

# Agrarian Studies and Pesticides

Pesticides are strange artifacts, and humans are even stranger animals: they release these toxins into the environment *deliberately*. The public concern about the negative effects of pesticides in the 1960s made the pesticides issue one of the pillars of the emerging environmental movement. A stream of social science publications followed in the 1970s and 80s. Over time, however, the social sciences shifted their focus to topics such as biotechnology and GMOs, climate change, and deforestation as more fashionable anxieties and left the pesticides issue to concerned life science scholars. These researchers observed a huge and continuous growth of global pesticide usage over the last two decades, despite all the talk about sustainability and agroecology.

My own interest in pesticides developed while doing fieldwork in Honduras in the 1990s. Reading the literature on local agricultural knowledge in Central America, I stumbled across a scientific publication on smallholder farmers' perceptions of the risks of paraquat, a common herbicide. The researcher, paid by a paraquat-producing industry, presented the picture of a trouble-free pesticide system and idolised the risk knowledge of the smallholders. The findings and the argument in this publication were strongly at odds with my own observations, and it was not difficult to detect flaws in the study. In fact, my conversations with farmers and agricultural workers about

paraquat spraying had revealed horrendous experiences. This contrast between the narratives of my interlocutors and the industry-paid researchers motivated me to develop sociological research on the pesticides issue even though the topic was outside the realm of disciplinary interests at the time. The pesticides issue can be seen as a nexus of the intensification of agriculture, technological treadmills, environmental and social justice, opposing mandates and organisational structures within states, agroecological alternatives and nature-technology-society dynamics. The many possible layers of a sociology of pesticide risk reflect an enormous intellectual, political and developmental challenge. Here, I group these into four research lines: risk perceptions, risk regulation, power of the pesticide industry and struggles around knowledge.

The first research line concerns perceptions of pesticide risks. Most research on the social aspects of pesticides, it appears, investigates farmers' and (sometimes) workers' perceptions and is undertaken by technical scientists, such as medical researchers, agronomists and ecologists. These studies provide much interesting data on problems with pesticide use. The dominant methodology they employ is the survey by questionnaire aimed at capturing individual responses. Such inventories of individual perceptions, however, are momentary snapshots at best. Many percep-

tion surveys fail to reveal when, why or how people come to make their risk assessments or how their views change. We know, however, that the collective effervescence aroused during societal protest, when watching an impressive documentary or movie or after a heated discussion may change people's views and expressions. And the snapshot survey is not well suited to reveal such dynamics. Clearly, a stronger sociological input could be useful here.

Greater sociological input could also help to get away from the predominant 'deficit-of-knowledge' assumption of many studies, leading to the trite conclusion that the study population lacks knowledge, such as about the safe use of pesticides. Unwittingly, the pesticide user is thus blamed for negative health effects. Whatever the situation, many publications on pesticide perceptions end with a magical call into the academic ether for more training and education to narrow the knowledge deficit.

Sociology can explain better the contextual and cultural shaping of knowledge, including in this domain. It holds as standard that the recorded expressions of individuals in such snapshots are not just something essential to the individual but a result of a longer and broader construction – by social organisation, labour and livelihood conditions, everyday practices and experiences, and discourse. Risk perception is filtered by social and cultural meanings transmitted via social groups and social relations. It is not only the snapshot of momentary perceptions that is important but also their shaping and variation in time and place.

In various research projects, my colleagues and I have tried to interpret the larger narratives around the pesticides issue as expressed in daily conversations, in formal

expressions made at meetings, in court cases, in commercial advertisements, in parliamentary debates, in laws and regulations, in protest slogans and songs, and so on. Moving away from individual perceptions, we try to get an idea of how 'collective representations' – the more broadly shared narratives and symbols of risk – emerge, compete with one another, change over time, and, possibly, die out or lose their urgency.

A second research line concerns the uneven emergence of pesticide risk regulations in different countries. Risk regulation in general owes much to the pesticides issue and better knowledge of the latter's history, the choices made, the organisations established and the effects of all these is relevant for the wider field of interactions between risk regulations and society. Most countries in the world have developed complex regulatory systems for the registration and monitoring of pesticides. The huge variation in capacities and organisational cultures of different countries is an important issue in itself.

I have been especially interested in how international models of good regulatory practices, as developed by the FAO, among others, are being translated into laws and routines at national level, thereby interacting with national contexts, existing laws and specific normative systems. This translation process creates, on the one hand, a sort of confluence of thinking about risk regulation and, on the other, idiosyncratic modes of regulating pesticides, which makes any harmonisation of risk regulation – such as among Central American countries – so problematic. The study of these translation processes sheds light on the interactions among law-making and the conflicting goals of agricultural growth, human health, and environmental demands, along with divergent policy narratives and power networks in the

agricultural sector writ large. It addresses the question of how and why the state has prioritised certain risk perspectives and neglected others. Researchers with a background in agrarian studies may approach such questions differently compared to, for example, environmental sociologists, as the former will put more emphasis on the impact upon and the shaping by farmers and workers and the dynamics within the agricultural sector.

The role of power in networks just mentioned is made central in a third research line focusing especially on big business. The pesticide industry is evolving quite significantly. The most recent process of mergers exemplifies one aspect of this since they have concentrated pesticide development capacity and market power into a big four – comprising BASF, Corteva (Dow+Dupont), Bayer (including Monsanto) and ChemChina (including Syngenta). It seems important to understand how transnational conglomerates construct discourses on good agricultural practice and their contribution to sustainability, and how they influence political decision-making on risk regulation (Jansen 2017). A relevant question here concerns how such actors use and represent science.

The fourth line of research investigates knowledge struggles, expertise and collective social action. People are not just passive victims, suffering (or not) from the effects of pesticides but actively select the risks they take. Risk assessment and regulation regimes do not exist without a public that co-constructs them. Social movement struggles to seek redress for pesticide-related harm have produced major law reforms in several Central American countries, sometimes strengthened scientific risk analysis and certainly helped to insert new ideas into legislation, such as the precautionary principle. In a study on collec-

tive action to ban aerial spraying of pesticides in the Philippines, we found small local organisations mobilising national civil society networks and then politicians (Nikol & Jansen 2021). Citizen organisations actively create new knowledge and shape risk perception and the making of risk regulation.

These cases show that people are not simply possible victims or research objects for the detection of whether or not a particular pesticide causes a particular disease. Obviously, it is vitally important to investigate these types of relationships and their human causalities, but we also have to understand how humans as agents shape risk governance and sometimes risk science. Indeed, while science can measure risk, it is people who select risks with their risk priorities and who take action to reduce risks. Since science is not homogeneous but fragmented, moreover, diversity within science and science advice have become study domains in themselves. In the pesticides context, for example, chemists and agronomists may introduce and defend toxics, whereas epidemiologists and toxicologists may provide evidence of negative impact. Which science should then count in decision-making, how should judgements be weighed and by whom? Calls for science-based decision-making do not answer these questions. Different actors in social struggles around pesticides can mobilise different types of science.

The four research lines outlined here require an interdisciplinary approach, which can be broadly called a *political ecology of pesticides*. This first involves an engagement with the material, including the nature of the chemicals, their effects on health and environment and the properties of agricultural production. Then, the political economy of pesticide use is introduced, including shifts in the industry, the differential use by different types of producers



Spraying tank with pesticides

and the role of pesticides in making profit, such as through the substitution of labour (herbicides). Third, we move to the study of knowledge, perceptions and the cultural representations of pesticides: how do people view the benefits and risks of pesticides and perceive, adopt or contest the narratives of other actors? Finally, this approach looks at how ideas and practices materialise in institutional configurations and (counter-) hegemonic discourses. This kind of research agenda has multiple layers and requires dynamic interactions with other disciplines, from the chemical sciences to occupational health and from history via social movement theory to the study of international relations.

More than ever, the pesticide issue requires interventions from social scientists. Pesticide use is growing globally. Although it is important to foster agroecological practices, critical agrarian studies need further work for a more mature development. The dynamics of pesticide use, their promotion and steps made

in risk management should be better followed and understood. The pesticide problem has led to a complex and huge risk management apparatus at national and global levels that remains little studied even as a torrent of political industry narratives praise the benefits of pesticides and their sustainability. The study of pesticide issues from a combined agrarian and development studies perspective also offers a fruitful entry point into wider sociological debates on the differential impact of technologies, the social shaping of technologies, risk in society, technology and the body and environmental and social justice.

Jansen, K. (2017). Business Conflict and Risk Regulation: Understanding the influence of the pesticide industry. *Global Environmental Politics*, 17(4): 48-66.

Nikol, L., & Jansen, K. (2020). The Politics of Counter-Expertise on Aerial Spraying: Social movements denouncing pesticide risks in the Philippines. *Journal of Contemporary Asia*, 50(1): 99-124.