Progress versus Precaution: International Organizations and the Use of Pesticides, 1940s to 1970s

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ABSTRACTS

This article investigates how international organizations responded to the increased use of synthetic pesticides in the decades after WWII. It does so by analyzing and comparing the debates that took place among experts in the International Labour Organisation, the Food and Agriculture Organization, the World Health Organization, and the European Economic Community. As the archives of these organizations reveal, knowledge on the potential risks of pesticide use existed amongst international expert groups already from the late 1940s onwards, much earlier than commonly assumed. The new chemicals were discussed at various international meetings, and scientific evidence circulated that highlighted the multi-faceted risks of pesticide use and their toxic residues. Yet international bodies downplayed these risks and put the users in charge of their own safety. It was only in the late 1960s, in the context of the Common Agricultural Policy for predominantly economic reasons, that the European Commission took steps towards the establishment of a regulatory framework.

Dieser Artikel geht der Frage nach, wie sich Internationale Organisationen in den Jahrzehnten nach dem Zweiten Weltkrieg zum zunehmenden Einsatz synthetischer Pestizide verhielten. Dazu analysiert und vergleicht der Artikel Debatten, an denen Experten der Internationalen Arbeitsorganisation, der Ernährungs- und Landwirtschaftsorganisation, der Weltgesundheitsorganisation und der Europäischen Wirtschaftsgemeinschaft beteiligt waren. Wie die Archive dieser Organisationen zeigen, existierte in internationalen Expertengremien Wissen über die potentiellen Risiken des Pestizideinsatzes bereits seit den späten 1940er Jahren, deutlich früher

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als gemeinhin angenommen. Die neuen Chemikalien wurden bei verschiedenen internationalen Treffen diskutiert, und wissenschaftliche Ergebnisse waren im Umlauf, die die vielfältigen Risiken des Pestizideinsatzes und der entstehenden Giftrückstände hervorhoben. Doch internationale Experten spielten diese Risiken herunter und machten die Nutzer der Pestizide für ihre eigene Sicherheit verantwortlich. Erst in den späten 1960er Jahren, im Kontext der Gemeinsamen Agrarpolitik und aus vorwiegend wirtschaftlichen Gründen, unternahm die Europäische Kommission erste Schritte zur Etablierung eines regulatorischen Rahmens für die Pestizidnutzung.

1. Introduction

In many parts of the world, both capitalist and socialist, the decades after World War II were a time of massive growth, characterized by the rise of consumer society, and the harnessing of technology for productivity.[1] Against the background of war-time experiences with food shortages and increasing food prices, many industrial countries turned to industrial agronomic approaches that relied on the use of chemical inputs to increase agricultural yields and achieve food security.[2] Synthetic pesticides, rendered more popular thanks to military research conducted in the context of the world wars, soon gained large civil importance and led to far-reaching agrarian transformations.[3] Following World War II, some of these new products, most infamously DDT, became extremely popular in the United States and were soon applied all over Western Europe, with a range of companies competing for markets.[4] The new chemicals also came to be seen as key ingredients to the success of global anti-malaria programmes and agricultural intensification efforts in so-called developing countries (at least those that could afford them).[5]

1 N. Chernyshova, Soviet Consumer Culture in the Brezhnev Era, London 2013; N. F. R. Crafts, The Great Boom: 1950–73, in: M. Schulze (ed.), Western Europe, Economic, and Social Change since 1945, London 1999, pp. 42–62; J. Fourastie, Les Trente Glorieuses ou la révolution invisible de 1946 à 1975, Paris 1979; M. Landsman, Dictatorship and Demand: The Politics of Consumerism in East Germany, Cambridge, MA 2005; C. S. Maier, "Malaise": The Crisis of Capitalism in the 1970s, in: N. Ferguson et al. (eds.), The Shock of the Global: The 1970s in Perspective, Cambridge, MA 2010, pp. 25–48; P. H. Patterson, Bought and Sold: Living and Losing the Good Life in Socialist Yugoslavia, Ithaca 2012; C. Pfister, "The 1950s Syndrome" and the Transition from a Slow-Going to a Rapid Loss of Global Sustainability, in: F. Uekötter (ed.), Turning Points of Environmental History, Pittsburgh 2010, pp. 90–118.

2 A. Bauerkämper, The Industrialization of Agriculture and Its Consequences for the Natural Environment: An Inter-German Comparative Perspective, in: Historical Social Research 29 (2004), pp. 124–149; C. Martiin/J. Pan-Montojo/P. Brassley (eds.), Agriculture in Capitalist Europe, 1945–1960: From Food Shortages to Food Surpluses, New York 2016; J. L. Smith, Works in Progress: Plans and Realities on Soviet Farms, 1930–1963, New Haven 2014; S. Wengle, Black Earth, White Bread: A Technopolitical History of Russian Agriculture and Food, Madison 2022.

3 D. Kinkela, DDT and the American Century: Global Health, Environmental Politics, and the Pesticide That Changed the World, Chapel Hill 2011; F. A. von Hippel, The Chemical Age: How Chemists Fought Famine and Disease, Killed Millions, and Changed Our Relationship with the Earth, Chicago 2020.

4 See K. Bugow, The Role of Multinational Companies in the Green Revolution, 1960s and 1970s, PhD dissertation, Jacobs University Bremen, 2021, http://nbn-resolving.org/urn:nbn:de:gbv:579-opus-1009519.

5 E. D. Carter, "God Bless General Perón": DDT and the Endgame of Malaria Eradication in Argentina in the 1940s, in: Journal of the History of Medicine and Allied Sciences 64 (2008) 1, pp. 78–122; M. Cueto, Cold War, Deadly Fevers: Malaria Eradication in Mexico, 1955–1975, Washington, DC 2007; J. L. A. Webb Jr., The First Large-Scale Use of Synthetic Insecticide for Malaria Control in Tropical Africa: Lessons from Liberia, 1945–1962, in: Journal of the History of Medicine and Allied Sciences 66 (2011) 3, pp. 347–76.

Most historical accounts have identified the 1960s as a turning point in how the benefits versus the risks of synthetic pesticides were perceived internationally. They have emphasized the role of American experts in raising awareness about the dangers associated with the use of these chemicals. The 1962 publication of Rachel Carson's ecological manifesto *Silent Spring* is generally considered the defining moment in the debate, leading to growing popular awareness about the ecological and health issues arising from the large-scale use of pesticides.[6] Generally, the "environmental turn" within international organizations has been associated with the UNESCO biosphere conference of 1968 and the 1972 United Nations Conference on the Human Environment in Stockholm.[7]

More recently, historians have started to revisit this narrative and its periodization by proposing more differentiated temporal, material, political, and social analyses. The political contexts and the environmental and social risks that accompanied the growing use of synthetic pesticides in the second half of the twentieth century in Western Europe and in the United States have come under scrutiny.[8] New studies have shown how farmers and local people in Europe's rural regions who were in direct contact with the new chemicals became aware of the ecological and health risks much earlier than originally assumed. For example, from the 1930s onward, Norwegian beekeepers observed the impacts of pesticides, raising alarm about problematic ecological effects.[9] In Spain, knowledge about toxic exposure circulated through press reports in the 1920s and 1930s, contributing to changes in how pesticides were applied and to the passing of some (limited) legislation.[10] Yet at the time there was no scientific agreement regarding the causal

6 R. Carson, Silent Spring, Houghton 1962; B. Berry, Banning DDT: How Citizen Activists in Wisconsin Led the Way, Madison 2014; Kinkela, DDT and the American Century; J. E. McWilliams, American Pests: The Losing War on Insects from Colonial Times to DDT, New York 2008.

7 See, for example, I. Borowy, Defining Sustainable Development for Our Common Future: A History of the World Commission on Environment and Development (Brundtland Commission), London 2014; A. Grieger, Only One Earth: Stockholm and the Beginning of Modern Environmental Diplomacy, in: Arcadia 10 (2012), https://doi.org/10.5282/rcc/3867; W. Kaiser/J.-H. Meyer, International Organizations and Environmental Protection: Conservation and Globalization in the Twentieth Century, New York 2017. For a study that goes back much further in time, see A.-K. Wöbse, Weltnaturschutz: Umweltdiplomatie in Völkerbund und Vereinten Nationen, 1920–1950, Frankfurt am Main 2012.

8 For a review of the new literature on pesticides, see J. R. Bertomeu-Sánchez, Introduction. Pesticides: Past and Present, in: HoST – Journal of History of Science and Technology 13 (2019) 1, pp.1–27. Also G. M. Cook, "Spray, Spray, Spray!": Insecticides and the Making of Applied Entomology in Canada, 1871–1914, in: Scientia Canadensis 22 (1998/99), pp. 7–50; H. Gay, Before and After Silent Spring: From Chemical Pesticides to Biological Control and Integrated Pest Management – Britain, 1945–1980, in: Ambix 59 (2012) 2, pp. 88–108; N. Jas, Public Health and Pesticide Regulation in France Before and After Silent Spring, in: History and Technology 23 (2007) 4, pp. 369–388; A. Palmieri, Environmental Imperialism in Sardinia: Pesticides and Politics in the Struggle Against Malaria, in: M. Armiero/M. Hall (eds.), Nature and History in Modern Italy, Athens, Ohio 2010, pp. 70-86; L. Straumann, Nützliche Schädlinge: Angewandte Entomologie, chemische Industrie und Landwirtschaftspolitik in der Schweiz, 1874–1952, Zurich 2005; J. Whorton, Before Silent Spring: Pesticides and Public Health in Pre-DDT America, Princeton 1974. Also see the conference Silent Springs: Global Histories of Pesticides and Our Toxic World(s), Rachel Carson Center, https://www.carsoncenter.uni-muenchen.de/events_conf_seminars/calendar/161022_silent_springs/silent-springs-program.pdf (last accessed 14 October 2022).

9 A. J. Frøyen, Influencing for Results: Bees, Beekeepers and Norwegian Pesticide Legislation, in: HoST – Journal of History of Science and Technology 13 (2019) 1, pp. 28–50.

10 X. Guillem-Llobat, Following Hydrogen Cyanide in the Valencian Country (1907–1933): Risk, Accidents and Standards in Fumigation, in: HoST – Journal of History of Science and Technology 13 (2019) 1, pp. 51–75.

links between pesticides and their impact on humans, insects, birds and wildlife, and the environment more generally.[11] The relevant knowledge emerged only in later years and decades, and even then it did not necessarily translate into policy changes immediately.
For the most part, the historical studies that focus on the rising awareness and changing mentalities toward pesticide use are framed in national terms and follow national debates.[12] Curiously, despite the exponential growth of historical accounts on international organizations and transnational governance, and an increasing scholarly interest in health, food and environmental risks, the scientific discussions and policy debates on pesticides within international institutions have not yet been the object of in-depth analysis.[13] One of the reasons for this lack of research is that some of the relevant archives, especially with regard to materials on agriculture and the postwar era, and company archives in particular, remain difficult to access. Furthermore, the available body of sources is highly fragmented. This has resulted, as an author recently suggested, in pesticides being "invisibilized" in the history of international organizations.[14]
Assuming that international organizations were crucial political actors in the second half of the twentieth century, we aim to render the history of international pesticide governance more visible, especially in the early postwar decades. In line with current historical research, we look at how international organizations framed the problem of intensified pesticide application. We discuss the contributions of these institutions to the (still ongoing) controversy over the toxicity of pesticides, and look at how they initiated, encouraged, or hindered the circulation of knowledge about potential risks. Specifically, we examine these debates through the archives of several international organizations that dealt with these issues in the mid-twentieth century: the International Labour Organization (ILO), the World Health Organization (WHO), the Food and Agricultural Organization (FAO), and the European Economic Community (EEC) and the European Community (EC), respectively.
As we argue in the following, the archives of these organizations offer insights into the relatively early awareness of the health, environmental, and ecological risks of pesticides among international actors, and they show how international actors framed and responded to the risks they (or the experts advising them) identified. We show that the discussions about the use and regulation of synthetic pesticides can be analyzed along

11 S. Suryanarayanan/D. L. Kleinman, Be(e)coming Experts: The Controversy over Insecticides in the Honey Bee Colony Collapse Disorder, in: Social Studies of Science 43 (2012) 2, pp. 215–240.

12 Carter, "God Bless General Perón"; Cueto, Cold War, Deadly Fevers; Webb, The First Large-Scale Use of Synthetic Insecticide for Malaria Control in Tropical Africa.

13 One exception is the work on the international governance of toxic chemicals by Nathalie Jas. See N. Jas, Gouverner les substances chimiques dangereuses dans les espaces internationaux, in: D. Pestre (ed.), Le Gouvernement des technosciences: gouverner le progrès et ses dégâts depuis 1945, Paris 2014, pp. 31–65; S. Boudia/N. Jas, Gouverner un monde toxique, Paris 2019. See also A.-K. Wöbse, "The world after all was one": The International Environmental Network of UNESCO and IUPN, 1945–1950, in: Contemporary European History 20 (2011) 3, pp. 331–348, pp. 345–346; A. N. H. Craeger/J.-P. Gaudillière (eds.), Risk on the Table: Food Production, Health and the Environment, New York 2021.

14 Bertomeu-Sánchez, Introduction, p. 10.

four discursive approaches that we have identified in the primary sources. We call them a) the calculated risk approach; b) the judicious choices approach; c) the improvement of humankind's well-being approach; d) the balancing risks and benefits approach. Each of these approaches emerged during a specific period, though all of them overlapped and blended over time. The calculated risk approach corresponds to the period from the late 1940s to the mid-1950s, with some aspects stretching into the early 1960s. The judicious choices approach was predominant from the late 1950s to the early 1960s. The early and mid-1960s were the high time of the improvement of humankind's well-being approach, which, toward the end of the 1970s, was challenged by the balancing risks and benefits approach. We will return to these approaches and assess their broader historical meaning in the conclusion.

2. Calculated Risk: From Protecting the Workers to Workers' Self-protection, ca. 1949–1962

Amid the flurry of international organizations that emerged in the twentieth century, the International Labour Organization (hereafter ILO) was one of the first agencies to concern itself with the new problems posed by pesticides in agriculture.[15] This might seem surprising at first sight but can be explained by the ILO's long historical pedigree. Founded in 1919, the organization in its early years had acquired expertise in dealing with agricultural labour conditions, addressing such issues as the protection of women and children working on farms, the limitations of working hours, and the provision of social insurance for agricultural workers.[16] The ILO also had considerable experience in formulating international conventions for protecting industrial workers from toxic and hazardous elements in industry.[17] This experience explains the ILO's relatively early concern about the effect pesticides would have on occupational health in farming.

Starting in the late 1940s, the International Labour Office in Geneva began to request information from member governments on "the new health hazards" posed by "agricultural chemicals" (the term pesticides would only come into use a few years later).[18] As the ILO records show, this was a new field of scientific research. At the time it was starting to appear in medical and chemical journals, and it was slowly coming to the attention of

15 For recent historical studies on the ILO, see for example S. Kott/J. Droux (eds.), Globalizing Social Rights: The International Labour Organization and Beyond, Basingstoke 2013; D. Maul/J. Van Daele (eds.), ILO Histories: Essays on the International Labour Organization and its Impact on the World in the Twentieth Century, Bern 2010; V. Plata Stenger, Social Reform, Modernization and Technical Diplomacy: The ILO Contribution to Development (1930–1946), Berlin 2020.

16 A. Ribi Forclaz, A Bed, and a Cover, and Possibly a Pillow: Improving the Living Conditions of Agricultural Workers in the Interwar Years, in: Capitalism: A Journal of History and Economics 3 (2022) 1, pp. 136–159.

17 On industrial medicine, see the work by T. Roux (ed.), Risques industriels. Savoirs, régulations, politiques d'assistance, fin XVIIe-début XXe siècle, Rennes 2016.

18 ILO Archives, SH 4-2 Jacket 1 (Occupational safety and occupational health. Agriculture General, 1949–1952).

government administrators, especially in the United States but also in Western Europe.[19] Although questions of safety had been raised at national and local levels since the early twentieth century, until the 1950s there was a general disinterest in the occupational health of people working in agriculture, and the toxic risk they faced as a result of the exposure to increasing use of new chemicals remained largely invisible.[20] If at all, toxicity and poison residues were seen as a problem for urban people and consumers. By looking into the link between pesticides and human health from the perspective of a specific occupational group, the ILO began to render visible a set of social issues that could potentially highlight the fault lines of agricultural modernization, as it was framed at the time. Framing the issue of pesticides as an issue of occupational health also meant that it fell under the mandate of other organizations such as the WHO. In 1950, the ILO formed the Joint Committee on Occupational Health in Agriculture with its newly established sister organization, inviting ten experts to represent both institutions. The goal was to inquire into the effects of modern industrial production methods on the health and life expectancy of workers "in view of recommending measures of prevention".[21] In an early meeting held in 1952, the committee posited that "poisoning caused by fertilizers, insecticides, fungicides" was one of the "major health problems" that agricultural workers were facing.[22] The use of pesticides, the committee emphasized, "had undergone a dramatic increase," and "highly toxic" products resulted sometimes in "fatal poisonings", leading the committee to consider protection measures for workers.[23]

However, within the committee expert opinions diverged on how much attention should be attributed to the health of farmers and people working in agriculture. Whereas the ILO was concerned with workers' exposition to toxic products, the WHO weighed the benefits and risks of pesticides to public health more generally. A report prepared as a guidance to the Director General on request of the WHO and submitted by one of its own medical consultants outlined how the benefits of pesticides largely outweighed their negative effects. As the author posited, the value of pesticides in disease control and crop protection was "irrefutable". The report highlighted how so-called "chemical control" used to combat not only malaria but also locusts and grasshoppers in Greece and Italy between 1945 and 1950 had been extremely effective. Problems of toxicity were largely downplayed; the report stated that all pesticides were safe if handled correctly. Incidents involving agricultural workers in Brazil and Egypt dying in the fields following pesticide use were dismissed as "unfortunate" and attributed to the wrong application of the che-

19 See bibliography with articles on "toxic chemicals", all published around 1949–1952. ILO Archives, SH 4-2 Jacket 1. It is interesting to note that the term "pesticides" did not appear in these early discussions but rather the discourse was about "toxic substances", "toxic chemicals", or "agricultural chemicals."

20 J. R. Bertomeu-Sánchez, Arsenical Pesticides in Early Francoist Spain: Fascism, Autarky, Agricultural Engineers and the Invisibility of Toxic Risks, in: HoST – Journal of History of Science and Technology 13 (2019) 1, pp. 76–105.

21 ILO-WHO Joint Committee on Occupational Health, first session 1950, ILO Archives J.E.c.l.H/IhO/Rev 2, September 1950, ILO Archives, J.C.O.H/II/3.

22 J.-M. Barnes of the Division of Environmental Sanitation, Problems of Industrial Medicine in Agriculture (ILO–WHO Joint Committee on Occupational Health, 2nd session, October 1952, ILO Archives, J.C.O.H/II/3.

23 A more detailed discussion of this expert commission will be the subject of a future project.

micals.[24] As the author underlined, illiteracy and "low education" rather than the toxicity of the chemicals were to blame for such occurrences. In conclusion, the expert strongly advocated that the WHO and ILO should adopt "a policy of calculated risk" according to which pesticides would be used freely but "sufficiently under control" so that "in the event of an unforeseen tragedy or threat to life and health its use may be curtailed at short notice".[25]

Ten years later, the views of the committee had become even more tempered. During its fourth session, in 1962, the members of the committee were still talking about poisoning but emphasized the need of distinguishing "dangerous" pesticides "from less dangerous ones". Financial and economic interests dominated the discourse of the value and gains of chemical control versus the disadvantages and potential health risks. As the committee put it, "the benefits arising from the [use of pesticides] may affect a whole community by increasing its wealth".[26] Some experts went even so far as to argue that, although there was "a trend towards developing less toxic pesticides", "cost may be considered more important than safety in selecting those to be used". With regard to potential dangers posed to people in direct contact with the chemicals, those were now relegated to a side issue and the risk was relativized. As the committee posited, accidents by farmers and agricultural workers due to the use of mechanical equipment outnumbered those of poisoning.[27] The conclusion was that "all pesticides can be used safely, but the cultural and educational background necessary may be lacking in some areas."[28] To deal with the risks posed by pesticide use, the Committee recommended "administrative control" through a toxicology department that would be familiar with the newest literature and could provide advice in case of poisoning. Last but not least, through "intensive health education" farmers should be "made aware of the hazardous nature" of the chemicals they were handling and they should be trained to protect themselves.[29]

In this spirit of rendering the agricultural worker responsible for his or her own health, by the late 1950s the International Labour Office embarked on putting together a code of practice that would serve as a guideline on occupational health in agriculture. This detailed and wide-reaching document published for the use of governments and industries covered multiple aspects of farm work, from the safety of farm buildings to the use of machines to transport equipment and provisions of land clearance, with a short sub-chapter on "dangerous" and "toxic substances".[30] The code put forward that pesticides and other toxic substances "should" be adequately labelled and that persons handling them "should wear protective clothing including gloves and goggles", but did

24 Barnes, Problems of Industrial Medicine in Agriculture.
25 Ibid.
26 Protection of Agricultural Workers against Toxic Hazards, Joint ILO-WHO Committee on Occupational Health, 4th session 9–16 April 1962, ILO, p.17, ILO Archives, J.C. O. H./IV/1962.
27 Ibid.
28 Ibid.
29 Ibid., p. 25.
30 Code of Practice, Safety and Health in Agricultural Work, as proposed by the meeting of experts on safety and health in agriculture, Geneva 20 April–2 May 1964. ILO Archives, SH 4-2-01 Jacket 1, pp. 70–77.

not provide any details about where the protective materials would come from, thus remaining considerably vague on the application of health protective measures. Relics of eugenic thinking and an expressed elitist perspective characterized these recommendations, which posited that "pesticides, toxic fertilizers and other toxic substances should not be entrusted to persons, who, because of immaturity, mental illnesses, weak intelligence, drunkenness or infirmities, might cause danger to themselves or other persons".[31] Thus, despite a promising start, the focus on workers' health did not result in any international conventions or recommendations at the time but rather freed governments, manufacturers, and, importantly, international organizations of major responsibilities. The calculated risk approach meant embracing the use of pesticide with full awareness of potentially dangerous consequences.

3. Judicious Choices: FAO and the "Wise Use" of Pesticides in Agriculture, ca. 1959–1962

The ILO was not the only organization to generate international debate on the safety of pesticides. In the late 1950s, the Food and Agriculture Organization (FAO) also began to concern itself with the risks and benefits of increased pesticide use. Founded in 1943, FAO's aim was to eliminate world hunger and rural poverty through the expansion of agricultural productivity. The organization had spent its first decade building an international secretariat and a body of experts on food, nutrition, and agricultural development, gradually embracing hands-on technical assistance programmes and large-scale campaigns to resolve these issues.[32] In 1958, having been nudged by the European Commission's Directorate General for Agriculture, FAO set up an expert committee to examine how "hazards that may result from unwise use" of pesticides could be reduced.[33] In April 1959, seven experts in phytopharmacy, plant pathology, and toxicology met for the first time in Rome to discuss the role of pesticides in agriculture and the problem of pesticide residues in food.[34] Similar to the joint ILO/WHO committee mentioned before, the report of the FAO panel emphasized the importance of pesticide use for food security, outlining how "destructive pests" could threaten humankind's food supply, and arguing that pesticides were thus essential for agricultural production.[35] Though the report recognized that resistance to pesticides and residues of the chemicals in foodstuffs was becoming a problem, it optimistically posited that such dangers were due to "poor choice, application, and timing" of the chemicals and could be countered by making more "judicious" choices. Although at the time of the Rome meeting experts were al-

31 Ibid., p. 71.
32 For a history of FAO, see A. L. S. Staples, The Birth of Development: How the World Bank, Food and Agriculture Organizations and the World Health Organization Changed the World, 1945–1965, Kent, Ohio 2006.
33 Pesticides in agriculture, including meetings, ILO Archives, FAO 12–5 Jacket 1.
34 Ibid.
35 Report of the FAO Panel of Experts on the Use of Pesticides (transmitted by DG Sen to DG on 14 August 1959), ILO Archives FAO 12–5 Jacket 1, p. 5.

ready aware that pesticides could be problematic for insects such as honeybees – which had an important function in agriculture – as well as for wildlife populations of fish and birds, the report argued that more research was needed to establish a causal link.[36]

Overall, the FAO expert group fully embraced the use of pesticides, dismissing any negative publicity. It downplayed the reports on food contamination as "based on speculations, half-truths and selected obsolete information".[37] It also condemned a "trend" by certain "militant vocal pressure groups" to "attack" the use of pesticides and to "put formidable pressure" on governments by raising "doubts" and "fears" in the general public. In contrast, the expert panel praised the work of government agencies and of the chemical industry in developing "effective", "efficient" and "safe" pesticides.[38] There was no need, the experts thought, for an "over-cautious" attitude, and too much regulation would undermine the interests and requirements of industrial agriculture and trade. Overall, pesticides were presented as "safe" as long as the users were educated properly. The commission underlined that the "hazards" came from "unwise use" and had to be controlled by regulation and further research. But the experts shied away from establishing international tolerance levels for pesticide residues, arguing that such an effort was "unrealistic" and that each government should determine "what policy of control" was "best suited to its requirements".[39] The "moral responsibility" for "safe use" was thus firmly attributed to the (anonymous) user, who was expected to "meet the requirements of the authorities and the instructions of distributor," rather than to the known manufacturers and sellers of pesticides.[40]

As a follow-up to the 1959 meeting, in November 1962, a FAO conference on Pesticides in Agriculture took place at the organization's headquarters in Rome. Opening the conference, FAO's Deputy Director-General Norman C. Wright emphasized that pesticides were "indispensable" for agricultural development, but also acknowledged that there were certain health and safety issues that needed to be considered. The conference, to which the ILO was also convened, focused firstly on registration, approval, and labelling of pesticides, secondly on the issues of pesticide residues and pest resistance, and to a lesser extent on problems concerning occupational hazards as well as the use of pesticides in so-called developing countries.[41]

Expert presentations and food and health risks oscillated between reassurance and concern. Invited to present, Justus C. Ward, the Director of the Pesticides Regulation Division of the United States Department of Agriculture (USDA), tried to put hazards into perspective by relativizing the extent of problems and describing the control apparatus that was in place in the United States. Indirectly, however, his presentation revealed

36 Report of the FAO Panel of Experts on the Use of Pesticides, 14 August 1959, ILO Archives FAO 12–5 Jacket 1, pp. 11–12.
37 Ibid., p. 14.
38 Ibid.
39 Ibid., p. 16.
40 Ibid.
41 FAO Conference Rome 1962, ILO Archives FAO 12–5 Jacket 1.

that deaths of humans due to pesticide poisoning were regularly occurring and that there were problems with the unsafe quantity of residue found on certain crops. Illegal residues, according to Ward, had led to cranberry, spinach, lettuce, cabbage, wheat, and potato seizures. As Ward made clear, "pesticides are toxic tools and must be used in accordance with precise rules to be used safely".[42]

The 1962 FAO conference was one of the first times the environment was coming into view as a critical framework to assess the problem of pesticide use. This was probably also due to heightened awareness following Rachel Carson's publication of *Silent Spring* in the same year. Experts working in environmental and medical fields offered a decidedly more pessimistic view than other scientists, especially with regard to the damage done by pesticide residues. John L. Buckley, a biologist from the Patuxent Wildlife Research Centre and Bureau of Sport Fisheries and Wildlife of the US Department of the Interior, did not mince words about the "really severe problems" that pesticides posed, which he thought FAO had only recognized "obliquely". As Buckley put it, "Wherever we looked, we have found residues."[43] Buckley went on to detail how the application of large and steadily increasing quantities of pesticides not just in agricultural contexts but also in private homes, public parks, and streets had affected wildlife, soil, and water "almost everywhere". He went on to argue that "affirmative proof of safety" of pesticides such as DDT was needed.[44] Similarly, a presentation by another American contributor, Wayland J. Hayes from the US Department of Health, Education and Welfare, on occupational hazards in the use of pesticides stated that the risks of poisoning were known; his paper included a detailed lists of illnesses and toxic effects.[45] Liver and kidney failure, delirium, stupor, brain damage, convulsions, coma, respiratory difficulties, and vascular collapse were some of the recorded consequences of "excessive exposure" to pesticides.[46]

The conference resulted in a set of resolutions that called for more systematic research, and various expert groups were established in the following years. One of these, the FAO Working Party on the Official Control of Pesticides, went on to discuss international "harmonization" of legislation. This was done mainly in a bid to overcome "obstacles" in the international trade on pesticides but also "to ensure that no pesticide is ineffective or harmful to any person through immediate or long-term effect".[47] By 1966, based on an enquiry into national regulation in 25 countries, experts of the WHO, FAO, and ILO had drafted a model law intended be used as a guideline for governments when formu-

42 Justus C. Ward, Position Statement, FAO Conference Rome 1962, ILO Archives FAO 12–5 Jacket 1.P. 13.

43 John L. Buckley, "Hazards to Fish and Wildlife and Their Food Organisms from the Use of Pesticides in Agriculture", p. 3, FAO Conference Rome 1962, ILO Archives FAO 12–5 Jacket 1.

44 Ibid., pp. 9 and 20.

45 Wayland J. Hayes, "Occupational Hazards in the Manufacture, Transportation, and Use of Pesticides in Agriculture", FAO Conference Rome 1962, ILO Archives FAO 12–5 Jacket 1.

46 Ibid., p. 2.

47 "Preamble, Model Law for the Official Control of Pesticides", recommended by Food and Agriculture Organization, International Labour Organization and World Health Organization, Rome 1967, ILO Archives, FAO 12–5 Jacket 2.

lating and amending new regulation.[48] This model law covered the licensing of manufacturers, the handling of chemicals, and the protection of workers engaged in pesticide manufacturing, as well as the harmonization of labelling, packaging, and advertising. Yet it contained only a very vague reference to the protection of users and consumers and the protection of agricultural workers. As one FAO representative assured his correspondent, there was "no intention, in the foreseeable future, of attempting to obtain international agreement by governments" on a law to control pesticides. The model law was "only to provide guidance to governments wishing to enact such legislation".[49] A draft jointly produced by the FAO, ILO, and WHO was circulated in 1967 but then delayed because of disagreements between the various institutions.[50] By this time, a whole range of other actors, especially commercial and economic ones, had also began to look into the problem of international regulation.

4. Improving Humankind's Well-being: Commercial Interests and Concerns About Population Growth, ca. 1960–1966

In 1960, the European Association of National Pesticide Producer Associations (Groupement Européen des associations nationales de fabricants de pesticides, GEFAP), wrote to the European Commission and highlighted its members' willingness to support the establishment of a common European regulatory framework on the use of pesticides. GEFAP argued that the lack of such a joint agreement presented obstacles not only to trade but also to consumer safety.[51] This was a classical argument about transnational regulation allowing for more efficient cross-border trade. It has to be understood in the context of the European integration efforts that had found their expression in the EEC's Treaties of Rome of 1957.

In these treaties, the six original EEC members (Belgium, France, Italy, Luxembourg, The Netherlands, West Germany) had agreed to establish the framework for a Common Agricultural Policy (CAP). The CAP had two key goals: It aimed at levelling differences in income and living standards among farmers in the EEC by paying subsidies and establishing price guarantees, among other measures; and it was meant to make the EEC members independent from food imports by increasing Western European agriculture's efficiency.[52] The CAP's political and economic goals were closely tied to the ideological

48 "Model Law for the Official Control of Pesticides", recommended by Food and Agriculture Organization, International Labour Organization and World Health Organization, Rome 1967, ILO Archives, FAO 12–5 Jacket 2.

49 Whittemore to Parmiggiani, 20 March 1968. ILO Archives, FAO 12–5 Jacket 2.

50 Rapport de mission Dr A. Annoni, FAO Directives pour une législation sur les pesticides, Rome 1968, ILO Archives, FAO 12–5 Jacket 2.

51 Cf. Historical Archives of the European Union (HAEU), BAC-009/1967_0047: GEFAP, CH/NC/315/No. 239, not dated [1960].

52 See C. S. Germond/K. Geronymaki, The Common Agricultural Policy: Actors, National Adaptation, and Responses to Policy Challenges, in: D. Müller/L. van de Grift/C. R. Unger (eds.), Living With the Land: Rural and Agricultural Actors in Twentieth-Century Europe. A Handbook, Berlin 2023, pp. 155–176; K. K. Patel (ed.), Fertile Ground for

context of the Cold War, with an emphasis on private ownership and family farms. In practice, they meant incentives for European farmers to leave behind "traditional" farming methods and to invest in industrial-type agriculture. This implied the large-scale use of chemical inputs like synthetic pesticides.[53]

Though heavily state-driven, the CAP relied to a great degree on the activities of private actors and non-governmental organizations like cooperatives and trade and producers' associations. The CAP, and the effort toward economic integration at a European level, presented both a challenge and an opportunity to those actors. In 1960, when GEFAP made itself heard vis-à-vis the European Commission, no joint regulation on the use of pesticides (or any other chemical implements) existed, and each member and associated country was following its own, nationally defined rules, if any. This made it more difficult to trade across borders, yet the incentive was there to develop transnational marketing networks and to use them more effectively.

How attractive the emerging common market appeared to European chemical companies became clear in 1961, when GEFAP wrote to the European Commission again. GEFAP argued that the rapid speed and (assumed) linear character of global population growth was raising serious concerns about the future food situation. It pointed to the Food and Agriculture Organization's Campaign against Hunger, an effort to overcome food shortages by expanding agricultural production with the help of technological solutions, specifically the use of chemical pesticides, fertilizers, and insecticides.[54] In the view of GEFAP, FAO's programme was a clear indication of the need for industry to step in and to provide its knowledge and technology.

It is notable that already in 1961 the notion of rapid population growth was being used as an argument by Western European industry representatives to advocate for the use of synthetic pesticides. Historical research on the population control movement and on the history of the so-called Green Revolution has suggested that the concern with population growth in Asian, African, and Latin American countries was an elite concern until the mid-1960s, and that it did not become popularized before the second half of the decade. Existing research has also emphasized the importance of US American actors in establishing the so-called population problem as a global challenge.[55] The fact that a European business association repeatedly referred to global population growth at the

Europe? The History of European Integration and the Common Agricultural Policy since 1945, Baden-Baden 2009.

53 Cf. H.-W. Micklitz, Entwicklungslinien der Geschichte des deutschen Pflanzenschutzrechts, in: E. Rehbinder (ed.), Bremer Kolloquium über Pflanzenschutz, Düsseldorf 1991, pp. 44–68, at pp. 44–45.

54 Cf. HAEU, BAC-009/1967_0047: GEFAP, CH/NC/335-6/No. 390, not dated [1961]. On the FAO's Campaign Against Hunger, see D. J. Shaw, World Food Security: A History Since 1945, Basingstoke 2007, pp. 77–84.

55 See M. Connelly, Fatal Misconception: The Struggle to Control World Population, Cambridge, MA 2010; T. Huhle, Demographic Concerns and Interventions: The Changing Population-Development Nexus in the Twentieth Century, in: C. R. Unger/I. Borowy/C. A. Pernet (eds.), Routledge Handbook on the History of Development, Abingdon 2022, pp. 134–147; R. Solinger/M. Nakachi (eds.), Reproductive States: Global Perspectives on the Invention and Implementation of Population Policy, Oxford 2016.

very beginning of the 1960s suggests a slightly different trajectory, and one that deserves to be investigated in more detail.

European pesticide producers represented in GEFAP did not deny that their products held risks to human and animal health. They did acknowledge that some pesticides were toxic and could have dangerous consequences. However, like the FAO, WHO, and ILO experts mentioned above, they argued that, if rightly used, chemical pesticides were far superior to other methods of controlling pests and diseases. Referring to the international challenge of population growth and food shortages, and to FAO's efforts to address them, GEFAP spoke somewhat pompously of the potential chemical pesticides held: "Chemical pesticides thus present a purchase of capital importance on the path of progress towards ever greater well-being for the world's population."[56] Highlighting pesticide's alleged global potential, GEFAP argued against too harsh a regulation of their use. In the same breath, the organization emphasized its willingness to cooperate with national governments and with the European Commission, undoubtedly to have a say on the rules and regulations that were expected to come into existence as part of the CAP.[57]

The activity of non-governmental actors in the field of pesticide production and marketing might have encouraged the EEC's Directorate General for Agriculture to establish the Comité specialisé des cooperatives agricoles des pays de la C.C.E. pour les engrais et pesticides (Specialized committee of agricultural cooperatives of the EEC countries for fertilizers and pesticides) in January 1963. The committee's members were the main agricultural cooperative organizations of the EEC countries. The committee's seat was in Brussels, at the headquarters of the General Confederation of Agricultural Cooperatives (COGECA). Its key tasks were to contribute to the development of a joint policy on fertilizers and pesticides in European agriculture and to liaise with similar organizations.[58] It was no coincidence that agricultural cooperative organizations played a prominent role in this context: They served as key entities in the CAP, seeing that they represented a model of agricultural production that spoke to the notions of liberal individualism and productivism that characterized postwar Western European politics.[59] More research is required into whether the EEC's Specialized Committee on Fertilizers and Pesticides became an active agent in the effort toward the distribution and/or regulation of pesticides, and if so, how. In any case, the creation of the new organizational structure is indicative

56 HAEU, BAC-009/1967_0047, Groupement Européen des associations nationales de fabricants de pesticides to DG VI, December 7, 1962, p. 4. In the original: "I pesticidi chimici rappresentano quindi un acquisto di capitale importanza nella via del progresso verso un sempre maggior benessere per la popolazione del mondo."

57 See ibid.

58 See the documents in HAEU, BAC-71/1984-52.

59 On cooperatives in the context of the CAP, see K. Geronymaki, Regional Paths to the Fruit and Vegetable Common Market Organization: Structural and Financial Impact of the European Common Agricultural Policy in Provence, the Delta of Po, and Peloponnese (1957–1972), PhD dissertation, European University Institute, 2021, chapter 3, https://opac.eui.eu/client/en_GB/default/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:533379/one.

of the fact that the effort to create a common market and to increase agricultural production left its mark institutionally.

The economic and political interests of the Western European actors involved did not stop at the borders of the EEC or the European continent. In the mid-1960s, the EEC was providing credits to so-called developing countries to buy agrochemicals in order to increase their agricultural yields. For example, in 1965 and 1966 exchanges took place between the Dahomeyan Development Bank and the EEC's Directorate General for Development about a second credit tranche that would allow the Republic of Dahomey (today's Benin) to buy chemical pesticides and insecticides (DDT and lindane) for use in agriculture. This activity was classified as "amélioration structurelle", that is, as an effort to adapt Dahomey's cotton production to the new economic situation after the end of French colonial rule. The intermediary between the EEC and the Dahomeyan authorities was the French Cotton and Textile Research Institute, which provided expertise and advice.[60]

The case is quite typical of mid-1960s economic and development relations between the EEC, France, and the former African colonies, with economic, trade, and institutional ties persisting beyond the formal caesura of independence.[61] Western European companies were working hard to maintain existing markets and to open up new ones for their products, and the export of highly specialized products like synthetic pesticides was an important field in this regard. In many cases, Western European governments supported "their" companies with export guarantees and other financial and political means. This was in their interest not only for domestic reasons but also as a way of maintaining connections to their former colonies, or to establish ties with countries that previously had been the domains of others.[62]

The case of the French-Dahomeyan-European pesticides project is also indicative of the double standard that seems to have been applied to European and non-European producers and consumers: While the use of pesticides was being discussed as a potential health threat to farmers and consumers in Europe, there was little concern with the effects DDT and lindane would have on African farm workers and consumers.[63] Most certainly colonial and, implicitly, racist assumptions lingered on, not the least due to the

60 See the documents in HAEU, BAC-25/1980-0761.

61 See, among others, V. Dimier, Bringing the Neo-Patrimonial State Back to Europe: French Decolonization and the Making of European Development Aid Policy, in: Archiv für Sozialgeschichte 48 (2008), pp. 433–457; L. M. Mueller, Risk on the Negotiating Table: Malnutrition, Mold Toxicity, and Postcolonial Development, in: A. N. H. Craeger/J.-P. Gaudillière (eds.), Risk on the Table: Food Production, Health and the Environment, New York 2021, pp. 138–162; M. Rempe, Decolonization by Europeanization? The Early EEC and the Transformation of French-African Relations, KFG Working Paper Series 27 (May 2011), https://www.polsoz.fu-berlin.de/en/v/transformeurope/publications/working_paper/wp/wp27/index.html.

62 Cf. Bugow, The Role of Multinational Companies in the Green Revolution; C. Kleinschmidt/D. Ziegler (eds.), Dekolonisierungsgewinner: Deutsche Außenpolitik und Außenwirtschaftsbeziehungen im Zeitalter des Kalten Krieges, Berlin 2018.

63 See E. Doro/S. Swart, A Silenced Spring? Exploring Africa's "Rachel Carson Moment": A Socio-Environmental History of the Pesticides in Tobacco Production in Southern Rhodesia, 1945–80, in: International Review of Environmental History 5 (2019) 2, pp. 5–39.

high degree of continuity in personnel that characterized the early postcolonial period. And yet the lack of concern should not be read as solely a case of European racism. The Dahomeyan authorities do not seem to have taken potential health risks to their population into consideration either, and they probably were as little interested in the living and working conditions of local cotton producers as were Western European officials. Class and social standing were at least as relevant as skin colour in this regard, one could argue, and protection from the hazards of exposure to pesticides an elite concern for a long time.

5. Balancing Risks and Benefits: Growing Concern Over Pesticides' Toxicity, ca. 1965–1973

As the investigation into the international organizations' conferences has shown, scientific warnings about the health risks associated with pesticides became more numerous over the course of the early 1960s. In 1963, a year after the publication of *Silent Spring*, the US government published the report of an expert advisory committee on the use of pesticides. The so-called Kennedy Report became influential far beyond the United States, triggering discussion about the need for regulation in several Western European countries.[64] In the second half of the decade, experts across Western Europe debated which criteria should be applied to determine the level of danger and potential ban of a pesticide, how to use labels to signify potential dangers (colours, coding, symbols), and which degrees of warnings to issue. In the EEC/EC context (the EEC became the EC in 1967), these discussions followed a pattern typical to international organizations concerned with transnational governance: The rapporteurs presented the different existing national approaches to classifying and regulating pesticides, and highlighted which of these could, possibly, serve as models. For example, in the mid-1960s, Belgium had the strictest rules in place among all EEC members, whereas Italy did not regulate the use of pesticides in any systematic way.[65] These regulatory differences implied that any effort toward a joint approach would have to be a compromise. The stricter standards of some member countries would have to be watered down to be acceptable to those members who had less strict approaches in place, and who feared that their national agricultural systems and (their political support) would be endangered by too severe a regulation.
Not the least due to such internal differences and the difficulties in finding a middle ground did the effort to establish a joint EC regulation gain momentum only toward the end of the decade. In October 1968, the General Secretariat of the EC's Directorate General for Agriculture (DG VI), under the leadership of Agricultural Commissioner Sicco Mansholt, wrote to the EEC members and announced its plan to establish joint

64 Cf. Micklitz, Entwicklungslinien, p. 45.
65 See the documentation in HAEU, CECA_TRAR 398, especially EEC, DG Social Affairs, Etude générale de la classification des préparations dangereuse (toxique e nocive), December 1966.

regulation regarding the use of pesticides and the set-up of a permanent committee on plant protection. This dual effort was framed in the context of the Common Agricultural Policy, whose explicit goal it continued to be increasing yields. To realize this goal, DG VI argued, plants had to be protected against diseases and pests, which, the argument continued, required the use of chemical inputs like pesticides. However, DG VI stated that there had to be a balance between the protection pesticides could give to plants and the harm they could cause to human beings and animals. For that reason, a joint regulatory approach was required.[66]

At the time, there was clear evidence that pesticides had negative effects on human and animal health. For example, the Report of the 1967 Joint Meeting of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues, held in Rome in December 1967, contained numerous references to studies that had been carried out in previous years. The report stated that new studies on the long-term toxicity of DDT had become available recently that indicated the health risks (especially cancer) associated with DDT. However, the participants of the meeting agreed not to suggest any changes to existing practices and recommendations until more evidence was available and confirmed.[67] In other words, the experts chose to ignore the new findings. The report was available to the EEC's Economic and Social Committee; whether its own experts (some of whom might have been at the Rome meeting) shared or challenged the position of WHO and FAO representatives cannot be said with certainty.

It is clear, however, that in 1969 the EC's Economic and Social Committee proposed the establishment of EC-wide tolerance levels with regard to some pesticides and to entirely ban the use of other pesticides (those belonging to the cyclodiene group). The goal was to implement this regulation until 1973. While some EC representatives spoke out in favour of strict regulations and rapid implementation, others protested against the effort, arguing that such measures would limit food production and make it more difficult for European farmers to compete internationally.[68] There are some indications that individual actors tried to speed up the process, or to challenge the opposition, by submitting information requests to the EC bodies. For example, in 1973, a written request was submitted to the European Commission that referred to national legislation on the regulation of pesticide use. Noting that the West German government had decided in March 1973 to ban the production (not the use) of DDT on the basis of health and ecological concerns, the authors of the request asked the Commission to take action to prohibit the use of DDT in its entirety.[69] However, it was only in November 1976 that the European

66 HAEU, BAC-038/1984_0791, General Secretariat of DG VIII, October 28, 1968.

67 HAEU, CES-2705, Report of the 1967 Joint Meeting of the FAO Working Party on Pesticide Residues and the WHO Expert Committee on Pesticide Residues, held in Rome, December 4–11, 1967, p. 13.

68 See the documents in HAEU, CES-2706 and CES-2707.

69 Europäisches Parlament, Schriftliche Anfrage Nr. 441/73 der Herren Kater und Müller an die Kommission der Europäischen Gemeinschaften. HAEU, PE0-12626. For an overview on the legal developments regarding the limitation and ban of the production and use of DDT in West Germany, see Micklitz, Entwicklungslinien.

Council published the directive on the regulation of pesticides.[70] Yet the existence of a directive did not mean that national governments immediately followed up with relevant legislation. In fact, well into the 1990s did "no mechanism obliging Member States to exchange information with the Commission or with the other Member States on possible risks from unsafe chemicals or pesticides" exist.[71]

6. Conclusion and Outlook

The archives reveal that knowledge on the potential risks of pesticide use existed in international organizations from the late 1940s onwards. UN organizations were among the first actors internationally to recognize that pesticides posed potential hazards to human and animal health, and to set up expert commissions that would shed light on the extent of such dangers and suggest possible responses. Through various expert commission, the ILO, WHO, and FAO participated in the constitution of the problem of pesticides as an international object of governance with the aim to propose evidence-based policies that would protect human beings and, to a lesser extent, animals (but not the environment as such) from harmful side-effects.[72] Experts and scientists played the leading role in this process of appropriation and negotiation, whereas commercial lobbies and social movements remained largely invisible at least in the early decades. Whereas the work of expert commissions ensured that the problem could appear on the political agenda of nation states, the results were often non-binding reports and guidelines that did not have an immediate effect on national law-making. Also, while UN organizations successfully raised crucial issues, these could easily become subject to institutional power struggles, paralyzed by overlaps and differences in approach.

Compared to the UN organizations, the reason for the EEC to concern itself with potential pesticide regulation was much more narrowly defined, namely in economic terms. The aim of the EEC at the time was primarily to promote the emergence of a common market by reducing trade barriers, and to stimulate economic growth among member states. The Common Agricultural Policy played a crucial role in accelerating the formulation of joint regulatory guidelines, and the emphasis on increasing agricultural yields overshadowed the interest in protecting producers and consumers for many years. Although the health and environmental consequences of the use of pesticides were scientifically established at least from the early 1960s onward, the break-through in terms of regulation came only in the mid-1970s. This shift was not only due to expert findings but, importantly, to growing public concern with environmental degradation, and, relat-

70 Council Directive 76/895/EEC of 23 November 1976 relating to the fixing of maximum levels for pesticide residues in and on fruit and vegetables, EUR-Lex, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31976L0895 (last accessed 18 October 2022).

71 H.-W. Micklitz, International Regulation and Control of the Production of Chemicals and Pesticides: Perspectives for a Convention, in: Michigan Journal of International Law 13 (1992) 3, pp. 653–697, p. 681.

72 Cf. ibid., p. 656.

edly, to the growing critique of the industrial type of agriculture the CAP had encouraged for more than a decade.

Initially, international organizations looked at the problem of pesticides through distinctive lenses, as we have shown by focusing on four discursive strands. Over time, however, the different arguments about the benefits, risks, and responsibilities they developed seem to have blended with each other. This was a complex, non-linear process. On one level, the various positions became increasingly entangled and consolidated by a belief in technology as progress. Experts and organizations embraced a pro-pesticide stance that prioritized economic concerns over social ones, and that privileged technical over legal solutions. On another level, the voices critical of the health and ecological effects of pesticide use became progressively numerous and audible, reaching a condensation point in the late 1960s and early 1970s. It was at this moment that the three discursive strands that had prioritized benefits over risks finally gave way to the strand that emphasized the need for preventive regulation. It appears as if the growing concern with environmental problems that became pronounced and institutionalized in those years had been decisive in replacing the previously narrow focus on human health with a broader understanding of human-environmental relations, and thus with the need to protect the natural environment from the harmful effects of synthetic inputs like pesticides.[73]

In closing, we would like to point out open questions and avenues for future research. For one, on the basis of the source material available, it has proven difficult to fully identify the debates between experts, their respective positions, and arguments. More research, too, is needed to fully understand the tensions between different institutions and governments and how these might relate to the international power dynamics of the Cold War which, somewhat surprisingly, are at best implicit in the sources. References to productivity, increases in agricultural yields, and the importance of socioeconomic stability can be taken as indirect references to ideological, economic, and geopolitical conflicts, but these are not strong enough to build causal connections. Related to this, the question arises how international organizations endorsed and encouraged the use of pesticides through operational activities in specific local contexts. Given that the abovecited discussions took place at a time when some countries were gaining independence but colonial structures were still firmly in place in many others, it would be important to better understand if and how the knowledge gained by these expert groups filtered into technical assistance and agricultural and food programmes from the 1960s onwards. At present, the records also do not give us enough insights into the role of interest groups other than experts including pesticide manufacturers, environmental movements, and consumer groups. The role of companies and business organizations and the extent of their direct or indirect involvement in international debates on regulation deserves particular attention. Finally, the technicalities of institutionalization and the administrative

73 See J.-H. Meyer, Making the Polluter Pay: How the European Communities Established Environmental Protection, in: Kaiser/Meyer (eds.), International Organizations, pp. 183–208; A.-K. Wöbse/P. Kupper (eds.), Greening Europe: Environmental Protection in the Long Twentieth Century – A Handbook, Berlin 2022.

jargon surrounding the use and governance of pesticide which has been at the centre of this article provides only limited insight into the perception and lived experience of agricultural producers and consumers. It says little about the perspectives of farmers, peasants, and rural labourers who were in close contact with pesticides, and who welcomed their use or mobilized against it. Recovering their voices and uncovering the agency of those "governed" is one of the major tasks for future research.