

4 A Crack in the Limits

The Case of UNEP's Failed Motor Vehicle Seminar of 1976 in the Context of the Polycrisis¹

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Introduction

In early October 1976, the United Nations Environment Programme (UNEP) organized a seminar with car industry associations, car companies, and national governments at UNESCO, Paris, to discuss “ways and means of improving... the human environment.”² One carmaker CEO, Swedish Volvo’s charismatic and outspoken Pehr G. Gyllenhammar, had anticipated the seminar with high hopes. With his friend Maurice Strong, Executive Director of UNEP and previously Secretary General of the 1972 UN Conference on the Human Environment in Stockholm, Gyllenhammar had been discussing the role of the car industry in environmental protection. As the CEO of a niche manufacturer that depended on accessing foreign markets, Gyllenhammar believed it necessary to harmonize environmental legislations internationally. The problem, Gyllenhammar told UN Secretary General Kurt Waldheim, was the “enormous [national] fragmentation in the industry in its approach to better environmental standards,” noting that the seminar represented a “unique opportunity to take a more global approach.”³ Since the late 1960s until today, the environmental impact of cars and road safety have been primarily steered by government implementation of regulations in the form of performance standards. Under Gyllenhammar’s leadership in the 1970s, Volvo gained a green image by pioneering exhaust emissions control technology on the American market to comply with the world’s most stringent emission standards, among other things. Due to conflicting regulatory requirements, however, Volvo sometimes struggled to maintain this image.⁴

The business history and economics literature has shown that different factors related to government regulation complicate car production and carmakers’ commitments to the environment. The first complicating factor concerns the impact of regulations on the quality and performance of vehicles. The second factor involves conflicting technical requirements, meaning that regulations aimed at addressing one problem could compromise another. For instance, weight-increasing safety regulations have negatively affected fuel economy.⁵ The third factor pertains to asymmetric regulatory requirements across firms’ active markets. For carmakers,

dissimilar regulations that require different technologies for compliance in different markets create barriers to car trade, making it more costly for firms to reach export markets. Moreover, internationally asymmetric regulations diminish economies of scale, as carmakers need to make shorter production series and additional post-manufacturing adjustments, as well as gather information from several different statutory compliance programs.⁶ While the positive or negative impacts of regulatory asymmetries on individual international carmakers as well as carmakers' views on regulations have varied across different periods and contexts, it is clear that government regulations have complicated car production in general, whereas the diverse mix of regulations has complicated it even further. This regulatory dynamic has required international carmakers to navigate complex technical, political, and economic landscapes.

Back to the UNEP seminar: Gyllenhammar's hopes that the seminar might address these regulatory challenges were not fulfilled. Clearly irritated, Gyllenhammar wrote to Waldheim that "the seminar achieved nothing" and "might have caused a [sic] damage," while ending by noting that his industry colleagues agreed with him that "this was the last seminar of this type that they would attend."⁷ The Motor Vehicle Seminar was the third of a total of seven industry sector seminars organized by the UNEP between 1975 and 1979 as part of its Industry Programme.⁸ Historians Ben Huf, Glenda Sluga, and Sabine Selchow have studied the Industry Programme and offered a general description of its activities and outcomes.⁹ They argued that UNEP, through its focus on sector-specific problems and technologies, used the seminars as arenas of consultation and information sharing between industry and governments while encouraging the industries to adopt their own guidelines.¹⁰ In pushing for voluntary adoption of guidelines, the Industry Programme differed significantly from the typical top-down type of environmental governance that nation states practiced, according to Huf, Sluga, and Selchow. Taking an international history approach by studying the final public reports, however, they did not look at how industries organized and responded to the seminars or how industry shaped the outcomes. By contrast, business historians Ann-Kristin Bergquist and Thomas David have shown that international business, through the International Chamber of Commerce (ICC), actively shaped UN environmental governance. The ICC was critical of the discourse on the *limits to growth* that dominated the UN global environmental governance in the 1970s, which centered on the idea that environmental protection and economic growth might be impossible to reconcile. Fearing that this discourse and UNEP would encourage costly environmental regulations, it thus began to organize for an alternative, market-based, and voluntary governance approach in the form of industry self-regulation.¹¹ According to Bergquist and David, the ICC pushed for market-based governance because it feared that UNEP "would encourage national governments to implement new regulations that severely complicated international trade, transnational business operations, and ultimately economic growth."¹²

The research on business' relations with UNEP mentioned above has been conducted to explore the reasons why the global environmental governance framework changed between the first UN Conference on the environment in Stockholm in 1972 and the second one in Rio in 1992. As environmental governance scholars have shown, UN-led global environmental governance shifted from focusing on the incompatibility between economic growth and environmental protection as well as on the importance of government policy to addressing environmental issues, to promoting market-friendly forms of regulation in which economic growth was seen as necessary for achieving environmental protection.¹³ Though international and organized businesses were active in facilitating this transformation, this chapter shows that changing material and technical realities created a "crack" in global environmental governance, revealing misalignment between the initially established framework and emerging social goals. This crack in turn amplified the power of business lobbying while also creating opportunities for business-friendly reform.

This chapter aims to identify the origins of this crack through a detailed case study of UNEP's Motor Vehicle Seminar of 1976. There are two reasons for focusing on the car industry. First, unlike the other industries that were subjects of the UNEP seminars—the pulp and paper, aluminum, agriculture, petroleum, iron and steel, and the chemicals industry—the car industry was already being targeted by international environmental regulations.¹⁴ Second, the fact that car industry executives believed the seminar was an unmistakable failure indicates misalignment between UNEP's ambitions and the industry's expectations. This misalignment, as we will see, was related to differences of opinion on the rationales for and means of regulating the industry. By studying these opinions, it is possible to shed light on the origins of the crack in environmental governance. This chapter focuses on the relationship between UNEP and the car industry from the perspective of the international car industry federation: *Bureau Permanent International des Constructeurs d'Automobiles* (BPICA), composed of national car industry associations. This issue is explored by asking why car industry officials considered the UNEP seminar a failure and how BPICA made sense of the UNEP seminar. This chapter will also discuss how and for which reasons BPICA organized itself and responded to the seminar. Analytically, the chapter looks at this development through the lens of the polycrisis facing Western political and business systems in the 1970s—multiple crises spanning the environment, the breakdown of the established production regime, as well as crises in energy, and the economic and monetary systems. This chapter draws on sources from the Swedish Car Industry Association (SCIA), which played an active role in formulating BPICA's response to the seminar. As a matter of fact, BPICA appointed SCIA's president Jonas Gawell as chair of the committee that coordinated the industry's policy development anticipating the seminar. Because of the central role played by the SCIA, these archival documents allow to analyze international regulatory and industrial developments in the car industry.¹⁵

The Polycrisis Facing the Car Industry in the 1970s

The term “polycrisis” refers to the confluence of multiple and mutually reinforcing challenges and has been used to analyze the overlapping crises of the twenty-first century.¹⁶ In their study of how the Euro, refugee crises, and Brexit have affected EU integration efforts, political scientist and historian Jonathan Zeitlin and colleagues argued that these crises have enhanced politicization of the EU integration project, both at the national and at the European levels, because their impacts have been unevenly distributed across member states. According to these authors, politicization occurs “when issues become salient, when actors polarize their views on these issues, and when they are able to mobilize public opinion accordingly,” which opens possibilities for political reform.¹⁷ However, the challenge of predicting the interactions and evolution of multiple crises further introduces a psychological dimension to the concept of polycrisis. The former European Commission President Jean-Claude Juncker, for instance, famously used the term in a 2016 speech to refer to how such a confluence of challenges is “creating a sense of doubt and uncertainty in the minds of our people.”¹⁸ While the term polycrisis has been used to describe the compound crises of the twenty-first century, it can equally apply to the energy and environment, monetary, and production system crises of the 1970s. During that critical decade and in the midst of uncertainty as to the future of motoring, the car industry sought to formulate an industry-wide policy position to deepen politicization on the environment and energy, both at the national and at the international level.

Prior to the oil price shock in the winter of 1973–1974, the car industries in Western Europe and the United States had enjoyed more than two decades of uninterrupted growth. In addition to economic miracles, Western Europe had also experienced the regional integration of car markets during this period. But in 1973, surging oil prices and slowing economic growth had a severe impact on car markets: demand for passenger cars in Western Europe fell from 9.5 million to 8.2 million between 1973 and 1974 and, in the US, from 11.4 million to 8.7 million for the same years.¹⁹ Consumer preferences changed, and car owners began prioritizing cars with better mileage and quality, in turn paving the way for Japanese manufacturers. Japanese firms captured significant shares of Western markets during this period. As a matter of fact, the Japanese import share of new registrations in Western Europe grew from 3.9 percent in 1973 to 10.4 percent in 1980 and, in the US, from below 1 percent in 1973 to 22.7 percent in 1980.²⁰ On top of the oil price shock and growing Japanese competition, labor conflicts escalated and hollowed out the profits of Western companies even more. The largest companies in Europe—Volkswagen, Ford Europe, GM Europe, Peugeot, Renault, Fiat, and British Leyland—as well as Chrysler in the US recorded low or negative returns in 1974–1975.²¹ Swedish Volvo’s Pehr G. Gyllenhammar called 1974 a “lost year for the car industry” after Volvo’s passenger car division reported falling returns: from 9 percent in 1973 to 3 percent in 1974.²²

The surging price of oil had other, indirect, effects on the car industry. Payments for oil shot up in industrialized countries, causing inflation and deterioration of trade balances. Of the many political and economic implications of the oil shock,²³ two are particularly relevant to understanding the car industry's reaction to the 1976 UNEP seminar. The first was the relatively brief but widespread belief that oil prices would remain high, and that oil would become a scarce resource. At the time, the oil shock seemed to some observers to be a confirmation of the thesis developed in the 1972 book *Limits to Growth*, commissioned by the Club of Rome, according to which natural resources would run out and economic growth with them.²⁴ When oil prices began declining again in the early 1980s, partly because of energy conservation efforts and the failure of the Organization of Oil Exporting Countries (OPEC) to maintain volume and price control, beliefs in the oil shock as confirmation of the *Limits-to-Growth* thesis faded relatively quickly.²⁵ For a brief period in the 1970s, however, narratives asserting that scarce oil resources might put an end to the expansion of motoring and by extension the car industry were common.²⁶ From the perspective of car industry associations, pessimistic narratives spelling out a drastic shift in private mobility were equally, or even more, problematic than were tight oil supply or cost increases. For example, in an evaluation of the public response to the first oil embargo and price shock, the SCIA and the Swedish car retail and trading association argued that the difficulties experienced by the car industry, retailers, and car service stations, such as lower sales, "were not due to the fuel supply being uncertain, but to... the pessimism and uncertainty that prevailed during the period from December 1973 to February 1974." The associations continued, "not least the presentation offered in the press, radio and television contributed to creating the perception of deep and prolonged crisis."²⁷

The second effect of runaway inflation and deteriorating trade balances as consequences of rising oil prices was the birth of energy policy as a policy sector in its own right. Governments consequently developed policies to reduce economy-wide energy demand.²⁸ Car industries feared that governments would implement standards on car's fuel use on top of already existing and challenging regulations. They had been targeted by governmental regulation on the US market in the form of safety standards since 1966 and exhaust emissions standards since 1968, and similar yet laxer regulations in Europe since the beginning of the 1970s.²⁹ Because emissions control technologies generally caused fuel consumption to rise, as did the additional weight caused by added safety features, carmakers began to worry that regulations on fuel use would create conflicting and technical challenges that would be difficult to resolve.³⁰ Whereas some European governments responded to the energy crisis by reducing speed limits, rationing fuel, and temporarily closing traffic on weekends in the short term,³¹ there was in hindsight no implementation of technical regulations requiring energy reduction in the transportation sector in Europe. In the US, however, Congress adopted the 1975 Energy Policy and Conservation Act mandating

carmakers to increase fleet average fuel economy through corporate average fuel economy (CAFE) standards applicable from 1978. Ensuring the significance of lowering energy use in the transportation sector, Congress decided that manufacturers failing to comply with the CAFE standards would be required to pay hefty fines. US manufacturers invested substantial resources in downsizing their models: roughly \$80 billion, of which General Motors alone spent \$45 billion.³²

As environmental policy scholars have documented, in industrialized countries the energy crisis overshadowed, to some extent, the environmental issue.³³ Governments postponed implementation of exhaust emission standards due to growing tensions, but they remained on the political agenda.³⁴ This was the case in the US. Adopted in 1970, the Clean Air Act amendments laid down in law the reduction of car exhaust emissions (carbon monoxide, hydrocarbons, and oxides of nitrogen [NO_x]) by 90 percent until 1975–1976. “With the energy crisis,” as historian Tom McCarthy argued, “fuel economy became the paramount automobile policy goal for the US government,”³⁵ and implementation of the Clean Air Act amendment standards was postponed to the beginning of the 1980s: postponed, but not discarded. In Europe as well, the development of exhaust emission standards became turbulent because governments were arguing among themselves, and governments and industry were fighting about the relative importance of conserving energy versus reducing emissions, as well as about the regulations’ impact on profitability and employment.³⁶ Developments on both sides of the Atlantic were open-ended, but pressure to adapt to regulatory requirements remained. The car industry, therefore, had to navigate a quickly changing economic and regulatory context, creating “a sense of doubt and uncertainty” regarding the industry’s future.

The International Car Industry Federation on Technical Regulations

The international car industry federation BPICA, now the International Organization of Motor Vehicle Manufacturers (OICA), has up until today organized national car industry associations globally. The federation was established in Paris in 1919, and members in 1968 included national car industry associations in Western Europe, Japan, the US, Czechoslovakia, and Yugoslavia.³⁷ Until the 1950s, BPICA’s main line of activities focused on organizing international motor shows and setting common advertising rules. In 1956, BPICA established a technical committee whose main purpose was to monitor and take part in international regulatory and standardization debates within the framework of the UN Economic Commission for Europe (UNECE), specifically in the working group for the construction of vehicles (WP 29).³⁸ WP 29 was composed of government experts from Western and Eastern Europe. Its work aimed at developing internationally standardized template regulations for safety equipment and, later, for emission control technologies that European governments could implement

to improve international trade. Since WP 29's formation in 1952, the member states of the European Economic Community (EEC) actively participated in the working party, specifically car manufacturing countries such as France, Italy, Germany, and the UK. Up until the 1980s, most of the standardized regulations developed within WP 29 were actually implemented as EEC directives, including exhaust emissions regulation. BPICA played an observatory role in WP 29, but frequently took part by offering technical information that government experts used to develop standards. Also from its inception, the US had an observer status in WP 29, while Japan and other non-European car-producing countries such as Australia gained the same position in the 1970s. However, these countries maintained regulatory pathways largely independent of the EEC, while applying regulations more stringent than those employed in Europe.

During the 1960s, the car industry began experiencing problems related to asymmetric regulatory development. As mentioned, the US had begun implementing federal safety and environmental standards for car production, whereas some European governments were also doing so in parallel with the development of international standards in UNECE/WP 29.³⁹ For the European car industries, including subsidiaries of US carmakers, asymmetric regulatory development created technical barriers to trade with negative effects for achieving economies of scale. Toward the end of the 1960s, BPICA thus began lobbying national governments to harmonize regulatory requirements. BPICA pushed for the implementation of uniform testing procedures and measurement methods for similar requirements, for coordinating implementation schedules internationally, and for applying similar stringency requirements in comparable conditions. It did this, for example, by adopting a resolution in 1967 addressed to all countries in Europe and to the US, which argued that "conflicting technical requirements for vehicles create new trade obstacles that e.g., impacts on the production and sales costs." BPICA emphasized that governments should acknowledge the problematic situation and do their utmost to agree on international requirements.⁴⁰ In 1968, the president of BPICA, Rudolfo Biscaretti, wrote to the UN Secretary General U Thant, arguing that "the problems to be solved [concerning road safety] are essentially the same in principle in all countries and for this reason should have solutions [regulatory standards] as similar as possible." Safety regulations, Biscaretti stated, ought therefore to be harmonized across the globe, "to promote safety under economic conditions acceptable to the consumer, by taking full advantage of the benefits of large scale production." Moreover, because WP 29 was supposed to play a central role not only in European regulatory harmonization, but also in coordinating regulatory developments between Europe, the US, and Japan, the BPICA president asked Thant to include "officials from all major manufacturing countries" in WP 29's work, i.e., to allow full membership for non-European producer countries.⁴¹ In 1974, BPICA discussed the need for a global exhaust emission standard, using the same testing procedure but with different stringency levels according to regional needs.⁴² Whereas BPICA's

members agreed on the rationale for global standardization methods for testing and measuring emissions, there was a consensus that the stringency of standards ought to vary depending on the severity of the air pollution problem.⁴³

It is important to point out here that, at least in the view of BPICA, the car industry's main concern was not that governments implemented regulations, whether on safety or emissions. The car industry was the target of significant public criticism in the 1960s and 1970s, specifically in the US but also to some extent in Europe, owing to the high number of deaths and injuries due to car accidents as well as to air pollution related to car use. Public pressure to regulate the industry was strong. Accordingly, for BPICA but also for car industry multinationals, it was challenging to, in the long run, fight off regulations in all markets in which regulations were discussed. As a supporting strategy, BPICA sought to lobby governments to harmonize when possible and coordinate regulatory developments, to push implementation dates, and, especially, to stave off the regulatory initiatives that fell outside the national regulatory spheres of Japan, the US, or that of UNECE/EEC. In the 1960s, the US industry tellingly fought against the adoption of emission standards, first in California, and when that failed, against federal regulations. However, when several states at the same time began threatening to implement their own standards in the late 1960s, the US industry instead started pushing for harmonization and came to support federal regulation to avoid raising trade barriers within the US market.⁴⁴

Politicizing Energy and Environmental Issues at the UN

In 1972, following the UN Conference on the Human Environment in June, the UN General Assembly created the UNEP and appointed Maurice Strong as its Executive Director. A year later, after discussions with his contacts in the ICC, Strong proposed that the UNEP establish an Industry Programme as a means of investigating the environmental problems related to specific industrial sectors. Strong then appointed Baron Léon de Rosen, the president of the French Union of Sugar Manufacturers with leadership experience in international organizations, to lead the Industry Programme.⁴⁵ De Rosen was a devote ecumenical catholic and, between 1965 and 1968, the president of the International Christian Union of Business Executives (UNIAPAC). Caring deeply about the lack of spirituality in the developed countries and the poverty of developing countries, de Rosen argued for a holistic view in solving "the crisis of society," which included the natural environment.⁴⁶ In May 1974, de Rosen drew up the program's first terms of reference, and in July 1974, Strong called together representatives from all industry sectors, including the car industry, at the ICC offices in Paris. BPICA was initially skeptical of UNEP's intentions and plans, pointing out the lack of information on what such a meeting should achieve, whereupon the federation asked its members to exercise caution.⁴⁷

Apart from putting a lot of pressure on and causing uncertainty within the car industry, the energy crisis also led to the politicization of energy and environmental problems, as it became evident that the issues were in technical conflict. Car industries mobilized nationally, focusing on the tradeoffs between energy and environmental goals, while seeking to lobby policymakers to explicitly acknowledge and choose between these goals. For instance, in the fall of 1974, the US car industry offered to improve fuel economy by 40 percent until 1980 in exchange for a five-year moratorium on implementation of the Clean Air Act's car emission standards.⁴⁸ A few months later, the Swedish car industry called on the Swedish Government to make "a holistic assessment of the fuel-engine-environment complex." It argued for long-term planning between regulatory authorities, engine manufacturers, and fuel producers to avoid the risk of wasting limited energy resources and capital investments.⁴⁹ A US federal task force, composed of members of the Department of Transportation, the Environmental Protection Agency, and others, similarly contended that federal car policies needed to strike a balance between consumer preferences, governmental regulations, and manufacturing and finance requirements. "This balancing," the task force stated in 1976, "in many cases, requires trade-offs between conflicting pressures—such as conflicts between automobile size and weight and the need to minimize these factors for optimum fuel efficiency."⁵⁰

Car industries mobilized internationally as well by seeking to formulate a common position on energy and environmental issues. After the meeting in Paris in July 1974, de Rosen contacted BPICA directly during the fall of 1974 and informed them that the UNEP planned to organize a motor vehicle seminar in 1976 and that the Swede Gustav Ekberg had been appointed as expert consultant on cars and the environment.⁵¹ With this new information, BPICA's initial cautious approach to the UNEP transformed into active international policy discussions. Part of the explanation for why BPICA changed its attitude toward the UNEP is that there was now a concrete place and time in which the car industry was supposed to share a common view on the challenges related to energy and the environment with the international community. It is likely that this shift was also related to Ekberg being appointed as an expert. Ekberg was the head of the Swedish National Road Traffic Safety Agency's motor vehicle bureau and participated in several Swedish Government commissioned inquiries related to safety and environmental regulation of cars. He was responsible for setting the tone of the UNEP seminar by summarizing the issues for discussion in an introductory report. Moreover, he was known to BPICA as he had served as Sweden's representative to the WP 29 for two decades. In this role, Ekberg often stood out in the talks on, for example, emission standards, because the Swedish Government was pushing for more stringent standards than most other European governments and BPICA were willing to accept. For instance, Sweden argued that US parity standards be introduced in Europe as well, like what Sweden had done on a national level.⁵² In 1972, as the spokesperson for the

Swedish Government, Ekberg stated to WP 29 that “questions of environmental protection should take precedence over the possible economic consequences of radical lowering of limits.”⁵³

De Rosen had therefore pursued a dual strategy. On one hand, he framed the issues up for discussion at the seminar as a way for the industry to share its expertise in shaping future talks, by specifying that the seminar would discuss “everything concerning nuisances, with the exception of the field of regulations.”⁵⁴ On the other hand, de Rosen chose an expert to set the tone for the seminar who was known for prioritizing the environment over the economy through government regulation-centered solutions. During a significant restructuring of the industry, BPICA wanted to avoid a situation in which pessimistic scenarios regarding the future of motoring or unfettered regulatory fervor would taint the deliberations and outcomes of the UNEP seminar.

BPICA and its members thus decided to develop clear policy positions through international cooperation. Although BPICA’s day-to-day activities were mostly European, these issues were undoubtedly of global relevance. Under the leadership of the US Motor Vehicle Manufacturers Association, BPICA’s member associations in Belgium, France, Italy, Japan, Sweden, West Germany, and the UK began developing policy positions for the entire industry.⁵⁵ After policy discussions in March 1975, BPICA decided to form a permanent committee including representatives from the national associations of these eight countries to discuss issues related to cars and energy, the environment, consumer preferences, and production. The committee was named the Motor Vehicle in Society, and the Swedish association’s president, Jonas Gawell, was appointed its first chair.⁵⁶ In July 1975, de Rosen sent formal invitations to the seminar to executives of international and national car industry associations, car manufacturers, and governments. Along with the invitation, he sent Ekberg’s introductory report and, based on the report, an annotated questionnaire containing over hundred questions regarding air and water pollution, pollution from factories, noise, road traffic accidents, work environment, raw materials, and cars in urban areas.⁵⁷ As its first order of business, the Motor Vehicle in Society committee prepared an industry-wide response to the report and questionnaire.

UNEP’s Political Alienation from the Car Industry

To explain why the car industry came to view the seminar as a failure, it is relevant to study the contents of the information exchange between the UNEP and BPICA taking place in preparation for the seminar. Specifically, it is relevant to look closely at Ekberg’s introductory report “Motor Vehicles and the Environment” and at how he, as the UNEP’s expert consultant on cars and the environment, framed the issues the seminar sought to address. The report and other preparatory documents, including BPICA’s response, provide insights into the positions developed by the UNEP and the internationally organized car industry.

While industry leaders found much of Ekberg's report balanced, they were dissatisfied with some of its incendiary policy positions. The report, in short, applauded governmental regulation to address air pollution and other issues, noting that "many governments have taken forceful steps to control the further growth of vehicle emissions." It also pointed out that US and Japanese regulations "are considerably more severe than European rules."⁵⁸ European rules developed by WP 29 within the UNECE framework were too lenient in Ekberg's view, particularly regarding limits for NO_x emissions. Ekberg supported his point by drawing on an OECD study, which claimed that the role of NO_x emissions from cars was greater in creating photochemical smog in Europe than otherwise reflected in WP 29's discussions.⁵⁹ In relation to a debate on the "desirability" of adopting international emission standards applicable worldwide, Ekberg proposed two sets of standards: one equivalent to the US 1970 Clean Air Act amendment standards, which were also closely mirrored by Japanese regulations, and one equivalent to US standards for 1973/1974, from which Sweden and Australia had developed and adopted their own national variations. He maintained, however, that WP 29 should remain the central body through which "proposals and decisions on internationally unified standards" are made.⁶⁰

In a clear provocation of the European car industry, Ekberg omitted the option of adopting standards like those developed by WP 29, which had been implemented in several European countries, including in all EEC member states. In the eyes of the experts taking part in their development, these standards were meant to accommodate specific European conditions, in which for instance air pollution from cars was not thought to be as problematic as it was in the US. In proposing this two-pronged approach to global standards based on US regulation, Ekberg also quite closely mirrored the Swedish Government's position on car emissions control, which European carmakers had strongly criticized as being too strict for Swedish conditions as well as for their negative impact on the international car trade.⁶¹ Ekberg, moreover, put serious blame on the industry for creating environmental problems: "With some exaggeration one could say that the automobile industrial design has, by its policy of creating structural obsolescence and continual outmoding by fashion, promoted steady pollution of the planet." In assessing its future, Ekberg reinforced the narrative spelling out a radical repurposing of the car industry. The energy crisis in 1973–1974, he claimed, had upset previous estimates of the continued growth of the number of motor vehicles, considering that "economic growth is expected to decrease in the future, that the oil price will remain on a high level and that prices of motor vehicles will rise." Despite these severe structural challenges, Ekberg predicted that the industry should not expect a respite from regulators. Whereas several governments had already issued regulations on exhaust emissions, others would follow, and "severe requirements" on noise abatement were to be expected, Ekberg ensured. "The increasing public interest in the preservation of nature" acted as an incentive, according to Ekberg, "for responsible authorities

to proceed on the [regulatory] road embarked upon.” He went on to state that these “new requirements will necessitate the redesigning of engines and vehicles or their equipment with special devices,” as well as cause prices to increase.⁶² Ekberg summarized the section on the future of the car industry by arguing that the “main tasks for the automobile industry in the future” were to decrease fuel consumption, decrease the consumption of raw materials and energy used in manufacturing, decrease air and noise pollution, and improve car safety.⁶³ Reading the report closely, it is clear that Ekberg indicated that it was governments, not markets, that had assigned these tasks to the industry. In addition, in Ekberg’s view the car industry, seemingly, needed to accomplish all tasks at the same time, despite the industry’s insistence on the technical tradeoffs involved in reducing fuel consumption while controlling pollutant and noise emissions, or increasing vehicle safety.

In its written response, BPICA welcomed the UNEP’s initiative, calling it timely, while arguing that “a comprehensive discussion of all issues relating to the environment, safety, energy and natural resource conservation, and of their relationship with the automobile industry, is necessary and urgent.” BPICA also agreed that the “problems reviewed by Mr. Ekberg” were important, but that “his conclusions in relation to the future of motorization and of the automobile industry are altogether over-pessimistic, and at times founded on disputable assumptions.” BPICA criticized in particular the lack of emphasis on the positive contribution of the industry in creating mobility of persons and goods: “mobility which, on account of the advantages it provides, is generally considered by all sections of the population, as one of the main, if not the chief factor of the quality of life.”⁶⁴ As opposed to Ekberg’s description of the industry as having contributed to promoting “steady pollution of the planet,” BPICA laid the burden on the “responsible town planning and traffic authorities,” as they, when planning urban areas, did not give sufficient consideration to the “foreseeable development of motorization.”⁶⁵ BPICA recognized the negative effects of motorization, such as air and noise pollution, accidents and energy consumption, but maintained that “all environmental-related problems... must be assessed in terms of their interrelationships with others,” in light of the technical conflicts involved.⁶⁶ In principle, BPICA remained supportive of global standardization of methods for analyzing the environmental effects of pollution, noise, and safety regulation as well as for testing procedures under the auspices of WP 29. However, the federation argued that the stringency of emissions standards should depend on local or regional conditions, implying among other things that US regulation should not be adopted in Europe. In its reply to the UNEP questionnaire, it stated: “it would be irrational to apply strict standards internationally... to alleviate ‘worst case’ conditions.”⁶⁷

The report’s clear policy position on global exhaust emission standards as well as regarding the regulatory-driven future development of the car industry’s product and production strategies created an inauspicious framing of the

Motor Vehicle Seminar from BPICA's point of view. Seemingly, the UNEP had effectively alienated BPICA even before the seminar took place, creating mistrust between the industry and UNEP. Another aspect that contributed to creating mistrust concerned the UNEP's own communication regarding its future role in environmental governance of cars. UNEP seemed to trespass on the WP 29's and the World Health Organization's (WHO) territory: bodies that the UNECE and UN had explicitly tasked with handling issues of vehicle construction and global health.

The UNEP's own communication of its function in future environmental governance of the car industry was indeed ambiguous. On the one hand, its statements indicated that the seminar would focus on connecting governments, international organizations, and industry in an effort to exchange information unconditionally. On the other, the fact that UNEP aimed at attracting people from the top echelons of the car industry as well as from governments, and the fact that UNEP indicated that it possibly should play a central role in governing the international aspects of the car industry's environmental impact, had created doubt within the industry. In Maurice Strong's invitation to the car industry in July 1975, he stressed the role of information circulation by noting that the aim of the seminars and the related preparatory studies was to "identify ways and means of improving, at the international level, the human environment" by focusing on technologies, and industrial trends.⁶⁸ In June 1976, however, Léon de Rosen indicated that the seminar aimed at resulting in a national and international division of labor in relation to policies. Writing about UNEP's ambitions for the seminar, de Rosen noted that it should "identify what further actions should be taken at international and national levels, by whom and in what time frame," while considering an agreement regarding the division of tasks that should be the subject of follow-up activities by governments, industry, and relevant international organizations.⁶⁹ In this regard, the UNEP stated that it had "a catalytic role to help coordinate where international action may be necessary, identify gaps and direct activities to organizations where effective action can be taken."⁷⁰ The UN's General Assembly indeed assigned UNEP the role of functioning as a catalyzer, meaning that it should promote, encourage, and guide government action, but not implement or enforce it.⁷¹

Yet, for the car industry and in connection to the seminar, such an explicit statement aligned poorly with what the industry itself had tried to communicate. The important tasks for international organizations in governing car's environmental impact, BPICA noted, were to "identify and monitor nuisance sources and evaluate... their medical and ecological effects" as well as to provide a platform for exchanging "information on pollution sources, accident analysis, studies relating to harmonized designs, measuring methods and testing procedures." In BPICA's view, international organizations such as WP 29 and the WHO were already performing these tasks. Furthermore, it maintained, WP 29's terms of references needed to be changed to allow for broader membership

(full membership for countries outside Europe) and enhanced powers, while its financial and material resources should be substantially increased.⁷² The addition of new organizations would be unnecessary, “and in fact could be counter-productive on an efficiency level.”⁷³

The Seminar and Its Outcomes

When analyzing the preparatory documents for the seminar, UNEP’s framing of the issues for discussion clearly created mistrust in the car industry even before the seminar took place in early October 1976. The exchanges between UNEP and the car industry after the seminar concluded also show that the lack of trust was mutual. In a letter to Léon de Rosen, BPICA’s president Biscaretti argued that the discussions at the seminar had not led to any definite conclusions, mirroring the statements by Pehr G. Gyllenhammar in the introduction to this chapter, as well as the responses from the Italian, Swedish, Japanese, US, and UK car industry associations.⁷⁴ Referring to the Findings and Conclusions document circulated by UNEP, which included statements such as the “earnest recommendations to all governments” to establish maximum noise emission standards, to establish fuel efficiency goals, to introduce mandatory annual inspections, as well as the conclusion that the UNEP “will pursue its catalytic and coordinating role in relation to activities on environmental protection and the motor vehicle,” Biscaretti disputed all of these recommendations and conclusions. He noted, in relation to UNEP’s catalytic role, that BPICA and several of its member associations had indicated that they would oppose such a role prior to the seminar.⁷⁵ Apart from this disagreement over the results, Jonas Gawell’s personal notes also indicate that the practical organization of the seminar was comparably poor.⁷⁶

De Rosen agreed with Biscaretti that the seminar had not enabled definitive conclusions but argued that the industry was to blame owing to BPICA’s member associations being in disagreement: “BPICA had still a long way to go to harmonize viewpoints.” De Rosen did not, however, agree that the seminar had been a failure. The seminar had reached its goals, de Rosen maintained, “to the extent that it has allowed us to take an overall view of the sector, to identify its problems,” and to be aware of the positions of the relevant stakeholders. He ended the letter bitterly by thanking BPICA and its member associations “for a cooperation which was remarkable even though, by your letter, you chose to put an end to it.”⁷⁷ National car industry associations, as de Rosen pointed out, indeed disagreed on many of the policy points, such as in relation to what standards developing countries should adopt. The US and Japanese delegation, for instance, opposed recommending that UNECE emissions regulation be used as a minimum requirement in countries that did not yet have emissions regulation in place because it would give European manufacturers a competitive edge in those countries.⁷⁸ The evidence suggests that national car industry associations were unanimous in their criticism of the strong policy positions set out by the

UNEP prior to the seminar, as well as in their view that the seminar did not reach meaningful conclusions on any policy item. Although de Rosen believed the seminar had been successful, it had little-to-no impact on the international environmental governance of cars and motoring. The UNEP did initiate discussions between a leading expert from the US EPA, Eric Stork, and the Italian chair of WP 29 Giacomo Pocci in 1977, on the issue of standardizing methods for emissions testing, measuring, and analysis on a global basis. Nonetheless, after initial considerations of what parties should finance the studies required for developing a global standard, the discussions stranded.⁷⁹

Nevertheless, the UNEP seminar, in all likelihood, had a catalyzing effect on the car industry's own policy development. The industry was in the middle of a deep sense-making process of thinking about the structural and political impact of the mutually reinforcing crises facing it. It needed to polarize discussions on the future of the car industry as well as on regulation, in opposition to policymakers and doomsayers at national and international levels, but also mobilize forcefully against a potential regulatory development that could make it even more difficult for the industry to escape these crises. For this process the seminar was timely, because it focused attention on broad policy issues that were relevant not just for individual firms or national industries, but also for the industry as a whole. In organizing across national boundaries, industries used the materials produced and the arguments developed in international cooperation as tools for influencing policy developments both nationally and internationally. SCIA, for instance, organized several campaigns during the late 1970s and early 1980s in which the industry aimed at mobilizing public opinion, the goal being to, among other things, convince policymakers to coordinate Sweden's regulatory development with that of Europe.⁸⁰

Conclusions

As this chapter has demonstrated, car company CEOs, the BPICA, and national car industry associations clearly viewed the UNEP seminar as a failure. BPICA's members were already skeptical prior to the seminar, not least owing to UNEP's communication concerning its role in governing cars and the environment as well as the policy position communicated in the seminar's introductory report. Through its major member associations, the federation organized a collective counterattack, notably by establishing the Motor Vehicle in Society Committee to develop policy-relevant material. To explain this development, this chapter has employed the concept of polycrisis. Indeed, the compound crises of the 1970s were at the origin of the "crack" in UN environmental governance. The story told in this chapter situates the energy crisis as one of the most important components of the polycrisis because it, to many, served as a confirmation of the limits-to-growth hypothesis while energy emerged as a policy area in its own right. The uncertainty as to how the various crises would interact,

develop, and affect the business of car manufacturing created additional and powerful incentives for the industry to organize collectively and proactively, both to make sense of its own future and to influence policy. These were major reasons why business leaders, for instance, in the car industry, began mobilizing against what they considered to be pessimistic narratives about limits as well as against the contemporary connection between limits and forceful government regulation. Moreover, the energy crisis restructured the thinking on regulation of the environmental impact of cars. Before the first oil price shock, better emissions control and safer vehicles could be pursued primarily with consideration to industry profitability and vehicle performance, but without conflicting with energy policy. After the oil price shock, energy emerged as a new salient political issue next to air pollution control and safety issues. Before the energy crisis, governments were primarily in charge of planning the rate at which the car industry was to become cleaner or safer. After the crisis, the role of governments changed, and regulators increasingly had to accept business-driven solutions to solving the tradeoffs of energy, environment, safety, and profitability. The politics of regulating the industry was thus complicated by the addition of energy as a new dimension to the environment-safety-profitability mix, bringing about even more political conflicts concerning what goals to prioritize. As the UNEP seminar reveals, the emergence of this new dynamic was not immediately evident to all actors. Thus, in his introductory report, Gustav Ekberg, the UNEP expert on cars and the environment, seemingly maintained that governments alone could command cleaner, safer, and more energy efficient vehicles without having to account for the technical tradeoffs involved.

This is not to suggest that self-governance became the new norm in the car industry, which is probably still one of the industries most regulated by mandatory standards.⁸¹ Contrary to what Bergquist and David have shown in relation to the ICC's position on industry self-regulation, the car industry never advocated for a complete overturn of the existing regulatory regime. In an oligopolistic business such as car manufacturing, regulations helped keep new competitors out of the market. Moreover, the negative externalities of motoring, relating to air pollution and car accidents, generated strong public pressure on governments to continue to regulate cars. Nevertheless, car manufacturers could exploit the emergent crack in global environmental governance by requiring regulators to take into consideration a more complex mix of requirements, thereby positioning themselves as even more important experts and stakeholders at the center of regulatory development. While it cannot be argued that the many crises of the 1970s were necessary or sufficient conditions for the shift in global environmental governance between 1972 and 1992, the case explored here reveals that they created misalignment in the established regime governing cars and the environment. For business, the polycrisis acted as a starting point for organizing internationally and was used to demonstrate to regulators the need for change.

Notes

- 1 I wish to thank the volume editors and Grace Ballor for their constructive comments on earlier versions of this chapter.
- 2 Letter from Maurice F. Strong to Sven Gerentz 25 July 1975, Part 1, UNEP Bilseminarium 1976, Archives of the Swedish Car Industry Association (hencefort ASCIA).
- 3 Letter from Pehr G. Gyllenhammar to Kurt Waldheim 2 November 1976, Part 5, UNEP Bilsseminarium 1976, ASCIA.
- 4 Ann-Kristin Bergquist and Mattias Näsman, “Safe Before Green! The Greening of Volvo Cars in the 1970s–1990s,” *Enterprise and Society* 24, no. 1 (2023): 59–89.
- 5 In addition to Bergquist and Näsman, “Safe Before Green,” see, Robert W. Crandall, Howard K. Gruenspecht, Theodore E. Keeler and Lester B. Lave, *Regulating the Automobile* (The Brookings Institution, 1986).
- 6 For a discussion on this, see Mattias Näsman, “The Political Economy of Emission Standards: Politics, business and the making of Swedish and European emission standards, 1960–1980s” (PhD diss., Umeå University, 2021), 8.
- 7 Letter from Pehr G. Gyllenhammar to Kurt Waldheim 2 November 1976, Part 5, UNEP Bilsseminarium 1976, ASCIA.
- 8 Seminars were conducted for the pulp and paper industry (Paris, March 1975), aluminum (Paris, October 1975), motor vehicles (Paris, December 1976), agriculture, (Rome, January 1977), petroleum (Paris, March 1977), iron and steel (Geneva, October 1978) and the chemicals industry (Geneva, May 1979).
- 9 Ben Huf, Glenda Sluga, and Sabine Selchow, “Business and the Planetary History of International Environmental Governance in the 1970s,” *Contemporary European History* 31 (2022): 553–569.
- 10 Huf, Sluga, and Selchow, “Business and the Planetary History of International Environmental Governance in the 1970s,” 566–567.
- 11 Ann-Kristin Bergquist and Thomas David, “Beyond Planetary Limits! The International Chamber of Commerce, the United Nations, and the Invention of Sustainable Development,” *Business History Review* 97, no. 3 (2023): 481–511.
- 12 Bergquist and David, “Beyond Planetary Limits! The International Chamber of Commerce, the United Nations, and the Invention of Sustainable Development,” 509.
- 13 Steven Bernstein, “Liberal Environmentalism and Global Environmental Governance,” *Global Environmental Politics* 2, no. 3 (2002): 1–16.
- 14 Näsman, “Political Economy of Emission Standards.”
- 15 Näsman, “Political Economy of Emission Standards.” See specifically, 36–39.
- 16 Such as the simultaneous crises of the COVID-19 pandemic, the war in Ukraine, and climate change. See, e.g., Adam Tooze, *Shutdown: How Covid Shook the World’s Economy* (Viking, 2021).
- 17 Jonathan Zeitlin, Francesco Nicoli, and Brigid Laffan, “The European Union beyond the Polycrisis? Integration and Politicization in an Age of Shifting Cleavages,” *Journal of European Public Policy* 26, no. 7 (2019): 963–976, here 964.
- 18 Zeitlin et al., “The European Union beyond the Polycrisis? Integration and Politicization in an Age of Shifting Cleavages,” 973, fn. 1.
- 19 World Motor Vehicle Data 1982, Motor Vehicle Manufacturers Association of the United States [MVMA], 32.
- 20 World Motor Vehicle Data 1992, MVMA, 122, 348, 353.
- 21 Daniel T Jones, *Maturity and Crisis in the European Car Industry: Structural Change and Public Policy* (SERC, 1981), 93.

- 22 Translated by the author. Volvo annual report 1974, *Vardagstryck*, Swedish Royal Library, 3, 9.
- 23 See, e.g., Elisabetta Bini, Giuliano Garavini, and Federico Romero, eds., *Oil Shock: the 1973 Crisis and Its Economic Legacy* (I.B. Tauris, 2016).
- 24 Donella H. Meadows, Dennis L. Meadows, Jørgen Randers, and William Behrens III, *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (Universe Books, 1972).
- 25 Henry C. Wallich, "The Limits to Growth Revisited," *Challenge* 25, no. 4 (1982): 36–42. See also Odinn Melsted's chapter in this volume.
- 26 See, Alan Altshuler and James Womack, *The Future of the Automobile: The Report of MIT's International Automobile Program* (MIT Press, 1984), 48.
- 27 Translated by the author. "Energiberedskapsutredningen, hearing," *Styrelsemeddelande* 48/1974, ASCIA, 1–2.
- 28 Thomas C. Hoerber, *The Origins of Energy and Environmental Policy in Europe: The Beginnings of a European Environmental Conscience* (Routledge, 2013).
- 29 See Näsman, "Political Economy of Emission Standards," 206–208.
- 30 See Näsman, "Political Economy of Emission Standards," 206–208.
- 31 See SOU 1975:60, *Energiberedskap för kristid* (Ministry of Commerce, 1975), 101–105.
- 32 Jones, *Maturity and Crisis*, 9.
- 33 Miranda A. Schreurs, *Environmental Politics in Japan, Germany, and the United States* (Cambridge University Press, 2002), 60–61.
- 34 Näsman, "Political Economy of Emission Standards," 229; David Gerard and Lester B. Lave, "Implementing Technology-Forcing Policies: The 1970 Clean Air Act Amendments and the Introduction of Advanced Automotive Emissions Controls in the United States," *Technological Forecasting and Social Change* 72 (2005): 761–778.
- 35 Tom McCarthy, *Auto Mania: Cars, Consumers, and the Environment* (Yale University Press, 2007), 217.
- 36 See Näsman, "Political Economy of Emission Standards," Chapter 10.
- 37 "Copy of the letter sent by the President of B.P.I.C.A to the Secretary General, United Nations," attached to tekniskt meddelande 53/1968, ASCIA.
- 38 Sveriges Automobilindustriförening, *Verksamhetsberättelse* 1958, ASCIA, 4.
- 39 Näsman, "Political Economy of Emission Standards."
- 40 Translated by the author. Board minutes 24 August 1967, ASCIA, 1–3.
- 41 "Copy of the letter sent by the President of B.P.I.C.A to the Secretary General, United Nations," attached to tekniskt meddelande 53/1968, ASCIA.
- 42 "BPICA:s höstsammanträde 1974," attached to tekniskt meddelande 97/1974, ASCIA, 1.
- 43 Näsman, "Political Economy of Emission Standards."
- 44 James E. Krier and Edmund Ursin, *Pollution and Policy – A Case Essay on California and Federal Experience with Motor Vehicle Air Pollution 1940–1975* (University of California Press, 1977), 173–183.
- 45 The UNEP's early history and its relationship to private industry is explored in Huf et al., "Business and the Planetary."
- 46 Léon de Rosen, "The World of Business and the Church," *Ecumenical Review* 37, no. 1 (1985): 47–52. Here, page 51.
- 47 Board minutes 5 June 1974, ASCIA, 10.
- 48 McCarthy, *Auto Mania*, 217.
- 49 Translated by the author. "Energiberedskapsutredningen, hearing," *Styrelsemeddelande* 48/1974, ASCIA, 5.
- 50 Interagency Task Force on Motor Vehicle Goals Beyond 1980, *The Report by the Federal Task Force on Motor Vehicle Goals Beyond 1980: Executive summary* (Washington D.C.: Department of Transportation, 1976), 6.

- 51 "BPICA:s höstsammanträde 1974," attached to tekniskt meddelande 97/1974, ASCIA, 2.
- 52 See Näsman, "Political Economy of Emission Standards."
- 53 "Report of the Working Group of Rapporteurs on Air Pollution (GRPA) on Its Eighth Session," box 97, internationella sekretariatet, dossier F2, Kommunikationsdepartementets arkiv, Swedish National Archives, 4.
- 54 "BPICA:s höstsammanträde 1974," attached to tekniskt meddelande 97/1974, ASCIA, 4–5.
- 55 "BPICA:s höstsammanträde 1974," attached to tekniskt meddelande 97/1974, ASCIA, 2–3.
- 56 "Världskongress med bilindustrin om FN:s miljövårdsprogram," *Motorbranschen* 12/75, 624.
- 57 Board minutes 3 September 1975, ASCIA, 3; Sveriges bilindustri- och bilgrossistförening, Verksamhetsberättelse 1975, ASCIA, 27.
- 58 "Motor Vehicles and Environment. Introductory Report Prepared for UNEP by Gustav Ekberg, Sweden," Part 3, UNEP Bilseminarium 1976, ASCIA, 5 and 6.
- 59 "Motor Vehicles and Environment. Introductory Report Prepared for UNEP by Gustav Ekberg, Sweden," Part 3, UNEP Bilseminarium 1976, ASCIA, 10.
- 60 "Motor Vehicles and Environment. Introductory Report Prepared for UNEP by Gustav Ekberg, Sweden," Part 3, UNEP Bilseminarium 1976, ASCIA, 11.
- 61 On the development of European standards and European carmakers position on Swedish regulations, see Näsman, "Political Economy of Emission Standards."
- 62 "Motor Vehicles and Environment. Introductory Report Prepared for UNEP by Gustav Ekberg, Sweden," Part 3, UNEP Bilseminarium 1976, ASCIA, 53.
- 63 "Motor Vehicles and Environment. Introductory Report Prepared for UNEP by Gustav Ekberg, Sweden," Part 3, UNEP Bilseminarium 1976, ASCIA, 55.
- 64 "BPICA Reply to the Questions Raised in the U.N.E.P. Questionnaire," Part 2, UNEP Bilseminarium 1976, ASCIA, 3.
- 65 "BPICA Reply to the Questions Raised in the U.N.E.P. Questionnaire," Part 2, UNEP Bilseminarium 1976, ASCIA, 4.
- 66 "BPICA Reply to the Questions Raised in the U.N.E.P. Questionnaire," Part 2, UNEP Bilseminarium 1976, ASCIA, 7.
- 67 "BPICA Reply to the Questions Raised in the U.N.E.P. Questionnaire," Part 2, UNEP Bilseminarium 1976, ASCIA, 10–12.
- 68 Letter from Maurice F. Strong to Sven Gerentz 25 July 1975, Part 1, UNEP Bilseminarium 1976, ASCIA.
- 69 Letter from Léon de Rosen to Sven Gerentz 10 June 1976, "UNEP Motor Vehicle Seminar," Part 1, UNEP Bilseminarium 1976, ASCIA.
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- 73 "BPICA reply to the questions raised in the U.N.E.P. questionnaire," Part 2, UNEP Bilseminarium 1976, ASCIA, 13.
- 74 Letters to de Rosen found in, Part 5, UNEP Bilseminarium 1976, ASCIA. See also the various associations' comments, annexed to "Final report of the Motor Vehicle Seminar," Part 6, UNEP Bilseminarium 1976, ASCIA.
- 75 Letter from Rudolfo Biscaretti to Léon de Rosen 7 December 1976, Part 5, UNEP Bilseminarium 1976, ASCIA.

- 76 Jonas Gawell, personal notes 4 October 1976, “Angående UNEP-seminariet,” Part 6, UNEP Bilseminarium 1976, ASCIA.
- 77 Letter from Léon de Rosen to Rudolfo Biscaretti 27 December 1976, Part 5, UNEP Bilseminarium 1976, ASCIA.
- 78 See annex I to “Final report of the Motor Vehicle Seminar,” Part 6, UNEP Bilseminarium 1976, ASCIA, 2–3.
- 79 See documents, “TSV ang WP 29 – rapport,” tekniskt meddelande 17/1978, ASCIA; “Rapport från ECE:s rapportörgrupp för bilavgaser,” tekniskt meddelande 18/1978, ASCIA, 6; and “Aktuellt inom WP29 och BPICA:s tekniska kommitté,” tekniskt meddelande 66/1981, ASCIA, annex 1, 3.
- 80 See Näsman, “Political Economy of Emission Standards,” Chapters 9 and 10.
- 81 ACEA, *The Automotive Regulatory Guide* (ACEA, 2023). <https://www.acea.auto/files/ACEA-Regulatory-Guide-2023.pdf>. Accessed 26 August 2024.