

Pesticide risk reduction and the dynamics of legal pluralism (FIRST DRAFT)

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1. Introduction

Due to their toxic properties, synthetic pesticides have become widely used in the past century to combat agricultural pests and diseases, and hence to achieve higher yields. However, these same properties are the reason that pesticides may cause harm to the environment and human health, as the example of persistent organic pollutants has shown.¹ Although pesticide risks have long been recognised and less hazardous pesticide products and lower input agricultural production methods have become available, regulatory approaches by state actors have thus far failed to achieve a significant reduction of pesticide risks. However, it seems that the present broad concern about the quality and safety of food products, fuelled under the influence of increased economic globalisation and international trade, is providing an impetus for more adequate and effective regulation by state as well as non-state actors, stimulating the conversion to more sustainable agricultural practices.

This paper aims to determine the global pattern of pesticide risk regulation and its present reconfiguration from the perspective of legal pluralism. It furthermore aims to identify future options, taking into account the possible roles of state and non-state actors. Section 2 explains the challenge of pesticide risk reduction. Section 3 discusses the concept of legal pluralism and its global relevance. Section 4 examines the pattern of regulation and its reconfiguration focusing on distributive and normative aspects. Section 5 explores the way forward by outlining a blueprint for a global framework to achieve a progressive reduction of pesticide risks. Section 6 considers in retrospect the concept of legal pluralism and its application in research. Section 7 presents final observations.

2. The challenge of pesticide risk reduction

Agricultural pesticides are associated with several environmental and human health risks during the different stages of their life-cycle, that in its simplest form consists of the stages of production, marketing, use, and residues.² In the production stage, site-specific

¹ See e.g.: R.L. Carson (1962). *Silent spring*. Boston: Houghton Mifflin, 400 p.

² Th. Colborn, D. Dumanoski & J. Peterson Myers (1996). *Our stolen future: are we threatening our fertility, intelligence, and survival? A scientific detective story*. New York: Dutton, 306 p.; P. Hough (1998). *The global politics of pesticides. Forging consensus from conflicting interests*. London: Earthscan, 226 p.; M. Jacobs & B. Dinham (2003). *Silent invaders: pesticides, livelihoods and women's health*. London/New York: Zed Books, 342 p.; J. Pretty (ed.) (2005). *The pesticide detox: towards a more sustainable agriculture*. London: Earthscan, 240 p.

emissions to the environment may occur as the result of production processes of pesticide substances and products, and workers in pesticide plants and people living in the neighbourhood of such production facilities may be at risk of exposure to hazardous emissions and industrial accidents.

In the marketing stage, emissions may take place during transport and by leaching from storage depots. Such depots may form a considerable risk for the local population, especially in developing countries and countries with economies in transition.³ In the use stage, emissions are related to the fact that pesticides are never used entirely efficiently by the receiving crops. Small but significant quantities of pesticides are lost directly to the environment. Some is vaporised, eventually to be deposited in rainfall, some remains in the soil, while some reaches surface and groundwater by runoff or leaching. Pesticides in groundwater, surface water and drinking water are now the most serious environmental problems associated with pesticide use, and may also result in negative impacts on biodiversity, climate conditions and the ozone layer. People working at farms and those living next to fields and greenhouses may experience damage to their health due to pesticide poisoning.⁴

In the residue stage, consumers may be exposed to critical levels of pesticide residues in food that could cause chronic or acute health effects. Despite scientific effort in this area, the debate on the health implications of pesticide residues is still surrounded with many scientific uncertainties.⁵ Such uncertainties *inter alia* include the potential of pesticides to cause cancer, to disrupt the hormone and reproductive system, and to bring damage to the nervous system. In general, there is a lack of reliable data on the long-term consequences of exposure to pesticide residues and on the 'cocktail' effects of multiple residues. Children are considered to be most vulnerable to the risks of pesticide residues, because their bodies are still developing and they are exposed to relatively higher doses than grown-up people.

In order to limit pesticide risks, a wide range of regulatory options for pesticide risk reduction is in principle available, such as pesticide bans, pesticide authorisation decisions, agricultural production standards, HACCP guidelines, traceability schemes, and pesticide maximum residue levels (MRLs). Importantly, agricultural production standards may define several innovative agricultural methods, including: 1) applying good agricultural practice (GAP); 2) applying 'fewer chemical inputs', or integrated

³ In the past decades, stockpiles of pesticides have accumulated in developing countries and countries with economies in transition as the consequence of government procurement policies, development assistance programmes, and dumping of outdated products by pesticide companies.

⁴ See e.g.: WHO (2002). *The World Health Report 2002 – Reducing risks, promoting healthy life*. Geneva: WHO. According to WHO estimations, there are worldwide three million severe cases of pesticide poisoning each year and as many as 20,000 unintentional deaths, primarily in developing countries. In addition to unintentional deaths, there are an estimated 200,000 intentional deaths annually, as a number of pesticides are used for committing suicide, with the highest incidence levels in South-East Asia.

⁵ See e.g. the comprehensive overviews of research as presented in the three-monthly *Research Monitors of PAN UK*.

control, including, for example, integrated pest management (IPM), integrated crop management (ICM), and integrated production, and 3) applying ‘no chemical inputs,’ or organic farming. Notably, the precise definitions and interpretations of these methods may considerably vary between actors.

3. The concept of legal pluralism and its application

The concept of legal pluralism was initially developed by legal anthropologists. This so-called ‘classic’ legal pluralism focused on ‘primitive’ societies with more than only one central agency making law, resulting for example in governmental and tribal law.⁶ In a later stage, several legal pluralists have shifted their focus, and discovered strong pluralist traces in the present global societal order. This ‘new’ legal pluralism, or global legal pluralism, holds the view that legal pluralism is a common social feature and claims that we witness today an increase of legal pluralism and differentiation under the influence of increased economic globalisation.⁷

The Portuguese socio-legal theorist Boaventura de Sousa Santos was one of the first scholars who used the ideas about legal pluralism developed by legal anthropologists in a broader sense. According to Santos, the present situation is such that “[R]ather than being ordered by a single legal order, modern societies are ordered by a plurality of legal orders, interrelated and socially distributed in different ways.”⁸ He further argued that we are now entering the period of postmodern legal pluralism that focuses on “suprastate, transnational legal orders coexisting in the world system with both state and infrastate legal orders.”⁹

In his book “Global law without a state”, Günther Teubner launched the thesis that “globalization of law creates a multitude of decentred law-making processes in various sectors of civil society, independently of nation-states.”¹⁰ He argued that *lex mercatoria*, the transnational law of economic transactions, is the most successful example of global law without a state, but also observed that various other sectors of world society are developing a global law of their own in ‘relative insulation’ from the state, official

⁶ See e.g.: F. von Benda-Beckmann (1970). *Rechtspluralismus in Malawi - Geschichtliche Entwicklung und heutige Problematik eines ehemals britischen Kolonialgebietes*. München: Weltforum Verlag; K. von Benda-Beckmann (1985). *The use of folk law in West Sumatran State Courts*, in: A.N. Allott and G.R. Woodman (eds.): *People’s law and state law*. The Bellagio Papers. Dordrecht: Foris Publications, pp. 77-95.

⁷ See e.g.: S.E. Merry (1988). *Legal pluralism*. In: *Law and Society Review*, vol. 22, no. 5, pp. 869-896; B. de Sousa Santos (1995). *Toward a new common sense: law, science and politics in the paradigmatic transition*. New York/ London: Routledge, 614 p.; G. Teubner (ed.) (1997). *Global law without a state*. Aldershot/Brookfield: Dartmouth Publishing Company, 350 p.; F. Snyder (1999). *Governing economic globalisation: global legal pluralism and European Law*. In: *European Law Journal*, vol.5, no. 4, pp. 334-374.

⁸ B. de Sousa Santos (1995). *Toward a new common sense: law, science and politics in the paradigmatic transition*. New York/London: Routledge, p. 114.

⁹ *Ibidem*, p. 116.

¹⁰ G. Teubner (1997). *Foreword: legal regimes of non-state actors*. In: G. Teubner (ed.), *Global law without a State*, Aldershot/Brookfield: Dartmouth Publishing Company, p. xiii.

international policies and public international law.¹¹ According to Teubner, this new 'living law' of the world is nourished not from stores of traditions but from the ongoing self-reproduction of highly technical, highly specialized, often formally organized and rather narrowly defined, global networks of an economic, cultural, academic or technological nature.¹²

Hence, the concept of legal pluralism stretches the boundaries of law in response to the emergence of new sites and forms of governance in which non-state actors are performing prominent regulatory roles.¹³ It furthermore stresses the importance of interaction between different sites of governance, their procedures and normative output. Applying the concept of legal pluralism to a specific issue-area, it is proposed to distinguish at least the following stages, including the identification of sites of governance in a specific issue-area, the description of their regulatory output, the analysis of interaction and the construction of the pattern of legal pluralism. The latter helps to identify options for improvement.

4. The global pattern of pesticide risk regulation and its reconfiguration

In the past decades, the pattern of pesticide risk regulation has become increasingly diverse and complex. This section examines the pattern and its reconfiguration focusing on different aspects. First, it elaborates upon the division of regulatory roles between state and non-state actors. Second, it looks at the sources of authority. Third, it elaborates on the steering modes of regulation. Fourth, it focuses on regulatory objectives. Fifth, it considers regulatory activity in the different stages of the pesticide life-cycle.

Division of regulatory roles

Focusing on the division of regulatory roles, the pattern of pesticide risk regulation and its reconfiguration can be characterised by shifting roles of state and non-state actors in processes of rule-making, rule-implementation and rule-enforcement. More specifically, an increased regulatory involvement of non-state actors can be identified in the public as well as private domain. Concerning rule-making, it is evident that non-state actors are increasingly participating in legislative processes by state actors and that, in addition, they are increasingly taking over the regulatory initiative by developing their own forms of regulation, be it self-regulation, single-actor regulation or multi-actor regulation.

In relation to rule-implementation, a similar dual shift has taken place. Public regulation increasingly addresses non-state actors to assist with the implementation of rules and regulations, as the examples of the FAO International Code of Conduct on the Distribution and Use of Pesticides (1985), the Rotterdam Convention on the Prior

¹¹ G. Teubner (1997). 'Global Bukowina': legal pluralism in the world society. In: G. Teubner (ed.), *Global law without a State*, Aldershot/Brookfield: Dartmouth Publishing Company, p. 3, with a reference to Giddens (1990), pp. 8-9.

¹² *Ibidem*, pp. 7-8.

¹³ See e.g.: B. de Sousa Santos (1995). *Toward a new common sense: law, science and politics in the paradigmatic transition*. New York/London: Routledge, 614 p.; G. Teubner (1997) (ed.). *Global law without a State*. Aldershot/Brookfield: Dartmouth Publishing Company, 350 p.

Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998) and the Stockholm Convention on Persistent Organic Pollutants (2001) demonstrate. In addition, national non-state actors are increasingly implementing transnational standards, such as the IFOAM organic guarantee system (1980) and the GlobalGAP programme for fruit and vegetables (2001). This is reflected in the rise of the private certification industry that can be considered to fulfil the function of the executive power in relation to private regulation. However, compared with public administrations, these private administrative bodies are less independent, as they may find themselves in an ambivalent position because they assess the performance of their customers and, at the same time, have an interest in securing customer loyalty. Moreover, they can be tied to the standard setting entity through accreditation, which makes their split responsibilities even more difficult to combine.

With regard to rule-enforcement, there is a similar trend of enhanced non-state actor involvement. Whereas state actors increasingly request non-state actors to assist in the monitoring of the implementation of public regulation, non-state actors increasingly develop provisions for monitoring, control and sanctioning as a component of their own rule systems. Significantly, private regulation based on own authority may strengthen the enforcement of public regulation by emphasizing its content and backing it up with market-based sanctions. The GlobalGAP system, for example, requires compliance with the national legislation concerning authorised substances and maximum residue levels in the country of production and, if relevant, the country of destination. It thus gives a stronger backing to state regulation by adding its own monitoring and control mechanisms to the state actor repertoire, plus the powerful sanction of withdrawing a producer's license-to-supply.

Source of authority

Focusing on the source of authority, the pattern of pesticide risk regulation and its reconfiguration can be characterised by a relatively stronger emphasis on private regulation. Based on the identity of regulator and regulated, it is proposed to refine this rather broad category of private regulation into co-regulation, self-regulation, single-actor regulation, and multi-actor regulation.

Applying this typology to the IFOAM organic guarantee system, it is evident that the regulating entity is formally constituted by the member organisations, mostly consisting of organic farmers' associations and companies that deliver services to organic producers, whereas the regulated party are the same producers and organisations. A further inspection of the functioning of the system makes clear that organic producers determine its actual core in all stages of the regulatory process, as rule-making is ultimately in the hands of the IFOAM World Board consisting of organic producers' associations, and rule-implementation is mostly the responsibility of dedicated organic certification bodies, with the quality of the performance of certification bodies controlled by a voluntary accreditation programme operated by a subsidiary of IFOAM. Furthermore, rule-enforcement is performed by the same certification bodies, which carry responsibility for rule-implementation. In sum, it is therefore argued that the IFOAM system is a form of

self-regulation, as the structure of the system is such that regulator and regulated are essentially identical.

Taking a closer look at the GlobalGAP programme for fruit and vegetables, it is clear that the regulating entity is formally constituted by a combination of retailers and agricultural producers, whereas the regulated party are the producers. However, there is a certain power asymmetry in favour of the retailers, which reveals itself in the different stages of the regulatory process. With regard to rule-making, the governing structure of GlobalGAP is such that retailers and the world's largest suppliers have the strongest positions in standard setting. Concerning rule-implementation, certification bodies are in charge of elaborating and applying the standards. However, they have to operate within the strict boundaries set by GlobalGAP, as exemplified by the requirement of mandatory GlobalGAP accreditation and the strict GlobalGAP quality programme for certification bodies. Most importantly, certification bodies are dependent on the retailers for their license-to-operate. In relation to rule-enforcement, the retailers of GlobalGAP dispose of the most effective sanction to stimulate the adherence to rules and regulations, namely the threat of withdrawing a producer's license-to-supply. In sum, it is therefore argued that the GlobalGAP system is a form of single-actor regulation, as the structure of the system is largely influenced by the apparent power asymmetry.

In sum, the application of this typology based on source of authority can thus provide clarity about issues of power distribution in private regulation. Moreover, it may offer insights in the democratic content of non-state actor approaches, as it focuses on issues of representation and decision-making power.

Steering modes of regulation

Focusing on steering modes, the pattern of pesticide risk regulation and its reconfiguration can be characterised by a shift from hierarchy-based towards non-hierarchical steering modes based on market mechanisms and consensus-seeking. This shift is strongly related to the fact that non-state actors from the private sector and civil society are increasingly performing regulatory roles. In order to provide insights into regulatory consequences of this shift, Table 1 combines the steering modes of hierarchy, market, and consensus-seeking with the different stages in regulatory processes.

Table 1 Basic regulatory mechanisms in the issue-area of pesticide risk reduction in agriculture

Steering mode/stage	Rule-making	Rule-implementation	Rule-enforcement
Hierarchy-based	Imposition	Public law rights and obligations	Public sanctions
Market-based	Negotiation	Civil law rights and obligations	Private sanctions
Consensus-based	Deliberation	Voluntary commitment	Social sanctions

In the hierarchy-based steering mode, rules are imposed from above based on the principle of democratic representation, implemented through rights and obligations based on public law, and enforced through public law mechanisms that are linked to the privilege of citizenship. In the market-based steering mode, rules are made through

negotiation based on market power, implemented through rights and obligations based on civil law, and enforced through private mechanisms that are linked to the privilege of market access. In the consensus-based mode of regulation, rules are made through deliberation based on common interests, implemented through commitment, and enforced through social mechanisms that are linked to the privilege of participation.

Importantly, there can be in practice a less clear dividing line between the steering modes of public and private regulation than may appear at first sight. Practice shows that private regulation increasingly takes place within a triangle of hierarchy, market, and consensus-seeking steering modes. This is certainly relevant in a situation of an asymmetrical relationship where a private regulator dominates a regulated party through market power, and consequently a situation has arisen of actual hierarchy. The same blurring of dividing lines can be recognised in certain forms of public regulation that use market-based instruments to achieve public policy goals.

Regulatory objectives

Focusing on regulatory objectives, the pattern of pesticide risk regulation and its reconfiguration can be characterised by an increased variety of interests and objectives. Whereas the initial focus of pesticide risk regulation was almost exclusively on the protection of national agriculture against pests from other countries and thus an increase of national agricultural production, the emphasis has subsequently shifted in the direction of international economic interests, such as the creation of a level playing field in the market for pesticide products, the facilitation of trade in agricultural products, and the stimulation of employment in the chemical industry. Simultaneously, objectives of environmental and human health protection have also come to the fore.

Thus far, the argument of consumer health protection has been the main point of leverage for non-state actors to establish regulation aimed at pesticide risk reduction. Worker health and environment have had a secondary priority. Looking at the near future, it can be expected that consumer health protection will remain a high priority as new scientific evidence is continuously emerging, for example about hormone disruptive substances and substances potentially triggering Parkinson's disease. In some respects, consumer health can be instrumental in reducing pesticide risks for the environment as well as worker health, but this is not necessarily the case.

A recurrent theme in the debates on the regulation of pesticides concerns the determination of risk and the interpretation of scientific evidence. The interpretation of the actual risks involved and potential hazards differs widely between actors across levels and there are also differences of opinion about the safety margins to be taken into account in decision-making and the level of precaution to be considered. This divergence of interpretations and opinions is, for example, illustrated by the different status of pesticide substances under different regulatory regimes.

In addition, actors may have different opinions about risk management options. A major issue concerns the question whether the ultimate objective of pesticide law and policy should be risk reduction as such, or combined with dependency and/or use reduction. As

can be concluded from this paper, the present pattern of regulation reflects a broad consensus about the objective of risk reduction but less agreement about the reduction of dependency and use. At the national level, however, regulatory patterns can be radically different, as the examples of the Scandinavian countries demonstrate, putting considerable emphasis on dependency and use reduction.

The consequence of multiple, and often opposing, interests and objectives is that they have to be weighed against each other in decision-making processes. Practice shows that state actors at governmental level experience difficulties to find a balance between the diverging interests at play. At different levels, they have been muddling through in establishing a coherent and effective law and policy on pesticides. This is, for example, demonstrated by the fact that the decisions concerning the objectives of legal instruments and their interpretation are often controversial and the definition process of crucial concepts postponed. In response to the paralysis of state actors, non-state actors have increasingly taken over the regulatory initiative in pesticide risk reduction matters, arguably better equipped to reconcile diverging objectives. In their new role, they increasingly claim to function as ‘agents of change’ in the process towards food safety and sustainability.

A side-effect of the current regulatory pattern is that it favours the economic interests of multinational companies in the pesticide industry, seed industry, and food and retailing industry, because it facilitates a consolidation of market share and power through the establishment of additional governance structures. At the level of agricultural production, the increased influence of multinational companies has led to two opposing trends. On the one hand, it has resulted in an increased standardisation and commodification of the bulk of agricultural produce by creating increasingly homogeneous products. On the other hand, it has led to de-commodification through the development of specialty products based on high-technology for niche markets. Both developments have taken place at the expense of traditional agricultural biodiversity.

Life-cycle of pesticides

Focusing on the pesticide life-cycle, the pattern of pesticide risk regulation and its reconfiguration can be characterised by a shift towards greater involvement of non-state actors in the stages of production, marketing, use and residues. The pattern in the production stage has relatively changed the least and is still primarily being determined by state actors. Concerning the marketing stage, the pattern has become more diverse over the years, with state and non-state actors both regulating the status of pesticide substances, although the former are still in the dominant position. In the use stage, the pattern has become equally diverse but with an arguably increased dominance of non-state actors. The regulatory pattern has also changed considerably in the residue stage, and is now being determined by state as well as non-state actors.

Looking at the regulatory activity in the different stages of the pesticide life-cycle, it is apparent that state actors have concentrated so far on the marketing and residue stages, whereas non-state actors have focused especially on the use and residue stages. Notably, the group of non-state actors is far from homogeneous and consequently the focus of their

activities diverges. From the examination of non-state actor initiatives, it is evident that civil society initiatives primarily focus on the use stage of pesticides whereas corporate initiatives put the emphasis on food safety aspects, such as pesticide residues in food products.

As a result of the regulatory activity of state and non-state actors, the density of rules is relatively high in relation to residues which from the point of view of regulatory efficiency can be seen as counterproductive because the more advanced the stage in the life-cycle, the higher the costs of monitoring and enforcement. However, as long as consumer health is a higher priority on the agenda of politicians and broader society than the protection of the environment and worker health, the incidence of residues will remain the main point of leverage for enacting new rules and regulations by state and non-state actors.

In contrast to the relatively high regulatory activity in the residue stage, the level of activity is rather low in the production stage. As the experience with persistent organic pollutants has demonstrated, it takes many years before even the most hazardous substances can be eliminated. In this respect, it is important to note that as long as a substance is being produced, it can always make a re-entry in agricultural production. In the end, a production ban at the international level is the most effective instrument to reduce pesticide risks. In this respect, the Stockholm Convention on Persistent Organic Pollutants has finally provided the means for the demise of several of the most hazardous substances by phasing out their production, marketing and use.

Significantly, the current distribution of regulatory activity and rule density may indicate that a lack of production regulation at the international level leads to compensation through the regulation of the marketing, use and residues stages at other levels. Hence, the regulation of these stages may function in fact as a substitute for a global production ban, but leads at the same time to uneven levels of protection of the environment and human health worldwide.

In sum, the combined regulatory approaches by state and non-state actors have provided a certain impetus to reduce environmental and human health risks in the different stages of the pesticide life-cycle. In addition, the effectiveness of these regulatory approaches has been further strengthened by synergetic interaction in vertical, horizontal and diagonal directions. However, on a global scale the progress achieved can be considered marginal. The experiences of the past 50 years have shown that the environmental and human health risks of pesticides are difficult to control and that an adequate level of protection is not evenly shared between all countries and citizens. More precisely, the current regulatory pattern mostly benefits the protection of the environment and human health in developed countries, but is lesser effective for developing countries with emerging economies and those with economies lagging behind. For example, despite the introduction of less harmful pesticides through technological innovation, the use of older substances from the highest WHO hazard classes is still commonplace in poorer countries that often have less strict authorisation rules and enforcement.

5. A blueprint for a normative framework

The previous section has discussed several characteristics of the pattern of pesticide risk regulation and its reconfiguration. Among the main shifts in governance have been a shift towards increased regulation at the international and transnational level, a shift towards increased involvement of non-state actors in regulatory processes, a shift towards legally non-binding forms of regulation, and a shift towards the increased regulation of further advanced stages of the pesticide life-cycle. In order to achieve the objective of responsibly dealing with pesticides by 2020, as agreed during the Johannesburg Summit in 2002, this section formulates the outlines of a normative framework for pesticide risk reduction. In particular, the focus is on how to improve the balance of regulatory power and the adequacy of rules.

Balance of regulatory power

In order to restore the balance of regulatory power, the current division of authority and responsibility between state and non-state actors needs reconsideration. From a public policy perspective, private regulation can be assumed to have certain advantages in comparison with public regulation, such as greater flexibility and adaptability of rules and the availability of expert knowledge. An additional argument for private regulation is that the costs of rule-making, rule-implementation and rule-enforcement are shifted to the regulated concerned. Under certain conditions, this can be considered as a form of internalisation of costs and, hence, an application of the polluter-pays principle. Furthermore, private regulation can fulfil several functions in the 'shadow of the law', such as providing a testing ground for regulation, preparing a suitable environment for regulation, and offering adequate mechanisms for compliance and control.¹⁴

However, there are also important limitations to the potential of private regulation to help solve public policy problems. First, the scope of private regulation is limited, as the norm addressees are often a selected group. The addressees of the GlobalGAP programme, for example, are the agricultural producers that already have a relationship with the European retailers, or are in the race to capture such a position. Thus, the programme will not reach those suppliers who use other distribution channels to sell their produce. Second, it is important to recognise that some functions can only be performed by the state, such as ensuring the balance of regulatory power and the coordination of regulatory efforts.¹⁵ However, the example of pesticide risk regulation has shown that state actors experience difficulties with the execution of these functions and have increasingly transferred the regulatory initiative into the hands of the private sector, arguably losing control.

¹⁴ See e.g.: G. Salmon (2002). Voluntary sustainability standards and labels (VSSLs): the case for fostering them. Background paper for the Round Table on Sustainable Development. OECD: Paris.

¹⁵ F. Snyder (2004). Introduction: international food security and global legal pluralism. In: F. Snyder (ed.). International food security and global legal pluralism. Brussels: Bruylant, pp. 13-20, and N. Gunningham (2007). Regulatory reform beyond command and control. Paper presented at the Amsterdam Conference on the Human Dimensions of Global Environmental change, Earth System Governance: Theories and Strategies for Sustainability, 24-26 May 2007, 17 p.

The limitations of private regulation have as a consequence that non-state actors can at best perform a transitional or complementary function in achieving public policy objectives. Thus, private regulation can be considered part of the solution but not the solution in itself. In order to respond to these limitations, it is argued that state actors should take back their primary responsibility for regulation, and develop a longer-term vision on pesticide risk reduction strategies to be established in appropriate frameworks of normative and procedural rules. In addition, state actors should adapt to the present regulatory reconfiguration by strengthening their steering and coordination capacities and by applying the possibilities that competition and anti-trust legislation offer more rigorously.

Hence, state actors should aim to resume their responsibility as main regulators. At the same time, they should take advantage of the initiatives developed by non-state actors. Most importantly, the co-existence of state and non-state actor approaches could be the ideal starting point for developing a ‘smart’ mix of instruments to help agricultural producers make a transition towards sustainable agriculture. Accordingly, Gunningham (2007) argues that “there is not one solution, but it is essentially about seeking the right combination of partial solutions at different levels.”¹⁶

As part of this smart mix, non-state actors can contribute to a further reduction of pesticide risks by developing competing initiatives using self-regulatory or multi-stakeholder approaches. The latter approaches could be based on existing models, such as a stewardship council, a commodity roundtable, or a community-based initiative.¹⁷ From a democratic point of view, these approaches are preferable above single-actor regulation because they are based on stricter criteria of good governance by definition.

Adequacy of rules

In order to accelerate pesticide risk reduction, it is necessary to further develop the normative framework for pesticide risk reduction and make it more ambitious, encompassing and coherent. The main argument to regulate pesticide issues as much as possible at the international level is to create a level playing field not only in terms of trade opportunities but also in relation to the protection of the environment and human health.¹⁸ Importantly, regulatory activity at other levels should take place within certain boundaries imposed by international law.

For a framework of normative rules, the FAO Code of Conduct on the Distribution and Use of Pesticides could serve as a point of departure, since it covers in principle all stages of the pesticide life-cycle and targets all pesticide substances. In addition, such a global law on pesticide risk reduction should consist of the following basic elements:

¹⁶ N. Gunningham (2007). *Ibidem*.

¹⁷ Examples of multistakeholder approaches include: the Forest Stewardship Council (FSC), the Marine Stewardship Council (MSC), the Roundtable on Sustainable Palm Oil (RSPO), the Sustainable Commodity Initiative (SCI), and Community Supported Agriculture (CSA).

¹⁸ S. Karlsson (2000). *Multilayered governance. Pesticides in the South – environmental concerns in a globalised world*. Academic dissertation. Linköping: Linköping University, 397 p. J. Gupta & D. Huitema (eds.) (forthcoming). *Scale in environmental governance*. Cambridge, MA: MIT Press.

- Production stage: To phase out the hazardous substances from the WHO hazard classes of extremely hazardous (IA), highly hazardous (IB), moderately hazardous (II), and, as far as feasible, slightly hazardous (III) substances.
- Marketing stage: To apply the precautionary and substitution principles more strictly during authorisation of pesticide substances and products.
- Use stage:
 - To give an increased priority to the elaboration of internationally harmonised guidelines for IPM and their implementation in practice;
 - To start developing internationally harmonised definitions and guidelines for agricultural production methods aiming at higher levels of integration;
 - To apply the polluter pays principle more widely, for example by taxing the production, marketing and/or use of hazardous, patent-free pesticide products and to deposit the revenues in the Global IPM Facility.
 - To stimulate non-state actors to develop programmes using self-regulatory and multi-stakeholder approaches.
- Residue stage: To formulate aggregate MRLs and a final goal of residue-free produce.

With a view to the use stage of pesticides, it is important for the longer-term that state actors develop a vision on the transition towards sustainable agricultural production methods. Such a transition can only happen step by step and will take many years. Therefore, this vision should be accompanied with concrete targets and timetables. Considering the conversion to IPM as a first step in a process towards further risk reduction, it is necessary, with a view to the progressive development of norms in the longer term, to examine the content of concepts with a higher level of integration.

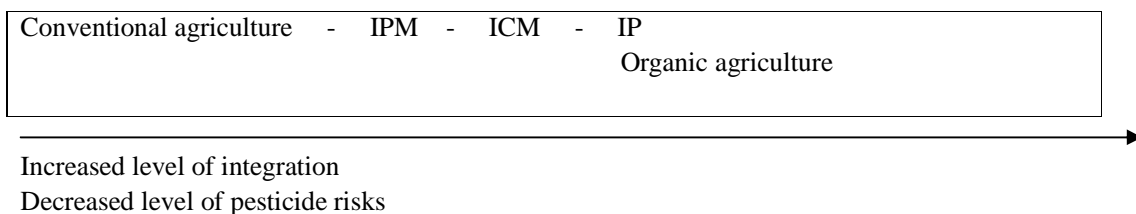


Figure 1

As a general rule, and as pointed out in Figure 1, it is argued that the higher the level of integration, the lower the level of pesticide risks. However, this statement needs to be nuanced as the extent of risk reduction largely depends on the definitions of the concepts concerned and their application in agricultural practice. There are strong and weak definitions in place for innovative agricultural production methods, such as organic agriculture and integrated control. Such weak definitions may have counterproductive effects. For example, a weak definition of organic agriculture, that does not restrict the use of off-farm inputs, could increase the risk that non-synthetic pesticides are increasingly used as substitutes for synthetic pesticides. A weak definition of integrated control that does not include a priority ladder of measures could have the effect that agricultural producers will go on with business-as-usual.

6. The concept of legal pluralism in retrospect

The theoretical concept of legal pluralism has been used in this paper as a means to analyse patterns and processes of regulation. By offering a pluralist perspective, the concept emphasizes the dynamics of regulatory processes and thus aims to cope with the globalisation of law and transnationalisation of regulation. Focusing on the issue-area of pesticide risk reduction, it is evident that the approaches developed by non-state actors are indeed sophisticated rule systems. Moreover, they perform similar functions as those established by state actors and are perceived by the addressees as having at least a similar binding force. A merit of the concept of legal pluralism is that it stimulates to take these forms of private regulation seriously and to understand that they are lasting phenomena. It thus draws the attention to issues related to the distribution of power and steering modes. Moreover, the concept provides a bridge between law and social sciences, in particular political sciences, and can open up new opportunities for mutual understanding and exchange between the disciplines.

Returning to the observation of De Sousa Santos that in fact two types of transnationalisation are emerging in the legal field, one organized by “world capitalism” and the other by the “dominated, exploited and oppressed social groups and interests”, this paper concludes that the transnational rules in the issue-area of pesticide risk reduction are indeed being established by two different groups of non-state actors.¹⁹ However, the actual contrast between the two groups is arguably less dramatic than phrased by Santos. Notably, the rise of organic agriculture certification has shown that a bottom-up regulatory system created by small farmer and consumer movements can serve as a catalyst in launching a viable alternative for conventional agriculture, as has been increasingly recognised by state actors and international organisations.²⁰

In his book “Global law without a state”, Günther Teubner has argued that contemporary law will grow mainly from the social peripheries, not from the political centres of nation-states and international institutions.²¹ Although there may be some truth in this statement, it deserves at the same time to be put in perspective and to be carefully scrutinized. More specifically, it should be realised that regulation by non-state actors is not merely a spontaneous form of rule-making but that the legal order created by state actors has facilitated, or even stimulated, the emergence of non-state actor regulation. The reason that non-state actor approaches have started to proliferate can indeed be found in the hesitance of state actors to develop normative frameworks for the protection of the environment and human health at the international level, as has been the case in the issue-area of pesticide risk reduction. Moreover, regulatory initiatives of the private sector have been fuelled by the lack of mechanisms to restrain economic power. Thus, the argument is that state actors have been accomplice to the rise of private governance.

¹⁹ B. de Sousa Santos (1995). *Toward a new common sense: law, science and politics in the paradigmatic transition*. New York/London: Routledge.

²⁰ FAO report recognising the role that organic agriculture can play in order to improve food security.

²¹ *Ibidem*, p. 4, with references to Teubner, 1992; Luhmann, 1993, Robé, 1997.

7. Final observations

This paper has given an example of the regulatory reconfiguration that is currently taking place in the relationships between state and non-state actors in a broader context. Comparable phenomena as have been found in the issue-area of pesticide risk reduction can be found in other issue-areas. More precisely, this reconfiguration can be considered the consequence of increased deregulation and privatisation, trickling down to other levels, which can be aptly summarised as the globalisation of law. In the new configuration, rules have increasingly become an arena of competition, an important means of obtaining and maintaining economic power.

From the perspective of law, the challenge is to find new answers to deal with “creeping globalisation, seemingly unstoppable and impossible to fully comprehend.”²² However, one of the pitfalls in responding to the current explosion of rules is the creation of additional layers of rules in a haphazard way.²³ The option for the longer term should preferably be a move towards comprehensive frameworks at the international level that are more strongly based on values of equity and stewardship.

Saving a last remark for the future of pesticide risk reduction. This paper has argued that considerations of consumer health have thus far been the main vehicle for regulatory approaches targeting pesticides. Due to new scientific findings about linkages between pesticides and major diseases, and fuelled by increasing concerns of the public, it can be expected that these considerations will gain additional strength in the next couple of years. However, it is not unthinkable that a fresh impetus for an accelerated conversion to more sustainable forms of agriculture will also come from different angles, as the evidence of the nutritional differences between conventional and organically produced agricultural products is mounting in favour of organic produce.²⁴ In addition, the current debate about food miles is pushing local agricultural production. Such a shift could have as a consequence that production for export will diminish, which could have impacts on patterns of agricultural production and pesticide use.

²² The citation is borrowed from an announcement for Interdependence Day of the New Economics Foundation, and slightly reworded. The announcement is available at <http://www.neweconomics.org>.

²³ See for a comparable diagnosis: M. Power (2003). Evaluating the audit explosion. In: *Law and Policy*, vol. 25, no. 3, pp. 185-202

²⁴ See e.g.: A.E. Mitchell, Y-J. Hong, E. Koh, D.M. Barrett, D.E. Bryant, R.F. Denison, and S. Kaffka (2007). Ten-year comparison of the influence of organic and conventional crop management practices on the content of flavonoids in tomatoes. In: *Journal of Agricultural and Food Chemistry*, vol. 55, pp. 6154-6159.