult to ignore, as competition between the two Cold War blocs accelerated industrialisation and worsened pollution. In parallel, advancements in technology, mass media, and economic globalisation fostered a new sense of global interconnectedness, one which was dramatically illustrated, for example, by photos of the Earth from space ('Earthrise', 1968). Within Europe, oil spills from ships like the *Torrey Canyon* (1967) and *Amoco Cadiz* (1978) in the

Atlantic and major industrial accidents such as the dioxin leak in Seveso, Italy (1976) or chemical spill in Basel, Switzerland (1986) brought greater attention to international pollution problems.

More fundamentally, the finite supply of natural resources in Europe and the wider world called into question the sustainability of post-war industrial society. Bestsellers like *The Population Bomb* (Paul Ehrlich, 1968) or *Blueprint for Survival* (Teddy Goldsmith, 1972) helped popularise environmentalist discourse beyond academic and scientific circles, as did the work of journalists like Michel Bosquet and Robert Jungk. In 1972, a widely publicised study on *The Limits to Growth* was commissioned by the Club of Rome. Its researchers used computer modelling of data on population growth and industrial production as well as the availability of food and non-renewable resources to show how exponential growth in human consumption would quickly outstrip the planet's ability to replenish itself. Only a year later, the book's point was driven home forcefully by the oil crisis, which demonstrated just how dependent European societies were on fossil fuels for energy. As economic globalisation accelerated in the late 1960s and early 1970s, environmental problems large and small that had once seemed to be primarily local in scope came to be perceived in relation to an interconnected, global whole.

By the 1970s, the human relationship to the environment became increasingly politicised. Though the upheavals among students and workers that had taken place across Europe around 1968 had had little to do with the environment, they fostered an atmosphere of protest that was not bound by any single issue. Feminism, gay liberation, solidarity with the so-called 'Third World', human rights activism, and environmental movements thus all developed in parallel in the decades that followed. Paradoxically, environmental activism was also helped by its seemingly 'apolitical' nature, which attracted the participation of people who were otherwise wary of being associated with left- or right-wing politics.

Among environmental issues, nuclear energy became one of the most contentious, particularly as Western European states backed the construction of a wave of new nuclear power stations during the 1970s. Wherever nuclear facilities were proposed, concerned citizens protested in opposition to them. Over time, local and regional anti-nuclear initiatives built up national and international networks, as different groups came together to oppose risks associated with radioactivity, accidents, and the civil use of technology initially developed for military purposes. In 1986, the Chernobyl accident underscored the dangers that activists had been opposing for more than a decade.

In Eastern Europe, environmentalism as a political movement developed somewhat later, but drew on some of the same impulses that had animated protest in Western Europe. After all, both the communist and capitalist

systems had built their post-war legitimacy on 'progress', placing large-scale production and consumption at the centre of their parallel pursuits of improved standards of living. However, communist countries persisted for longer in emphasising heavy industry as the basis of broader economic development. By the 1980s, pollution of air, water, and soil in many countries had become dire. As environmental protest developed in tandem with human rights and peace activism in that decade, all three of these supposedly 'apolitical' issues became important vehicles for criticising communist authorities.

By the 1990s, environmentalism had become a professionalised domain of protest. Faced with government- and industry-backed 'experts' supportive of nuclear energy, environmentalists developed their own 'counter-expertise', contributing to the pluralisation, popularisation, and contestation of scientific knowledge in the late twentieth century. In order to lobby for legislation on air pollution, water quality, and animal protection, many activists banded together within non-governmental organisations, some of which were international (e.g. Friends of the Earth, Greenpeace). In several countries, they also formed political parties specifically focused on environmental issues. While green parties have had mixed success in national elections in different countries, they have been a persistent fixture of the European parliament since the end of the twentieth century.

Conclusion

The twentieth century was one of enduring environmental crises, most of them precipitated by industrialisation and modernisation. To tackle these problems, European societies pursued a range of different approaches, from technological solutions and policy changes to scientific exchange and environmental activism. By the end of the century, the extent to which human activity had changed the environment was unmistakable. It was no longer a question of whether the planet's ecosystems might change, but how much and how fast: the problem of 'global warming' that had been discussed as a preventable possibility in the 1970s and 1980s became, a half-century later, the reality of a 'climate change' that could only be managed or mitigated. The twentieth century witnessed what environmental historian J.R. McNeill has described as "The Great Acceleration" of human activities affecting the Earth's climate, biodiversity, and ecosystems. By the dawn of the twenty-first century, the public had begun to take notice that the world had entered a new geological era: the 'Anthropocene' was characterised not by an independently changing environment that shaped possibilities for living beings, but by the ways in which human beings specifically changed their environment, with consequences for all life on the planet.

Discussion questions

1. How and why did the concept of 'nature' change in twentieth-century Europe?
2. Describe the impact the Cold War had on the way Europeans thought about the environment.
3. How does the way we think about the environment today differ to the twentieth century and in which ways has it remained the same?

Suggested reading

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