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ARTICLE

Toxic Exports, 'Third World' Hunger and Pesticide Politics: International Pesticide Trade and Perception in West Germany from the 1960s to the 1980s

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In the second half of the twentieth century, West Germany was one of the largest pesticide producers and exporters worldwide. Among these exports were substances that were unpopular, obsolete, or entirely banned due to their health risks. The country case adds to our knowledge of global pesticide politics in three ways: First, politicians and industry used hunger in the Global South as an argument to justify export practices in the 1970s. Second, public criticism against this export was only successful when the health of German citizens was perceived to be under threat. Third, industry arguments led to creative and legal ways to export substances that have been problematised in the Global North. In view of this, the current EU initiative to regulate banned pesticide trade, though important, appears to remain tentative or ineffective.

In recent years, headlines such as 'EU firms accused of "abhorrent" export of banned pesticides to Brazil', 'Export of highly toxic pesticides: Ban ineffective?' and 'Belgium, France, Germany: Pesticide giants are exporting banned chemicals through European loopholes' have shaped news cycles across Europe.[1] Here, authors draw attention to the export of banned pesticides from the EU to the Global South. They claim that such export practices circumvent EU law and pose health risks to local communities and to EU citizens when the pesticides return on imported fruit. Partly as a result of such criticism, a current EU initiative aims to regulate the export of pesticides.[2] While the debate over pesticide politics is well-established, the following article will use the case of West Germany to trace the origins and developments of the debate, focusing on export practices and their justifications and criticisms. It concentrates on turning points in the 1960s and 1980s to show how a politicisation of hunger influenced changes in pesticide discourse.

The case study offers key insights into the underlying mechanisms of pesticide politics and their development. To this end, the article aims to show how political decisions on the use, export and

[1] Beatriz Ramalho da Silva, Hélen Freitas, Ana Aranha, and Tom Levitt, 'EU firms accused of "abhorrent" export of banned pesticides to Brazil,' *The Guardian*, 25 Apr. 2023, https://www.theguardian.com/world/2023/apr/25/eu-firms-accused-of-abhorrent-export-of-banned-pesticides-to-brazil (last visited 20 Sep. 2024); Andreas Maus, and Elke Brandstätter, 'Export hochgiftiger Pestizide: Unwirksames Verbot?,' *ARD Monitor*, 29 June 2023, https://www1.wdr.de/daserste/monitor/sendungen/export-hochgiftiger-pestizide-100.html (last visited 20 Sep. 2024); Lottie Limb, 'Belgium, France, Germany: Pesticide giants are exporting banned chemicals through European loopholes,' *Euronews.green*, 30 Aug. 2023, https://www.euronews.com/green/2023/08/30/belgium-france-germany-pesticide-giants-are-exporting-banned-chemicals-through-european-lo (last visited 20 Sep. 2024).

[2] Europäische Kommission, 'Gefährliche Chemikalien – Verbot der Herstellung und Ausfuhr von Chemikalien, die in der Europäischen Union verboten sind,' July 2023, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13750-Gefahrliche-Chemikalien-Verbot-der-Herstellung-und-Ausfuhr-von-Chemikalien-die-in-der-Europaischen-Union-verboten-sind/feedback_de?p_id=32090155 (last visited 20 Sep. 2024).

hazard assessment of pesticides were connected to a shifting hunger paradigm in the Global North. This framework connects two research fields, namely the history of pesticides and nutrition as well as hunger studies. The following, therefore, draws on existing tendencies across this wider range of research.

The first pesticides that were not made from plant substances were arsenicals, which were used from the 1880s onwards.[3] Since then, the amount of chemical substances used for plant protection has increased continuously. This process has accelerated since the Second World War in the Global North. There, chemical companies developed new, cheaper and more effective agents, which entered mass production soon after. Their use, together with chemical fertilisation, mechanised agriculture and, in some places, irrigation, led to a sharp increase in crop yields in the northern hemisphere.

Two consequences are important for this article. Firstly, although the issue of the various costs of pesticide use (in particular with regard to health and the environment) reached the public in (West) Germany, it only became politically effective from the second half of the 1960s onwards. Parts of the chemical industry and applied entomology also reacted to this criticism, and approaches to reduce the use of pesticides through more targeted application and biological methods (integrated pest management) emerged in the 1980s. Secondly, since the establishment of arsenic use, trade relations and the perception of pesticide use in other countries have been relevant to the German production and debate.[4] This played a special role with regard to the so-called 'third world' from the 1970s onwards.[5]

The historiography of pesticides, in particular, is relevant to this article for its insights into the role of the chemical industry, the limited contribution of European and international research, and the political power dimension of pesticide use and discourse. Firstly, a stronger focus on industrial actors, their interests and the interrelationships of capitalist interdependencies in general opens up important potential. Recently, Julia Nordblad and Troy Vettese called for a broader discussion 'at the intersection of the history of economic thought, intellectual history and political history'.[6] Their aim is to gain a better understanding of current developments and the threat to the health of large parts of the world's population posed by environmental pollution and to find solution-oriented answers on this basis. This is all the more true as only a few studies have so far succeeded in examining the role of the chemical industry (which has a key role in this constellation) in more detail. In relation to the history of pesticides only more general studies have taken place, such as Edmund Russell's, who shows parallels between the wars against human enemies and insects. In his book, Russell points out how the War Production Board, together with the chemical industry and the Bureau of Entomology, paved the way for the civilian use of pesticides in the United States after the Second World War.[7] Similarly, Lukas Straumann posits that in the Swiss case there was a community of interests between entomology, industry and politics that had advocated for intensive pesticide use before 1900.[8] For Michelle Mart, an industrial and agricultural order was a prerequisite for the widespread acceptance of pesticide use in American society.[9]

[3] In this article, I use the term 'pesticide' in the broader sense of the word, which includes herbicides, fungicides, etc.

[4] Benjamin Brendel, 'Wealth, Health, and the Transnational Pesticide System: Tense Entanglements between the USA and Germany at the End of the Nineteenth Century,' *Journal of World History* 36, no. 3 (Sept. 2025).

[5] Sarah Ehlers, '"For Export Only": Der Pestizid-Welthandel zwischen Wissenschaft, Entwicklungspolitik und Umweltbewegung in den 1970er und 1980er Jahren,' in *Wie schreibt man Internationale Geschichte. Empirische Vermessungen zum 19. und 20. Jahrhundert*, eds. Arvid Schors and Fabian Klose (Frankfurt am Main: Campus, 2023), 311–30.

[6] Julia Nordblad and Troy Vettese, 'European Histories of the Economic and Environmental: Introduction,' *Contemporary European History* 31 (2022): 481–90.

[7] Edmund Russell, *War and Nature: Fighting Humans and Insects with Chemicals from World War I to Silent Spring* (Cambridge: Cambridge University Press, 2001).

[8] Lukas Straumann, *Nützliche Schädlinge. Angewandte Entomologie, chemische Industrie und Landwirtschaftspolitik in der Schweiz 1874–1952* (Zurich: Chronos, 2005).

[9] Michelle Mart, *Pesticides, a Love Story: America's Enduring Embrace of Dangerous Chemicals* (Lawrence: University Press of Kansas, 2015).

More recently, Elena Conis pointed out how fragile the image of a DDT success story has been since the Second World War.[10] As evidence, she references the objections and protests against the mass use of the substance as early as the 1950s. In view of this, Conis argues that the tobacco industry in the United States used PR experts to intervene in public discourse related to DDT. It is precisely in this regard that her work shows potential for further research. Industry voices, key players in all industrialised nations, are important for a better understanding of the pesticide system and its long-lasting continuity. However, the role of the chemical industry in pesticide policy and pesticide discourse often remains elusive, due (mainly) to a source problem: chemical companies often have little interest in granting historians access to their private archives.

Having had to face up to their role in the National Socialist legacy, chemical companies in Germany are allowing access to their archives and thus providing an extraordinary opportunity for historical research on this topic. In fact, German enterprises laudably hired or have helped historians do research in their process of taking public responsibility for their historical roles. This is especially true in their connections to the 'Third Reich'. However, this focus on responsibility tends to exclude other topics of political importance, such as pesticide usage.[11] Although documents pertaining to the companies' decision-making processes are still difficult to access, or are not accessible at all, those on their external communications are readily available and are useful for our understanding of how the pesticide discourse in Germany flowed between political actors, a fragmented public, and the companies themselves.

Second, until now, existing studies have largely focused on the United States and tended to ignore international connections – which are central to the understanding of the pesticide market. Remarkably, research on other large pesticide developers, producers, consumers, and exporters, such as Britain, France, Spain, Switzerland, and Germany, among others, remains limited.[12] In addition to this national imbalance, research has often been limited to history within state borders, and international comparisons have been rarely carried out.[13] Furthermore, the dimension of the pesticide trade in the Global South remains similarly under-researched.[14] This is the case even though renowned researchers such as Gabriele Hecht are increasingly pointing out the need for more far-reaching studies, especially in relation to the Global South. In Africa in particular and in the Global South as a whole, colonial or post-colonial structures persist and global capitalism continues to have an impact, both of which lead to the contamination of land and people by toxic substances.[15] Therefore, our knowledge of how national discourses on pesticide use developed in the 'West', or the Global North, is still limited, as well as of how these discourses interacted internationally.

[10] Elena Conis, *How to Sell a Poison: The Rise, Fall, and Toxic Return of DDT* (New York: Bold Type Books, 2022).

[11] For example Stephan Lindner, *Hoechst. Ein I.G. Farben Werk im Dritten Reich* (Munich: C.H. Beck, 2005); Michael Kissener, *Boehringer Ingelheim im Nationalsozialismus. Studien zur Geschichte eines mittelständischen chemisch-pharmazeutischen Unternehmens* (Stuttgart: Franz Steiner Verlag, 2015); Carsten Burhop, Michael Kißener, Hermann Schäfer, Joachim Scholtyseck, et al., *Merck. Von der Apotheke zum Weltkonzern* (Munich: C.H. Beck, 2018).

[12] Peter Morris, 'A Tale of Two Nations: DDT in the USA and the UK,' in *Hazardous Chemicals. Agents of Risk and Change (1800–2000)*, eds. Ernst Homburg and Elisabeth Vaupel (Oxford: Berghahn, 2019), 294–327; Bruno Chauvel, Christian Gauvrit and Jean-Philippe Guillemin, 'From Sea Salt to Glyphosate Salt: A History of Herbicide Use in France,' *Advances in Weed Science* 40, no. 1 (2022): 1–19; Silvia Pérez-Criado, 'From Arsenic to DDT: Pesticides, Fascism and the Invisibility of Toxic Risks in the Early Years of Francoist Spain (1939–1953),' *Culture and History* 10, no. 1 (2021): 1–15; Straumann, *Nützliche Schädling*; Jürgen Büschenfeld, 'Agrargeschichte als Umweltgeschichte. Chemie in der Landwirtschaft. Zum Umgang mit Pestiziden in Deutschland seit dem Zweiten Weltkrieg,' in *Agrarmodernisierung und ökologische Folgen. Westfalen vom 18. bis zum 20. Jahrhundert*, eds. Karl Ditt, Rita Gudermann and Norwich Rüße (Paderborn: Ferdinand Schöningh, 2001), 221–59.

[13] Morris, *Two Nations*.

[14] E.g. David Naguib Pellow, *Resisting Global Toxics: Transnational Movements for Environmental Justice* (Cambridge, MA: MIT Press, 2007), 10–14; Angus Wright, *The Death of Ramon Gonzalez. The Modern Agricultural Dilemma* (Austin: University of Texas Press, 2005) (first published 1990), XII.

[15] Gabrielle Hecht, *Residual Governance: How South Africa Foretells Planetary Futures* (Durham: Duke University Press, 2023); Gabrielle Hecht, 'The African Anthropocene,' *Aeon*, 6 Feb. 2018, https://aeon.co/essays/if-we-talk-about-hurting-our-planet-who-exactly-is-the-we (last visited 20 Sep. 2024).

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Third and lastly, research has often pointed to the political power dynamics behind the use of pesticides.[16] The aim of using pesticides to control society and nature has led to the misuse of the means, harming those with no political voice the most.[17] Yet, it is seldom possible to clearly separate the victims from the perpetrators. This is shown by studies on mass poisoning, particularly by the defoliant Agent Orange during the Vietnam War, which are often linked to the pesticide discourse. The victim stories here relate primarily to American GIs and only secondarily to the Vietnamese population.[18] How these victim perceptions affected global pesticide politics remains unclear.

These three aspects – the role of industry, the international framework, and the power of pesticide use and discourse – were brought together decades ago in a landmark study by David Weir and Mark Schapiro. Their 1981 journalistic book *Circle of Poison* unleashed a two-part scandal at the time, and remains relevant today. It claimed, first, that US-banned pesticides were being exported to producers in the Global South and, secondly, through what they called a 'pesticide Boomerang' effect, the substances returned to the Global North in the form of imported crops. As a result, farmers in the (then so-called) 'third world' and consumers in the 'first world' were both victims of this development.[19]

However, despite such critiques, the practices of pesticide export have not significantly changed. Although regulations came into force, restrictions were generally nationally enforced and had little impact on the international pesticide trade, although there have been repeated public protests against such practices. Drawing from this research, the article asks why the 'circles of poison' still exist and, more precisely, why its practices were not stopped between the 1960s and 1980s, when criticism against the mass use of pesticides became internationally significant.

At first glance, hunger may seem secondary in a discussion on the 'Circle of Poison', but the subtitle of Weir's and Schapiro's book was 'Pesticides and People in a Hungry World'. Today, the global fight against hunger is part of a well-established research field. Studies of the global dynamics of nutrition provision and hunger show that these topics acquired significant political relevance in the nineteenth and twentieth century. Most recently, Rebecca Earle showed how the cultivation of potatoes was connected to ideas of statecraft, and Scott Reynolds Nelson underlined the connection between North American wheat production, export, and foreign politics.[20] James Vernon pointed out how the perception of hunger increasingly changed from the nineteenth century onwards. From then, hunger was no longer seen as the fault of the starving but as a collective problem of a political and economic system, and thus of society.[21] Ultimately, this also meant it was a task for the world. However, political implications were omnipresent, and Nick Cullather and David C. Engerman have pointed out how hunger aid was used as a political tool in the Cold War.[22]

Regarding hunger aid, other authors have shown how governmental actors, international organisations and NGOs worked together, and used public awareness to try to uphold their particular

[16] José Ramón Bertomeu-Sánchez, 'Introduction: Pesticides, Past and Present,' *HoST – Journal of History of Science and Technology* 13, no. 1 (2019): 1–27; Soraya Boudia and Nathalie Jas, 'Introduction: Science and Politics in a Toxic World,' in *Toxicants, Health and Regulation since 1945*, eds. Soraya Boudia and Nathalie Jas (London: Routledge, 2013), 1–24.

[17] Wright, *Death*.

[18] Lois Marie Gibbs, *Dying from Dioxin: A Citizen's Guide to Reclaiming our Health and Rebuilding Democracy* (Boston: South End Press, 1995); Alvin Lee Young, *The History, Use, Disposition and Environmental Fate of Agent Orange* (New York: Springer, 2009), Edwin Martini, *Agent Orange: History, Science, and the Politics of Uncertainty* (Amherst: University of Massachusetts Press, 2012).

[19] David Weir and Mark Schapiro, *Circle of Poison: Pesticides and People in a Hungry World* (Oakland: Food First Books, 1981).

[20] Rebecca Earle, *Feeding the People: The Politics of the Potato* (Cambridge: Cambridge University Press, 2020); C.f. Scott Renolds Nelson, *Oceans of Grain: How American Wheat Remade the World* (New York: Basic Books, 2022).

[21] James Vernon, *Hunger: A Modern History* (Cambridge: Cambridge University Press, 2009), 2 f.

[22] Nick Cullather, *The Hungry World: America's Cold War Battle against Poverty in Asia* (Cambridge, MA: Harvard University Press, 2013); David C. Engerman, *The Price of Aid: The Economic Cold War in India* (Cambridge, MA: Harvard University Press, 2018).

interests.[23] In addition to the relevance of the actors, Tatjana Tönsmeyer and Heike Wieters referred to knowledge gathering, communication and targeted activities, as well as the causes of the limited effectiveness of hunger relief initiatives.[24]

The World Food Crisis (1972–5), in which the shortage of grain led to hunger in the Global South, is particularly relevant for the period between the 1960s and 1980s.[25] During this period, the Food and Agriculture Organisation of the United Nations (FAO) became a centre of international attention. In this context, too, various studies have pointed to different interests influencing the international agreement to combat hunger.[26] Therefore, even if the context has changed over time, it is almost impossible to think of the fight against hunger without its political dimension and the structures of power behind it. Likewise, in the case of pesticide trade, the power dimension around the topic of hunger is one among others. Taken broadly, pesticide politics are characterised by a profound dilemma between the need to fight hunger and that to control insect borne diseases, one further complicated by the clash between the interests of the chemical and agricultural industries and the governmental need to protect populations against toxic health threats.

Building on the research literature in both areas, the history of pesticides and that of nutrition and hunger, this article proceeds as follows. Given public opinion's influential role in the political decision-making behind these issues, it will be at the centre of the analysis in this article, included alongside the voices of industrialists, politicians, and protesters. I ask how the argument of global hunger became powerful in the public pesticide discourse in West Germany between the late 1960s and 1980s, and how it influenced the practices of use and trade of pesticides. Using sources from several governmental and industrial archives in Germany,[27] I begin by showing that the legitimisation of pesticide production and export is connected to the hunger paradigm – a paradigm which changed over time. The second section analyses how pesticide exporters sought to influence the changing public and political discourse around hunger in the 1960s and 1970s to legitimise pesticide exports. Closely linked, section three shows how the pesticide export market managed to establish and maintain itself for decades, why the export of banned pesticides was legal, and how exports were criticised by protesters, though with limited impact. Section four examines circumstances under which political protest against pesticide exports was able to mobilise a critical proportion of the population and how a rhetoric of solidarity with affected peoples in the Global South failed to gain popular traction.

The Context: Pesticide Politics and the Perception of Hunger

By the end of the Second World War, the German population's hunger was a key argument used by the country's pesticide industry for the large-scale use of chemicals like DDT, HCH (Hexachlorocyclohexane)/lindane and E605 (Parathion). As the shortage of food eased at the end of the 1940s, however, the pesticide market re-established its pre-war trade routes and explored

[23] E.g. Ruth Jachertz and Alexander Nützenadel, 'Coping with Hunger? Visions of a Global Food System, 1930–1960,' *Journal of Global History* 6 (2011): 99–119; Kevin O'Sullivan, '"A Global Nervous System"l The Rise and Rise of European Humanitarian NGOs, 1945–1985,' in *International Organizations and Development, 1945–1990*, eds. Marc Frey, Sönke Kunkel and Corinna R. Unger (Basingstoke: Palgrave Macmillan, 2014), 196–219; Florian Hannig, *Am Anfang War Biafra. Humanitäre Hilfe in den USA und der Bundesrepublik Deutschland* (Frankfurt am Main: Campus, 2021).

[24] Tatjana Tönsmeyer and Heike Wieters, 'Welt – Hunger – Hilfe. Zur Zeitgeschichte eines Menschheitsproblems,' *Zeithistorische Forschungen/Studies in Contemporary History* 18, no. 2 (2021): 231–51, 234.

[25] Christian Gerlach, 'The World Food Crisis, 1972–1975,' *Geschichte und Gesellschaft* 31, no. 4 (2005): 546–85; Ruth Jachertz, 'The World Food Crisis of 1972–1975,' *Contemporanea* 18 (1998): 425–43.

[26] Christian Gerlach, *How the World Hunger Problem Was Not Solved* (Milton Park: Routledge, 2024); Ruth Jachertz and Alexander Nützenadel, 'Coping with Hunger? Visions of a Global Food System, 1930–1960,' *Journal of Global History* 6 (2011): 99–119; Corinne Pernet and Amalia Ribi Forclaz, 'Revisiting the Food and Agriculture Organization (FAO): International Histories of Agriculture, Nutrition, and Development,' *International History Review* 41 (2019): 345–50.

[27] For this paper, Industrial archives: BASF, Bayer, Hoechst, Merck and Schering; governmental archives: Bundesarchiv Koblenz, Landesarchives in Hamburg, Hessen and Sachsen-Anhalt.

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new ways to export its products. The German so-called economic miracle of the international *Trente Glorieuses* (1945–1975) was, in fact, driven in large part by the country's chemical industry, with export a key factor. Bayer, for instance, sent relatively large quantities of E605 to Morocco to fight a locust plague and, in 1952, to Japan to protect rice fields from pests. Both local and national presses reported on these exports,[28] portraying them as part of an international effort to prevent a looming hunger crisis. Despite these examples, the West German chemical industry rarely advertised the export of pesticides as part of 'hunger aid' in the 1950s and 1960s. Instead, pesticides were marketed mainly with reference to the West German situation or the possibility of the return of hunger.

It was in the second half of the 1960s, when the paradigm of a national hunger threat lost relevance. While the birth control pill stopped the birth surplus dramatically in the Global North, the agricultural production increased. The German population was well-fed and hunger was becoming an increasingly forgotten memory of the older, and shrinking, part of the population.

At the same time, global perspectives were increasingly influential in framing ideas of food production amid a growth in the world's population in the Global South.[29] In this context, for example, Stanford biologist Paul R. Ehrlich (*The Population Bomb*, 1968) and the Club of Rome (*The Limit to Growth*, 1972) warned inter alia against rapid population growth in the Global South, arguing that this would combine with a lack of food and result in starvation and hunger.[30] The subtitle of Ehrlich's book demonstrates the severity of the outcry: 'While you are reading these words four people will have died from starvation. Most of them children.'[31]

The Nigerian Civil War/Biafran War (1967–70) especially attracted attention in West Germany and many other 'Western' countries. In West Germany, Catholic missionaries, PR companies, solidarity committees and media reports, in particular, had an impact on public perception and were successful in organising a massive humanitarian aid campaign.[32] These campaigns evoked horror with 'promotional' posters depicting children that either were skeletally thin or had hunger edemas in order to appeal for donations to aid organisations.[33] In the end, their efforts were highly successful. The donations collected in West Germany were only surpassed by those from the United States.[34] A similar dynamic was triggered by the Bangladesh War of Independence in 1971.[35] Yet these events were only the prelude to the development that followed.

In the early 1970s, political changes in the wheat-exporting countries of the Global North, combined with droughts, particularly in the Sahel region of Africa, triggered famine disasters. These became part of international politics under the catchword 'world food crisis' (1972–75).[36] The FAO and the World Health Organisation (WHO) drew attention to the topic and held large international conferences,

[28] 'Hilferuf aus Japan an Bayerwerke,' *Westdeutsche Neue Presse*, 182 (9 Aug. 1952); 'Deutsches Mittel soll Japans Reisernte retten,' *Welt am Sonntag*, 32 (10 Aug. 1952), BAL, Pflanzenschutz, Produkte A–Z, E605, Presse, 26 1947–15 Mar. 1954, 171/8; 'Gifttransport nach Afrika. Im Kampf gegen die Heuschrecken,' *Rheinische Post*, 274 (25 Nov. 1954), Pflanzenschutz, Produkte A–Z, E605, Presse, 16 Mar. 1954–30 Dec. 1954, 171/8, BAL, Bayer AG, Corporate History & Archives, Bayer Archiv Leverkusen (BAL).

[29] Jachertz and Nützenadel, *Global Food System*; Pernet and Ribi Forclaz, 'Revisiiting the FAO'.

[30] Paul R. Ehrlich, *The Population Bomb* (San Francisco: Ballantine, 1968); Donella Meadows, Dennis 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* (New York: Potomac, 1972).

[31] Ehrlich, *Population*.

[32] Florian Hannig, 'The Nigeria-Biafra War, 1967–1970,' in *Postcolonial Conflict and the Question of Genocide*, eds. Lasse Heerten and Dirk Moses (Abingdon: Routledge, 2017), 217–38.

[33] Michaela Zöhrer, 'Das "Hungerkind" (in) der Praxis internationaler Hilfsorganisationen,' in *Hunger*, eds. Eva Holling, Matthias Naumann and Frank Schlöffel (Berlin: Neofelis, 2016), 11–24. Johannes Stollhof, *Zwischen Biafra und Bonn. Hungerkatastrophen und Konsumkritik im deutschen Katholizismus 1958–1979* (Paderborn: Brill, 2019), 200–20; c.f. Daniel Maul, 'The Rise of a Humanitarian Superpower: American NGOs and International Relief, 1917–1945,' in *Internationalism, Imperialism and the Formation of the Contemporary World: The Pasts of the Present*, eds. Miguel Bandeira Jerónimo and José Pedro Monteiro (London: Palgrave Macmillan, 2018), 127–46.

[34] Hannig, *War*, 218.

[35] Hannig, *Humanitäre Hilfe*.

[36] Gerlach, *Food*; Jachertz, *Crisis*.

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such as the World Food Conference of 1974 in Rome, with hundreds of NGOs, alongside dozens of UN and other international organisations, attending.[37] War, agricultural change, and aid organisations made hunger once again part of a political paradigm, this time with a strong focus on the 'third world'.

Transferring the Hunger Paradigm: Early Criticism and the Industry's Pushback

In West Germany, criticism of the use of pesticides emerged at the very beginning of their mass use in agriculture and increased with the rise of their production in the 1950s. Three factors were influential to this development: First, a series of killings and suicides with E605 that took place between 1954 and 1958 received significant media attention and ignited public discussion about its safety.[38] However, political pressure exerted on the press to stop reporting on the subject, the establishment of broader regulations on the accessibility of the chemical, and the development of an E605 poisoning antidote eased the level of public attention and concern.[39] Second, trials between 1963 and 1968 for the murder of European Jews in Auschwitz using the gas Zyklon B took place in Frankfurt am Main. At the time, the chemical was commonly used as an insecticide for households, ships, and silos. Thus, the trials played an important role in the chemical being viewed as a murder weapon and a symbol of the Holocaust. This happened in the context of larger criticism against the chemical industry and their support for the Nazi regime.[40] While the trials sparked public discussion on whether pesticides were generally safe for use, East Germany's criticism of West German industrial actors provided opponents of this criticism with effective arguments to discredit critical voices in the West and to prevent a broader debate.[41] Third, around the same time, in 1962 (1963 for the German version), Rachel Carson published *Silent Spring*, in which she warned about the harms of pesticide use (especially DDT) and heavily criticised the chemical industry. As in the United States, German chemists responded to the book with personal attacks, portraying Carson's arguments as resulting from 'hyperbolical female emotions' and lacking scientific knowledge.[42]

Even though all three of these factors individually failed to have a significant impact on pesticide politics in West Germany, together they created a political climate that led to the implementation of a threefold series of regulations. To start, the government decided to regulate the maximum residue levels (*Höchstmengenverordnung*) of pesticides in food (30 November 1966).[43] Two years later, a Plant Protection Act (10 May 1968) made licensing of new pesticides obligatory for the first time

[37] Christian Gerlach, 'Der Versuch zur globalen entwicklungspolitischen Steuerung auf der World Food Conference von 1974,' *Werkstatt Geschichte* 31 (2002): 50–91.

[38] '"Gifthexe" aus Worms vor Gericht,' *Westdeutsches Tageblatt*, 220 (21 Sept. 1954), BAL, Pflanzenschutz, Produkte A–Z, E605, Presse, 16 Mar. 1954–30 Dec. 1954, 171/8; 'Eine Welle des Todes,' *Münchner Revue*, 13 (27 März 1954); 'Kleine Angst vor süßen Früchten. Was dem einen sein Tod, ist dem anderen seine Reklame,' *Münchner Sonntags-Post*, 14 (3 Apr. 1954), BAL, Pflanzenschutz, Produkte A–Z, E605, Presse, 16 Mar. 1954–30 Dec. 1954, 171/8.

[39] Federal Ministry of the Interior to Frankfurter Rundschau, Betr. Schädlingsbekämpfungsmittel E605, Entwurf, März 1954, Bundesarchiv (BArch) Koblenz, federal ministry of health, B142/1287; Thomas Elesch, Ladislaus Somogoyi: Nachrichtensperre über Selbstmörder, 12 July 1957, BAL, Pflanzenschutz, Produkte A–Z, E605, Schriftwechsel, Werbematerial, Ausbietungen, 171/8.

[40] Rolf Vogel, Die Auschwitz-Ausstellung in der Frankfurter Paulskirche (vertraulich), 18 Nov. 1964, 1–9, 5–9, BAL, Auschwitz, Schriftwechsel, 1961–1964, 356/4.

[41] 'Zyklon B aus Hoechst für Aggression,' *Neues Deutschland, East Berlin*, 224 (16 Aug. 1966); 'Der weiße Tod,' *Neue Berliner Illustrierte*, East Berlin, 15 (1 Sept. 1966 (postmark), BAL, Direktions Abteilung, 329/970.1/2, 1–3, 1.

[42] Verband der Chemischen Industrie e.V. (VCI), Ausschuss Öffentlichkeitsarbeit, Arbeitskreis Publizistik, 'Silentium, Fräulein Carson!' (trans. text: William J. Derby, 'Silence, Miss Carson!', *Chemical and Engineering News*, 40 (1 Aug. 1962), (1 Feb. 1963), 1–7, BAL, Direktion Werk Elberfeld I, 363–92, 1962–4; Hans Zeumer, and Otto Rudolf Klimmer, 'Rachel Carson: "Silent Spring" –Pflanzenschutz und Volksgesundheit,' in Biologische Bundesanstalt für Land- und Forstwirtschaft Braunschweig, ed., *Nachrichtenblatt des Deutschen Pflanzenschutzdienstes* 16, no. 1 (1964): 1–5, 3, BAL, Direktion Werk Elberfeld I, 363–92, 1962–64.

[43] Verordnung über Pflanzenschutz-, Schädlingsbekämpfungs- und Vorratschutzmittel in oder auf Lebensmitteln pflanzlicher Herkunft (Höchstmengen-VO – Pflanzenschutz-), 30 Nov. 1966, https://www.bgbl.de/xaver/bgbl/start.xav?start=%2F%2F*%5B%40attr_id%3D%27I (last visited 20 Sep. 2024).

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and opened a legal avenue for the banning of toxic substances.[44] Lastly, in 1972, DDT was banned in West Germany after being banned in the United States a few months earlier. Nonetheless, the political power of the chemical industry is evident in the fact that the West German government banned DDT only after the industry lost interest in its production.[45] More importantly, the ban officially debunked the post-Second World War myth that pesticides were unlimitedly beneficial. The new restrictions not only curtailed the legitimacy of the mass use of DDT and pesticides in general but also led to the Global North losing a symbol of its success.[46]

In light of this development, the chemical industry instrumentalised the warnings issued about the rising global population and potential food shortages in the late 1960s and 1970s. Industrialists took the traditional argument of a national hunger threat and transferred it into the contemporary global frame. In the 1960s, West German chemical producers (especially BASF, Bayer, Hoechst and Merck) asserted that chemistry was at the basis of the world's food supply and declared that the rising population would render the use of chemicals in food production essential.[47] In reaction to the criticisms in *Silent Spring*, BASF claimed that 'without pesticides food would need to be rationed and millions of people would die because of starvation and hunger'.[48] Until the early 1970s in particular, DDT was also used to combat the anopheles mosquito as a vector of malaria in the Global South.[49] Even though the use of the pesticide continued for this purpose afterwards, the argument of disease control was no longer of central importance for the West German industry – the hunger paradigm overlapped it.

Notably, the chemical industry was under economic pressure in the early 1970s. Rising prices for oil (the 1973 oil crisis and the 1979 energy crisis) hit chemical companies especially hard. As their production was energy-intensive, production costs increased many times over. Simultaneously, growth rates in the crop protection business declined in the 1970s and 1980s. The largely stable double-digit growth rates of the crop protection market until the 1960s remained little more than a wistful memory and wishful hope for the future. The export business has taken an increasing percentage share of total business since the 1960s; in the face of the crisis, the managers' plans focused on this sector.[50] According to Christian Marx, large chemical companies increased their investments abroad and also turned to foreign sales markets in the 1970s.[51] For the German chemical industry, the countries of Western Europe, the United States and, increasingly, Brazil, India and China were the most

[44] Bundesgesetzblatt, Jahrgang 1968, Teil 1: Pflanzenschutzgesetz, 10 May 1968, 352–58, http://www.bgbl.de/xaver/bgbl/start.xav?startbk=Bundesanzeiger_BGBl&jumpTo=bgbl168s0352.pdf (last visited 20 Sep. 2024). Micklitz, Pflanzenschutzrecht, 53, 57.

[45] Reim, Geschäftsführer Industrieverband Pflanzenschutz- und Schädlingsbekämpfungsmittel e. V. to Ministerialrat Tombergs, subject: Ihr Schreiben vom 22 June 1970, 25 June 1970, BArch Koblenz, federal ministry of health, B353/3294.

[46] C.f. Christian Simon, *DDT. Kulturgeschichte einer chemischen Verbindung* (Basel: Christoph Merian Verlag, 1999), 43 f., 54–9; Kenneth Mellanby, *The DDT Story* (London: British Crop Protection Council, 1992), 11–24; Frank Uekötter, *Im Strudel. Eine Umweltgeschichte der modernen Welt* (Frankfurt am Main: Campus, 2020), 581–92.

[47] Valentin Huppert, 'Beitrag der Chemie zur Welternährung,' *Mitteilungen der deutschen Landwirtschafts-Gesellschaft* 81, no. 6/7 (1966): 173–293, 1–8, 3, BASF Corporate History, Ludwigshafen (BASF Archive) PB L 1/4, Landwirtschaft und Agrarchemie; Fritz Ebner: draft for company newspaper 'Tradition und Leistung,' Nov. 1966, Archiv der Merck KGaA, Darmstadt (Merck Archive), Veröffentlichungen Fritz-Ebner, V15 1253; Pflanzenschutz- und Schädlingsbeseitigung, seminar at BASF: Probleme der chemischen Industrie heute, Dec. 1963, 1–14, BASF Archive PB F 04/01, Schriftgut Altbestand.

[48] *Readers Digest*, 1963, Pflanzenschutz im Meinungsstreit. Segen und Fluch der Schädlingsbekämpfungsmittel. Eine unvoreingenommene Untersuchung, BASF Archive, PB L 4 2 1/1, Pflanzenschutz und Schädlingsbekämpfung verschiedenes.

[49] Thomas Zimmer, 'In the Name of World Health and Development: The World Health Organization and Malaria Eradication in India 1949–1970,' in *International Organizations and Development, 1945–1990*, eds. Marc Frey, Sönke Kunkel and Corinna Unger (London: Palgrave Macmillan, 2014), 126–49.

[50] Geschäftsbericht der Schering AG 1967, 13, Schering Archive (SchA, Schering was taken over by Bayer), S12, GB, 1967, klein; Geschäftsbericht der Schering AG 1968, 11, SchA, S12, GB, 1968, klein; Geschäftsbericht der Schering AG 1969, 7, SchA, S12, GB, 1969, klein. Horst Metzger, Farm Chemicals, These Amazing Germans, Sept. 1977, 51–70, insb. 68, BAL, PB W 12/127, Unterlagen über Dr. Horst Metzger; Geschäftsbericht der Schering AG 1985, 4, SchA, S12, GB, 1985, klein; Geschäftsbericht der Schering AG 1986, 3, SchA, S12, GB, 1986, klein; Geschäftsbericht der Schering AG 1987, 26, SchA, S12, GB, 1987, klein.

[51] Christian Marx, *Wegbereiter der Globalisierung. Multinationale Unternehmen der westeuropäischen Chemieindustrie in der Zeit nach dem Boom (1960er–2000er Jahre)* (Göttingen: Vandenhoeck and Ruprecht, 2023), 208, 799.

important foreign markets. In Africa and elsewhere in the Global South, British and French companies had a competitive advantage even after decolonisation due to the continuation of trade relations and dependencies.[52]

Nevertheless, hopes of a large sales market were high in view of the rapidly growing world population in the Global South. The economic crisis brought further political challenges as opposition to the environmental impact of industrial production grew within West Germany. Matthew Sohm recently showed how politicians and business leaders tried to solve the economic and environmental costs by exporting toxic industrial waste and controversial chemical substances.[53] In this sense pesticide export could mean finding a cheap way to dispose of obsolete substances. The hope for new markets and the problem of environmental protests at home can explain why representatives of industry in the 1970s relied even more on arguments about a growing world population and the potential for a precarious future, which was in line with the rhetoric of the world food crisis. Chemical producing companies forecasted an international nutrition problem that would afflict a so-called 'hunger belt' (Figure 1) spanning from South America to Africa and Southeast Asia. In turn, they framed hunger as 'world problem No. 1'.[54]

This does not mean that there was no interest within the chemical companies in the debates about the environmental and health hazards posed by pesticides. Ann-Kristin Bergquist used the example of the Swedish copper company Boliden to demonstrate the existence of environmental awareness.[55] The reaction of companies to the hunger paradigm was probably also motivated, at least in part, by the moral imperative associated with it, especially as it could be combined with economic interests.

Together with other representatives of industries in the Global North, West German enterprises participated in the aforementioned World Food Conference of 1974. There, they claimed that crop losses in Africa and Asia would be twice as high as in industrialised countries. Therefore, to prevent hunger on these continents, it was essential to industrialise the agricultural production in the region.[56] To this end, they supported the use of the intensive cultivation methods of the so-called 'Green Revolution' of the 1960s, when the use of chemical fertilisers, pesticides, heavy machinery, and artificial irrigation led to an exponential growth in agricultural production in the Global North. The health costs and extensive natural destruction were, however, rarely mentioned in their telling of this 'success' story.[57] While the moral call for action was closely connected to contemporary discourses, the economic interests behind this line of argumentation were clear: by claiming to support the fight against world hunger, the chemical industry sought to improve its public image while seizing the opportunity to sell their products to the Global South – partly financed by development aid. This

[52] Marx, *Wegbereiter*, 147.

[53] Matthew Gilbert Sohm, 'Paying for the Post-Industrial: The Global Costs of West German and European Capitalist Crisis and Revival, 1972–1988' (PhD thesis, Harvard University, 2022); Matthew Gilbert Sohm, '"Big Clean," the "Death Ship" and the Hazardous Waste Trade between West Germany and Turkey, 1987–1988,' *Contemporary European History* 33, no. 2 (2024): 459–76.

[54] BASF Information, Weltproblem Ernährung, 3 1975, 1–5, 1, BASF Archive, PB L 4 2 1/1, Pflanzenschutz und Schädlingsbekämpfung verschiedenes. A similar argument was presented by the publisher of West Germany industry: Deutsche Industrieverlag, 'Weltproblem Hunger,' *Argumente zu Wirtschaftsfragen* 17/18 (1976), Sanofi-Aventis GmbH, Hoechst Archiv Friedrichsdorf (Hoechst Archive), H0159025, Landwirtschaftliche Betriebe Hattersheim 1 Jan. 1972–31 Dec. 1994.

[55] Ann-Kristin Bergquist, 'Dilemmas of Going Green. Environmental Strategies in the Swedish Mining Company Boliden, 1960–2000,' in *Green Capitalism: Business and the Environment in the Twentieth Century*, eds. Hartmut Berghoff and Adam Rome (Philadelphia: University of Pennsylvania Press, 2017), 149–71.

[56] Horst Metzger, Konferenz von Rom positiver als erwartet, Dec. 1974; c.f. BASF Information, Weltproblem Ernährung, 3 1975, BASF Archive, PB W 12/127, Unterlagen über Dr. Horst Metzger; Scherer (Abteilung Pflanzenschutz), 'Aus der Arbeit der landwirtschaftlichen Versuchsstation Limburger Hof,' *BASF Einführungskurs*, (1971), 19–26, 20, BASF Archive, PB W 1 3/134, Unterlagen von Dr. Horst Metzger; Jürgen Kradel, 'Umwelt Schlagwort der Zeit,' *Der praktische Schädlingsbekämpfer. Organ des Deutschen Schädlingsbekämpfer Verbandes*, 5 (1971), 64–69, 64, BASF Archive, PB L 4 2 1/1.

[57] John H. Perkins, *Geopolitics and the Green Revolution: Wheat, Genes, and the Cold War* (Oxford: Oxford University Press, 1997); Marci Baranski, *The Globalization of Wheat: A Critical History of the Green Revolution* (Pittsburgh: University of Pittsburgh Press, 2022).

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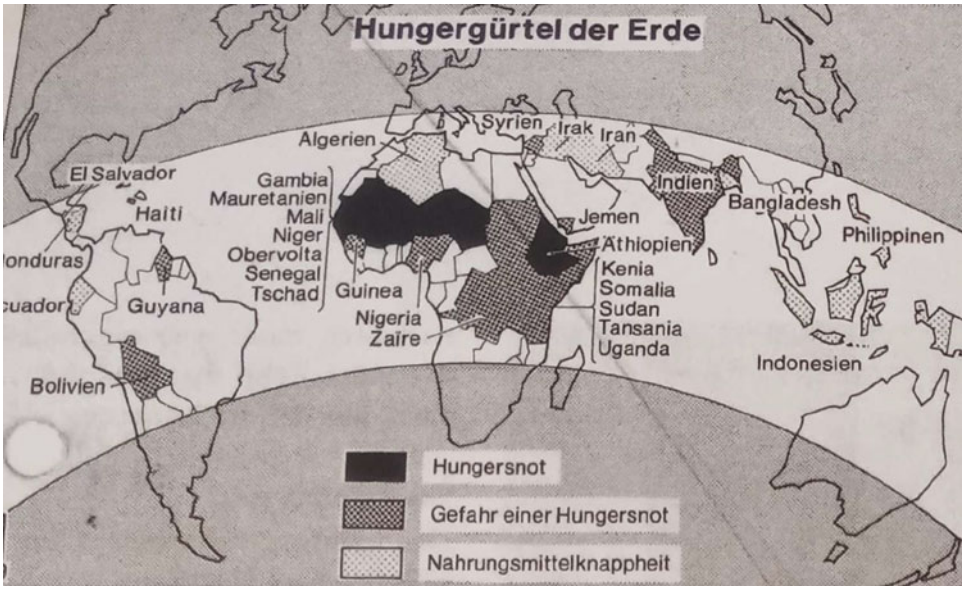

Figure 1. Image from BASF (chemical company) brochure under the title 'World's belt of hunger' on world hunger with subdivisions: famine, risk of famine and food shortage. Hungergütel der Erde, BASF Information, Weltproblem Ernährung, 3.1975, 1–5, 2, BASF Archive, PB L 4 2 1/1, Pflanzenschutz und Schädlingsbekämpfung verschiedenes. The same image exists in Bayer's files under the title 'The contribution of chemistry to secure food supply', Karl Heinz Büchel (Bayer), Der Beitrag der Chemie zur Sicherung der Ernährung, in: Lebensmittelchemie und Gerichtliche Chemie, 37 No. 1 (1983), 1–9, Vorträge usw., Prof. Büchel, 1980–84, 440/002, BAL.

strategy corresponded with the state guidelines of federal development policy in West Germany, which substantially subsidised pesticide exports as part of the technical aid programme.[58]

In West Germany, the transfer of the hunger paradigm from the German context to the Global South worked in favour of pesticide use supporters and created divisions between its critics: ecological groups, church groups, and the alternative political left. Arguments emerged over whether hunger in the Global South or the mass use of pesticides was the greater evil to be demonstrated against. The disagreements caused them to lose parts of their political energy – a reality that chemical industry representatives observed with satisfaction.[59]

Successful Ways to Export Pesticides: Trade and Protest

Even if certain pesticides were no longer used in West Germany due to health restrictions and bans by the 1970s, this did not necessarily mean that they could no longer be exported to other countries. In fact, their export remained legal. By selling cheap and effective substances, no matter their health risks, chemical companies could portray themselves as development aid actors answering the public and political calls to prevent starvation in the Global South. Nevertheless, the differences in regulation at home and in the countries to which exports went, and the growing protests against the use of pesticides, especially in the 1980s, caused problems for the chemical industry in West Germany. Companies, therefore, became creative and used three different ways to sell pesticides abroad.

First, they used the so-called 'grey market' to trade obsolete pesticides or less efficient waste material. Regions of the world where the lack of financial resources did not allow farmers to buy the

[58] For the German history of development aid see: Hubertus Büschel, *Hilfe zur Selbsthilfe. Deutsche Entwicklungsarbeit in Afrika 1960–1975* (Frankfurt am Main: Campus, 2014); c.f. Ehlers, *Export*.

[59] Manuscript of speech, Werner Krum, Werksleiter (plant manager) Boehringer Moorfleet, 'testimonial lecture for Friedrich Cramer' (19 June 1983), 1–35, 33, Staatsarchiv Hamburg (StAHH), 327-1-2714, Baubehörde, Unternehmensakten, Boehringer, vor 1984.

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up-to-date chemicals were especially lucrative markets.[60] BASF and Merck, for instance, sold the residues of lindane production to 'developing countries' in Africa via intermediaries. The raw material used in the production of lindane (a substance with similar characteristics to DDT) was 'technical HCH'. HCH consisted of various isomers, but only the γ-isomer was effective as a pesticide and concentrated in lindane. Small amounts of the active pesticide ingredient were still present in the residues from the lindane production process. It therefore only had a limited effect against insects. These strong-smelling and hazardous residues were exported to Africa. In West Germany, the intense smell of the substance was suspected of being a sign of a possible health risk. At the same time, the rise in lindane production generated larger quantities of the by-product and companies found it increasingly difficult to sell or dispose of these substances at home.[61] In Africa, however, this was not the case. Rather, residues of the lindane production process were used against locust plagues until the middle of the 1950s.[62] Afterwards, African customers also complained of the intense smell and health concerns, and the appetite for a more effective product generated new demand for lindane despite its higher cost.[63] To offer a second example, in the 1960s, while Hoechst was trying to sell arsenics for agricultural use abroad, the debate in West Germany on what to do with the public reserves of the now-unpopular substance reached its peak.[64] The export of toxic residues or obsolete pesticides was, therefore, an early case of economic 'recycling' initiated by the industry.[65]

Second, as soon as regulations in West Germany tightened during the late 1960s and 1970s, chemical companies moved the production of regulated, or highly debated, substances to factories they built or purchased abroad. Merck, for example, ran a factory in Bilbao, Spain, where it produced, marketed and exported 'technical HCH' for direct use as a pesticide until the 1990s, even though the use of the substance was prohibited in West Germany in 1977 and Spain had joined the European Economic Community (EEC) in 1986.[66] Boehringer, another West German pesticide producer until the 1980s, followed suit and tried to sell parts of one of its lindane plant (which was shut down in Hamburg after public protests in the late 1980s) to Spain as a strategy to continue production abroad.[67] In the decades that followed, the residues of former lindane production in Spain created new issues with EEC law and gave rise to the question of where the responsibility for securing and disposing of toxic waste lay.[68]

Third, the industry introduced a new strategy to circumvent local regulations by producing the basic substances at home and then mixing them together abroad, a process referred to as chemical formulation. For instance, around 1978, six years after the production, use and trade of DDT was banned in West Germany, Hoechst considered formulating Hostathion – a product which contained phosphoric acid ester and DDT – in France to then sell in Sudan. The essential components of the

[60] Hexa – Ein Skandal?, undated approx. end of the year 1979, 1–45, 10, Merck Archive, Hexachlorcyclohexan (HCH), V15 248.

[61] Benjamin Brendel, 'Geruch im Verzug? Ein chemischer Gefahrendiskurs zwischen Wissen, Emotion und Genderzuschreibung in Darmstadt um 1980,' in ibid., eds., Geruchliche Reize, special issue, *Werkstatt Geschichte* 87, no. 1 (2023): 71–84, 74.

[62] Herbert Maisack to Albert Palm, Betr. Lindan-Produktion, 26 Feb. 1979, BASF Archive, PB L 4 2 4/3, Insektizide; Werk Gernsheim – Abt. Umweltschutz an Direktor P. Merck, Betr. Verbleib von Hexachlorcyclohexan-Rückständen Schreiben der Hessischen Landesanstalt für Umwelt vom 31 Jan. 1975, 5 Feb. 1975, Merck Archive, Hexachlorcyclohexan (HCH), V15 250. Merck sold some of these residues as *SHC Syrupy* to the companies ICI and Prosida, which added them to pesticides to control locusts.

[63] E. Merck to Bock, Hessische Landesanstalt für Umwelt, Betr. Verbleib von Hexachlorcyclohexanrückständen, 20 Feb. 1975, Merck Archive, Hexachlorcyclohexan (HCH), V15 250.

[64] Protocol 'Arbeitskreis Pflanzenschutz,' 27 Mar. 1969 in Frankfurt-Höchst, 11 Apr. 1969, 1–3, 3, Hoechst Archive, H0022629, Pflanzenschutz 1965.

[65] The question of how to economically 'recycle' toxic residues was of high importance for lindane production during the 1970s and 1980s: Herbert Maisack and Albert Palm, Betr. Lindan-Produktion, 26 Feb. 1979, BASF Archive, PB L 4 2 4/3, Insektizide.

[66] Kaesehagen: Nexana in Asua/Bilbao, Produktion und Reststoffe, 8 Feb. 1993, 1–5, 1, Merck Archive, V15 934 a.

[67] '"Ein neues Seveso steht bevor",' *Der Spiegel*, 15 (8 Apr. 1990).

[68] Amtsblatt der Europäischen Gemeinschaft, C 270, 39 (16 Sept. 1996).

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formula were to be produced in West Germany.[69] Lindane and especially DDT could be manufactured cost effectively, and their export promised high profit margins. This is why export appeared financially worthwhile, even if the political situation for such deals became more difficult in West Germany.

It was only in the second half of the 1980s that protests against these export practices emerged, while the world hunger argument, or at least the modernist belief in a technical opportunity to find a solution to this problem, lost clout. In the wake of David Weir's book *The Circle of Poison*, other related studies have appeared. David Bull, active at Oxfam, pointed to the dangers of inappropriate and ill-advised pesticide use in the 'third world' and Robert Boardman pointed to the need for international pesticide regulation in view of the unequal distribution of power in the world.[70] These and other studies also had a wider readership in West Germany and contributed to the emergence of protests.

The issue of pesticides was now a main theme in environmental protest and mobilised large portions of the West German population. In May 1986, a third grade class at an elementary school in Palatinate wrote a letter to Hoechst. The pupils told the company that they had watched a movie critical of pesticide exports and were worried that people in 'developing countries' would be contaminated due to not being able to read the labels of empty pesticide cans that they might use to cook their food in. At the end of their letter, they asked why the company would even produce substances which would harm people in the first place.[71] Another archival, and rare, example of exchange between industry and protesters is a letter from a group of Franciscan brothers reminding Hoechst of their (humanitarian and Christian) responsibility not to cause harm. They argued that through exported substances, the company could destroy nothing less than life itself, and therefore harm divine creation.[72] The company replied to both the class and the monks in a similar fashion, claiming that it did not produce substances that did not comply with West Germany's or other industrialised countries' safety requirements.[73] Hoechst was technically right for the simple fact that its export strategies were legal.[74]

A few explanations can be identified as to why these exports were not subject to tighter regulation. Importantly, Hoechst's and others' export practices, as well as the existence of the 'grey market', were known to the West German government. After all, the relationship between the West German conservative party (Christian Democratic Union; CDU) and the chemical industry was longstanding and close. Chancellor Helmuth Kohl (in office 1982–98) was known to be connected to BASF, which is based in Ludwigshafen in Kohl's hometown. Earlier in his life, he was even a consultant (*Referent*) for the Chemical Industry Association (Verband Chemischer Industrie, VCI, 1959–69), despite having already begun his political career.[75] The chemical lobby group and their (export) interests maintained influence over the CDU especially via the chancellorship. Nonetheless, it is too simplistic to infer that the obscure pesticide trade practices were solely motivated by economic and political benefits.

[69] Protocol 'Arbeitskreis Entwicklung Pflanzenschutz' (43rd Session) 24 Feb. 1978, 1 Mar. 1978, 1–6, 5, Hoechst Archive, H0159033, Landwirtschaft AK Entwicklung Pflanzenschutz, 1 Jan. 1972–31 Dec. 1982.

[70] David Bull, *A Growing Problem: Pesticides and the Third World Poor* (Oxford: Oxfam, 1982); Robert Boardman, *Pesticides in World Agriculture: The Politics of International Regulation* (New York: Palgrave Macmillan, 1986).

[71] Third grade class at an elementary school Wiesbach, to senior management team Hoechst, May 1986, Hoechst Archive, H0159031, 1 Jan. 1984–31 Dec. 1987.

[72] Interfranziskanisches Treffen für Gerechtigkeit, Frieden und Ehrfurcht vor der Schöpfung to senior management team Hoechst, Frankfurt, 29 Apr. 1988, Hoechst Archive, H0159030, Landwirtschaft, Verkauf.

[73] Waitz, Hoechst, Third grade class at an elementary school Wiesbach, 24 June 1986, 1–3, 2, Hoechst Archive, H0159031, 1 Jan. 1984–31 Dec. 1987; The Franciscans referred to the following article: 'Zarte Hände,' *Der Spiegel* (4 May 1987); Hoechst an Interfranziskanische Treffen, 24 Apr. 1988, Hoechst Archive, H0159030.

[74] '"Bienenkiller" Neonikotinoide. In der EU verboten – Ausfuhr erlaubt,' *Der Spiegel* (18 Nov. 2021), www.spiegel.de/wissenschaft/natur/neonikotinoide-in-der-eu-zum-schutz-der-bienen-verboten-ausfuhr-erlaubt-a-15da2a97-f281-4248-abb8-9315c9cf3705; Pestizide (last visited 20 Sep. 2024). 'Zu giftig für Europa, gut genug für den Export,' *Süddeutsche Zeitung* (10 Sept. 2020), www.sueddeutsche.de/wirtschaft/pestizide-zu-giftig-fuer-europa-gut-genug-fuer-den-export-1.5025969 (last visited 20 Sept. 2024); 'Hochgiftige Exporte,' *Tagesschau.de* (10 Sept. 2020), www.tagesschau.de/investigativ/monitor/pestizide-109.html (last visited 20 Sept. 2024).

[75] Herbert Schneider, *Ministerpräsidenten. Profil eines politischen Amtes im deutschen Föderalismus* (Wiesbaden: Leske and Budrich 2001), 130; Hans-Peter Schwarz, *Helmut Kohl. Eine politische Biographie* (München: Deutsche Verlags-Anstalt, 2012), 89–99.

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Another possible explanation is the wider modernisation and development discourses that were influential during the Cold War. Without them, contemporary pesticide trade cannot be fully understood. The discourse on the need for a 'Green Revolution', that gained importance in the Global North in the 1960s and 1970s, created pressure for an agricultural modernisation and development of the Global South.[76] The FAO was influential by then and used the motto *fiat panis* (let there be bread) to appeal to the Christian and bread-eating Global North and promote their work. Notably, West Germany, in particular, participated in the Cold War race for global influence in two ways: as an economically powerful US ally and by entering into fierce competition with the East German state. Many times, so-called 'third world' countries ended up receiving West German money to buy West German products/pesticides to achieve a Western, if not German, model of agricultural modernisation. Vice versa, the chemical industry in East Germany fiercely sought to obtain foreign goods and money, extending the state's international influence in the process. To give an example, East Germany too had banned DDT in the early 1970s, but by 1987 it still tried to sell Melipax (or Toxaphen, which is a mixture of different chlorinated hydrocarbons similar to DDT) to Vietnam and various countries in Africa.[77] Pesticide export policy was, in the end, a political tool used in the political power game of the Cold War.

The final proposal relates to the period when the global struggle against hunger began to be addressed at an international level through various actors. The shift created *carte blanche* to the export of outdated pesticides. Faced with a dilemma between protecting health and satiating hunger, hunger was seen as the more pressing issue. For example, the values put forward by the WHO for what would be considered safe pesticide levels for human bodies varied. In 1979, the WHO set the limit for the amount of (β-)HCH in milk fat at eight times higher for 'developing countries' than for countries in the Global North. West German pesticide producers, like Merck, did not hesitate to underline this fact to the public.[78] Export practices in West Germany remained largely unchanged between the 1950s and the 1980s, despite broad awareness that these were taking place, especially by the – democratically elected – government. As a result, subsequent scandals uncovered by the press, and other forms of media, from the 1980s onwards were no longer as shocking. At least in West Germany, the export of obsolete pesticides found a broad consensus in society.

Whose Health? The Limits of Sympathy

The 1975 BASF brochure containing the global 'hunger belt' map, mentioned above, showed another image: a pesticide-spraying helicopter above a banana plantation.[79] The aim of this photograph was clear: it presents a picture of an intensive, rationalised and, therefore, profitable way of food production. However, it did not stand alone but was contextualised with the world hunger problem noted earlier in the brochure. From an industrialist's point of view, there was no difference between the paradigm of world hunger and the production of 'cash crops' such as bananas. Nonetheless, this image of modern agricultural production had inherent contradictions (Figure 2).

The issue was further compounded by the claims of American soldiers regarding their exposure to the chemical Agent Orange (2,4,5-T that was contaminated by dioxins) sprayed by US Army aircrafts

[76] R. Douglas Hurt, *The Green Revolution in the Global South: Science, Politics, and Unintended Consequences* (Tuscaloosa: University of Alabama Press, 2020).

[77] Stöckel, Betriebsdirektor to VEB Kombinat Agrochemie, Generaldirektor König, Betr. Produktionsstrategie Melipax, 24 Nov. 1987, Landesarchiv Sachsen-Anhalt Merseburg (LASA, Mer), I 527, VEB Kombinat Agrochemie Piesteritz, (1908–92), 2238, T 1/2 Erzeugnisse Pflanzenschutz- und Schädlingsbekämpfungsmittel 1983–87.

[78] Draft of a brochure, 'Merck: Hexa – Ein Skandal?' (1979), 1–45, 18, Merck Archive, Hexachlorcyclohexan (HCH), Öffentlichkeitsarbeit (V15) 248. The values were contested in Europe as well: France opted against a threshold value for (β-) HCH in milk fat for the country and the Netherlands allowed double normal value.

[79] 'Weltproblem Ernährung,' *BASF Information* (Mach 1975), 1–5, 1, BASF Archive, PB L 4 2 1/1, Pflanzenschutz und Schädlingsbekämpfung verschiedenes. The publisher of the German industry (Deutscher Industrieverlag) published a similar brochure: 'Weltproblem Hunger,' *Argumente zu Wirtschaftsfragen*, 17/18 (1976), Hoechst Archive, H0159025, Landwirtschaftliche Betriebe Hattersheim, 1 Jan. 1972–31 Dec. 1994.

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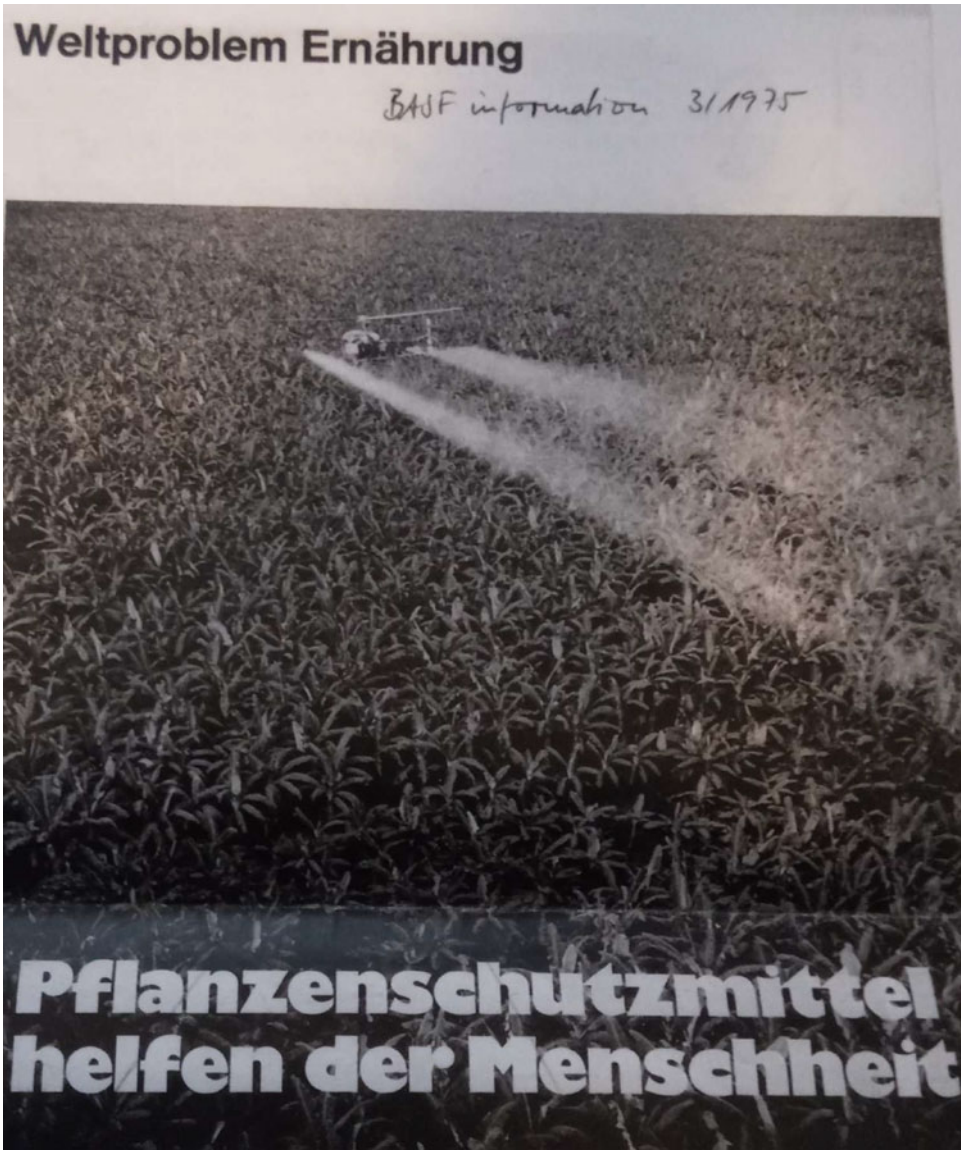

Figure 2. Image from BASF (chemical company) brochure under the title 'World food problem - Plant protection products are helping mankind'. Pflanzenschutzmittel helfen der Menschheit, BASF Information, Weltproblem Ernährung, 3.1975, 1–5, 1, BASF Archive, PB L 4 2 1/1, Pflanzenschutz und Schädlingsbekämpfung verschiedenes.

onto the jungle to uncover Vietcong soldiers. Significant numbers reported various illnesses including cancer and high rates of birth defects in their children.[80] This dark side of the use of weedkillers underlined and challenged the rationalised and positive imagery put forward by the chemical industry. In West Germany, the imagery of herbicides being sprayed above jungles, forests and large green areas connected the pesticide-use debate to anti-Vietnam war protest and its aftermath.[81]

[80] Young, *Agent Orange*; Martini, *Uncertainty*; Allen, *Dioxin*.

[81] Reinhard Schultz, Kreisbeauftragter für Natur- und Landschaftsschutz im Dillkreis, to member of the Landtag Heinz Beyer, 17 July 1973, Hessische Hauptstaatsarchiv Wiesbaden (HHStAW), Hessisches Landwirtschaftsministerium, Chemischer Pflanzenschutz 1958–1974, 509, 3539.

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Boehringer had found a technical way to reduce HCH residues in lindane production in the 1950s. The change, however, produced the byproduct 2,4,5-T (containing dioxins), which was sold as a herbicide. Later, in the 1980s, in the context of the pesticide discussion, the dangers of dioxins became an important facet of the argument against pesticide usage. The protest of the American soldiers was decisive for the West German discussion, and this debate reached its height when Boehringer and other chemical companies in West Germany were, likely incorrectly, accused of having produced Agent Orange for the United States while selling the same substance to fight weed growth in West German forests.[82] The discussion was once again fuelled by the links between politics and industry. This was, in part, driven by the fact that West German President Richard von Weizsäcker (CDU, in office 1984–94) had worked in a management position in Boehringer between 1962 and 1966.[83] Even though 2,4,5-T was indeed used in West Germany, the level of contamination with dioxins in the country was incomparably lower than in Vietnam, and whether this posed any serious health risk was a highly contested matter.[84] Still, the debate points to two factors that are important for the perception of pesticide exports.

First, pictures, such as the one of the helicopter printed in the brochure, reinforced the criticism of the use of pesticides. Yet public exchanges on this topic were less about concern for agricultural workers in the Global South or the Vietnamese population (the main victims of similar chemicals) but rather on the risk they posed to American soldiers and the West German population.[85] Such images triggered fears that the use of pesticides in West Germany could lead to health risks for the West German audience and their children. This, in turn, was much more effective for protest mobilisation than solidarity with or concern for an abstract 'other'. One's own safety, rather than that of a stranger, was key for political mass mobilisation when it came to health concerns.

Second, the dark punch line of this story is that the massive use of pesticides in fruit plantations was hardly designed to help end hunger in the Global South. Its purpose was not to produce basic foods like millet, wheat, rice, maize, or potatoes consumed locally. Instead, pesticides were mainly used in classic 'cash crops', such as on banana and pineapple plantations, meant for export and economic profit. These large plantation monocultures required a considerable amount of financial investment and pesticides, and they were typically designed for export to US and European markets. The result was the creation of international 'circles of poison'.[86] For example, the United Fruit company in Central America[87] used the pesticides produced in the Global North on its fruit production in the Global South, in the end exporting those same pesticides on fruits back to the north. Though the regulation debates of the 1960s and 1970s led to research that found chemical residues in food (gas chromatography and gas spectrometry), it was not until the 1980s, when such methods of analysis showed the contamination of fruit imported into the Global North, that protests against pesticide exports increased.

Conclusion

Responding to the waves of criticism against pesticides in the late 1960s and the rising paradigm of a global food shortage, pesticide producers in West Germany instrumentalised the international hunger

[82] Cordt Schnibben, 'Der Tod aus Ingelheim,' *Der Spiegel* (5 Aug. 1991), https://www.spiegel.de/spiegel/print/d-13487619.html (last visited 20 Sep. 2024).

[83] Boehringer Ingelheim to Pflüger, office of the Federal President (Bundespräsidialamt), 2 Aug. 1984, subject: Anfrage der Grünen an die Bundesregierung/Bericht des SPIEGEL vom 30 July 1984 'Grüne gegen Weizsäcker,' BArch Koblenz, federal ministry of the interior, Sonderabfälle, allgem., Dioxindiskussionen aus Altlasten u. Müllverbrennungsanlagen, B195/10831.

[84] Hessischer Minister für Landwirtschaft und Umwelt to the President of Hessian Landtag, subject: Kleine Anfrage des Abgeordneten [Heinz] Bayer (SPD) betreffend Verwendung des Unkrautvertilgungsmittels '2-4-5-T' im Wald, 27 Sept 1973, 1–5, HHStAW, Hessisches Landwirtschaftsministerium, Chemischer Pflanzenschutz 1958–1974, 509, 3539.

[85] Wright, *Death*, XII.

[86] Weir and Schapiro, *Poison*.

[87] Peter Chapman, *Banana:. How the United Fruit Company Shaped the World* (Edinburgh: Canongate, 2022); Uekötter, *Im Strudel*, 146–55.

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crisis to legitimise their exports. They did so by adopting a post-Second World War view of pesticides as essential to feeding the war-torn nation. The moral dimension of a now globally labelled hunger crisis was an opportunity for proponents of the mass use and export of pesticides to successfully pose as acting altruistically or for the benefit of mankind. As a result, pesticide trade enjoyed extensive freedom. Obsolete and banned pesticides and residual substances of the pesticide production that had only a minor pesticidal effect were exported freely and legally to the Global South. The practice was legitimised to an extent by an unspoken 'common sense' in West German society and politics that hunger was a more pressing issue than (others') health. The chemical companies' export strategies were not secret but in fact well-known to the government. Several factors can explain this: the moral call to help fight hunger, economic preferences, a close connection between politicians and the chemical industry, and the competition between East and West in the Cold War, especially between the two German states, for global influence through development aid.

Three events of the 1950s and 1960s were important to the rise of criticism of the use of pesticides in West Germany: a series of killings and suicides with E605, the publication of Carson's *Silent Spring*, and the Auschwitz trials against those involved in the Holocaust killings. Together they triggered a debate about the health risk of pesticide use in West Germany. Even if these waves of criticism did not promote a change of political course, they laid important foundations for the following debate from the 1970s onwards, when the global context and pesticide exports played an increasing role for industrialists' efforts to increase stagnating sales.

In West Germany, groups of citizens criticised the export of chemicals more intensively in the 1980s. Even school children and monks criticised companies for their activities. However, the plight of the fight against hunger overlapped and smothered the debate, which is why the effects of protest were limited. Chemical companies in the Global North continued to legally sell unpopular, outdated or completely banned pesticides to the Global South through various channels.

Despite the protests in the Global North, it is likely that the rising awareness in the Global South of the dangers of pesticide use was more important to the changes that took place in pesticide export practices than were the protests in the Global North.[88] Put another way, actors in the Global South determine action in other ways. When regions and countries suffered from intense hunger crises, their priority was often to import cheap and effective pesticides, while their health was relegated to second place.[89] The threshold to determine when hunger justified the mass use of substances known to be toxic is not, and never was, easy to determine. There is potential for further studies, particularly in the Global South, in order to better understand the global dimension of the pesticide discourse.

Furthermore, a general critique on pesticide use remained too simplistic when it came to the understanding of victims and perpetrators as a black and white matter. On the one hand, there were actors in the Global South that had an interest in importing pesticides for food production, even if others were harmed by them. On the other, despite the increased protests in West Germany in the 1980s, there were only minor changes in the general consumer behaviour. Contradictorily, the very same pesticides produced in West Germany (some of them banned for domestic use) travelled back to the country, and other parts of the Global North, on fruits from plantations in the Global South. Public protest was only able to mobilise a critical mass when the health of their own society and their own children was perceived as threatened, whereas the solidarity over a health threat to people in the Global South had a limited effect, especially when it demanded a change of food consumption habits. Thus, only in situations when imported food was proven to be contaminated with a high level

[88] E. Merck an Bock, Hessische Landesanstalt für Umwelt, Betr. Verbleib von Hexachlorcyclohexanrückständen, 20 Feb. 1975, Merck Archive, Hexachlorcyclohexan (HCH), V15 250; Marktinformationen für die Erzeugnisgruppe Pflanzenschutz- und Schädlingsbekämpfungsmittel, 5 Jan. 1987, 1–11, 6, LASA, Mer, I 527, VEB Kombinat Agrochemie Piesteritz, (1908–92), 2238, T 1/2 Erzeugnisse Pflanzenschutz- und Schädlingsbekämpfungsmittel 1983–1987.

[89] E.g. the Vietnamese import of East German DDT and similar substances in the late 1970s and 1980s. Such pesticides were also used against the Anopheles mosquito and therefore malaria.

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of pesticides did the protests at home grow, though they did not end the system of pesticide use fundamentally.

In conclusion, it should be noted that the practice of exporting banned or obsolete pesticides from Europe to the Global South is still in practice. The European Union initiative is seeking to end the export of banned hazardous chemicals, which includes various pesticides,[90] and the German government is looking to implement similar regulations.[91] Critics claim, however, that the new law will be insufficient due to its many exceptions and regulatory gaps, and was until the end of 2024 unlikely to put an end to the export of banned pesticides completely.[92] Nonetheless, the initiative shows that the topic has reached the highest levels of political decision-making and that the EU is taking an important first step in addressing this problem. However, the regulations come into force without central questions being sufficiently clarified: which substances are to replace the banned ones, who will pay for them and how can these new standards be maintained in the face of impending famines in the Global South?

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[90] Europäische Kommission, Gefährliche Chemikalien.

[91] Bundesministerium für Ernährung und Landwirtschaft: Pressemitteilung 119/202, 'Özdemir: Exportverbot gesundheitsschädlicher Pestizide kommt' (12 Sept. 2022, https://www.bmel.de/SharedDocs/Pressemitteilungen/DE/2022/119-vo-exportverbot-pestizide.html (last visited 20 Sep. 2024).

[92] Elke Brandstätter und Andreas Maus, 'Verordnungsentwurf Verbot von Pestizid-Exporten – mit Lücken,' *Tagesschau.de* (29 June 2023), https://www.tagesschau.de/investigativ/monitor/pestizide-exporte-100.html (last visited 20 Sep. 2024).

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