From Nature to Biosphere. The Political Invention of the Global Environment, 1945-1972

Yannick Mahrane, Marianna Fenzi, Céline Pessis, Christophe Bonneuil

FROM NATURE TO BIOSPHERE

The Political Invention of the Global Environment, 1945-1972

Yannick Mahrane, Marianna Fenzi, Céline Pessis, Christophe Bonneuil

Presses de Sciences Po | « Vingtième Siècle. Revue d'histoire »

2012/1 No 113 | pages 127 - 141

ISSN 0294-1759
ISBN 9782724632477

This document is the English version of:

Yannick Mahrane *et al.*, « De la nature à la biosphère », *Vingtième Siècle. Revue d'histoire* 2012/1 (No 113), p. 127-141.
DOI 10.3917/vin.113.0127

Translated from the French by JPD Systems

Available online at :

https://www.cairn-int.info/article-E_VIN_113_0127--from-nature-to-biosphere.htm

How to cite this article :

Yannick Mahrane *et al.*, « De la nature à la biosphère », *Vingtième Siècle. Revue d'histoire* 2012/1 (No 113), p. 127-141.
DOI 10.3917/vin.113.0127

From Nature to Biosphere

The Political Invention of the Global Environment, 1945–1972

Yannick Mahrane, Marianna Fenzi, Céline Pessis et Christophe Bonneuil

The global environment, resources planning, thinking on the biosphere: these concepts were forged over the course of a well-defined period in history, starting with the end of the Second World War and ending at the heart of the Cold War. In fact, geopolitics, the emergence of a new international order, and the rise of the Third World have all played a key role in the accumulation of global expertise on the one hand, and environmental activism on the other. Between conservationism and preservationism, national security and the globalization of the issues, in this article we recontextualize the importance of natural resources in a global narrative.

In June 1972, at the United Nations Conference on the Human Environment in Stockholm, which was held under the slogan "Only One Earth,"[1] the international community established public action in favor of the environment as a world priority and created the United Nations Environment Program (UNEP, December 1972). While environmental issues were barely mentioned in the United Nations Charter of 1945, by 1972 "the environment" had become a global public issue and had been elevated to a category of international political action. What drove this political invention of the global environment? The seriousness of the environmental damage that had been caused between 1945 and 1972 is indisputable. With the world gross domestic product increasing by 250 percent and international trade quadrupling between 1950 and 1970,[2] the massive transformation in arms and modes of production, trade, and consumption led to environmental damage, the massive ecological footprint of which is today being revealed by numerous scientific studies, international reports, and subsequently by works on environmental history as pioneered by John McNeill.[3] The Cold War generated tens of thousands of cubic meters of long-lasting nuclear waste. The switchover to an energy system dominated by oil led to a sixteen-fold increase in energy consumption over the course of the twentieth century, and favored urbanization, the car culture, and mechanized and intensified agriculture.[4] Millions of tons of waste, greenhouse gases, and industrial pollutants were dumped into the environment, disturbing the equilibrium of the climate and of ecosystems.

(1) Barbara Ward and René Dubos, *Only One Earth: The Care and Maintenance of a Small Planet* (Middlesex, UK: Penguin Books, 1972).

(2) Angus Maddison, *Phases of Capitalist Development* (Oxford: Oxford University Press, 1982), 128.

(3) John R. McNeill, *Something New under the Sun: An Environmental History of the Twentieth-Century World* (New York: W. W. Norton & Co., 2000), (see the review in this issue, pages 237–9); John R. McNeill and Corinna R. Unger, *Environmental Histories of the Cold War* (New York: Cambridge University Press, 2010).

(4) McNeill, *Something New*, 451–3.

Nonetheless, it can be asked whether the objective seriousness of these infringements on the biosphere is enough to explain the process that culminated in the Stockholm conference. Environmental history cannot be reduced to an accounting of environmental liabilities, and one cannot explain the recognition of the global nature of environmental problems and their handling in international politics in terms of a gradually growing awareness.

Our historical study, which will draw on contributions from scientific studies and political sociology, will rather analyze the invention of the global environment as an international political object as taking place at the confluence of several historical dynamics at work during the period between 1945 and 1972. We will demonstrate that although the environment was already considered by key actors to be a global issue immediately after the Second World War, the set of problems, arenas, actors, discourses, and forms of expertise and proof that constituted the environment as a global political issue in 1972 differed profoundly from that of the end of the 1940s. After the war, preoccupations concerning the environment were arranged around two poles, with preservationism on the one side (the protection of nature with a view to protecting the spaces and habitats from human activities) and conservationism on the other (i.e., the conservation of resources with a view to the "maximum sustainable yield" of resources over the long term) and in order to secure access to nature in a context of runaway growth, the Cold War, and a rate of population increase that was seen as a threat.[1] In Stockholm, mention was made not so much of "nature" or "resources," as of "the biosphere." The "global environmental crisis" appeared to threaten to limit economic growth more than population growth alone. The debates at the Stockholm conference finally gave a new place to the questions of pollution, waste, development, and their "collateral" effects—in both developed and developing countries.

What represented a "global environmental problem" therefore underwent considerable change between 1945 and 1972, bringing about a change in the way that a whole cohort of dossiers—including resource depletion, nature conservation, air and water pollution, waste, noise pollution, and climate change—were grouped together and labeled. The category of "the global environment" therefore has a history, and in order to trace it, we need to follow the work of those involved (and particularly the scientists) in order to put together the convincing alerts, promote cognitive and normative frameworks for the problems and the solutions, and put these problems and frameworks on the agenda of national and international forums and institutions.[2] It is also important to grasp the global economic and geopolitical configurations that structure the reading horizon for environmental issues.

The first part of this article examines the planetary alert about the environment launched immediately after the Second World War. We then describe the response to this alert around the world during the *Pax Americana*. The third part analyzes the transformation from colonial preservationism into a "conservation for development" that benefited the decolonization movement.[3] Finally, we trace the developments

(1) The distinction between conservationism and preservationism had been well established since the pioneering study by Samuel Hays on the history of the American environmentalist movement: Samuel Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890–1920* (Cambridge: Harvard University Press, 1959).

(2) For a constructivist reading of the conceptualization of the environment in France as a shaping of the concept, see Florian Charvolin, *L'Invention de l'environnement en France: Chronique anthropologique d'une institutionnalisation* (Paris: La Découverte, 2003). See also Peter J. Taylor and Frederick H. Buttel, "How Do We Know We Have Environmental Problems? Science and the Globalization of Environmental Discourse," *Geoforum* 23, no. 3 (1992): 405–16.

(3) See Yannick Mahrane, "Une histoire de l'Union internationale pour la conservation de la nature (UICN): de la

that led to Stockholm and the new meaning that the environment assumed there.

A Planetary Alert

In 1948, two works that sounded like trumpet calls appeared, predicting a future global environmental catastrophe: *Road to Survival* by William Vogt and *Our Plundered Planet* by Fairfield Osborn.[1] Apart from their differences, an analysis of these works reveals the force lines of global environmental discourse that formed at the end of the war.

Firstly, they both issued a warning concerning a threat of a global nature. Osborn and Vogt each organized their work around the overarching categories of "the planet" and "the earth." Man is seen as "a geological force"[2] on an "earth-company" that has become increasingly interdependent.[3] Discourse on the environment seems to be permeated by a general propensity at the time to "think in global terms," to use the expression of the first director of UNESCO, the biologist Julian S. Huxley, who promoted the planning of a United Nations platform for global prosperity that would include controlling demographic growth, the rational conservation of resources, and the protection of wild fauna and flora.[4] To these three biologists—Osborn, Vogt, and Huxley—stating that the problems were global rather than local or national also legitimated a superior point of view, namely that of the global expert.

A second characteristic of the alert that emerged from Osborn and Vogt's writings was the announcement of a threat to the survival of humanity as a whole. Osborn spoke of civilization facing its "final crisis," and Vogt of an imminent ecological "Day of Judgment."[5] This dramatization of the threat formed part of a culture of urgency inherited from the war. With memories of the food shortage in Europe still fresh, the anxiety concerning a Third World War between the two blocs also lent an alarmist point of reference to the environmental alert: "This other world-wide war [. . .] contains potentialities of ultimate disaster greater even than would follow the misuse of atomic power. This other war is man's conflict with nature."[6]

The third feature of this global environmental alert was to point to the growth in the global population and the exploitation of nature by modern society as the major causes of the exhaustion of the planet's natural resources. Osborn saw in the population increase the major cause of the growing worldwide scarcity of natural and living resources in the soil.[7] To Vogt, the future of humanity played out between two curves: the one showing human population growth and the other that of our resources. These two curves were diverging and "the crumbling ruins of two wars [. . .], the swollen bellies of hungry babies from El Salvador to Bengal [. . .]" and the "the angry muttering of mobs, like the champing of jungles peccaries, is a swelling echo of their passing."[8] World overpopulation was not the only factor to blame, however: economic modernization was also placed in the dock. The American standard of living, the expansion of agriculture to tropical regions, the mechanization of agriculture, and the overuse of fertilizers and pesticides such as DDT were also named as factors.[9]

---

protection de la nature à la conservation économique de la biodiversité, de 1948 à aujourd'hui," (Masters dissertation 2, EHESS, 2010).

(1) Fairfield Osborn, *Our Plundered Planet* (Boston: Little Brown, 1948); William Vogt, *Road to Survival* (New York: Sloane Associates, 1948).

(2) Osborn, *Plundered Planet*, 32 and 45.

(3) Vogt, *Road to Survival*, 285.

(4) Julian S. Huxley, *UNESCO: Its Purpose and Philosophy* (London: Euston Grove Press, 2010).

(5) Osborn, *Plundered Planet*, 37; William Vogt, *Road to Survival*, 78.

(6) Osborn, *Plundered Planet*, 1.

(7) Osborn, *Plundered Planet*, 41.

(8) Vogt, *Road to Survival*, 287.

(9) These themes are more present with Vogt, who critiques free enterprise (*Road to Survival*, 33), the damage caused

Finally, these two works point to an environmental crisis characterized by a collection of interconnected problems: the demographic explosion, soil erosion, the overexploitation of natural resources, and the threats to fauna and flora.

The fourth aspect of this alert immediately following the war was that it represented a "catastrophe empiricism" based on scientific studies, case studies, and statistics.[1] Vogt summarized his entire system of thinking using an equation that quantifies the "carrying capacity" of soil or the planet and graphs illustrating natural cycles. He placed human action in the context of natural cycles in a "total environment" that functions as a system.[2] The language of American ecology ("carrying capacity," "maximum sustained-yield," but also "climax," for describing the fragility of the balance in nature) was mobilized to conceptualize the planet as a system that is indissociably both natural and human, and based on the law of interdependence. With Osborn, economic interdependence and interdependence in the natural world are thought of together as a "basic law of nature": "All the components parts in the machinery of nature are dependent one upon the other, [and] all are related to the movement of the whole."[3] Another point on which the discourse on nature and society interact concerns demographic planning, which these authors legitimized by analogy with ecological management of natural spaces. Thus, Vogt attacked an agricultural development plan proposed by experts from the FAO for not having included contraception, condescendingly noting that this kind of omission would have discredited a wildlife manager from the most backward states in the United States.[4]

The two men behind the alert were recognized experts and played an important role in the postwar years. Vogt was responsible for the conservation of resources at the Pan American Union, and, from 1951, was National Director of the Planned Parenthood Federation of America. Osborn, a former banker, sat on the Conservation Advisory Committee for the US Department of the Interior in the 1950s. Vogt and Osborn's books, which were true best-sellers, reached between 20 and 30 million readers in multiple languages and raised awareness among the highest ranks of the American government.

The Global Environment as Seen from the United States

Why such success? We will show here that this global environmental discourse that associated Malthusianism[5] and conservationism was jointly forged with the new international order as driven by the United States after the war.

Granted, in a context where the world population grew from 1.6 billion in 1900 to 2.5 billion in 1950 (then to 4 billion in 1975), the emergence of global concerns that associated the issue of natural resources, soil erosion, the food issue, and the demographic issue did not originate in the postwar period, and nor in the United States. Between 1930 and 1940, administrators and experts from the colonial empires became alarmed at the abusive exploitation of land and resources, and at the surplus of labor and mouths to feed that threatened the colonial order.[6] The neo-Malthusian

by industrial pollutants, and the denunciation of the "American standard of living" and advertising (*Road to Survival*, 37–8). These themes truly took off from the 1960s.

(1) Björn-Ola Linnér, *The Return of Malthus: Environmentalism and Post-war Population-Resource Crises* (Isle of Harris: The White Horse Press, 2003), 97.

(2) Vogt, *Road to Survival*, 285.

(3) Osborn, *Plundered Planet*, 34 and 48.

(4) Vogt, *Road to Survival*, 206.

(5) For a history of neo-Malthusianism, see Matthew Connelly, *Fatal Misconception: The Struggle to Control World Population* (Cambridge: Harvard University Press, 2008).

(6) Joseph M. Hodge, *Triumph of the Expert: Agrarian Doctrines of Development and the Legacies of British Colonialism* (Athens, OH: Ohio University Press, 2007); Frederick

discourses, conservationist expertise, and development practices that originated under the colonial context thus experienced a second life after the war through the ascension of British experts to the international institutions, such as John Boyd Orr, who was the first director-general of the FAO (founded in 1945).

Nevertheless, it was at the end of the Second World War and under the influence of the United States' strategy of securing access to resources for the West in order to feed an economy of abundance that Vogt and Osborn's global environmental discourse took on its full meaning and importance. During the Second World War, the need to supply the military industrial complex that had been mobilized in full force led to the planning of resources becoming a major priority, strengthening and globalizing the planning rationality that had first been pioneered under the New Deal. Access to crucial resources such as uranium, rubber, and aluminum (a key material in modern aviation) became matters of state. A list of 60 strategic resources was therefore drawn up and continued to be used well after the war ended.[1]

At the end of the war, the European economy was in ruins, but the gross national product of the United States more than quadrupled between 1939 and 1945. Holding immense currency reserves and responsible for 60 percent of world industrial production,[2] the United States dominated the international multilateral system and established a new international economic order, with the Bretton Woods agreements instituting the US dollar as a global currency, the GATT liberalizing trade in 1947, the Marshall Plan financing reconstruction in Europe, etc. It was a matter of generalizing a model of economic regulation said to be Fordist, combining state regulations, increased trade integration of national economies, mass production and mass consumption as engines of growth, and compromises on wage demands in industrialized nations in order to keep the specter of communism at bay in Western and Southern Europe.[3] In this context that associated American national security with access to abundance by Western economies, resources became a crucial geopolitical issue. Already in May 1945, the Secretary of the Interior wrote to Harry S. Truman:

> It is essential, therefore, not only that we fulfill the Atlantic Charter declaration of providing access, on equal terms, by all nations to the raw materials of the world, but that we undertake an all-out attack [. . .] against unnecessary depletion of the world's resources.[4]

The massive amount of economic aid given to Greece and Turkey in March 1947, and then the Marshall Plan in June 1947, aimed to limit the influence of trade unions and communist parties.[5] Likewise, the regulation of oil in the Middle East and American support for the transition from coal to oil was also intended to reduce the influence of miners and railroad workers to the west of the Iron Curtain.[6] The various programs allowing Europe to enter into abundance nonetheless led to fears of a shortage of natural resources arising, which led to the establishment of the President's Materials Policy Commission (1951–1952). The commission formulated a policy for supplying the United States with raw materials,

---

Cooper, *Africa since 1940: The Past of the Present* (Cambridge: Cambridge University Press, 2002).

(1) Thomas Robertson, "This Is the American Earth: American Empire, the Cold War, and American Environmentalism," *Diplomatic History* 32 no. 4 (September 2008): 568.

(2) Bernard Vincent, *Histoire des États-Unis* (Paris: Flammarion, 2008), 308–10.

(3) Michel Aglietta, *Régulation et crises du capitalisme* (Paris: Odile Jacob, 1997).

(4) Björn-Ola Linnér, *The Return of Malthus*, 29.

(5) Christopher Layne, *The Peace of Illusions: American Grand Strategy from 1940 to the Present* (Ithaca, NY: Cornell University Press, 2006).

(6) Timothy Mitchell, "Carbon Democracy," *Economy and Society* 38 no. 3 (2009): 399–432.

from Venezuelan oil to Indian manganese and uranium from the Belgian Congo.[1]

Both a national security policy centered on the containment of communism, and a resource policy, can be found in the fourth point of the inaugural speech by President Harry S. Truman on January 20, 1949. Truman built on the doctrine that he had first stated in 1947, foreseeing a "bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth *of underdeveloped areas*."[2] It was also in the context of this strategy that in 1946 the United States proposed an international conference be held on the use and conservation of resources. Some countries, such as South Africa and the Philippines, managed to ensure that the conference was purely technical in nature and that it would lead to no international recommendations. The conference, called the United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR) took place at Lake Success in New York State in 1949. Attended by more than 530 representatives from 49 countries (excluding the USSR), the program distinguished six categories of resources: minerals, fuels and energy, water, forests, soil, wildlife, and fish, with a view to inventorying the planet's natural resources. Already on the preparatory committee—on which Fairfield Osborn served—a rift appeared between experts and delegates in favor of conservation and those who believed in the need for scientific advances and technologies in order to "develop" natural resources that they considered underutilized or unexplored, based on a maximum "sustained-yield" approach. The latter group dominated. With regard to fishing, this approach proposed by the US government in 1949 offered a counter to the vague desires of some countries to limit access by US fishing vessels to their waters, and would lastingly delay the detection of overfishing.[3] Nonetheless, the framing of resources as a global political object under the *Pax Americana* opened a field for global expertise on conservation (particularly at the FAO) and created an arena for expressing critiques such as those put forward by Vogt and Osborn on the overexploitation of natural resources and on ecologically disastrous development models. In this regard, American foreign policy partly conditioned certain features of this global environmentalism.

American concern for their economic and geopolitical interdependence with the rest of the world, on which their hegemony was based, is reflected in the advancing of the growing demographic danger and in the emphasis placed on the interdependence and interconnectedness of human beings, natural elements, and physical/chemical elements.

Apart from the geopolitics of resources, military strategy was another field in which the global environment was conceptualized. In May 1947, a Swedish glaciologist presented his work on the warming of the North Pole, leading, in his view, to a risk of a global rise in sea level. The following month, a secret meeting took place at the Pentagon on the melting of the polar ice cap. What if the Soviet steel-hulled ships could soon more easily cross the Arctic Ocean and hence pose a threat to the American continent? This fear, which was stoked by physicists who wanted to keep their massive funding from the military, led to the introduction of the category of "environmental factors" in strategic thinking, and the creation of an Environmental Protection

(1) Thomas Robertson, "This Is the American Earth," 569. This commission in 1952 gave rise to the think tank Resources for the Future (RFF), a major player in economic and strategic analysis of resources and fertile breeding ground for the emerging field of environmental economics.

(2) Public Papers of the Presidents of the United States, *Harry S. Truman: Containing the Public Messages, Speeches, and Statements of the President* (1949) (Washington, DC: United States Printing Office, 1964), 114–6. Italics are by the authors.

(3) Carmel Finley, *All the Fish in the Sea: Maximum Sustainable Yield and the Failure of Fisheries Management* (Chicago, IL: University of Chicago Press, 2011).

Section at the Pentagon as early as 1947.[1] Sciences of the planetary physical environment (geophysics, climatology, etc.) subsequently experienced a boom even greater than that of the ecological sciences during the Cold War, and, like them, contributed by providing spatial technologies to generate knowledge on the functioning of the Earth's system and provided environmentalism with images and imagination.

From Colonial Protection of Nature to "Conservation for Development"

While conservationism became a tool for ensuring security and growth in the West, and while the physical sciences were flourishing under the military industrial complex, another field of knowledge and power on the world environment was being organized around the protection of nature in the European colonial empires, in opposition to an increasingly hegemonic developmentalist vision in the international arena. The International Union for the Protection of Nature (IUPN) was founded in September 1948 at a conference in Fontainebleu, France, with the aid of UNESCO and its director-general, Julian Huxley, as a hybrid institution (governmental and non-governmental) with the mandate of promoting the preservation of wildlife at an international level. Along with overarching terms such as "the preservation of the entire world biotic community" and "man's natural environment," the preamble to the IUPN's constitution juxtaposes in an almost ecumenical manner the close notions of the conservationist model ("natural resources") and the preservationist model ("wildlife" and "wilderness areas"). It simultaneously also takes care to refer to "economic, social, educational, and cultural" reasons for protecting them.[2]

Despite this initial compromise between conservationism and preservationism, the IUPN remained torn between the two diverging models. This rift corresponded, firstly, to differing disciplinary cultures, with conservationism often promoted by foresters and ecologists, and preservation by naturalists. It also corresponded to a geopolitical fault line between American members (including William Vogt and Fairfield Osborn), for whom the notion of protecting nature intrinsically included the economic dimension involving natural resources, and the European members, who often had in mind a colonial model of creating strict nature reserves.[3] There was also a rift between the agencies of the United Nations: the FAO and ECOSOC preferred conservation and optimal use of resources, while the young UNESCO was more preservationist.

Initially, the preservationist tendency dominated within the IUPN, actively promoting the creation of national parks and nature reserves throughout the world,[4] and the establishment of a "red list" of wildlife species in danger of extinction. Moreover, it was in reaction against the UNSCCUR's overly utilitarian and conservationist focus that Huxley with the IUPN organized a parallel conference to the UNSCCUR, stating, "The economic aspects of the Conservation of Resources are not directly within our purview [whereas] the Preservation of Nature is one of our concerns."[5] This International Technical Conference on

(1) Ronald Doel, "Quelle place pour les sciences de l'environnement physique dans l'histoire environnementale?" *Revue d'Histoire Moderne et Contemporaine* 56, no. 4 (2010): 137–63.

(2) IUPN, *International Union for the Protection of Nature Established at Fontainebleau, October 5, 1948* (Brussels: Hayez, 1948), 16–7.

(3) On the colonial origins of the protection of nature and the influence of the French experience within the IUPN, see Yannick Mahrane, Christophe Bonneuil and Frédéric Thomas, "Mettre en valeur, préserver ou conserver ? Genèse et déclin du préservationnisme dans l'empire colonial français (1870-1960)," in *Une protection de la nature et de l'environnement à la française?*, eds. Jean-François Mouhot and Charles-François Mathis (Seyssel: Champ Vallon, 2013).

(4) UIPN, *The Position of Nature Protection throughout the World in 1950* (Brussels: Elsevier, 1951); IUCN, *Derniers Refuges: Atlas commenté des réserves naturelles dans le monde* (Brussels: Elsevier, 1956).

(5) UNESCO Archives, Box 502.7 A 06 (73) "49" 18, Part I to III, Julian S. Huxley, letter to Henri Laugier, October 17, 1947.

the Protection of Nature (ITCPN) brought together 250 participants from 58 countries in Lake Success at the same time as the UNSCCUR was taking place in order to allow participants to circulate between the meetings. Unlike at the UNSCCUR, some presentations and recommendations at the ITCPN criticized the use of DDT and the environmental damage caused by large development projects such as the Tanganyika groundnut scheme, where mechanization had led to the permanent depletion of the soil.[1] It was also in opposition to the primacy given by specialist agencies such as the FAO to development with a view to exploiting resources that Roger Heim, a French botanist and president of the IUPN said:

> [T]aking advantage of all the regions that are still relatively sparsely populated or unpopulated implies conceding that there will soon no longer be any natural environment [. . .]; it implies favoring even more intensive later development of the world's population. In other words, it's going back on the solution to the problem with the certainty that this will aggravate it.[2]

In response, the FAO reproached the IUPN for "protecting nature from man instead of conserving nature and its resources for man."[3] This opposition, in addition to the gradual defection by UNESCO after Huxley's departure from the organization, marginalized the IUPN in the UN system and exacerbated its financial crisis.[4] Noting that the IUPN "cannot live except by the significant credits that it receives in proportion to the country representatives' understanding of the practical interests of its work and the human significance of its recommendations," in 1956 Heim was forced to accept a change in the name of the organization to the International Union for the Conservation of Nature and Natural Resources (IUCN).[5]

The second wave of decolonization around 1960 completed the conservationist transformation of the IUCN. The growing resistance by rural populations to nature protection policies that regulated the use of soil and forests,[6] and then the ascendance to power of development-minded African elites, threatened to undo all the preservationist apparatus put in place during the colonial era. This fear, which is clearly perceptible in the internal memoranda of the IUCN,[7] can also be read in the novel *Les Racines du ciel* by Romain Gary, which is set in Chad.

In 1960, two investigations were conducted by respected specialists: Edgar B. Worthington, as scientific director of the Nature Conservancy, and Julian S. Huxley for UNESCO. Their reports testified to a crisis in the "mission of the white man" in Africa, and initiated a new position by experts that associated protection, conservation, and development in new ecological and postcolonial terms. Huxley, describing the threats to wildlife (poaching, the expansion of settlement and crop farming, the spread of "money values," exploding populations, and "the rapid emergence of African governments"), concluded that from that point on "the future of African

(1) UNESCO, *International Technical Conference on the Protection of Nature: Proceedings and Papers, Lake Success, 1949* (Paris/Brussels: IUPN, 1950).

(2) Archives of the Musée national d'histoire naturelle (MNHN), cryptogamy, Roger Heim Collection, Box 51, Roger Heim, letter to the director of the scientific research division at UNESCO, May 29, 1955.

(3) MNHN, cryptogamy, Roger Heim Collection, Box 48, Tracy Philipps, personnel memo (S.97) of December 5, 1956 (back-translated from the French).

(4) MNHN, cryptogamy, Roger Heim Collection, Box 48, Jean-Paul Harroy to Harold Coolidge, November 10, 1953.

(5) IUCN, *Proceedings and Papers: Sixth Technical Meeting Held at Edinburgh in June 1956* (London: IUCN, 1957), 32–4, back-translated from the French.

(6) Reuben M. Matheka, "The International Dimension of the Politics of Wildlife Conservation in Kenya, 1958–1968," *Journal of Eastern African Studies* 2, no. 1 (2008): 112–33.

(7) IUCN Archives (Gland, Switzerland: UICN), reports of the executive committee (S.351/F.). This file also includes press clippings from 1960 that refer to the future of the protection of nature after former colonies gained independence.

wildlife [was] bound up with that of the conservation of natural resources."[1] For his part, Worthington pointing to a growing tension between the preservationist apparatus and the economic and food-related needs of the newly independent states, proposed the establishment of a "rational" model for the use of land to both transform wildlife into an economic resource, and local populations who were living from poaching into good legal managers of nature.[2] This reframing of the protection of nature in these policies for conserving natural resources was assisted and supported by a new way of viewing nature that drew on thermodynamics and cybernetics, and defined conservation as "maintaining or increasing the level of energy-flow."[3] It was no longer a matter of protecting "unspoiled" nature from human activity, but of maximizing the circulation of ecological and economic flows between human and natural systems, within the limitations of their carrying capacities.

When the Third World became a confrontation ground between the Western bloc and the Communist bloc, the conservation of natural resources in Africa became a crucial geopolitical argument. Two documents in the Roger Heim archives testify to this (document 1). The confidential note, accompanied by a caricature of Nkrumah, describes Africa as the last "protective shield" against the communist threat according to the domino theory. It was believed that an inability by the new governments to scientifically manage natural resources could lead to these states going over to the communist side. As in the Truman Doctrine a decade earlier, the use and "scientific conservation of natural resources" emerged as a "deciding factor" in the security of the Western world.

(1) Julian S. Huxley, *The Conservation of Wild Life and Natural Habitats in Central and East Africa* (Paris: UNESCO, 1961), 12.

(2) Edgar B. Worthington, *The Wild Resources of East and Central Africa* (London: H.M.S.O, 1961), 3.

(3) Huxley, *The Conservation of Wild Life*, 28–9.

In light of the threats that decolonization represented to preservationist systems, in 1960 the IUCN under Edgar B. Worthington launched the African Special Project[4] (1960–1963) in collaboration with the FAO, the Commission for Technical Cooperation in Sub-Saharan Africa, and UNESCO. The enormous project culminated in the organization of the Arusha Conference in 1961,[5] bringing together 21 African countries, and was completed with advisory missions by two experts from the FAO to 19 African governments on how to manage their resources and their soils.[6] Closely involving the African leaders, this process was a success: the parks and reserves from the colonial period were not only kept, but greatly expanded in exchange for technical and financial assistance with managing the new African states' economic development. It was in light of this trend associating development with conservation that the African Convention on the Conservation of Nature and Natural Resources was signed in Algeria in 1968.

The New Face of the Environment at Stockholm

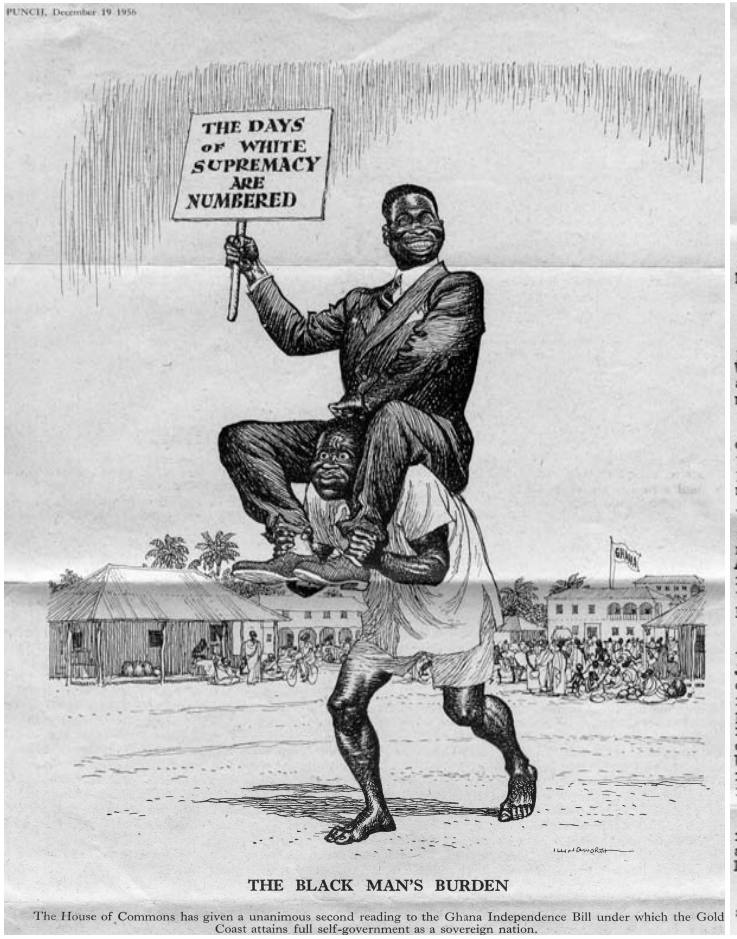
Decolonization was therefore the death knell for European colonial preservationism. With the recognition of the Third World on the world stage (and especially with the founding of the Group of 77 in 1964), the international agenda became dominated by the imperative of development. Following UNESCO's lead, the UN adopted a resolution[7] explicitly

(4) IUCN, Edgar B. Worthington, *African Special Project of IUCN*, July 3, 1961, Executive Board.

(5) Gerald G. Watterson, *Conservation of Nature and Natural Resources in Modern African States, Report of a Symposium Organised by CCTA and Held under the Auspices of FAO and UNESCO at Arusha, Tanganyika, September 1961* (Morges, Switzerland: IUCN, 1963).

(6) IUCN, Gerald G. Watterson, letter to prime ministers and ministers responsible for African wildlife, October 19, 1961.

(7) Resolution no. 2.213 by the UNESCO General Assembly, adopted at the 12th session on December 12, 1962.



Private Note

Brussels, 13 January, 1957.

EurAfrica or AfrAsia ?

Conservation of natural resources

The case of impoverished, but scientifically renewable, natural resources.

That large part of the protective shield which constitutes the containing-defence of the West, of which Africa is a part, passes from Greenland through West-Europe to the Iberian peninsula to Morocco, through Africa to Capetown and beyond.

Geographically, the greatest of these is Africa.

A glance at the globe, reveals what would be the defenceless position if Africa and Africans ceased to be in partnership with the West. If, by naiveté or passivity or Trojan Horses, Africa were animated by sovietic Russians or Chinese, the case would be infinitely more grave.

That majority of African countries which lack rich mineral deposits, and have only a sadly impoverished soil, will find that their only hope of economic independence, and therefore of any real political independence will depend on knowing how (that is, knowing modern techniques) to conserve, utilize and manage their natural resources. If they fail to know how to succeed in conservation, they may choose to attempt a sudden industrialisation. Normally industry requires exports and foreign currency to enable purchase of non-indigenous raw materials for industries to exist and to succeed. At the present stage of its social evolution, sudden attempts by independent African governments to industrialise essentially agricultural Africa would probably involve reversion to forced labour of the pre-European period and pre-monetary type.

In the face of modern weapons, forced labourers (that is, the people) can no longer save themselves by methods of medieval Jacquerie. Violent revolutions can no longer be achieved by the use of agricultural implements as arms. In Africa, large-scale use of forced labour by newly nationalistic leaders would probably provoke protests by the associated peoples of the West. In view of the unreasoning passion of modern nationalisms led by a Musaadeq, a Nasser or a Makarios, the reaction against any such protests would probably be sufficient for African nationalist leaders to reject Europe and to range themselves on the side of those Asian leaders of countries where forced labour is still practised.

The success or failure of scientific conservation of natural resources in Asia and Africa may well prove a deciding factor in answering the question which is about to confront the West, namely EurAfrica or AfrAsia ?

Ultimately it is no less than the question : mankind slave or free ?

T.P.

Document 1: Decolonization, the Cold War, and conservation of natural resources
(Archives of the Musée national d'histoire naturelle, cryptogamy, Roger Heim Collection, Box no. 49)

linking conservation and development in 1962.[1] The naturalist preservationist expertise gave way to an ecological expertise of conservation and the optimization of "biological productivity" of the planet.

A new community of global experts and members of the IUCN (such as Edgar B. Worthington and François Bourlière, who chaired the Biosphere Conference in 1968) asserted itself with the founding of the International Biological Program (IBP, 1964–1974)[2] led by Worthington. The IBP institutionalized and internationalized the new ecology of ecosystems that was based on a view of nature as a machine and in terms of cybernetics.[3]

The Biosphere Conference in Paris in 1968 marked an additional step by introducing the concept of the biosphere, which was defined as "a system of living matter and substances [that is] extremely complex, multiple, all-planetary, thermodynamically open, self-regulating, which accumulates and redistributes immense resources of energy."[4] This paradigm saw good management of natural resources as a problem of optimally regulating the cycles of biological productivity in order to reconcile short-term economic needs with the continued existence over the long term of the biological processes that renew resources.[5]

The concept of the "biosphere" also offered a consensual political way of thinking. After the Cuban Missile Crisis of 1962, the signing in August 1963 of the Partial Nuclear Test Ban Treaty effectively signified the beginning of a period of détente. In 1968, the year in which the UN planned to hold the Stockholm summit, US president Lyndon B. Johnson proposed the founding of an international council on the human environment, while Russian academic Andrei Sakharov called for environmental cooperation between the two great powers. Actors from both sides of the iron curtain put forward threats to the environment as a means for normalizing international relations.[6] In addition, the distribution of photographs of planet earth taken by the Apollo 8 mission in December 1968 (a product of the space race, and hence of the Cold War) invited those involved to transcend the geopolitical polarization of the world to imagine a common future on fragile "spaceship earth," and it provided the environmental movement with an icon.[7]

The rise of environmental activism represented a fourth element in the march towards Stockholm. The movement made its presence felt in the United States through a number of significant events, including the successful opposition in 1956 to the construction of a dam at Echo Park, Colorado; the protest against radioactive fallout from nuclear tests; the publication of *Silent Spring* by Rachel Carson in 1962, which drew attention to the effects of pesticides; the victories of the movement opposing nuclear power at the end of the 1960s; and the popular success of the first Earth Day in 1970, the year in which the Environmental Protection Agency was founded.

In Europe, the Torrey Canyon oil spill of 1967 also accelerated the development of an environmentalist movement and of new public policies there.[8] This environmentalist

(1) John McCormick, *Reclaiming Paradise: The Global Environmental Movement* (London: Belhaven Press, 1989), 150.

(2) Archives of the International Council of Scientific Unions (ICSU, Paris), IBP reports 1962 and 1963.

(3) Chunglin Kwa, "Representations of Nature Mediating between Ecology and Science Policy: The Case of the International Biological Programme," *Social Studies of Science* 17, no. 3 (1987): 413–42.

(4) UNESCO, *Use and Conservation of the Resources of the Biosphere: Proceedings of the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere* (Paris: UNESCO, Natural Resources Research Series 10, 1970), 15.

(5) ICSU, bundle IBP-1.

(6) Kai Hünemörder, "Environmental Crisis and Soft Politics: Détente and the Global Environment, 1968-1975," in John R. McNeill and Corinna R. Unger, *Environmental Histories*, 257–6.

(7) Richard S. Deese, "The Artifact of Nature: 'Spaceship Earth' and the Dawn of Global Environmentalism," *Endeavour* 33, no. 2 (2009): 1–6.

(8) Adam Rome, "'Give Earth a Chance': The Environmental Movement and the Sixties," *The Journal of American History* 90, no. 2 (2003): 525–45.

movement differed from the preservationists and conservationists from the period between 1945 and 1960: although scientists did play a role in it, a significant social and activist base was formed, tying environmental questions to critiques of the Vietnam War, technology, consumerism, and the development economy, and to feminism and the Civil Rights Movement.[1] In this politicization context, the issue of limits came to supersede the demographic aspect. The critiques of economic growth, initially developed by a restrained group of heterodox economists, were largely disseminated as a prolongation of the report by the Club of Rome on the "limits of growth" that appeared a few months before the Stockholm conference.[2] Based on a modeling of the relationships between demographics, resources, pollution, and production, the report led to a heated debate after receiving the support of European Commissioner Sicco Mansholt, who called on the European Community to break with its growth policies.[3]

Although the theories that questioned the notion of growth were dismissed in official forums at the Stockholm conference, the issue of pollution was everywhere, after rarely having been mentioned in the forums of the United Nations before then (it was absent at the UNSCCUR in 1949, and it was only addressed in a few presentations at the ITCPN). The Stockholm conference examined a range of problems that fell under the category of pollution, including noise pollution, radioactive waste, biocides, and urban and industrial waste, and, with the exception of urban waste, these issues featured in 24 percent of the 109 recommendations adopted by the conference. By contrast, the use and development of resources, which had been such a central concern in the period immediately following the war, only featured in 5.3 percent of the recommendations (document 2).

In sum, the origins and the agenda of the United Nations Conference on the Human Environment in Stockholm in June 1972 are located at the intersection between four main dynamics: a rise in demands by developing countries on the international stage (creating tension between environmental and development concerns), the emergence of a new ecological expertise that promised to resolve this tension, a context of political détente, and a push by an environmentalist movement that politicized issues that until then had largely been the preserve of experts.

The preparatory phase for Stockholm was dominated by a tension between environmental aspirations and the imperative of development: the governments of countries in the Global South feared that the environmental restrictions might limit their economic development, and large corporations (often supported by governments in the Global North) were hostile to environmental and sanitary regulations. It was thus as much due to his contacts in the business community as his commitment to development that Canadian Maurice Strong[4] was nominated as secretary-general of the conference in 1970. He commissioned an expert report to provide a framework for discussions in Stockholm. The report was titled *Only One Earth*, which emphasized the biological unity of the planet and attempted to downplay differing interests.[5] In June 1971, a preparatory meeting was held in Founex, Switzerland, in order to ensure that the environmental preoccupations of developed countries did not

(1) Andrew Jamison, *The Making of Green Knowledge: Environmental Politics and Cultural Transformations* (Cambridge: Cambridge University Press, 2001).

(2) Donella H. Meadows et al., *The Limits to Growth* (New York: Universe Book, 1972).

(3) Élodie Vieille Blanchard, "Les limites à la croissance dans un modèle global—Modèles mathématiques, prospectives, réfutations," (doctoral dissertation, EHESS, 2011). We would like to thank Élodie Vieille Blanchard for her comments on this article.

(4) Maurice Strong, a Canadian businessman from the oil industry, headed the Canadian External Aid Office from 1966 to 1971.

(5) Barbara Ward and René Dubos, *Only One Earth*.

	International Technical Conference on the Protection of Nature (1949)*		United Nations Scientific Conference on the Conservation and Utilization of Resources (1949)*		Biosphere Conference (1968)*		United Nations Conference on the Human Environment (1972)**	
Themes Discussed	**Number**	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Protection of nature	94	69.1	2	3.4	4	11.8	24	18.3
Secondary impacts of development	6	4.4	0	0	5	14.7	7	5.3
Biocides	14	10.3	0	0	7	20.6	6	4.6
Conservation of resources	12	8.8	23	39	8	23.5	52	39.7
Development and exploitation of resources	3	2.2	27	46	0	0	7	5.3
Soil erosion	3	2.2	0	0	2	5.9	0	0
Population-resources	4	2.9	7	11.9	1	2.9	3	2.3
Pollution	0	0	0	0	7	20.6	32	24.4
Total	**136**		**59**		**34**		**131**	

Document 2: Table comparing the themes addressed and their development at major environmental conferences between 1949 and 1972 [1]

* Calculation made based on the themes discussed in each of the presentations covering one or more of the categories.
** Calculations made here based only on the 109 recommendations, which sometimes cover two categories.

(1) Sources: IUPN (ed.), *International Technical Conference on the Protection of Nature: Proceedings and Papers, Lake Success, 1949* (Paris/Brussels: UNESCO, 1950); *Proceedings of the United Nations Scientific Conference on the Conservation and Utilization of Resources, 17 August–6 September 1949, Lake Success, New York* (New York: UN D.E.A., 1950); UNESCO, *Use and Conservation of the Resources of the Biosphere: Proceedings of the Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere* (Paris: UNESCO, 1970); Recommendations of the United Nations Conference on the Human Environment, accessible from: http://www.unep.org/Documents.Multilingual/default.asp?DocumentID=97&ArticleID=1492&l=en

affect the progress of developing countries, and to broaden the conference's program to issues that concerned the latter group, including desertification, water supply, and urbanization.[1] Document 2 pinpoints the thematic evolutions of the major international conferences between 1949 and 1972, and shows the changes that the environment underwent as an international political category during that time.

Between 1945 and 1972, it was therefore under the influence of a number of factors that the perceptions, discourses, and programs for action that made up the environment as an international political object were forged.

First, the development of multilateralism led to the introduction of new international regulations in response to the danger of a third global conflict. Second, the pressure on resources created by the Cold War and the entry of the West into an economy of abundance supported a planning-oriented conservationism. Third, the ascendance of the United States as the leading global power was accompanied by a new vision of the world and of how resources should be managed. The works of William Vogt and Fairfield Osborn from 1948 express this vision of the world, closely associating a certain conception of the global environment (centered on natural resources and the demographic question) with the national security of the United States. Fourth, the emergence on an international scale of a kind of protection of nature forged through contact with colonial empires also represented another side to the nascent global environmentalism that the IUPN and UNESCO hoped would oppose the United Nations' vision, which they considered too utilitarian and developmentalist. Fifth, decolonization (which also formed part of the American geopolitical project) weakened this colonial preservationism in favor of a conservationism that was said to promote development. Combined with a new environmentalism in the First World, and in a context where the environment was used for achieving a détente between East and West, this strong presence of the Third World reoriented the very content of the category of the global environment, which became detached from a geopolitical resource/population issue to make way for a tension (and with it a common area for debate) between the environment and economic development, as well as a discussion on pollution and the damage caused by the Fordist model of development. Seventh, and finally, right from the period immediately following the Second World War, ecology provided a global view of the natural world based on the interconnection and interdependence of natural processes (solar energy, soils, hydrological and geochemical cycles, animal and plant species, climate). The increasing power of science and technology in the decades following the war allowed a proliferation of studies, proofs, and images of the finiteness of the planet and its resources. Ecological expertise also provided the language for the political conception of the global environment, with concepts such as "carrying capacity," which naturalized the demographic question, and then the "biosphere," which allowed issues related to natural resources and the planet's absorption capacity for waste and pollutants to be included under the same conceptual framework.[2]

Yannick Mahrane, Marianna Fenzi, Céline Pessis, Christophe Bonneuil, École des hautes études en sciences sociales (EHESS), Centre Alexandre-Koyré, CNRS, 75013, Paris, France.

(1) John McCormick, *Reclaiming Paradise*, 92–3.

(2) We would like to thank Élodie Vieille Blanchard and Agatha Korczak for having shared some of the results of their doctoral dissertations, as well as Stéphane Frioux, Quentin Deluermoz, Jean-Baptiste Fressoz, and Dominique Pestre for their thoughtful comments on earlier drafts of this paper. Thanks also to Denis Lamy and Françoise Bouazzat for their help with the illustrations.

Yannick Mahrane, **Marianna Fenzi**, and **Céline Pessis** are doctoral students in history and sociology of sciences at the Centre Alexandre-Koyré (EHESS-CNRS). **Christophe Bonneuil** is senior researcher at the Centre Alexandre-Koyré, and, with Pierre-Benoît Joly, has published *Science, politique et société* (Paris: La Découverte, 2012), and with Frédéric Thomas, *Gènes, pouvoirs et profits: recherche publique et régimes de production des savoirs de Mendel aux OGM* (Quae, 2009). (yannick.mahrane@hotmail.fr; marianna.fenzi@gmail.com; celine.pessis@neuf.fr; bonneuil@damesme.cnrs.fr)

Abstract

— How, between the end of the Second World War and the 1972 Stockholm conference on the human environment, did the environment become a global problem and a category of international political action? This article analyzes the geopolitical context and the types of warning and scientific expertise that shaped the emergence and developments of the "global environmental" category. While the category of "nature" declined, the article, through the prism of the Cold War and decolonization, looks at questions of the international conservation of resources, the "biological bases of planetary productivity," then of pollutions and "the biosphere," and analyzes their inclusion in an ecosystemic conception of the planet and their involvement in an international political agenda.