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Lessons for Participation from an Interdisciplinary Law and Sustainability Science Approach: The Reform of the Sustainable Use of Pesticides Directive

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Abstract

Stakeholder participation is an important tenet for European Union (EU) policymaking and it can be approached from different disciplinary angles. The legal literature tends to refer to participation as a formal consultative opportunity in regulatory processes, resulting in rather homogeneous institutional arrangements for participation across policy fields and different sets of problems. Sustainability science, on the other hand, starts from the understanding of a problem in its complexity and peculiarities as a driving force determining both the rationale behind and the design of each participatory process. In this paper, we explore lessons regarding participation that could be derived from adopting an approach in which we combine insights from law and sustainability science. Along four principles, we explore potential leverage points for improving the sustainability of EU decision-making processes and their outcomes.

Keywords: participation; pesticides; sustainability

1. Introduction

Since 2019, the sustainability of the European Union (EU) economy and society has been a central focus of EU institutions' political priorities. With the initial European Green Deal, the European Commission has set forth a path for the achievement of a number of ambitious objectives meant to tackle climate and environmentally related challenges.¹ These objectives are cross-sectorial, touching upon different policy areas of EU competence, including the agricultural sector.² In this context, the European Commission has envisaged the adoption of measures, including legislative proposals, needed to concretise these objectives and bring about the desired reductions in greenhouse gas emissions and use of chemical pesticides, as well as in the use of fertilisers and antibiotics.³ The adoption

¹ European Commission, "Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions – The European Green Deal" COM/2019/640 final.

² European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – A Farm to Fork Strategy for a fair, healthy and environmentally-friendly food system" COM(2020) 381 final, 1.

³ *ibid.*, 12.

of these measures is expected to be based on intense stakeholder dialogues,⁴ thus giving a crucial role to the involvement of civil society in the legitimisation of these initiatives.

Sustainability challenges present peculiar characteristics that set them apart from other political or scientific problems that are generally discussed in policy- and rule-making, and they are the specific subject of study of sustainability science. Sustainability science is a relatively young academic field in which scientists from different disciplines collaborate with non-academic stakeholders for the co-production of knowledge and solutions for sustainability.⁵ Sustainability challenges or problems are inherently complex as they have no clear, singular cause and people hold different normative positions on the severity of these problems, their causes and ways in which they can potentially be solved. Gaining a complete understanding of a problem's causes and frames is therefore a daunting task, but it is also key to identifying salient solutions. In this context, stakeholder participation plays a crucial role in defining sustainability challenges and co-creating the knowledge and solutions for solving these challenges.

The understanding and function of participation in sustainability studies is, therefore, different from that generally adopted in the legal literature. The legal literature tends to refer to participation as a formal consultative opportunity in regulatory processes, thus often adopting “an inadequate representation of a much richer tapestry of participation of democracy”.⁶ From a sustainability science perspective, however, understanding of the specific problem at stake, in its complexity and peculiarities, is crucial to the meaning, purpose and design of participatory approaches. In this contribution, we therefore argue that issues related to the implementation of the European Green Deal in the agricultural sector require approaching participation from a perspective in which insights from law and sustainability science are combined. An additional sustainability point of view may provide leverage points for creating more sustainable and robust decisions and legislative work. Indeed, a combined approach may offer new and relevant insights on how participation could contribute to more sustainable EU decision-making in relation to not only the content of such decision-making, but also the decision-making process itself.

This conceptual approach will be applied to the reform of the Sustainable Use of Pesticides Directive (SUD) as an illustrative case study. In relation to this decision-making procedure, a descriptive document analysis was carried out on the documentation on the “Have your say” website, the regulatory outlook and written-out online events. The analysis of the events where different stakeholders came together and where there were (at least in theory) possibilities to exchange information, knowledge and frames was completed through the viewing of three events' videos that were accessible online and in English.⁷ In a next step, a social constructivist approach was employed by noting down sentences from these video relating to problem framing, after which patterns were retrieved and used for the subsequent discussion of the results.

⁴ *ibid.*, 2.

⁵ A Burr, N Schaege, P Muniz, G Camilo and D Hall, “Wild bees in the city: reimagining urban spaces for native bee health” (2016) 16(1) *Consilience: The Journal of Sustainable Development* 96–121; S Funtowicz and J Ravetz, “Science for the post-normal age” (1993) 25(7) *Futures* 739–55.

⁶ C Armeni and M Lee, “Participation in a time of crisis” (2021) 48 *Journal of Law and Society* 549–72, 550. See also J Chilvers and M Kearnes, “Remaking Participation in Science and Democracy” (2020) 45 *Science, Technocracy, and Human Values* 347.

⁷ For this paper, the following videos were analysed: (1) Euractiv virtual event, “What are the realities of the biodiversity and farm to fork strategies” of 4 March 2021 <<https://www.euractiv.com/section/agriculture-food/video/what-are-the-realities-of-the-biodiversity-and-farm-to-fork-strategies/>>; (2) IFPRI and the European Union, “Policy seminar European Green Deal – Farm to Fork Strategy for sustainable food” of 18 February 2020 <<https://www.youtube.com/watch?v=FnXQ1yzBRDg>>; and (3) The Commission, “Stakeholder event Sustainable use of pesticides” of 19 January 2021 <https://ec.europa.eu/info/events/sustainable-use-pesticides-first-remote-stakeholder-event-2021-jan-19_en> (all accessed 10 March 2022). The analysis of the other participation events was carried out on the basis of the documentation available. For an overview of the events, see Section III.2.

The contribution first introduces the participation approach and requirements from a legal perspective (Section II.1) and complements this with insights on participation from sustainability science (Section II.2), developing an interdisciplinary approach to participation (Section II.3). It then turns to the specific case of the SUD (Sections III.1 and III.2), providing an illustrative analysis of the participation mechanisms put in place in the SUD reform (Section III.3), before concluding (Section IV).

II. The meaning and purpose of participation in decision-making

I. Participation and participatory requirements under EU law

In the legal literature, participation is broadly described as the opportunity for stakeholders to take part in decision-making processes.⁸ Such an opportunity is considered to be particularly valuable for EU institutions to gather information on the factual situation and thus to ensure the responsiveness of regulatory decisions. At the same time, the involvement of the natural and legal persons that are affected by the decision-making outcome is deemed to favour compliance and to facilitate the implementation of the rules so openly conceived, as well as to increase the democratic credentials of the decision-making process, complementary to the traditional democratic representation in elected assemblies.⁹

The participation of stakeholders and, more generally, the openness of the decision-making process is a principle that has become increasingly important in EU governance, especially in relation to environmental policy.¹⁰ The European Commission in particular has made increasing use of consultations, considered to be a valuable tool for helping to improve the quality of policy outcomes and for increasing the involvement of interested parties and the public at large.¹¹ Therefore, this practice has become one of the pillars of the Commission's strategy of better law-making and has been coherently inserted into procedures involved in the impact assessments of the Commission's proposals.¹² The current consultation system provides different modalities for involving stakeholders: feedback periods for inception impact assessments and roadmaps, online public consultations, targeted consultations and periods for feedback on adopted legislative proposals and draft implementing and delegated acts.¹³

Taking stock of the consultation practices in place, in its recent Communication on Better Regulation of 2021 the Commission reiterated its commitment to guaranteeing public participation in the preparation of EU legislation, but it suggested further improvements to attract more participants and higher-quality contributions.¹⁴ Although not binding, this Communication introduced the idea of a single "call for evidence" published

⁸ J Mendes, "Participation and participation rights in EU law and governance" in H Hofmann and A Türk (eds), *Legal Challenges in EU Administrative Law: Towards an Integrated Administration* (Cheltenham, Edward Elgar Publishing 2009) pp 257–87, 258. See also J Mendes, *Participation in EU Rule-Making: A Rights-Based Approach* (Oxford, Oxford University Press 2011).

⁹ *Ibid.*

¹⁰ *Inter alia*, A Alemanno, "Unpacking the principle of openness in EU law: transparency, participation and democracy" (2014) 39(1) *European Law Review* 72–90.

¹¹ European Commission, "Communication from the Commission, Towards a reinforced culture of consultation and dialogue – General principles and minimum standards for consultation of interested parties by the Commission" COM(2002) 704 final, 5.

¹² European Commission, "Communication from the Commission – European Governance: Better Lawmaking" COM (2002) 257 final. See also Interinstitutional Agreement between the European Parliament, the Council of the European Union and the European Commission on Better Law-Making, OJ L 123, 12 May 2016, 1–14, point 13.

¹³ European Commission, "Communication from the Commission – Better regulation: Joining forces to make better laws", COM(2021) 219 final, 4.

¹⁴ *Ibid.*, 3.

in the online portal of the Commission¹⁵ for twelve weeks instead of multiple consultations procedures for the same initiative, together with public consultations based on questionnaires.¹⁶

Under this general framework, the person having engaged in participation is not conferred specific rights vis-à-vis the subsequent phases of the procedure nor vis-à-vis its outcome.¹⁷ The Court of Justice of the EU has been particularly restrictive in denying a right to participate in the decision-making processes of acts of general application.¹⁸ The possibility to participate has been recognised only where a specific Treaty article or legislative act expressly provides for a procedure that includes a form of consultation.¹⁹ In other cases, the putting into place of consultation or other participatory mechanisms still depends on the discretion of the Commission. Although this situation clearly favours the efficiency of the decision-making process, which the excessive legalisation of participatory opportunities and the resulting “paralysis by analysis” may impair,²⁰ it is questionable whether it systematically achieves “open, transparent and regular dialogue with representative associations and civil society” enshrined in Article 11 TEU.

Considering the specific purposes of the SUD and its legal basis,²¹ it is noteworthy that initiatives of the Commission related to the environment are subject to a specific legal framework for public participation.²² According to the Aarhus Convention,²³ which was signed by the EU²⁴ and its Member States and therefore is part of the EU legal system as sub-primary law,²⁵ EU environmental law²⁶ requires stronger stakeholder involvement, the extent of which depends on the nature of the decision to be adopted. As noted by Squintani and Perlaviciute in relation to its provisions, “the intensity of legal obligations is inversely proportional to the level of

¹⁵ European Commission, “The Have your say portal”, introduced since 2017 <https://ec.europa.eu/info/law/better-regulation/have-your-say_en> (last accessed 26 July 2022).

¹⁶ European Commission, *supra*, note 13, 4.

¹⁷ Case C-10/95 *Asocarne v Council of the European Union* [1995] ECLI:EU:C:1995:406; Case C-263/02 P *European Commission v Jego Quèrè & CIE SA* [2004] ECLI:EU:C:2004:210.

¹⁸ Case C-104/97 *Atlanta AG and others v Commission of the European Communities and Council of the European Union* [1999] ECLI:EU:C:1999:498; Case T-13/99 *Pfizer Animal Health v Council* [2002] ECLI:EU:T:2002:209. See also J Mendes, *Participation in EU Rule-Making*, *supra*, note 5, chs 4 and 5.

¹⁹ P Craig, *EU Administrative Law* (Oxford, Oxford University Press 2018) p 319.

²⁰ *ibid*, p 327.

²¹ Art 192(1) TFEU.

²² See, *inter alia*, L Krämer, “The EU and Public Participation in Environmental Decision-Making” in J Jendroska and M Bar (eds), *Procedural Environmental Rights: Principle X in Theory and Practice* (Cambridge, Intersentia 2018) pp 121–42; J-L Pissaloux, “La démocratie participative dans le domaine environnemental” (2011) 1 *Revue française d’administration publique* 123–37; D Obradovic, “EC rules on public participation in environmental decision-making operating at the European and national levels” (2007) 36(2) *European Law Review* 829–59; O Ammann and A Boussat, “The Participation of Civil Society in European Union Environmental Law-Making Processes: A Critical Assessment of the European Commission’s Consultations in Connection with the European Climate Law” (2022) *European Journal of Risk Regulation*, First View, 1–18.

²³ The United Nations Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, signed in Aarhus (Denmark) on 25 June 1998.

²⁴ Council Decision 2005/370/EC on the conclusion, on behalf of the European Community, of the Convention on access to information, public participation in decision-making and access to justice in environmental matters [2005] OJ L124/1.

²⁵ Art 216(2) TFEU. See also Case C-104/81 *Hauptzollamt Mainz v Kupferberg & Cie* [1982] ECLI:EU:C:1982:362; Case C-344/04 *IATA and ELFAA* [2006] ECLI:EU:C:2006:10, paras 35–36.

²⁶ Defined as EU “legislation which, irrespective of its legal basis, contributes to the pursuit of the objectives of Community policy on the environment as set out in the Treaty: preserving, protecting and improving the quality of the environment, protecting human health, the prudent and rational utilisation of natural resources, and promoting measures at international level to deal with regional or worldwide environmental problems”, in Art 2(1)(f) of the Aarhus Regulation.

specificity of the act”.²⁷ In particular, while the adoption of decisions on specific activities significantly affecting the environment²⁸ and the procedures concerning plans and programmes relating to the environment²⁹ are subject to detailed requirements and have a binding character upon EU institutions, participatory arrangements provided by the Aarhus Convention for other forms of environmental measures have “softer” legal effects.³⁰

Effective public participation should be ensured in the preparation of policies, executive regulations and generally applicable legally binding normative instruments, which include the preparation of draft legislation by the executive branch before it is passed to the legislature,³¹ such as the new proposal on the SUD. According to Article 8 of the Aarhus Convention, during the preparation by public authorities of generally applicable binding normative instruments, effective public participation “at an appropriate stage and while options are still open” should be promoted by (1) fixing sufficient time frames, (2) publishing or otherwise making publicly available draft rules and (3) giving the public “the opportunity to comment, directly or through representative consultative bodies”.³² However, as clarified in the Implementation Guide to the Convention, these constitute best-effort obligations that, although potentially enforceable through the access to justice provisions of Article 9(3),³³ bind the EU to make efforts towards the attainment of public participation goals but not to the achievement of certain results.³⁴

Similarly, the Convention asks that the results of this public participation be taken into account “as far as possible”.³⁵ In practice, the consultation amounts to the publication of a summary of the results and, for legislative proposals, a reference to the outcome of the stakeholder consultation in the explanatory memorandum.³⁶ A legal mechanism for challenging the summary of the results of the Commission is not expressly provided, nor does this represent an opportunity to argue that the conclusions that the Commission drew from the consultation are not in line with the bulk of evidence provided during it.³⁷

2. A sustainability science perspective on participation

The increased emphasis on participation in decision-making under EU law has resulted in the widespread dissemination of information and the systematic use of consultation practices in policymaking. As per the intention of EU institutions, this should have led to increased trust and greater effectiveness of EU policies. However, notwithstanding all of efforts that the European Commission makes to enable participation, public trust in the Commission remains limited,³⁸ and some legislative acts, including the SUD, have

²⁷ L Squintani and G Perlaviciute, “Access to Public Participation: Unveiling the Mismatch between what Law Prescribes and what the Public Wants” in M Peters and M Eliantonio (eds), *Research Handbook on EU Environmental Law* (Cheltenham, Edward Elgar Publishing 2020) p 139.

²⁸ Art 6 of the Aarhus Convention.

²⁹ Art 7 of the Aarhus Convention.

³⁰ Squintani and Perlaviciute, *supra*, note 27, p 139.

³¹ United Nations Economic Commission for Europe, *Implementation Guidance to the Aarhus Convention* (United Nations Publications 2014) p 181.

³² Art 8(1) of the Aarhus Convention.

³³ And of Art 9(2) if the Parties made the required “opt-in”; see United Nations Economic Commission for Europe, *supra*, note 31, p 182.

³⁴ *Ibid*, p 182.

³⁵ Art 8(2) of the Aarhus Convention.

³⁶ See European Commission, “Guidelines on Stakeholders Consultation” <<https://ec.europa.eu/info/sites/default/files/better-regulation-guidelines-stakeholder-consultation.pdf>> (last accessed 10 March 2022), 86.

³⁷ Craig, *supra*, note 19, p 328.

³⁸ Eurobarometer 95 spring 2021/ 2532/95. On average, only half of the respondents indicated trust in the European Commission. There are, however, large differences across countries, with high levels of trust among Italian citizens (75%) and relatively low levels of trust in Greece (where 65% of the citizens indicated not trusting the European Commission).

had limited effectiveness after being implemented in and applied to practice.³⁹ Arguably, this can be partially related to the rather formalistic approach to participation of the EU institutions that, in line with the legal tradition,⁴⁰ focuses on the procedural opportunities for the involvement of stakeholders without significantly engaging with the substantive framing of the dialogue between institutions and stakeholders. While the European Commission greatly appreciates stakeholder input,⁴¹ it seems to operationalise “input” in a rather restricted way, namely as advice and hands-on experience concerning legislation and decisions, primarily welcoming feedback on already suggested decisions and solutions by the European Commission. Institutional arrangements for participation, whether binding or non-binding, are remarkably homogeneous across policy fields, without paying particular attention to the specificities of the issues and challenges at stake.

From a sustainability studies perspective, however, understanding of the specific problem to be tackled, in its complexity and peculiarities, is crucial to the meaning, purpose and design of participatory processes. In this context, a first step in understanding such problems is an analysis of the *type* of problem – for example, by making use of what it is called *problem structuring*,⁴² which is designed around two axes along which a problem can be understood (see Figure 1):

- (1) Certainty in knowledge: this may vary from having a solid basis of agreed-upon information regarding the problem (ie high certainty) to a lack of knowledge or the existence of highly conflicting knowledge claims (ie low certainty).
- (2) Agreement on norms and values: this may vary from high consensus on how the problem and ideal future are framed to low consensus. In the case of low consensus, different ways in which the problem is framed can be recognised.

The two axes used in problem structuring result in four problem *types* (see Figure 1):⁴³

- (1) *Structured problems*. Knowledge in this area is advanced and (relatively) undisputed and there is high agreement on norms and values. An example is a sheep with a hoof ulcer. This problem will be framed as a health issue for the sheep, people may agree that the sheep should be cured and with the help of a veterinarian and available knowledge the sheep will normally recover quickly.
- (2) *Moderately structured problems (type I)*. Recognised by a lack of knowledge or conflicting knowledge claims (ie low knowledge certainty) combined with generally high agreement on the norms and values. An example is depression. Most people agree on the norms and values as they will jointly frame depression as a problem from a mental health perspective. It is, however, quite a complex problem that (with current knowledge and insights) cannot be solved easily.
- (3) *Moderately structured problems (type II)*. Certain and relatively undisputed knowledge is widely available, but there is strong disagreement on the norms and values. This could be disagreement on whether something is a problem at all, on the various ways in which the problem could be framed or on the future desired state.

³⁹ Revision of Directive 2009/128/EC on the sustainable use of pesticides with accompanying impact assessment, 29 May 2020, Ref. Ares (2020) 2804518, for example, concludes that the SUD has a limited effectiveness in reducing pesticide use and the potential risks to human health and the environment. Sales of pesticides in the EU have remained more or less stable since 2011, and there has been a low uptake of non-chemical pesticides.

⁴⁰ Armeni and Lee, *supra*, note 6. See also Chilvers and Kearnes, *supra*, note 6.

⁴¹ OECD, *OECD Regulatory Outlook 2018* (Paris, OECD Publishing 2018) p 12.

⁴² See R Hoppe, *The Governance of Problems: Puzzling, Powering, Participation* (Bristol, Policy Press 2010).

⁴³ *ibid.*

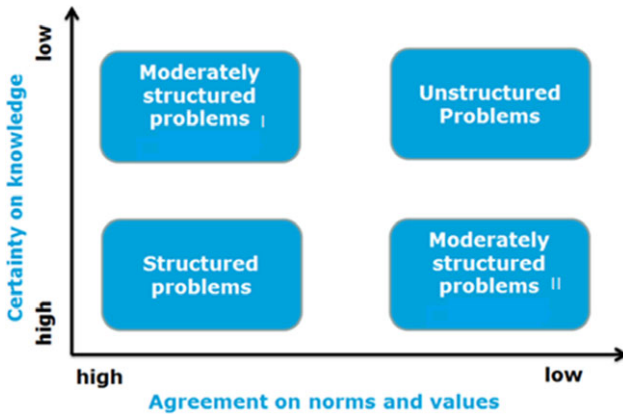


Figure 1. The two axes and the corresponding four problem types that are distinguished in problem structuring.⁴⁴

Examples often refer to ethical or sensitive issues such as the unstunned slaughter of animals and the testing of medicines on animals.

- (4) *Unstructured problems*. There is strong disagreement on the norms and values, combined with large uncertainty in knowledge. This implies that even if people would converge on the norms and values, the problem would still persist because of the uncertainty in knowledge. The majority of sustainability problems are unstructured in nature.

What this problem typology illustrates is that – for many sustainability problems, including the unsustainable use of pesticide – it is not enough to invest in or rely on (the development of more) scientific knowledge. What is thus needed is a better understanding of the norms and values, why these differ and the extent to which these differ. Opting for a participatory approach may help us to gain more (practical) knowledge on the problem at stake, not only for gathering factual information, but also for the understanding of the different norms and values that exist in relation to that specific problem. This may then be used as a starting point to co-create robust solutions that do justice to the diversity of norms and values existing around the problem.⁴⁵

3. An interdisciplinary approach towards participation in EU decision-making

A combined approach towards participation with insights from both law and sustainability science may offer new insights on how participation could contribute to more sustainable EU decision-making in relation not only to the content but also to the decision-making process. In such an approach, legal requirements and guidelines are followed, as well as the sustainability science-inspired principles discussed in the following subsections.

a. Modesty about the role of scientific knowledge and giving attention to problem frames

Solving problems via a problem structuring approach implies a form of modesty about the role of (more) scientific knowledge and acknowledging that some problems will not be solved by only developing, synthesising or using more scientific knowledge. In a sense, this principle resonates with the broader scholarly debate on the role of science in risk

⁴⁴ Adapted from Hoppe, *supra*, note 42.

⁴⁵ See A Offermans, *The Perspectives Method* (Maastricht, Datawyse Universitaire Pers 2012). Here, it is also explained that co-creation processes giving attention to the diversity of perspectives (or frames) can result in (amended) solutions that are more acceptable to people with diverging perspectives without being less effective.

regulation and decision-making.⁴⁶ The existing technocratic models of regulation and governance have been increasingly questioned in the literature in the light of the partiality of scientific knowledge and its dependence on the ways in which scientific questions are framed in the specific regulatory context.⁴⁷ This invites cautionary reflection on the limits of scientific knowledge and on the over-dependence on fact-finding in complex and uncertain scenarios.

From a sustainability science perspective, scientific knowledge will not necessarily solve those problems characterised by disagreement on the underlying norms and values. In these problem types, the importance of the appreciation of stakeholder input emerges as a way to unveil those underlying norms and values. Inviting stakeholders to communicate their framing of the underlying problem(s) is, therefore, crucial and it can serve as a first step towards finding synergies in the problem frames and co-creating solutions.⁴⁸

b. Early and structural engagement with relevant stakeholders

A problem-orientated approach also has consequences for the moment at which to involve stakeholders. Early and structural engagement with relevant stakeholders has been frequently mentioned as a vital design principle if participatory processes are to lead to high-quality and durable decisions both in sustainability science⁴⁹ and in law.⁵⁰ The need for early engagement of stakeholders is recognised not only by the European Commission, but also in the (limited) case law of the Court of Justice concerning participatory rights.⁵¹ As already mentioned, in the preparation of legislative proposals in the environmental field the Aarhus Convention requires public participation to be carried out “at an appropriate stage”.⁵² “Appropriate” in the Aarhus Convention is, however, not precisely defined, but instead is operationalised as the moment at which all options are still open.⁵³ From a legal perspective, it is thus sufficient that the involvement of stakeholders is carried out when the problem is already identified and framed but the way to address it is still being debated.

Typically, therefore, stakeholders only get involved in decision-making at the implementation, monitoring and evaluation phases of the decision-making process or when (tentative) decisions have been designed already.⁵⁴ This may imply that stakeholders are invited to get involved in a project when the starting point and the way in which a problem is framed are already at variance with their own ways of framing the problem. This may hamper stakeholders’ motivation to engage, and it may lead to a stalemate where

⁴⁶ Jasanoff, for instance, speaks of “humility”. See S Jasanoff, “Technologies of humility” (2007) 450 *Nature* 33.

⁴⁷ This has been discussed particularly in science and technology studies. See, *inter alia*, S Jasanoff, *The Fifth Branch: Science Advisers as Policymakers* (Cambridge, MA, Harvard University Press 1998); A Irwin and M Mike, *Science, Social Theory and Public Knowledge* (Maidenhead, Open University Press 2003). See also V Abazi, J Adriaensen and T Christiansen, *The Contestation of Expertise in the European Union* (London, Palgrave Macmillan 2021); B Ginsberg and C Paschall, *Speaking Truth to Power: Expertise, Politics and Governance* (Cheltenham, Edward Elgar Publishing 2022).

⁴⁸ See D Hegger, M Lamers, A Van Zeijl-Rozema and C Dieperink, “Conceptualising joint knowledge production in regional climate change adaptation projects: success conditions and levers for action” (2012) 18 *Environmental Science and Policy* 52–65; D Hegger, Y De Boer, A Offermans, F Merkx, C Dieperink, R Kemp, H Van Lente and R Corvers, *Kenniscocreatie; naar productieve samenwerking tussen wetenschappers en beleidsmakers (Joint Knowledge Production; Towards Productive Collaboration Between Scientists and Policy Makers)* (Maastricht, Datawys Universitaire Pers 2013).

⁴⁹ M Reed, “Stakeholder participation for environmental management: a literature review” (2008) 141(10) *Biological Conservation* 2417–31.

⁵⁰ European Commission, *supra*, note 13.

⁵¹ The Court of Justice clearly held that participation needs to occur at the stage of the procedure when the decisions are formed in order to preserve its *effet utile*; see Case T-346/94 *France aviation v Commission of the European Communities* [1995] ECLI:EU:T:1995:187.

⁵² Art 8(1) of the Aarhus Convention.

⁵³ Different from the adjective “early” in Art 6, the Implementation Guide of the Aarhus Convention does not discuss the concept of an “appropriate stage”. However, in the explanation of Art 8, the Implementation Guide refers to an “early stage” and to the comment to Art 6 of the Convention.

⁵⁴ Reed, *supra*, note 49.

stakeholders either agree or disagree with decisions without being willing to compromise or converge. Moreover, as previous studies have shown, when public participation takes place “too late” – when the normative framework and the macro-level decisions have already shaped the decision-making environment – the perceived procedural fairness and the public acceptability of the final decision decrease.⁵⁵ This may create disincentives for stakeholders to engage or comply.⁵⁶ In terms of a combined approach, the early involvement of stakeholders requires that the involvement of stakeholders takes place from the problem definition stage onwards.⁵⁷

c. Involvement of stakeholders as knowledge producers

This approach also implies that stakeholders are involved as knowledge producers rather than merely as knowledge receivers.⁵⁸ The extent to which stakeholders are involved in decision-making can vary across participatory processes. Arnstein, for example, identifies eight different levels of participation, varying from manipulation to informing and from participation to citizen control. Depending on the goal and context of the participatory process, *informing* can be a relevant and sufficiently ambitious level of participation.⁵⁹ However, given the normative and complex nature of many sustainability challenges, the responsibility for solving these challenges extends beyond the sectorial boundaries of domains,⁶⁰ which poses requirements on the extent to which stakeholders are involved in the decision-making process. Direct collaboration between different domains is seen as a necessity,⁶¹ and actors from research institutes, government, businesses, civil society and citizens are required to collaborate and to try to integrate their various knowledge bases and understandings of a problem.⁶² Such a process also clarifies to the involved stakeholder the extent to which their opinions are shared and considered in the decision-making process and the decisions resulting from that. This, in turn, may contribute to preventing stakeholder fatigue and to creating solutions that are more salient to the stakeholders’ needs.⁶³

⁵⁵ C Gross, “Community perspectives of wind energy in Australia: the application of a justice and community fairness framework to increase social acceptance” (2007) 35 *Energy Policy* 2727–36; L Liu et al, “Effects of trust and public participation on acceptability of renewable energy projects in the Netherlands and China” (2019) 53 *Energy Research & Social Science* 137–44; RM Colvin, GB Witt and J Lacey, “How wind became a four-letter word: lessons for community engagement from a wind energy conflict in King Island, Australia” (2016) 98 *Energy Policy* 483–94.

⁵⁶ Squintani and Perlaviciute, *supra*, note 27.

⁵⁷ This refers to the initial problem that the decision aims to tackle (eg negative environmental and health impacts of the use of certain amounts of chemical pesticides), not to problems resulting from the implementation or application of decisions, such as the limited effectiveness of decisions or directives, as it is done, for example, in Ref. Ares (2020) 2804518, *supra*, note 39.

⁵⁸ More concretely, stakeholders provide knowledge on (different) ways to frame the problem, and they are welcomed to share practical or tacit knowledge and experiences with regards to the underlying problem. In sustainability science, this knowledge is considered crucial to co-creating credible, legitimate and salient solutions to challenges. This knowledge is not readily available to science, which makes collaborations across and beyond academic disciplines crucial.

⁵⁹ S Arnstein, “A Ladder of Citizen Participation” (1969) 35(4) *Journal of the American Institute of Planners* 216–24.

⁶⁰ A Offermans and P Glasbergen, “Boundary work in sustainability partnerships: an exploration of the round table on sustainable palm oil” (2015) 50 *Environmental Science and Policy* 34–45.

⁶¹ B Regeer and J Bunders, *Kenniscocreatie: samenspel tussen wetenschap & praktijk (Joint Knowledge Production: Combined Action Between Science and Policy)* (The Hague, RMNO 2007).

⁶² Offermans and Glasbergen, *supra*, note 60.

⁶³ In OECD (2018), it is explicitly stated that the Commission aims to reduce the burden on stakeholders from participatory processes. The route chosen to relieve the burden on stakeholders mainly lies in making participation easier, less time-consuming, more focused and more user-friendly. Although important as such, an alternative route to reduce the burden for stakeholders is to increase the saliency of the participatory process to stakeholders. This route, however, has not received much attention so far. More information on the co-production of knowledge in relation to the credibility, saliency and legitimacy of the outcomes of the coproduction process can be found in D Cash et al, “Knowledge systems for sustainable development” (2003) 100(14) *Proceedings of the National Academy of Sciences of the United States of America* 8086–91.

d. Enabling social learning

Exchanging viewpoints, including divergent frames on problems, may also contribute to (the more normative benefit of) learning. A specific form of learning, namely the social learning of stakeholders, is seen as a key component in enhancing the saliency, legitimacy and credibility of decisions and widening the basis of support for the implementation of decisions.⁶⁴ It creates the basis for defining integrated solutions that require the support or concerted action of different stakeholders.⁶⁵ The difference between “regular learning”⁶⁶ and “social learning” is that the former concerns changes in “technical” knowledge, such as new knowledge on the effects of aerial pesticide spraying on environmental indicators and crop health. Social learning, in the context of a participatory approach to complex challenges, can be defined in line with Van der Wal et al as:

a convergent change in the stakeholders’ perspectives on the problem [frames] and its possible solutions and risks, as well as on their own and the other stakeholders’ position and responsibility with regard to solving the problem.⁶⁷

What is needed to stimulate social learning is an inclusion of (diverging) frames on goals, norms and values in the learning process, a collective reflection and a shared learning process that is amplified and facilitated in an organised dialogue.⁶⁸ This means that learning is specifically steered towards and not merely occurring as a side effect. Enabling social learning can therefore be presented as a component contributing to more sustainable processes in decision-making.

III. Participation in the reform of the Sustainable Use of Pesticides Directive

1. The Sustainable Use of Pesticides Directive as a case study

In the light of this combined approach, and in order to concretise it, it is relevant to analyse specific arrangements for participation adopted in the decision-making procedure of an EU measure. The SUD is, for this purpose, an interesting case study as it concerns one of the most controversial topics in the field of risk regulation (ie pesticides), which has sparked a vivid debate in the last few years⁶⁹ and hits at the core of the relationship between science and governance. In particular, in the context of the authorisation renewal for glyphosate, conflicting scientific opinions on the carcinogenicity of this pesticide emerged.

⁶⁴ M Muro and P Jeffrey, “A critical review of the theory and application of social learning in participatory natural resource management processes” (2008) 51(3) *Journal of Environmental Planning and Management* 325–44; M Van der Wal, J de Kraker, A Offermans, C Kroeze, P Kirschner and M van Ittersum, “Measuring social learning in participatory approaches to natural resource management” (2014) 24 *Environmental Policy and Governance* 1–15.

⁶⁵ Van der Wal et al, *supra*, note 64.

⁶⁶ Often referred to as “single-loop learning”.

⁶⁷ Van der Wal et al, *supra*, note 64, 2.

⁶⁸ Craig, *supra*, note 19; J Jiggins, N Röling and E Van Slobbe, “Social learning in situations of competing claims on water use” in AEJ Wals (ed.), *Social Learning: Towards a More Sustainable World* (Wageningen, Wageningen Academic 2007) pp 419–34.

⁶⁹ See, *inter alia*, GC Leonelli, “The glyphosate saga and the fading democratic legitimacy of European Union risk regulation” (2018) 25(5) *Maastricht Journal of European and Comparative Law* 582–606; V Paskalev, “The Clash of Scientific Assessors: What the Conflict over Glyphosate Carcinogenicity Tells Us about the Relationship between Law and Science” (2020) 11 *European Journal of Risk Regulation* 520–38; M Morvillo, “Glyphosate Effect: Has the Glyphosate Controversy Affected the EU’s Regulatory Epistemology?” (2020) 11 *European Journal of Risk Regulation* 422–35; T Van Den Brink, “Danger! Glyphosate May Expose Weaknesses in Institutional Systems: EU Legislation and Comitology in the Face of a Controversial Reauthorisation” (2020) 11 *European Journal of Risk Regulation* 436–49.

These differences, it has been argued, were due to the way in which scientific questions have been framed in the different decision-making contexts,⁷⁰ and, in any case, they gave rise to a degree of uncertainty in knowledge during the EU decision-making process. At the same time, in the public debate the issue was framed in many different ways, including (but not limited to) as a health issue, an agricultural productivity issue, a food security issue, a biodiversity issue and a sovereignty issue.⁷¹

Although this specific controversy arose in relation to the implementation of another legislative act, namely the Regulation concerning the placing of plant protection products on the EU market,⁷² the use of pesticides in the EU territory raises the same dilemma of conciliating the needs of the agricultural sector with the concerns for safety and the environment that the use of these products entails. In sustainability science terms, the establishment of an overall strategy on the use of pesticides in the EU territory poses to the EU legislator a number of complex issues that, in the light of the above described framework, can be classified from moderately structured to unstructured problems (like the glyphosate debate). For instance, the discussion on crop aerial spraying of pesticides constitutes a moderately structured problem (type I): although there seems to be large agreement on the desire not to harm nature and biodiversity, disagreement exists on how to interpret research findings on the impacts of aerial spraying and existing alternatives in, for example, higher-altitude or sloped geographical areas.⁷³ A problem-orientated approach to participation with attention being given to the different normative positions prevailing, therefore, appears to be particularly useful in relation to these issues.

2. The Sustainable Use of Pesticides Directive and its reform

First adopted in 2009, the current Directive aims at reducing the risks and impacts of pesticide use on human health and the environment, as well as at promoting the use of integrated pest management and of alternative approaches or techniques, such as non-chemical alternatives to pesticides, in Member States.⁷⁴ To this end, it contains specific provisions on the training of users, advisors and distributors of pesticides, the inspection of pesticide application equipment, the prohibition of aerial spraying, the limitation of pesticide use in sensitive areas and information and awareness raising about pesticide risks. Since the Directive aims in particular at ensuring the sustainable use of pesticides in Member States and its revision is meant to promote “a fair, healthy and environmentally-friendly food system”,⁷⁵ its connection and its contribution to the sustainability of EU society are evident.

⁷⁰ A Arcuri, “Glyphosate” in J Hohmann and D Joyce (eds), *International Law's Objects* (Oxford, Oxford University Press 2018) pp 234–46.

⁷¹ M Morvillo, *supra*, note 69, 422–35.

⁷² Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC, OJ L 309, 24.11.2009, 1–50 (PPP Regulation).

⁷³ From the presentation given by Copa Cogeca on 19 January 2021 (entitled “Farmer’s perspective on the evaluation of the sustainable use of pesticides directive”) and from the feedback to the 24 June–21 September 2022 consultation on the “Have your say” website; for example, it emerges that (at least some) actors believe that pests (which will, according to them, inevitably occur if aerial spraying is banned) will be more harmful to nature and biodiversity than aerial spraying, or that aerial spraying, even though it may have some negative effects on nature, has a net positive effect as it helps to maintain crop health. Finally, aerial spraying with the help of drones is sometimes referred to as a viable alternative that has almost no negative impacts on nature.

⁷⁴ Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides, OJ L 309, 24 November 2009, 71–86.

⁷⁵ European Commission, “Combined Evaluation Roadmap/Inception Impact Assessment”, Ref. Ares (2020) 2804518, *supra*, note 39, 2.

Within the view of the ambitious European Green Deal and of the political priorities of the Von der Leyen Commission, a reform of the SUD is considered crucial for achieving the objective of reducing the overall use and risk of chemical pesticides by 50% and the use of more hazardous pesticides by 50% by 2030, set forth by the Farm to Fork Strategy.⁷⁶ In the Action Plan proposed by the European Commission, a proposal for the revision of the Directive was announced on 20 May 2020,⁷⁷ and it was published on 22 June 2022.⁷⁸

From 29 May to 7 August 2020, the combined Evaluation Roadmap and the Inception Impact Assessment were published on the “Have your say” website for feedback from the public.⁷⁹ The submissions are displayed on the website in their original languages and, in the statistics related to them, they are sorted by category and by country of respondent.⁸⁰ Subsequently, a public consultation was launched on the same website based on a questionnaire available from 18 January to 12 April 2021.⁸¹ The synopsis report of the feedback received was published as an annex to the impact assessment accompanying the proposal and also was discussed in the explanatory memorandum of the proposal itself.⁸²

In the meantime, the European Commission organised three remote stakeholder events⁸³ specifically devoted to the topic of the sustainable use of pesticides, as well as a thematic workshop on “Reducing pesticides use and risk” within the 2nd Farm to Fork Conference.⁸⁴ It also co-organised⁸⁵ or participated in⁸⁶ workshops and events held by third parties involving representatives from other EU institutions, industry and associations in the field.

After the adoption of the proposal and its publication, the European Commission opened a further consultation, providing an opportunity for feedback on the adopted proposal for a minimum period of eight weeks (24 June–19 September 2022). The intention was to summarise the feedback received by the European Commission and present it to the EU legislator with the aim of feeding into the legislative debate. This consultation procedure also took place through the “Have your say” website.⁸⁷ At the time of writing

⁷⁶ European Commission, *supra*, note 2.

⁷⁷ The Farm to Fork Strategy itself was subject to public consultation with the possibility to provide feedback from 17 February to 20 March 2020; see European Commission, “Sustainable food – Farm to Fork Strategy” <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12183-Sustainable-food-farm-to-fork-strategy_en> (last accessed 26 July 2022).

⁷⁸ European Commission, “Proposal for a Regulation of the European Parliament and of the Council on the sustainable use of plant protection products and amending Regulation (EU) 2021/2115” COM(2022) 305 final.

⁷⁹ Ref. Ares (2020) 2804518, *supra*, note 39.

⁸⁰ European Commission, “Pesticides – sustainable use (updated EU rules)” <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12413-Pesticides-sustainable-use-updated-EU-rules_en> (last accessed 26 July 2022).

⁸¹ *ibid.*

⁸² European Commission, *supra*, note 78, 9–11.

⁸³ The first event took place on 19 January 2021, information available at <https://commission.europa.eu/events/sustainable-use-pesticides-first-remote-stakeholder-event-2021-01-19_en>; the second one took place on 25 June 2021, information available at <https://commission.europa.eu/events/sustainable-use-pesticides-second-remote-stakeholder-event-2021-06-25_en>; and the third one took place on 5 October 2021, information available at <https://commission.europa.eu/events/sustainable-use-pesticides-third-remote-stakeholder-event-2021-10-05_en> (all last accessed 12 December 2022).

⁸⁴ For information on this event, see <https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy/farm-fork-conference_en> (last accessed 12 December 2022).

⁸⁵ See the conference by IFPRI and the European Union, “Policy seminar European Green Deal – Farm to Fork Strategy for sustainable food” of 18 February 2020 <<https://www.youtube.com/watch?v=FnXQ1yzBRDg>> (last accessed 10 March 2022).

⁸⁶ See Euractiv virtual event, “What are the realities of the biodiversity and farm to fork strategies” of 4 March 2021 <<https://www.euractiv.com/section/agriculture-food/video/what-are-the-realities-of-the-biodiversity-and-farm-to-fork-strategies/>> (last accessed 10 March 2022).

⁸⁷ European Commission, *supra*, note 80.

(December 2022), the proposal on the SUD is still under first reading by the Council of the EU and the European Parliament.

3. Assessing participation in the Sustainable Use of Pesticides Directive reform from an interdisciplinary perspective

By analysing the elaboration of the SUD proposal by the European Commission through the application of the four sustainability science principles explained above (Section II.3), some observations on the different participatory arrangements put forward by the European Commission can be made.

a. Modesty about the role of scientific knowledge and giving attention to problem frames

Being the basis of the EU's approach to risk regulation,⁸⁸ the European Commission clearly attached great value to science and scientific knowledge in the case of the SUD reform:

Scientific knowledge is the starting point to accept something or not. Perceptions are what they are. We have to focus on the benefits and risks.⁸⁹

Placing such strong emphasis on scientific knowledge while neglecting or downplaying the diversity of perceptions or frames, however, may help with solving moderately structured problems (type I) and structured problems, but this will not be necessary for moderately structured problems (type II), nor will it be sufficient for unstructured problems. The co-creation of solutions regarding unsustainable pesticide use requires acknowledgment of and giving sufficient attention to ways in which the problem is framed in addition to the development of more (certain) knowledge. Science, therefore, also needs to engage in dialogue with stakeholders rather than pursuing increasingly certain knowledge alone.

As mentioned previously, the European Commission enabled public consultations via the “Have your say” website. For the evaluation of the SUD, these public consultations consisted of a set of closed questions that contained questions about profiling, about the use of pesticides and the knowledge of the user and about the perceived importance and effectiveness of policy alternatives.⁹⁰ There were no questions welcoming information on (alternative) ways to frame the underlying problem, although respondents could provide written feedback if they wished. Thus, input on problem framing was neither expressly stimulated nor facilitated. For the SUD consultation in 2020, 360 feedback responses to open questions were provided in many different languages.⁹¹ Responses were often used to present organisations' points of view or to present alternative suggestions for solutions. Although being useful as such, this consultation missed opportunities to better understand the different ways in which stakeholders frame the underlying problem and to recognise that the search for synergies in diverging problem frames could contribute towards solving that problem.

An alternative route via which stakeholders and the Commission could exchange their problem frames has been via stakeholder events and seminars. During the analysed events, it became clear that the underlying issue of unsustainable pesticide use was indeed framed in different ways and that there were conflicting views on the intensity of the problem (see Figure 2 for a simple overview of the different frames). Although (implicitly) presenting these frames is a first and important step in better co-defining a problem to jointly create

⁸⁸ See, *inter alia*, OECD, *supra*, note 41, 3.

⁸⁹ Ann Tutwiler, chair of Biodiversity International, at the IFPRI and EU conference, *supra*, note 85.

⁹⁰ European Commission, “Public Consultation Factual Summary” of 11 May 2021, Ref. Ares(2021) 3138340.

⁹¹ See “Have your say”, *supra*, note 15.



Figure 2. Examples of frames regarding the unsustainable use of pesticides that could be recognised in the analysed events. The size of the text represents the frequency with which the frames occurred.

more robust solutions, there was only limited space during the events to respond to each other's presentations and views. This mainly had to do with the set-up of the analysed events, where, in all cases, a series of presentations by stakeholders were followed by (mainly clarifying) questions. There was no discussion of underlying assumptions or frames or of how different solutions possibly applied to different problem components. Although it was rather clear that the Commission aimed to improve human and environmental health, it was not sufficiently clear which elements were included or excluded in that definition. For example, to what extent were issues such as food distribution, competitiveness and the affordability of food included in the Commission's problem frame? And what do the activities in the Directive (training, information provision and raising awareness) say about the underlying problem?⁹² Is ignorance of users and distributors part of the Commission's problem frame too? More attention to problem framing would have clarified not only the problem frame adopted by the Commission, but also the extent to which this frame differs from the frames of other stakeholder and what the main differences in these frames were.

The European Commission's emphasis on the scientific side of the underlying issue, combined with very limited attention given to problem framing as a potential step towards solving the problem, made it difficult for stakeholders to recognise their own problem frames in the way in which the European Commission phrased the problem.

b. Early and structural engagement with relevant stakeholders

Before the adoption of the proposal, the European Commission provided two opportunities for the consultation of stakeholders in the preparatory phase of its legislative proposals. The public thus had the opportunity to comment during the preparation of the draft of this generally applicable measure, complying with the requirements of Article 8 of the Aarhus Convention. Both timespans for feedback, respectively ten and twelve weeks (which, according to the same article, should be generically "sufficient for effective participation"), are in line even with the more precise requirements of the Aarhus Regulation for the preparation of plans and programmes, and at least the second consultation aligns with the new indications of the Better Regulation Communication of 2021.

However, the first consultation via the "Have your say" website started in 2020 after the European Commission had already identified a problem (or gap) in the Farm to Fork Communication and after they had designed a first roadmap to outline the issue, both

⁹² In Ref. Ares (2020) 2804518, *supra*, note 39, for example, the problem seems to be framed as the limited effectiveness of the SUD. This substantially differs from a problem's statement that focuses on negative impacts on human and environmental health. The latter could potentially align with the problem frames of other stakeholders. The former could not be recognised among the other stakeholders, but it was important to formulating the training, information and awareness activities of the SUD.

of which were published together. The stakeholder events took place at an even later stage, in 2021. This carries the risk of creating a situation in which the very starting point is already at variance with stakeholders' way of framing the problem, disincentivising them from engaging in a meaningful way or from complying with the decisions produced.

c. Involvement of stakeholders as knowledge producers

For moderately structured and unstructured problems, stakeholders have an important role to play as knowledge (co-)producers. In the second public consultation regarding the SUD, 23.8% of the questionnaire responses came from "professional users", including farmers in agriculture, horticulture and forestry.⁹³ Interestingly, after questions on the reasons for and purposes of pesticide use and questions on why pesticides are preferred over "other control techniques", most questions dealt with understanding user knowledge and understanding of the impacts of pesticides on environmental, human and animal health and on using, storing and disposing of pesticides safely. This emphasis on a potential lack of knowledge among users aligns well with information in the Evaluation Roadmap⁹⁴ and Directive,⁹⁵ where the important role of the training of users is emphasised. All professional users should have access to training by bodies designated by the competent authorities to ensure that users acquire sufficient knowledge.⁹⁶ Certificates shall then provide evidence of sufficient knowledge.⁹⁷ Knowledge-based agriculture should become the standard,⁹⁸ and the European Commission wants farmers to remain in their job but to become more knowledge-based farmers.⁹⁹

Farmers and users, in this context, are mainly seen as knowledge receivers rather than knowledge providers. On the knowledge input side, it seems more common to ask social scientists to provide information on pesticide users rather than asking the users directly.¹⁰⁰ The users are informed about decisions; they can also provide input to these decisions (via closed surveys) and they will be trained in accordance with the requirements of the SUD. The opportunity to use the (prospective) users' knowledge (including practical experience) is therewith missed, and the European Commission risks a so-called type 3 error (sometimes also referred to as a "wrong-problem problem"¹⁰¹). This means that a problem (oftentimes unconsciously) is treated as if it was more structured than it is in reality.¹⁰² In other words, an unstructured problem may be treated as (moderately) structured, and a moderately structured problem may be treated as if it was structured. By conducting such a type 3 error, a problem can never be fully solved (ie either the disagreement on norms and values or the uncertainty in knowledge remains neglected and therewith unsolved). By arguing that uncontested knowledge on safely dealing with pesticides exists and that the problem will at least largely be solved (ie the SUD will become

⁹³ European Commission, Impact assessment report accompanying the Proposal for a Regulation of the European Parliament and of the Council on the sustainable use of plant protection products and amending Regulation (EU) 2021/2115, Ref. Ares (2021) 3138340. Other responses came, for example, from private users (5.4%), residents and non-users (23.6%), manufacturers (8.4%), advisors and extension workers (7.3%), traders and retailers (1.8%), actors from the water industry (0.4%) and beekeepers (2.1%).

⁹⁴ Ref. Ares (2020) 2804518, *supra*, note 39.

⁹⁵ Arts 5 and 7 of the SUD.

⁹⁶ Art 5(1).

⁹⁷ Art 5(C1 2).

⁹⁸ T Haniotis, Director at the European Commission, DG Agri, at the IFPRI and EU conference, *supra*, note 85.

⁹⁹ T Haniotis, Director at the European Commission, DG Agri, at the Euractiv event, *supra*, note 86.

¹⁰⁰ See "Social scientists could help us understand the drivers behind implementation choices made by farmers and to set 'realistic' targets probably by identifying the levers to ensure that expected changes are implemented", Ref. Ares (2020) 7310821 of 3 December 2020, 5.

¹⁰¹ See Hoppe, *supra*, note 42, 85–87.

¹⁰² *ibid.*

effective) only if this information and knowledge are brought to the users, the underlying problem is unjustly and unconsciously made more structured than it actually is. Users will likely only apply and use existing and new knowledge if this knowledge fits their framing of the problem and if the application of this knowledge (in their opinion) actually helps with solving the problem. However, whether this fit exists can be doubted, as 71% of the respondents to the consultation indicated already having good knowledge on safely using pesticides. More attention to problem framing could therefore be helpful in this respect as well.

d. Enable social learning

The procedures followed regarding the formulation and amendment of the SUD surely allow for traditional learning for a broad variety of stakeholders. People could present and share information and knowledge at workshops, events and seminars that may lead to changes in “technical knowledge” and enable people to master new information. In addition, the publicly available responses received via the “Have your say” website enable people to gain more knowledge and hence to learn.¹⁰³ This may still be beneficial as it leads to regular learning, but social learning requires a shared learning process that is amplified and facilitated in an organised dialogue.¹⁰⁴ This implies that social learning is specifically steered towards and treated as a goal in itself rather than something that happens as a side effect. This principle cannot be recognised in the procedures followed by the European Commission in the process leading to the SUD as there is no specific arrangement explicitly aimed at the facilitation of learning or convergence.¹⁰⁵ Therefore, this can be seen as a missed opportunity to formulate more legitimate, salient, credible and therewith accepted decisions.

IV. Conclusions and recommendations

The European Commission greatly values and also enables input from stakeholders in decision-making processes. Its approach and efforts are widely praised, including by the Organisation for Economic Cooperation and Development (OECD),¹⁰⁶ and, as the illustrative case study has shown, they fully live up to the obligations established at the international level, especially for public participation in decision-making in environmental matters. In relation to the SUD reform it is clear that, from a formal/legal perspective, the participation arrangements put forward by the Commission are compliant with the applicable legal framework. The public was informed during the preparation of the legislative proposal, it was given the possibility to comment on three different occasions during formal consultation periods, the relevant documents were made publicly available and the results were discussed in the subsequent stages of the decision-making process. However, notwithstanding all intentions and efforts taken with regards to participation, the insights from sustainability science explored in this paper have revealed additional leverage points for the better use of participation to achieve more sustainable outcomes. Such insights

¹⁰³ It can be both an advantage and a disadvantage that these responses are written in many different languages (eg English, Spanish, French, Italian and German). On the one hand, this also allows people who do not speak or understand English to gain knowledge (potentially even in their own mother tongue). On the other hand, it may prevent many people from synthesising the information provided, as they may lack understanding of one or more of the languages.

¹⁰⁴ Craig, *supra*, note 19; Jiggins et al, *supra*, note 68.

¹⁰⁵ Events were facilitated, but facilitation was more related to time management and to introducing speakers and agenda points in a structured way than to learning or convergence. Learning was neither an agenda point nor a targeted goal or objective.

¹⁰⁶ OECD, *supra*, note 41, 3.

regarding the role of participation in complex or unstructured problems were operationalised into four principles that were applied to the SUD.

With regards to the first principle, it is evident that the European Commission has attached great value to scientific knowledge and scientists as knowledge providers. They do acknowledge the existence of different perspectives and they do appreciate input from stakeholders. However, a facilitated dialogue would have generated more insights regarding the different normative positions underlying the problem. This is particularly helpful for moderately structured problems and unstructured problems as it enables recognition of each other's frames, the identification of the differences across frames and the creation of a common starting point. This subsequently smooths the process towards the formulation of more robust (ie more broadly accepted) solutions.

With regards to the second principle, the European Commission aimed to consider and engage with stakeholders early. However, since the aim of this engagement is mainly focused on creating more transparency and trust (rather than designing more robust regulations), such involvement generally starts after the European Commission has drafted a first roadmap. The involvement of stakeholders from the problem definition stage onwards (ie well before solutions, decisions or roadmaps have been designed) may contribute to the sustainability of the decision-making process and its outcomes. In this sense, this study contributes to the call for the introduction of further guarantees for the "early engagement" of the public in the preparation of generally applicable legally binding normative instruments. These insights from sustainability science support the notion that the appropriate stage for stakeholder involvement is the problem-defining stage – not only to give "a real voice" to stakeholders,¹⁰⁷ but also to provide understanding of the different norms and values that exist in relation to that specific problem.

In the analysis of the third principle, we have seen that the European Commission pays strong and structural attention to training and informing pesticide users. Yet the involvement of stakeholders as knowledge producers and not merely as knowledge receivers could help with creating more uncontested knowledge on a problem in the light of their practical experience or even tacit knowledge, or at least help with understanding how they frame the problem (and therewith potential solutions). Additionally, seeing pesticide users as knowledge providers may also encourage them to use the co-created knowledge and comply with the regulations and requirements resulting from it.

Regarding the fourth and final principle, it is undeniable that the European Commission stimulates regular learning among stakeholders during the process of designing decisions. However, social learning – being a key component of enhancing the saliency, legitimacy and credibility of decisions and of widening the basis of support for the implementation of decisions – is not facilitated or specifically steered towards. A continuation of the efforts with regards to dissemination, training and learning in parallel with a facilitated dialogue towards social learning may further enhance the sustainability of the decision-making process and its outcomes. The key should be to specifically target learning rather than treating it as something that occurs as a side effect.

Giving more attention to these aspects would arguably improve the participatory mechanism that is in place at the EU level, helping the EU to achieve the aspirations of an "open, transparent and regular dialogue with representative associations and civil society" enshrined in Article 11 TEU. What this paper illustrates, in fact, is that interdisciplinary

¹⁰⁷ See also K van den Bos, "What are we talking about when we talk about no-voice procedures? On the psychology of the fair outcome effect" (1999) 35 *Journal of Experimental Social Psychology* 560; S R Arnstein, "A ladder of citizen participation" (1969) 35(4) *Journal of the American Planning Association* 216; E Lind, R Kanfer and PC Earley, "Voice, control, and procedural justice: instrumental and noninstrumental concerns in fairness judgments" (1990) 59 *Journal of Personality and Social Psychology* 952; Gross, *supra*, note 55; A Fung, "Varieties of participation in complex governance" (2006) 1 *Public Administration Review* 66.

approaches may be helpful in further optimising EU decision-making processes beyond the legal requirements attached to them. More concretely, sustainability science may complement the academic domain of law by making the rationale behind and therewith the design of participatory approaches more context- and problem-specific. A more problem-based and solution-orientated approach with attention being given to diverging problem frames, together with the fulfilment of binding requirements to guarantee transparent and democratic processes, may help make the decision-making process more sustainable in itself, ultimately contributing to more sustainable outcomes.

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