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► **To cite this version:**

C. Cassen, Antoine Missemmer. Structuring Environmental and Development Economics in France: The CIRED Case (1968-1986) [La structuration de l'économie de l'environnement et du développement en France: le cas du CIRED (1968-1986)]. 2020, 10.4000/oeconomia.7801 . halshs-02548876

HAL Id: halshs-02548876

<https://shs.hal.science/halshs-02548876>

Submitted on 20 Mar 2023

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Structuring Environmental and Development Economics in France: The CIRED Case (1968-1986)

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English version of the following article:

CASSEN Christophe, MISSEMER Antoine. (2020). La structuration de l'économie de l'environnement et du développement en France : le cas du CIRED (1968-1986). *Æconomia. History, Methodology, Philosophy*, (10-1), 27-55. <https://doi.org/10.4000/oeconomia.7801>

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CASSEN Christophe, MISSEMER Antoine. (2020). Structuring Environmental and Development Economics in France: The CIRED Case (1968-1986) [*La structuration de l'économie de l'environnement et du développement en France : le cas du CIRED (1968-1986)*]. *Æconomia. History, Methodology, Philosophy*, (10-1), 27-55. English translation (2023). <https://doi.org/10.4000/oeconomia.7801>

ABSTRACT:

In the 1970s, in France, a few researchers (e.g. Ignacy Sachs, René Passet) elaborated innovative research programs to have a better understanding of development (in the global North and in the global South) and environmental issues. On the basis of archives and interviews, this article reconstructs and analyses the intellectual and institutional structuring process of the environment-development expertise in France. The case of CIRED, created by Sachs in 1973, helps us illuminate how this new agenda was settled. The results are the followings: the support from national and international institutions has been crucial; and while the new expertise tried to become a new, autonomous field, it finally had to go through a normalization process to exist in the academic landscape of the 1980s.

KEYWORDS:

Environmental economics, development economics, scientific agenda, Sachs, ecodesvelopment

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INTRODUCTION

Sustainable development is at the interface of environmental (resource management, conservation) and development issues (access to health, education, a decent standard of living, political freedoms). The environment-development linkage has a recent history. It emerged as a diffuse concern in the 1970s, especially in the context of the United Nations Conference on the Human Environment in Stockholm (1972) and the publication, the same year, of the Meadows report (1972). The distinction between growth and development - i.e., between quantitative expansion of production and more qualitative changes - that emerged in the aftermath of the Second World War was consolidated. The environment emerged in the debates through various concerns: the fear that natural resources were becoming increasingly scarce, the observation that growth was not without harmful effects, and worrying pollution episodes (e.g., the 'Great Smog' in London in 1952). The protest movements against the consumer society in the 1960s also fueled the debate (Carson, 1962).

Economics gradually addressed these topics. In the English-speaking world, until the end of the 1960s, the environment was not associated with general development issues, except in a few situations. The central corpus of economic theory on natural resources, which was built around Hotelling (1931) for exhaustible resources, and Gordon (1954) for renewable resources, showed limited interest in macro-social issues.³

Pigouvian reflections on the management of local externalities followed the same logic: local pollution in which a few actors interacted was considered, not global issues. Leontief's work integrating some environmental dimensions into the representations of production was published in 1970.⁴ With respect to development, Kuznets (1955) and Rostow (1960) provided some insights: growth was presented as the engine of development, and most socio-economic hazards (especially inequalities) were supposed to be resolved when societies developed.

There were a few exceptions. Krutilla (1955) was interested in development as early as the 1950s while working on environmental issues for Resources for the Future. K. William Kapp (1950) was also a pioneer in emphasizing the social and environmental costs of economic activities beyond individual cases of externalities. The mid-1960s marked a turning point as the environment-development nexus became a real subject of inquiry. In his essay "The Economics of Spaceship Earth" Boulding (1966) emphasized the inadequacy between the development of societies and the finiteness of the planet. In 1967, Ezra J. Mishan published his work on the social (and environmental) costs of growth. Nicholas Georgescu-Roegen (1966; 1971), on the basis of his research on agrarian and developing economies, began to explore in detail the biophysical limits to economic activity.⁵ Ayres and Kneese (1969) deplored the fact that pollution problems were usually addressed only from the point of view of partial equilibrium, whereas they were important issues for the economy as a whole.

In France, the environment-development dichotomy also existed until the late 1960s, but within different institutional and scientific settings. Very few economists were interested in the issues of resource management and pollution. As stressed by Vivien (2007, 68), only Jouvenel did pioneering

³ For a historical explanation of this micro-focused view, particularly for exhaustible resources, see Missemer (2017a; 2019). For a detailed discussion of Hotelling's position in the history of natural resource economics, see Gaspard and Missemer (2019), Franco et al. (2019), Ferreira da Cunha and Missemer (2020).

⁴ For a more substantial and detailed presentation of the different currents in environmental economics in the 1950s and 1960s, see Kula (1998).

⁵ On Georgescu-Roegen's work, see especially the introduction to the volume edited by J. Grinevald and I. Rens (Georgescu-Roegen, 2006) as well as Bobulescu (2012; 2015; 2017), Missemer (2013; 2017b) and Couix (2019).

work in this area, assuming that he could be considered an economist.⁶ French economic expertise was at the forefront of energy issues, especially for electricity pricing. Initiated by Boiteux in the 1950s, this work was largely developed by the engineer-economists of *Électricité de France* (EDF) in the 1960s, who paid limited attention to systemic economic development. The French development studies, led by Perroux (1961), were quite different from those of the English-speaking countries. The Third World, a term coined by Sauvy in 1952, was also a matter of concern, questioning the limits of Western ways of life. The Third World had to develop, but how? This question characterized the French intellectual landscape and played a role in structuring the environment-development linkage in the following decades, both intellectually (what scientific agenda?) and institutionally (what funding? what disciplinary positioning?).

At the turn of the 1970s, a new and combined expertise emerged, bringing together environmental and development issues. Understanding the structuring of this expertise is worthwhile for several reasons. It is a matter of reconstructing and making intelligible a complex and rich history, with a multiplicity of actors and issues. Many people intervened in the debates, often at the frontiers of established disciplines. National and international institutions working on environmental and development issues were in search of legitimacy - in 1971 the first ministry of the environment headed by Robert Poujade was created in France (Poujade, 1975). Also, the economic and political context sometimes appeared favorable, sometimes unfavorable, to the emergence of environmental expertise, and academic rules evolved (e.g., reforms of higher education).

In this article, we focus on the case of CIREDE, founded in 1973 by Ignacy Sachs, then director of studies at the *École pratique des hautes études, VI^e section*, the forerunner of the *École des hautes études en sciences sociales* (EHESS).⁷ Sachs, like René Passet at the University of Paris 1, played an important role in structuring environmental and development economics in France in the 1970s and 1980s (Vivien, 2007). He introduced and developed ecodevelopment as a concept then defined as "a style of development" (Sachs, 1974, 560) specific to each country. Ecodevelopment sought to reconcile the satisfaction of basic needs with economic growth and a cautious management of environmental resources (Sachs, 1974; 1980; see also Berr, 2009; 2013; Berr and Diemer, 2016). Few research centers were addressing environmental and development issues. The case of CIREDE is therefore likely to reveal some underlying dynamics, even if comparative work with other places would also be necessary.

We used three types of sources: (1) reports, articles and books published in France in the 1970s and 1980s; (2) institutional and scientific archives from CIREDE and EHESS; (3) interviews with actors, including CIREDE members and people from other institutions.⁸ Mobilizing oral history raised methodological questions (Jullien, 2018), since some of the researchers interviewed are still active in the field. The challenge was to combine different types of sources (archives, interviews) to validate the information obtained.⁹

⁶ The profile of French economists in the 1950s and 1960s was particularly diverse (see Etner and Silvant, 2017, chap. 14). For an attempt at classification for the 1950s, see Arena (2000).

⁷ CIREDE (Centre international de recherche sur l'environnement et le développement) still exists as a joint research unit (UMR 8568), affiliated with CNRS, École des Ponts ParisTech, EHESS, AgroParisTech-UPSaclay and CIRAD.

⁸ Semi-structured interviews were conducted between the fall of 2017 and the spring of 2018, in person or by phone, most often at third-party locations (universities, schools, coffee shops), and sometimes at home. Although the interviews were mostly recorded, we made the choice not to quote long verbatim.

⁹ This project was born following the call for papers of the *Journées Gide 2017* organized at the University of Nice and devoted to French economic thought in the 1970s and 1980s. It was an opportunity to make use of

We divided the 1970s and 1980s into three main periods, each of which being the subject of a dedicated section: a first period from 1968 to 1972 corresponding to the first seminars headed by Sachs on the "economic and social development of the Third World" and to the creation, at the *École pratique des hautes études*, of the *Groupe de recherche sur les stratégies de développement* (GRSD), the forerunner of CIREN; a second period covering the years 1973-1977, during which CIREN's expertise expanded, thanks to new opportunities; a third period starting in 1978, when institutional and disciplinary standardization developed, and ending in 1986, when Sachs left CIREN.

1. THE BIRTH OF AN EXPERTISE (1968-1972)

Ignacy Sachs was a civil servant, a diplomat and academic. He was born in Poland, lived in Brazil, India and France. He was a polyglot and a traveler. He was an unusual intellectual, "a thinker rather than a researcher",¹⁰ at the crossroads of disciplines. His international influence was visible in the large number of students he trained, some of them getting afterwards high positions in public administrations.

In 1968, while he was at the School of Planning and Statistics in Warsaw, collaborating with Michael Kalecki, Sachs was forced to leave Poland following the movements of March and the anti-Semitic policies of the Polish government. He received numerous invitations (Sachs, 2008, 212) and finally chose the *École pratique des hautes études, VIe section*, in Paris, where he was welcomed by Fernand Braudel, Clemens Heller, Simon Nora, and Daniel Thorner.¹¹

He soon launched his own seminar in the early months of 1968-1969. This seminar appeared in the academic calendar the following year, under the title "Economic and Social Development in the Third World", with an emphasis on "Obstacles to Growth and Planning in the Third World".¹² Its content relied on Sachs's work from the 1960s, based on his experiences in Eastern and Southern countries. The seminar was successful (about thirty participants). Under the guidance of Marcel Roncayolo, a group of students from business schools quickly joined the seminar, followed by a few students from engineering schools. Interested in Third World issues, they were looking for new expertise in the post-1968 context.¹³

In March 1970, upon a suggestion of Sami Friedman (UNESCO), Sachs attended an international colloquium at Tokyo on the relationship between environmental conservation and the social sciences. Other attendees were Kapp, Kneese and Leontief.¹⁴ Sachs (2008, 251) stressed that the environment was not a subject for him until then. Sachs agreed, encouraged by UNESCO, to

unused archival materials whose access was facilitated by the authors' proximity to CIREN as it exists today. Nevertheless, this paper was not the result of an institutional request. The challenge was to take a fresh look at the logics at work in the 1970s and 1980s, with the solicitation of personalities from outside institutions, and the crossing of testimonies with other types of sources.

¹⁰ Interview with O. Godard, October 2017.

¹¹ Interview with K. Vinaver and K. Sachs (son of Ignacy), October 2017. Heller, in addition to his attachment to the Practical School, was a trustee of the Maison des sciences de l'homme (MSH). Sachs met Nora at a UNESCO conference in Vienna, Austria (Sachs, 2008, 175). Thorner collaborated with Sachs during his early years at the School (Ignacy Sachs' Scientific Program, January 1969, EHESS Archive department, Paris).

¹² Teaching academic calendar 1969-1970, EHESS Archive department, Paris.

¹³ Interview with J.-P. Céron, November 2017; interview with J.-C. Hourcade, December 2017.

¹⁴ The International Symposium on Environmental Disruption: A challenge to Social Scientists on March 8-14, 1970 was organized by Prof. Shigeto Tsuru, Hitotsubashi University, and the Science Council of Japan. It brought together Japanese and international researchers after the scandal of mercury contamination of Minamata Bay residents by the petrochemical industry (Sachs, 2012).

participate in the preparatory work of the Stockholm conference (1972). He attended a first meeting in Switzerland (Founex) in 1971 where the idea of a *via media* between predatory growth and the halt of economic progress was put forward. Although the young United Nations environment program (which was to become UNEP) was directed at the time by Maurice Strong, Marc Nerfin, a member of his cabinet, was Sachs's privileged interlocutor.¹⁵ In Stockholm, Strong launched the notion of ecodevelopment to refer to the multi-scale links between the environment and economic development, assuming specific local lifestyles. The subsequent challenge was to give substance to this idea. Sachs continued his work in cooperation with the United Nations for this purpose with the support of some of his students. Most of them would form the core of the future CIREC team.

In 1971-1973, the methodology underlying the expertise remained exploratory. Sachs provided his best students with subjects, without them necessarily having any prior knowledge of the issues to be dealt with. Weeks of documentary work, synthesis, personal reflections followed, leading to drafts, which were often rejected by Sachs on first reading,¹⁶ then amended and reworked until they could be sent to the sponsors. Requests came not only from Strong and Nerfin, but also from Serge Antoine from the ministry of the environment.¹⁷ Sachs met Antoine in 1971 at Founex (Sachs, 2008, 236), and Antoine played a key role in financing the team throughout the 1970s.¹⁸ For Antoine and Strong, the objectives were the same: to establish the scientific legitimacy of new institutions and to base public action on genuine research work. Sachs's team constituted a unique lever of expertise. The interest was mutual: Sachs provided content, obtaining in exchange means for his young colleagues.¹⁹

Sachs created the *Groupe de recherche sur les stratégies de développement* (GRSD) in 1971, within the *École pratique des hautes études, VIe section*, and received support from Clemens Heller (Sachs, 2008, 233). The group became both a place for discussion and an institutional marker. It made it possible to identify the team in the academic landscape. The GRSD organized events at the *Maison des sciences de l'homme* in Paris, published conference proceedings (in partnership with the publisher Mouton),²⁰ and thus gave itself a certain visibility. The Saint-Nizier (Isère) conference, co-organized in December 1972 with the Grenoble Institute for Economic Research and Planning (IREP), was an important moment for the institutional structuring of a combined environment-development expertise in France. Researchers from several organizations were present, in addition to the GRSD: IREP, but also INSERM, the *Centre d'études phytoécologiques* de Montpellier, Basel University, INSEE, the *Centre d'étude et de recherche sur l'aménagement du territoire* (CERAT) in Grenoble, and the *Laboratoire d'écologie de Tours*. Funded by the ministry of the environment and by the MSH of Paris, the event had an explicit purpose: "to promote contacts between researchers and officials of various administrations (in particular the General Planning Commission, the ministry of the environment, SPEDE, INSEE, OECD)" (Barel et al., 1973, 7). The Saint-Nizier symposium provided a platform for the various emerging areas of expertise to showcase their specificities and strengths to potential

¹⁵ Marc Nerfin initiated and later directed the International Foundation for Alternative Development (FIPAD) created in 1976 and with which Sachs will collaborate.

¹⁶ Interview with J.-P. Céron, November 2017. One of the first studies carried out by Sachs's team concerned the taxation of maritime freight transport. According to some of the people who prepared it (J.-P. Céron and J.-C. Hourcade), the methodologies for calibrating the tax were still rudimentary at that time.

¹⁷ Serge Antoine was important in French environmental policy in the 1970s. With Jacques Theys at his side and then following him, he supported the development of French expertise (see Barré et al., 2015).

¹⁸ Interview with J. Theys, May 2018. The studies Antoine entrusted to Sachs allowed the team to raise some of its funding. Often, the topics were jointly defined between the parties.

¹⁹ In 1973, Strong proposed that Sachs join UNEP in Nairobi, but Sachs declined (Sachs, 2008, 388).

²⁰ See for example the proceedings of the Founex symposium : Développement et environnement, Rapport et documents de travail des experts convoqués par le Secrétaire général de la Conférence des Nations Unies sur l'environnement humain, Paris : Mouton, 1972.

funders.²¹ The GRSD appeared to be a coherent team in which environment-development issues were not studied in isolation by one researcher or another, but by all of them, which contrasted with the other, more segmented, research centers.²² This could be evidenced by the collective signature of the GRSD paper (Barel et al., 1973, 183-227), as opposed to the often individual signatures of the other contributions (see Barel et al., 1973).²³

The text presented in Saint-Nizier by the GRSD, a shortened version of a preparatory study for the Stockholm conference, highlighted the main lines of the environment-development expertise then proposed. In the face of environmental challenges, "it is not so much growth as such that must be called into question, but rather its conditions [*modalités*]" (Barel et al, 1973, 183). Technology issues, modes of production, and the location of economic activities were essential to building a development trajectory that was compatible with the preservation of resources. Third World issues were part of the debate.

The symposium identified research priorities (Barel et al., 1973, 9-19), including the question of technological choices and the relationship between economic and ecological knowledge. The synthesis report also called for establishing documentation centers to collect data in the environmental sciences, but also to ensure the sharing of information on environmental and development expertise. On several of these subjects, Sachs's team was able to take the lead.²⁴

Between the fall of 1972 and the winter of 1973, Sachs received from UNEP and Antoine's administration some proposals to transform the GRSD into a more formal and sustainable research center within the *École Pratique des Hautes Etudes, VIe section*. This was to be the *Centre international de recherche sur l'environnement et le développement* (CIRED), created in March 1973. The combined environment-development expertise desired by Sachs was thus able to pursue its expansion within an identified institutional framework.

2. EXPERTISE IN MOTION (1973-1977)

The creation of CIRED marked the beginning of a new stage in the organization of the research group.²⁵ The support of the *Ecole pratique des hautes études, VIe section*, allowed CIRED to move into new facilities at 10 rue Monsieur le Prince, in what was once Auguste Comte's house. At the same time, and thanks to Sachs's relations with Heller, CIRED was granted offices in the building of the MSH, 54 boulevard Raspail.²⁶ These offices were intended for Sachs, the secretariat and the researchers. One of the offices was dedicated to the newly created documentation unit on ecodevelopment. It served as a support for the quarterly *Nouvelles de l'écodeveloppement*.²⁷ Jean-Charles Hourcade remained at 10 rue Monsieur le Prince, where he had a secretariat and offices for his trainees.²⁸

²¹ Interview with K. Vinaver and K. Sachs, October 2017; interview with J.-P. Céron, November 2017.

²² Interview with J. Theys, May 2018.

²³ Collective signature was a common practice at the *École pratique des hautes études, VIe section*, in the post-1968 context. Interview with J.-C. Hourcade, December 2017.

²⁴ In the 1970s, with the MSH directed by Heller, CIRED set up an important documentation unit on ecodevelopment.

²⁵ The GRSD used an office at 4 rue de Chevreuse, headquarters of the Association of University Women, shared with Daniel Thorner.

²⁶ Interview with K. Vinaver et K. Sachs, October 2017.

²⁷ Interview with D. Théry, November 2017.

²⁸ Interview with J.-C. Hourcade, December 2017.

The team grew, reaching fifteen members in 1977, including ten researchers, a research engineer, three secretaries and a librarian. Profiles diversified, with new members with university backgrounds and an enhanced balance between economists and sociologists.²⁹

CIREC needed to find new sources of funding. Only Sachs, part of his secretariat, and Vinaver were employed by the School and the MSH. The rest of the team was financed on contracts. Once or twice a year, Sachs went to meet with his national and international partners, and most often returned with new studies to be carried out.³⁰ The Marc Bloch Association ensured the daily management of the contracts. Apart from the High Committee for the Environment (HCE), led by Antoine, and UNEP, which were the main sources of funding at the time,³¹ CIREC worked in the mid-1970s with, in France, CNRS, the Committee for the Organization of Applied Research on Economic and Social Development (CORDES), the General Directorate for Scientific and Technical Research (DGRST), the ministry of cooperation and the ministry of industry, and, at the international level, the United Nations Conference on Trade and Development (UNCTAD), the Commission of the European Communities and the Dag Hammarskjöld Foundation.³²

These contracts were of short duration (generally one-year maximum), sometimes multi-year as with UNEP and HCE, and with specific research objectives. Their content covered a variety of topics ranging from the analysis of technical solutions to limit fossil energy consumption and waste (e.g., soft technologies for housing, renewable natural products as substitutes for plastics), an in-depth examination of appropriate technologies³³ for the Third World, to the elaboration of prospective scenarios outlining industrial and resource supply strategies.³⁴ Some studies were discussed collegially, but most were carried out in pairs, without any systematic exchange within the team.³⁵

Among this heterogeneous production, it is worth noting the report written in 1973 entitled "Reactions to The Limits to Growth".³⁶ The MIT report prepared by Meadows et al. the previous year had a profound impact on the intellectual context of the time by insisting on the potential risks of collapse in the event of continued economic growth based on a massive exploitation of resources. CIREC researchers provided an overview of the main reactions to the report, first from a scientific point of view (discussion of the hypotheses), and then with regard to its reception in France, in the Third World and in Eastern Europe. While they seemed to share some of the criticisms made at the time concerning the neo-Malthusian and pessimistic vision of resources, they remained relatively neutral on the content of the debates.³⁷ Sachs did not seem to have taken part to the discussion nor have been directly involved in the writing of the study, although he certainly supervised it.

The place of the Meadows report in the scientific agenda of CIREC raises questions. Was its publication a founding moment? If so, to what extent? Analysis of the archives and the interviews rather call for caution. If the Meadows report was well publicized in public opinion, and if CIREC also

²⁹ Interview with S. Passaris, January 2018. The interns reflected this diversification: architects, engineers, agronomists. CIREC activity report, 1977, CIREC archives, Paris.

³⁰ Interview with M. Rogalski, November 2017.

³¹ Between 1973 and 1977, one third of the contracts were sponsored by the ministry of the environment, renamed the ministry of quality of life under President Giscard d'Estaing. CIREC Activity report, 1977, op.cit.

³² CIREC activity reports, 1975, 1976, 1977, CIREC archives, Paris.

³³ "Appropriate technologies" was a key concept at CIREC, designating technologies adapted to local development conditions and intended to go beyond simple technological imitation of industrialized countries.

³⁴ CIREC Activity Report, 1977, op.cit.

³⁵ Interview with D. Théry, November 2017.

³⁶ See Bergeret et al. (1973).

³⁷ A more critical judgment, probably more in line with CIREC's position, can be found in the article signed by GRSD in Barel et al.

took it up, it does not seem to have played a decisive role in the intellectual structuring of the research. It contributed, at the very most, to strengthen some themes and topics already addressed. But the idea of a *via media* between predatory growth and the stationary state (or degrowth), which was at the core of ecodevelopment, did not date from 1972. It dated, at least, from 1971. The scientific agenda of CIREDE had then to take into account the publication of *The Limits to Growth*. However, the essential ideas to be developed already existed beforehand.

The diversity of the studies conducted at CIREDE reflected to some extent the conceptual scope and systemic dimensions of ecodevelopment. The activity reports show the efforts undertaken, in line with the preparatory work for Stockholm, to elaborate a general philosophy and a research program analyzing the conciliation between the environment and development (both in industrialized and Third World countries). More specifically, this agenda consisted in harmonizing the three components of ecodevelopment, namely (i) lifestyles and consumption, (ii) technological choices and (iii) location choices.³⁸ To achieve this, the studies proposed a more detailed analysis of the research objects inherent to each component, and examined their interdependencies. This aimed to provide operational support for the implementation of ecodevelopment and to contribute to the emergence of planning strategies so as to integrate these issues.

CIREDE's research, whether theoretical or field-based, was deliberately geared towards action. Likewise, it gave particular importance to interdisciplinarity by mobilizing approaches at the confluence of economics, sociology and anthropology. It would thus be difficult to identify a guiding principle in the way economics was mobilized in these works, even if it was not absent. Sachs attached importance to major issues (theories of value, production, growth-development linkages). He was recognized for his ability to problematize research topics. Leading economists (e.g., Kapp, Robinson) sometimes made talks during seminars in Paris. Several members of the team were also interested in theoretical issues, in particular regarding questions of planning and the relevance of standard tools of economic analysis (e.g., Godard, 1977).³⁹

In the mid-1970s, CIREDE's activity reports put the emphasis on three main concerns. The first were development strategies in Third World countries. The documentation unit helped feed the work with initiatives identified throughout the world.⁴⁰ The second were the development of the Third World and the transition strategies to new growth in harmony with the environment in industrialized countries. They focused on case studies dealing with lifestyles and production. Finally, the third dealt with energy options and their consequences on the relations between the Third World and industrialized countries. In particular, a prospective work was elaborated assuming more or less cooperative scenarios between Europe and North Africa focusing on industrial development and energy supply. The activity reports showed a relative balance between the three research clusters, with interconnections (Figure 1).

³⁸ CIREDE activity reports, 1975, 1976, 1977, op.cit. See also Sachs (1974) where the idea of ecodevelopment was elaborated for the first time in a substantial way.

³⁹ Interview with K. Vinaver and K. Sachs, October 2017; Interview with J.-C. Hourcade, December 2017 and June 2018.

⁴⁰ Interview with D. Théry, November 2017.

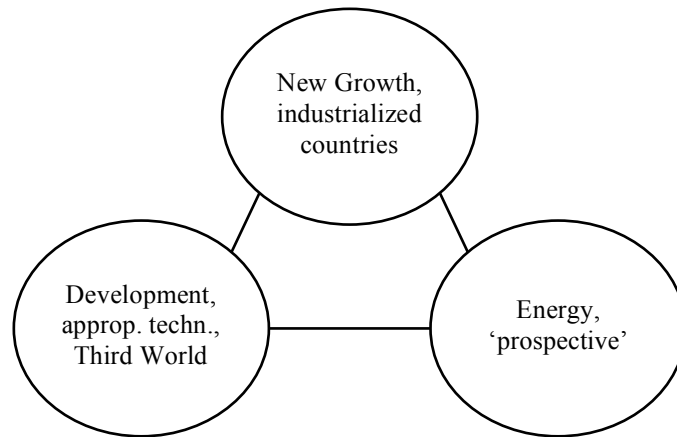


Figure 1: Research clusters at CIRED (based on the reading of activity reports).

However, in retrospect, the reports gave only an imperfect view of the way in which research was organized and conducted at CIRED, since they were necessarily *ex post* reconstructions, intended for funders and institutions (schools, universities, ministries, etc.) to which the researchers were accountable. The exploration of the archives, the precise census of research contracts, and the testimonies gathered during the interviews provided us with a rather different representation of the scientific agenda. The three clusters mentioned did exist, even if they were probably less homogeneous. The abundance of subjects thwarted the search for coherence. Above all, the relative weight of each cluster was far from being the same, and the supposed interconnections were not all of the same intensity.

In the mid-1970s, the cluster on the Third World, development issues and appropriate technologies constituted the core of the expertise. The documentation unit and the international networks built by Sachs provided abundant material for this work, which characterized CIRED in the French and foreign intellectual landscape.⁴¹ Quantitatively, the energy and prospective cluster occupied a second place, while research on new forms of growth in industrialized countries (the last cluster) remained in a minority position. Some researchers were part of several teams, which legitimized the interconnections.⁴² Nevertheless, it appears that the energy cluster, led by Hourcade, quickly became autonomous from the other clusters.⁴³ Still located rue Monsieur le Prince, the energy team, supported by numerous interns and the arrival of Louis Puiseux,⁴⁴ had little contact with the other teams. In particular, there were few exchanges with researchers devoted to development and appropriate technologies.

The (fragile) overall coherence of the scientific agenda was based on the search for alternatives to the old and centralized modes of development that existed, under the banner of ecodevelopment.⁴⁵

⁴¹ Interview with D. Théry, November 2017; Interview with J. Theys, May 2018.

⁴² Interview with S. Passaris, January 2018.

⁴³ However, it was Sachs who turned Hourcade's attention to energy issues in the early 1970s, during a seminar on foresight at Bréau-sans-nappe (Yvelines). Hourcade continued this research project afterwards (e.g., a contract on the challenges of industrial redeployment, conducted with M. Schiray). The oil crisis only reinforced this direction. Hourcade defended his PhD thesis on the challenges of energy forecasting in the Mediterranean basin in 1977 (Hourcade, 1977). Interview with J.-C. Hourcade, December 2017.

⁴⁴ Former chief economist at EDF, Puiseux became director of studies at EHESS in 1979.

⁴⁵ The interviews revealed that some researchers were more inclined than others to explicitly use the concept of ecodevelopment.

Figure 2 seems to constitute, in a way, a better representation of the different priorities of the time: three clusters of unequal weight, an increasingly autonomous energy cluster, and heterogeneous interconnections.

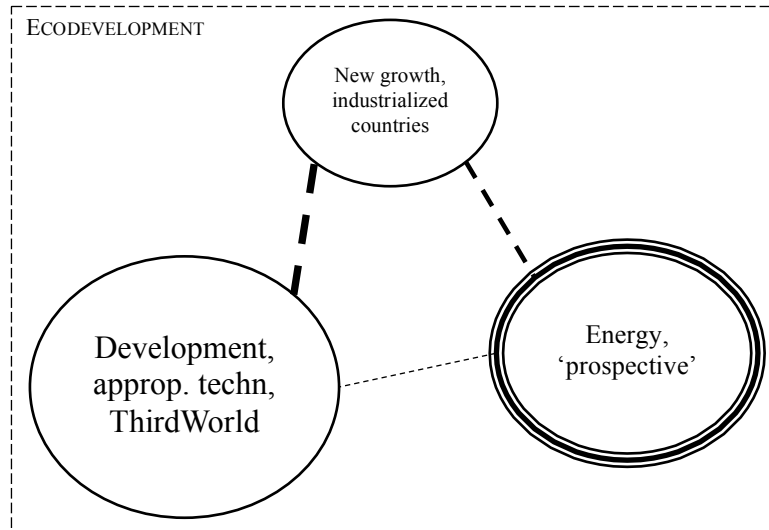


Figure 2: Research clusters (reinterpreted).

In addition to the reports submitted to sponsors, the production of CIREN researchers at the time was varied. Articles were published in specialized or generalist journals (*Futuribles*, *Revue 2000*, *Cahiers français*, etc.), most often in French, but also in Spanish and, to a lesser extent, in English. In addition to the quarterly newsletter *Nouvelles de l'écodéveloppement*, the documentation unit prepared the *Cahiers de l'écodéveloppement* (9 issues between 1974 and 1977),⁴⁶ two publications that were widely distributed internationally.

Sachs's seminar at EHESS remained the central pillar of the activities carried out (preparation of a dissertation in two years, followed by a possible PhD program).⁴⁷ Nevertheless, the places where CIREN researchers intervened became more and more diversified, with new audiences. Courses were given at HEC, ESSEC, the *Centre d'études supérieures d'aménagement of the Université François Rabelais* in Tours, the *Institut national des sciences et techniques nucléaires* (INSTN), and the *Ecole Normale Supérieure* (ENS Ulm).⁴⁸ Sachs's seminar was a breeding ground for the recruitment of trainees and foreign students. Thus, between 1971 and 1977, out of the twenty-one postgraduate studies directed by Sachs, twelve were carried out by foreign students.⁴⁹ Their presence was important for Sachs because they contributed to the international recognition of CIREN. In particular, a cooperation agreement between France and Brazil in the field of solar energy led to some work

⁴⁶ CIREN Activity Report, 1977, op.cit.

⁴⁷ Until the mid-1980s, however, EHESS did not offer a doctoral program focused on development issues. Interview with M. Rogalski, November 2017.

⁴⁸ The *grandes écoles* quickly perceived, perhaps before the universities, the interest of offering their students courses on environment-development issues. Interview with J.-C. Hourcade, June 2018.

⁴⁹ CIREN Activity Report, 1977, op.cit.

with Brazilian students. CIREDE's multidisciplinary program was attractive, in a context where development studies were better recognized abroad than in France.⁵⁰

The creation of CIREDE in 1973 allowed Sachs and his students to take a step forward in terms of resources. On the scientific level, the work carried out gave the impression of a patchwork, nevertheless capped by a common search for alternatives to the mode of development in industrialized countries. Economics appeared only as one approach among others. Elements of a structuring scientific agenda could be detected: the Meadows report and the oil crisis helped give visibility to the environment-development expertise conducted at CIREDE. And if most of the ideas were in gestation before 1972-1974, it was not until the middle of the 1970s that clusters of competence were clearly identified.

3. TIME FOR STANDARDIZATION (1978-1986)

National and international support helped CIREDE to become in the mid-1970s an important place for environment-development expertise in France. The number of research contracts illustrated the interest aroused by the multidimensional approach dear to Sachs's team.

Success remained limited though, as the English-speaking world kept the lead on many subjects, and continued to monopolize the attention of organizations such as the OECD environment division.⁵¹ In France, other places emerged. The environment was at the heart of the work developed at the University of Paris 1 by René Passet, with a more epistemological angle than the research developed at CIREDE. In Grenoble, the *Institut économique et juridique de l'énergie* (IEJE), founded in 1956, was growing stronger with its work on energy modeling. Other research institutes took up environmental issues, often in an ancillary manner, and with less visibility (e.g., CEPREMAP, ISMEA).⁵² CIREDE maintained contacts with these organizations, without building strong partnerships.⁵³

At the beginning of the 1970s, rising public funding for higher education led to increase the number of employees. Their integration into public-funded academia became problematic. In 1977-1978, the government decided to massively integrate so-called "non-status" researchers into predominant research organizations (CNRS, INRA, etc.) (Bezes et al., 2005). After several years of precariousness, CIREDE staff members were offered an opportunity for stabilization. The first recruitments by the ministry of education or CNRS took place in 1976.⁵⁴ CNRS staff members were first hired in 1977 and 1978. Some chose to become engineers (Céron, Vinaver, Passaris), other researchers (Chonchol, Godard, Hourcade, Schiray, Théry).

For all of them, but especially for those who aspired to become researchers, it was a turning point in the relationship with Ignacy Sachs. Until 1977-1978, Sachs kept control of the unit's scientific program, if only through the contracts he obtained. As mentioned, some research projects had already become independent (e.g., on energy issues), but the ecodevelopment banner remained

⁵⁰ Interview with M. Rogalski, November 2017.

⁵¹ CIREDE worked for the OECD on a few subjects but the environment division favored English-speaking experts like David Pearce at the time. Interview with M. Potier, November 2017.

⁵² Interview with J. Theys, May 2018.

⁵³ The cordial relations between Sachs and Passet did not translate, for example, into concrete research projects or student exchanges. Hourcade, for his part, collaborated occasionally with the IEJE in Grenoble, in particular by participating in colloquia, but without carrying out any truly joint work. Interview with K. Vinaver and K. Sachs, October 2017; interview with J.-C. Hourcade, December 2017.

⁵⁴ Scientific report of CIREDE (1973-1986), 230 EHE 1, EHESS Archive department, Paris.

prominent.⁵⁵ The integration of the "non-status" staff helped researchers emancipate from Sachs. Some even obtained their first expertise contracts on their own,⁵⁶ to directly hire young researchers. The most active ones became, in a way, "small entrepreneurs".⁵⁷ From 1977-1978, the governance of CIREC became more decentralized, and the plurality of the subjects of investigation was reinforced.

The growing importance of some themes in the scientific agenda relied on expanding networks of experts,⁵⁸ as shown by the activity reports submitted to EHESS. In 1977, the most theoretical studies were mentioned and highlighted for the first time, such as those on the inadequacy of certain current tools for dealing with environmental issues, carried out by Godard and Hourcade in the early 1970s.⁵⁹ In the retrospective report on the period 1973-1986, a new cluster appeared in relation to this kind of approach.⁶⁰ Thus, at the end of the 1970s, there was a clear desire to place CIREC within the field of environmental and energy economics, which was in the process of being established in French academia, although the team was better known for its expertise on development issues and the Third World.⁶¹ In the administrative documents of the *École Pratique des Hautes Études, VIe section*, which became EHESS in 1975, CIREC had always been considered as a team of economists.⁶² The association with CNRS, first through the integration of "non-status" researchers, then through the official attachment of CIREC in 1979,⁶³ was also made under the banner of the economics discipline.

Yet, at the end of the 1970s, a dissonance appeared between what economics was becoming - a formalized, axiomatic, quantitative discipline - and the way in which economics was practiced at CIREC - as a sort of political economy in which institutional and qualitative dimensions figured prominently.⁶⁴ As a director of studies at EHESS, Sachs did not have to justify his disciplinary position and although he had an economics background, he considered himself to be at the frontiers of several disciplines.⁶⁵ This was different for the younger generation, which was looking for a disciplinary framework and preferred (willingly or unwillingly) to play the game. CIREC was not intended to become a center for quantitative economics. But it probably had to strengthen its foundations in order to exist in academia, and to allow its researchers to get their place in the profession.

The rhetorical shift between the activity reports of the mid-1970s and the mid-1980s should be read in this light. The 1975 report referred, among other things, to "research on development and environmental problems" and to "carrying out concrete field projects" (p. 6). In the 1986 report, it

⁵⁵ Nevertheless, Sachs seems to have often granted his younger colleagues a great deal of leeway, not seeking to be a "taskmaster." Interview with J.-C. Hourcade, December 2017.

⁵⁶ Interview with O. Godard, October 2017; Interview with J.-P. Céron, November 2017.

⁵⁷ Interview with J.-C. Hourcade, December 2017.

⁵⁸ Interview with J. Theys, May 2018. The creation in 1975 of the association GERMES (*Groupe d'exploration et de recherches multidisciplinaires sur l'environnement et la société*), at the interface between the academic world and public action, helped give visibility to CIREC researchers independently from Sachs. See Theys (2019).

⁵⁹ Neither the 1976 nor the 1975 report makes any such mention.

⁶⁰ CIREC Scientific report (1973-1986), *op.cit.*

⁶¹ Interview with M. Potier, November 2017; Interview with J. Theys, May 2018.

⁶² See on this subject the inventory of EHESS's archives under Le Goff and Furet presidencies, available at the National Archives in Pierrefitte-sur-Seine.

⁶³ CIREC scientific report (1973-1986), *op.cit.*

⁶⁴ The 2017 Gide Days in Nice provided an opportunity to discuss and highlight developments in economic research in France in the 1970s, with an apparent retreat from institutionalist and interdisciplinary approaches in favor of specialized and formal practices imported from the English-speaking world.

⁶⁵ Interview with K. Vinaver and K. Sachs, October 2017; see also Sachs (2008, 353).

was mentioned, among other things, "theoretical analysis and empirical study of the choice of techniques" and "analysis and evaluation of energy options and strategies" (p. 11). Research objects certainly evolved between the two periods, but the way of presenting these objects also evolved: "theory" and "concepts" replaced "debates" and "reflections". Obviously, there was theory behind the practical cases of ecodevelopment identified in the early 1970s. Obviously also, the work of the early 1980s was also part of broader debates. But the wording associated with the agenda changed. This shift probably reflected a disciplinary normalization in relation to economic science, which was increasingly eager for axiomatics.

The early 1980s was a more difficult period for Sachs's team.⁶⁶ Environmental and energy subjects were struggling to make a real breakthrough in academia, particularly with the oil counter-shock. CNRS had doubts about the economic expertise carried out at CIREDE, and stopped appointing new researchers to the team.⁶⁷ Sachs continued to activate his networks to obtain contracts, but the researchers' attention turned to other subjects, in the continuity of the emancipation process initiated in the mid-1970s. This led to new collaborations, particularly on energy issues. For example, CIREDE reached an agreement in 1983 with the *Agence française de maîtrise de l'énergie* (AFME).⁶⁸

The systemic changes that were taking place in the social sciences, marked by the gradual decline of structuralist approaches in the face of new liberalism, also undoubtedly explain the questions that were emerging within the team. Without fully adhering to the structuralist theses of development studies, as defended for example at IEDES (University of Paris 1), CIREDE members, in particular those involved in the Third World cluster, carried out work that resonated with these approaches, in particular by qualitatively examining development patterns in Southern countries. At the turn of the 1980s, the idea of building a development economics expertise aside from the standard corpus of economics vanished (Toye, 2018). This also contributed to the standardization of research conducted at CIREDE, and to the greater emphasis given in the scientific agenda to work that was far from structuralism.

At the same time, CIREDE's teaching activity, at least in the short term, continued to expand: the 1973-1986 retrospective report mentions teaching in many French *grandes écoles* and universities (HEC, ESSEC, INSTN, University of Paris 1, ENS Ulm, ENPC, etc.) and abroad (MIT, Harvard, Cambridge (UK), IUED in Geneva). After several years of deliberation, a DEA in "Socio-economics of Development" was finally created at EHESS in 1985, in which CIREDE members played a pivotal role. This was an important achievement for Sachs, who wished to build an independent course on development studies, at the crossroads of several disciplines, without forcing students to choose between economics and sociology.⁶⁹ This orientation did not necessarily serve students' interests (Sachs, 2008, 353), but it aimed to constitute the environment-development articulation as an autonomous field.

Research activities began to face difficulties in 1985-1986, when EHESS seemed to question the future of CIREDE. This moment of crisis can be understood both from the point of view of the lab's internal governance and from the point of view of the team's positioning in the established fields. Unappeased by the research directions taken by his colleagues, Sachs began to withdraw from the

⁶⁶ Interview with J.-P. Céron, November 2017; Interview with J.-C. Hourcade, December 2017.

⁶⁷ The French political developments in 1981 did not have any effect on the attitude of CNRS's governing bodies towards CIREDE.

⁶⁸ Interview with F. Moisan, January 2018. See also PV of EHESS's Scientific Committee, 4 May 1983, 200 EHE 60, EHESS Archive department, Paris.

⁶⁹ Interview with M. Rogalski, November 2017. This DEA turned into a doctoral program "Comparative Development Research" a few years later.

scientific agenda at the end of the 1970s, and decided in the early 1980s to leave the operational direction of the lab.⁷⁰ At the time, EHESS had a policy of associating the existence of a research center with the director of studies who directed it.⁷¹ Sachs' departure was therefore likely to call into question the very existence of CIREDE. Nevertheless, the choice was made to convince EHESS to keep the team, by appointing a new director.⁷²

In the spring of 1985, CIREDE submitted a proposal to the Scientific Council of EHESS. The document,⁷³ presented by Godard, Hourcade, Nicolon and Sachs, suggested a reorganization of the lab around three research teams: (i) a team on the "socio-economics of technical choices in the energy sector" directed by Hourcade, (ii) a team on the "socio-economics of local and regional development and decentralized planning" directed by Godard, and (iii) a team on the "socio-economics of development in Third World countries" directed by Sachs.⁷⁴ Alexandre Nicolon was proposed to head the coordination committee that would ensure coherence between the three teams, with the support of Jean-Paul Céron as general secretary. The members of EHESS's Scientific Council received the proposal with reservations,⁷⁵ questioning the respective weight of the three teams and the intellectual stakes of the project.⁷⁶ François Furet, then president of EHESS, asked Sachs to continue as director for another year, and invited CIREDE to propose a new project to be examined at the end of 1985-1986.⁷⁷

The retrospective scientific report 1973-1986⁷⁸ was prepared in this perspective. This report, which was much longer than the 1985 proposal, listed the work done since the creation of CIREDE and set out the "research orientations for the years to come" (1973-1986, 49). The three clusters suggested a year before were renamed. A first team became specialized on (i) "economic analysis and technological strategies in an open economy: energy choices and structuring of development", (ii) a second on "economic differentiation and differentiation of 'development spaces'", and (iii) a third on "socio-economics of development, technological pluralism and social innovation in Third World countries". These titles clearly suggested a disciplinary reorientation of the research objects: the word 'socio-economics', hegemonic in the 1985 version, then occupied only one research field, that of Sachs. Beyond the rhetorical issues already highlighted, this shift can retrospectively be read as a new stage in the scientific normalization of CIREDE. In less than a year, the claim to develop an expertise at the frontiers of the social sciences shifted into a much more economic orientation. The creation of the DEA "Socio-economics of Development" at the end of 1985 finally appeared to be counteracting compared with what was at stake. The environment-development nexus remained the pivot of what was conducted at CIREDE, but the claim to make it a new discipline weakened.

These developments should be paralleled with the trajectory of the ecodevelopment concept in the same period. Due to political opposition, particularly from the United States (Godard, 2005; Berr,

⁷⁰ Interview with K. Vinaver and K. Sachs, October 2017; Interview with M. Rogalski, November 2017.

⁷¹ Interview with D. Théry, November 2017.

⁷² Interview with M. Rogalski, November 2017.

⁷³ Scientific and organizational orientation proposal of CIREDE submitted to the Scientific Council of EHESS, May 1985, 200 EHE 81, EHESS Archive department, Paris.

⁷⁴ In an internal document of April 1985, CIREDE researchers already proposed three distinct teams, but with slightly different titles and objects (see Godard et al., 1985). This document highlighted questions about the scientific identity of the lab and its institutional positioning, particularly with respect to other research centers in France.

⁷⁵ Minutes Scientific Committee of EHESS, 4 June 1985, 200 EHE 81, EHESS Archive department, Paris.

⁷⁶ J.-C. Hourcade recounts that it happened to be heard in the corridors of EHESS, even in the 1970s, that "the environment was not a subject". Interview with J.-C. Hourcade, March 2018.

⁷⁷ Letter from F. Furet to I. Sachs, June 7, 1985, 200 EHE 82, EHESS Archive department, Paris.

⁷⁸ CIREDE Scientific report (1973-1986), op.cit.

2009; Figuière and Metereau, 2013), ecodesvelopment lost its influence in international spheres.⁷⁹ It was gradually replaced by a more consensual notion, that of sustainable development, which offered the possibility of opting for moderate environmental protection with regard to the imperatives of economic growth (Brundtland, 1987; see Godard, 2005). CIREDE's smaller attention paid to perspectives focused on Third World development issues was also a result of the relative decline of ecodesvelopment. CIREDE members progressively lost the strength or the desire to defend a bastion under attack from all sides, preferring to work on other subjects, without systematic reference to ecodesvelopment.

The choice made by CIREDE researchers in 1986 was consistent with the scientific and institutional constraints of the mid-1980s. At that time, several CNRS researchers were accountable to the economics committee that evaluated them. EHESS also already started recruiting economists who were more in line with the new axiomatic canons (i.e., the "econometricians" group).⁸⁰ In order to be considered as economists in the emerging sense, CIREDE researchers had to inflect and standardize their methods.⁸¹ This gamble, at first sight reasonable, in fact proved risky. When it received the 1973-1986 scientific report, the Scientific Committee of EHESS was surprised by the turn taken to economics, going so far as to question the relationship between CIREDE and the *Centre d'économie quantitative* headed by Roger Guesnerie.⁸² CIREDE was not the best equipped team to carry out strictly economic research, and the idea of a rapprochement with the "Cultural Areas" cluster of EHESS was raised.⁸³ CIREDE members quickly rejected this option.⁸⁴

This episode highlights that disciplinary standardization also met with resistance. Environment-development expertise tried to become fully integrated into the economics field in the mid-1980s. But its interdisciplinary perspective remained prevalent, even if it meant slowing down the standardization desired by some researchers, and a priori required by the institutional context. This was an important and paradoxical characteristic of environment-development expertise. No doubt that this goes well beyond CIREDE. All emerging fields have to think about their relationships with existing disciplines in order to ensure their survival and development.

In 1986-1987, CIREDE remained part of EHESS. Its affiliation to CNRS was maintained, with Jean-Charles Hourcade as the new director, in replacement of Ignacy Sachs.⁸⁵ The environment-development expertise then fully turned to economics, although it sometimes continued to encounter some resistance. Sachs, for his part, finally left CIREDE to devote himself to the *Centre de recherches sur le Brésil colonial et contemporain* (CRBC), created in March 1985.

⁷⁹ Supported by the United Nations in the mid-1970s, ecodesvelopment was perceived after the Cocoyoc Declaration in 1974 (UNEP-UNCTAD, 1974) as too radical by some stakeholders, requiring too much effort from developed countries, and overemphasizing the autonomy of developing countries (Berr, 2009).

⁸⁰ Interview with R. Guesnerie, November 2017. On the place of economists in the long history of EHESS, see Godechot (2011).

⁸¹ The internal document of April 1985 on the orientations of CIREDE suggests an important awareness of these methodological and epistemological issues (see Godard et al., 1985).

⁸² Minutes of the scientific Committee of EHESS, 20 May, 1986, 200 EHE 91, EHESS Archive department Paris.

⁸³ The "Cultural Areas" cluster was founded at the *École pratique des hautes études, VIe section*, in the 1950s to bring together researchers from various disciplines working on common areas (see Popa, 2015). Given its interdisciplinary profile, CIREDE could have been called upon to join this cluster.

⁸⁴ Minutes of the Scientific Committee of EHESS of 20 May 1986, op.cit. This refusal is already apparent in Godard et al. (1985), where CIREDE wanted to be identified as a "thematic center" (p. 4) and not focused on a given area. Also interview with J.-C. Hourcade, March 2018.

⁸⁵ Nicolon having given up, Hourcade was the only one at the time with a state thesis (Hourcade, 1984) among the scholars approached to succeed Sachs, which probably played a role in his induction. Interview with D. Théry, November 2017; interview with J.-C. Hourcade, March 2018.

CONCLUSION

The intellectual and institutional history of the structuring of environmental and development economics in France in the 1970s and 1980s, read through the experience of CIREDE, has not been linear. The rise of energy and environmental concerns in the early 1970s clashed with other public policy priorities in the years that followed (unemployment, monetary instability). Periods of success preceded periods of crisis, then recovery. Research methods also evolved: the contractual logic, fueled by national and international organizations, created a broad and large scientific agenda, without *ex ante* coherence. At CIREDE, behind the ecodevelopment concept, the quest for alternative solutions to current lifestyles, production and consumption patterns contributed to define a global and systemic analytical framework.

At the end of the 1970s, both disciplinary and institutional changes pushed research on the environment-development nexus to start a process of standardization. The stabilization of researchers implied some requirements. In economics, the progressive influence of axiomatics and quantitative studies meant a reductionist approach. In fact, CIREDE could legitimately be considered an economics research center in the institutional landscape of the early 1970s. At the turn of the 1980s, economics was no longer the same. In order to get credit, but also by choice, CIREDE members had to change, if not their work, at least the way in which it was publicized. Their reflections on the environment-development nexus came to a crossroads, between the constitution of an autonomous field and a disciplinary inflection. This tension remains prevalent today for those who work on sustainable development, a boundary object *par excellence*, or for those who are part of the sustainability sciences.

The disciplinary and institutional standardization that took place at the turn of the 1980s, along with systemic changes (the decline of structuralism, the emergence of decentralized governance of externalities via market instruments in which the State plays a background role), led researchers who early addressed the environment-development nexus to take various directions. Some simply continued to work only episodically on environmental issues - this is the case, for example, of Roger Guesnerie at EHESS. Others opted for a consolidation of the environment-development field through the prominence of economic analysis and modeling. This is the path that was followed at CIREDE after the mid-1980s. Others participated in the constitution of interdisciplinary approaches between the social and natural sciences, on the path of an emerging ecological economics. This is the direction taken by René Passet's students. A complete inventory of these trajectories would deserve an examination that goes beyond the scope of this article, but would undeniably be useful for understanding the evolution of environmental and development economics in France after the mid-1980s.

Regarding the 1970s, to what extent was the case of CIREDE representative of French environment-development expertise? Other research centers, academic or not, addressed these questions, and no doubt some of them evolved according to their own contingencies. Obviously, CIREDE was a singular case as regard to its international influence, since Sachs had a particularly large network. Nevertheless, CIREDE was certainly a significant example in several ways. First, because the institutional (e.g., integration of "non-status" employees) and intellectual (post-1968 period, evolution of economics and social sciences, etc.) context in which its researchers evolved also impacted other organizations. Second, because CIREDE played a pivotal role in France, after Saint-Nizier, and thanks to its central place at the interface between expertise and public action (e.g., GERMES).

The CIRED case also reveals how a research team, whatever it is, can become recognized in academia. This goes beyond the environment-development nexus. Initially, Sachs built up a small, young team around him, working on projects, with few resources. The analogy with the *start-up*, which is anachronistic, seems relevant, especially since the CIRED start-up quickly benefited from the support of real *business angels* (Strong, Nerfin, Antoine and Theys) to develop. The multiplication of contracts took CIRED to a new level, and in the mid-1970s it became, to extend the analogy, a *small company*⁸⁶ looking like a "consultancy".⁸⁷ But the time came to integrate this company into a reconfigured academic and disciplinary landscape, and to transform it into a *research laboratory* - hence the standardization process, despite the desire to make the environment-development project autonomous. No doubt other research teams, on other subjects, at other times, have experienced a similar trajectory.

ACKNOWLEDGMENT

The authors are very thankful to Jean-Paul Céron, Olivier Godard, Roger Guesnerie, Jean-Charles Hourcade, Patrick Lagadec, François Moisan, Solange Passaris, Michel Potier, Michel Rogalski, Karol Sachs, Daniel Théry, Jacques Theys and Krystyna Vinaver for their availability. The interpretations delivered here are not them in any way. We are also grateful to: the participants of the *Journées Gide* 2017 (Nice) and the workshop 'Economics and the Environment since the 1950s' (Reims, March 2019), the archivists of EHESS, Frédérique Bordignon, Thierry Brunelle, Naceur Chaabane and Franck Nadaud for their encouragement and guidance. Finally, we also thank the two anonymous referees who helped us finalize this text.

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⁸⁶ CIRED was atypical within the *École pratique des hautes études, VIe section*, and later within EHESS. A research center with so many financial resources was unusual, especially in the humanities and social sciences. Interview with O. Godard, October 2017; interview with J.-P. Céron, November 2017.

⁸⁷ Interview with O. Godard, October 2017.

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