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## Driving Priorities in Risk-based Regulation: What's the Problem?

ROBERT BALDWIN\* AND JULIA BLACK\*

*Both risk-based and problem-centred regulatory techniques emphasize giving priority to matters that are serious and important. In the case of both risks and problems, however, issues of identification, selection, and prioritization involve inescapably normative and political choices. It is important, therefore, to understand why regulators target the risks and problems that they do; which factors drive such choices; and how regulation is affected when these factors pull in similar or opposite directions. Such an understanding provides a fresh framework for thinking about the challenges of both risk-based and problem-centred regulation. The analysis presented here does not oppose either risk-based or problem-centred regulation, but it illustrates why neither is as straightforward as simple calls for 'better regulation' may suggest, and it proposes ways in which key aspects of those challenges may be addressed.*

Risk-based regulation has been a central tenet of the United Kingdom government's 'better regulation' agenda since the Hampton review in 2005, and it is a key element of the better regulation agenda of the OECD and many of its member states.<sup>1</sup> The core proposal of risk-based regulation is that regulators, in principle, should focus their efforts on the most serious risks that they face in achieving their objectives. This risk-based approach to

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- 1 P. Hampton, *Reducing Administrative Burdens: Effective Inspection and Enforcement* (2005); OECD, *Recommendation on Regulatory Policy and Governance* (2012).

regulation runs parallel to Malcolm Sparrow's exhortation that regulators should 'pick important problems and fix them'.<sup>2</sup>

The key proposition in both risk-based and problem-centred regulatory techniques is thus simple enough: prioritize the matters that are serious and important. Many regulators, however, have implemented risk-based regulation in the last ten to fifteen years and their experiences have highlighted some significant challenges, not least concerning the selection and prioritization of risks. What constitutes a risk or a problem can be contested, and perceptions and evaluations can vary considerably.

Identifying the 'important' risks and problems is not as straightforward as it sounds. Risks and problems are also quite distinct. Risks are adverse events that may occur in the future. Problems are things that have happened or are happening or may happen and which require attention. In the case of both risks and problems, however, issues of identification, selection, and prioritization involve inescapably normative and political choices. It is important, therefore, to understand why regulators target the risks and problems that they do; which factors influence such choices; and how regulation is affected when these factors pull in similar or opposite directions.

This article explores the factors that drive the identification and prioritization of risks and problems, how those factors can interact, and the effects of such interactions. A 'driver' of risk or problem identification is thus seen here as a factor that shapes the construction of a risk or problem and/or which impacts on the prioritization of that risk or problem. In examining such drivers, the discussion below draws on existing primary and secondary literature on risk-based regulation (and risk identification more generally) and on interviews with regulators.<sup>3</sup> It commences by setting the elements of risk-based regulation alongside those of Sparrow's 'problem-centred' approach, then turns to examine the factors that drive the identification of risks and problems. We argue that when regulators attempt to identify and prioritize issues for attention, they are influenced by three main sets of factors, which can mutually reinforce or operate in tension: the way they tend to think about risks or problems (their theoretical or ideological perspectives); operational constraints (especially the resources they have available); and political, communicative or reputational factors, stemming from their need to maintain their reputation and legitimacy in the eyes of their political overseers and the public at large.

We contend that an exploration of the interplay between these drivers of risk/problem identification provides a fresh framework for thinking about the

2 M. Sparrow, *The Regulatory Craft* (2000); M. Sparrow, *The Character of Harms* (2008) 5.

3 Conducted primarily in the United Kingdom over the last decade with a focus on the development and implementation of regulators' risk-based frameworks, including semi-structured interviews with officials at the Scottish Environmental Protection Agency in 2013.

challenges of both risk-based and problem-centred regulation. It shows how risk-based regulation builds on complex and competing approaches to the construction of risks and it demonstrates that problem-centred regulation gives rise to a specific but identifiable set of difficulties. Our analysis does not oppose either risk-based or problem-centred regulation, but it illustrates why neither is as straightforward as simple calls for ‘better regulation’ may suggest, and it proposes ways in which key aspects of those challenges may be addressed.

## RISK-BASED AND PROBLEM-CENTERED REGULATION

Risks and problems, as noted, have different dimensions in time. A ‘risk’ involves a prospective element but a ‘problem’ can be seen as broader in conception and as covering undesired harms of past or current occurrence as well as risks of future harms.<sup>4</sup> The challenges of identifying ‘key risks’ and ‘important problems’ are, however, similar, though not identical.<sup>5</sup> For the most part this discussion will refer to both risks and problems collectively (referring to ‘risks’) but will differentiate where this matters to the issues of identification, selection, and prioritization.

Risk-based regulation is commonly taken to mean that regulators operate decision-making frameworks and procedures to prioritize regulatory activities and the deployment of resources according to an assessment of the risks that regulated firms pose to the regulator’s objectives.<sup>6</sup> Initially, risk-based regulation was introduced to provide a way of prioritizing inspections but it has become, for some regulators, a more holistic concept, encompassing wider strategic policy decisions. The challenges regulators face in identifying risks are increasingly well-documented, and often include: selecting the appropriate indicators, gathering sufficient information with respect to those indicators, assessing probabilities (particularly for low-probability, high-impact events), assessing the ability of management systems and processes to mitigate risk, and dealing with uncertainties rather than risks that can be

4 See A. Giddens, *The Consequences of Modernity* (1990); J. Black, ‘The Role of Risk in Regulatory Processes’ in *The Oxford Handbook of Regulation*, eds. R. Baldwin, M. Cave, and M. Lodge (2010). In a risk-based regime, key risks are routinely identified by cascading from statutory mandates to key risks to key sub-risks in a rationalistic calculus involving references to risk-scoring mechanisms. In a problem-based regime, important problems are identified and selected for attention on more general policy or political grounds: Sparrow, op. cit. (2008), n. 2, pp. 11, 154.

5 The prospectivity of risks, for example, involves evidential challenges of a kind absent with harms that have occurred.

6 See J. Black, ‘Risk-Based Regulation: Choices, Practices and Lessons Learnt’ in *Risk and Regulatory Policy: Improving the Governance of Risk*, ed. OECD (2010); H. Rothstein, M. Gruber, and G. Gaskell, ‘A Theory of Risk Colonization’ (2006) 35 *Economy and Society* 91.

easily calculated. These challenges are additional to those relating to determinations on prioritization, decisions on whether to err on the side of precaution or permission, or judgements on what, if any, level of failure is politically tolerable.<sup>7</sup>

Malcolm Sparrow's concept of 'problem-centred' regulation is wider in scope and involves regulators moving away from a focus on process-based interventions towards an emphasis on dealing with key problems. Thus, instead of seeking routinely to apply the enforcement powers and processes that regulators possess, Sparrow argues that they should: 'Pick the important problems and examine each of them in their own right, and without regard for any tool-based traditions or preferences.'<sup>8</sup> Organizational embedding of the problem-centred approach would come when a regulator had constructed and maintained:

... a portfolio of harm-mitigation projects, each one aimed at a carefully identified and delineated concentration. There would no longer be any ambiguity about which problems had been selected, and which ones not, nor who was responsible for designing relevant interventions.<sup>9</sup>

Malcolm Sparrow, of course, is aware that moving away from process-driven work<sup>10</sup> is challenging. In *The Character of Harms*<sup>11</sup> he argues that driving forward his approach demands that organizations take three main steps. They should, in the first instance, establish a *protocol for problem solving*, comprising: 'a sequence of distinct stages through which any one harm-reduction project might proceed.' They should, second, create a *managerial infrastructure*, by virtue of which an institution can 'construct, direct, support and monitor its overall portfolio of harm-reduction projects' and, third, they should establish 'an *organizational interface*' between this type of work and others: 'so that all the proper interactions between them can be understood and facilitated.'

Sparrow concedes that the challenge of identifying key problems is considerable and he states that selecting the dimensions in which to describe a problem: 'is an inherently messy business, involving artful choice and instinct as much as analysis and science.'<sup>12</sup> This article seeks to address the complexity of that identification, selection, and prioritization process. It is designed to add to Sparrow's analysis by throwing further light on the ways in which different approaches to risk and problem identification come together and impact on both risk-based and problem-centred regulation. The

7 See Black, id.

8 Sparrow, op. cit. (2008), n. 2, p. 153.

9 id., p. 154.

10 Process-driven work focuses attention on applying established procedures (for example, enforcing statutory rules) whereas problem-driven regulation emphasizes the prevention of key harms (id., pp. 49–66).

11 id., p. 157.

12 id., p. 97. See, also, H. Goldstein, *Problem-Oriented Policing* (1990).

next two sections of this article, accordingly, explore the different drivers of risk/problem identification and consider how regulators can deal with the operational difficulties that interactions between these can give rise to.

### CONSTRUCTING RISKS AND PROBLEMS: THREE SETS OF DRIVERS

It has long been recognized that the ways in which risks or problems are constructed and selected for attention is fundamental to their regulation – if the risk or problem is not recognized, it will not even move on to the agenda. If it is recognized, then the way it is constructed will shape the manner in which it is then assessed and managed.<sup>13</sup> What really underpins risk-based regulation, therefore, is not just how risks are scored and quantified, though that is important, but the prior issue of how they are constructed, packaged, and identified – those formulations are at once the drivers and the building blocks of risk-based regulation. These modes of construction, and their impacts on regulatory implementation are, however, less explored than many other aspects of risk governance. The same is true of a ‘problem-centred’ approach. As with risks, the ‘problem with problems’ is that there are often a number of ways they can be constructed, and, indeed, a number of solutions which are deemed appropriate to fit the problem, as long as it is constructed in a certain way.<sup>14</sup> It is worth restating that problems are distinct from risks in some key ways but there are areas of commonality so, for the sake of brevity, points made about ‘risks’ in the discussion below will be taken to apply also to ‘problems’ unless otherwise stated.<sup>15</sup>

A ‘risk’ is far from an atomistic, unitary entity with an objective existence: instead it can more usefully be seen as a cluster of different causes and effects that is assembled for a given purpose according to a principle of framing or selection. Regulators have to decide how, in effect, to construct the risk.<sup>16</sup> The discussion below draws on the broad literature on risk

- 13 See D. Rochefort and R. Cobb (eds.), *The Politics of Problem Definition* (1994), especially ch. 1; D. Dery, *Problem Definition in Policy Analysis* (1984); A. Tversky and D. Kahneman, ‘The Framing of Decisions and the Psychology of Choice’ (1981) 211 *Science* 453; M. Douglas and A. Wildavsky, *Risk and Culture* (1983); S. Krimsky and D. Golding, *Social Theories of Risk* (1992); B. Hutter and M. Power, *Organizational Encounters with Risk* (2005); M. Power, *Organized Uncertainty* (2007); S. Hilgartner, ‘The Social Construction of Risk Objects’ in *Organizations, Uncertainties, and Risk*, eds. J. Short and L. Clark (1992); C. Hood, *The Art of the State* (1998).
- 14 As March and Olsen observed some decades ago, in a ‘garbage can’ model of decision making, solutions and problems can come together for quite incidental reasons: see M.D. Cohen, J.G. March, and J.P. Olsen, ‘A Garbage Can Model of Organizational Choice’ (1972) 17 *Administrative Sci. Q.* 1.
- 15 On overlaps between the terms ‘risks’, ‘problems’, ‘harms’, and so on, see Sparrow, op. cit. (2008), n. 2, pp. 10–11.
- 16 See E. Seidman and J. Rappaport, *Redefining Social Problems* (1986).

identification to highlight a number of drivers of risk identification and prioritization before the implications of contests between such drivers are further explored. We argue that the factors that drive risk identification, selection, and prioritization can be conceived as falling into three main categories – *theoretical or ideological* perspectives; *operational and resourcing* factors; and *political communicative and reputational* pressures.<sup>17</sup> It is important to stress that the different drivers of risk identification, selection and prioritization that fall into these three categories will often compete with each other both within and across categories.<sup>18</sup> Sometimes, as noted, different drivers will, instead, reinforce each other.

### 1. *Theoretical perspectives*

The risk literature stresses that theoretical, ideological, and cognitive frameworks loom large in the construction of risks and that there is nothing as straightforward as a ‘technical’ assessment of risk. Renn, for instance, has distinguished between seven different ideological perspectives on the conception and assessment of risks. These frameworks of ideas range from the actuarial, toxicological, and engineering to the economic, psychological, social, and cultural.<sup>19</sup> The array of such frameworks is discussed in an extensive body of publications, most notably in the fields of cognitive and social psychology as well as behavioural economics.<sup>20</sup> For current purposes, it suffices to note the degree to which such frameworks imply different risk agendas. Actuarial, toxicological, and engineering approaches, for instance, are concerned with measuring and managing risks; economic perspectives focus on taking the products of any one or more of these three approaches and putting them into monetary terms in order to determine risk-benefit trade-offs. Psychological perspectives examine perceptions of risks, and social and cultural perspectives ask: why is something considered a risk in the first place and by whom?

17 This argument builds on a review of risk-based systems in a number of regulators around the world and semi-structured interviews with regulators responsible for developing and implementing risk-based approaches in a number of United Kingdom regulatory agencies. See, also, Rochefort and Cobb, *op. cit.*, n. 13.

18 The Irish Environmental Protection Agency (EPA)’s categorization of septic tank risks was initially based on operational factors but this approach was trumped by considerations of political accountability in 2012–13: see R. Baldwin, J. Black, and G. O’Leary, ‘Risk Regulation and Transnationality: Institutional Accountability as a Driver of Innovation’ (2014) 3 *Transnational Environmental Law* 373.

19 See O. Renn, ‘Concepts of Risk: A Classification’ in Krinsky and Golding, *op. cit.* n. 13.

20 See, for example, Krinsky and Golding, *id.*; N. Pidgeon et al., ‘Risk Perception’ in *Risk: Analysis, Perception, Management*, ed. Royal Society (1992); P. Slovic, *The Perception of Risk* (2000); O. Renn et al., ‘The Social Amplification of Risk’ (1988) 8 *Risk Analysis* 177; D. Kahneman, *Thinking, Fast and Slow* (2011).



Such theoretical or ideological frameworks are encountered in myriad versions and all of these can impact on the ways in which regulators construct, identify, and evaluate risks and the ways that they manage and communicate about them.<sup>21</sup> In the financial world, for instance, the mathematical modelling systems that are used to measure risks tend to both incorporate and drive understandings about the risks that are of concern to regulators and managers.<sup>22</sup> What can be constructed to allow measurement, moreover, is what gets managed. Thus, Power has argued that the emergence of the idea of ‘operational risk’ in the financial sector in the 1990s provided both a new object of managerial attention and a new means of constructing risks.<sup>23</sup> The identification of particular ‘risk objects’ in such situations becomes a product of the prevailing control or managerial theory.

Two particular messages can be taken from the literature on cognition. First, divergent views on risks will be taken in so far as parties are affected differently by the various biases and deficiencies that afflict thinking on risk.<sup>24</sup> Secondly, different risk priorities will be established where different stances are taken on the levels of subjectivity inherent in risk assessments, and the potential of experts or procedures such as cost-benefit analysis in the evaluation of risks. Thus, Kahneman has contrasted Slovic’s emphasis on the subjectivity of risk evaluations with Sunstein’s ‘faith in the objectivity that may be achieved by science, expertise, and careful deliberation.’<sup>25</sup> These respective positions can be expected to identify risks in dissimilar ways.

Disciplinary perspectives can shape risk constructions as much as particular ideas. Thus, in her study of risk control in the United States Space Shuttle Program by the National Aeronautics and Space Administration (NASA), Dianne Vaughan recounts how risks were filtered and selected for attention (and ‘deviance normalised’) by application of ‘the methods of scientific positivism ... learned in engineering school’.<sup>26</sup> These methods

21 D. Vaughan, ‘Organizational Rituals of Risk and Error’ in Hutter and Power, op. cit., n. 13; Hood, op. cit., n. 13.

22 These were shown in the crisis to be prey to the same cognitive biases that beset any exercise in risk identification and evaluation: see, for example, D. Mackenzie, ‘Mathematizing Risk: Models, Arbitrage and Crises’ in Hutter and Power, id.

23 ‘Risk objects’ were ‘re-constructed within the fresh discourse of operational risk’ so as to have a new ‘conceptual location and status for managerial and regulatory purposes’: Power, op. cit., n. 13, p. 125. On the post-financial crisis rise of new ‘macro-prudential’ management tools, see A. Baker, ‘The gradual transformation?’ (2013) 7 *Regulation and Governance* 417; J. Black, ‘Restructuring Global and EU Financial Regulation’ in *Financial Regulation and Supervision: A Post Crisis Analysis*, eds. E. Wymeersch, K. Hopt, and G. Ferrarini (2012).

24 On which see, for example, A. Tversky and D. Kahneman, ‘Judgement Under Uncertainty: Heuristics and Biases’ (1974) 185 *Science* 1124.

25 See Kahneman, op. cit., n. 20, pp. 141–2; Slovic, op. cit., n. 20; C. Sunstein, *Risk and Reason* (2002) and *The Cost-Benefit State* (2002).

26 Vaughan, op. cit., n. 21.



structured not only the selection of certain risks for attention but also cultural understandings of risk and modes of conveying risk information throughout NASA.<sup>27</sup> In the context of pre-crisis financial regulation, it was the widespread orthodoxy of financial economics that it was sufficient for prudential regulators to focus on the financial stability of individual banks. The systemic risk posed by their interconnections in the financial system was simply not recognized – again there was a system blindness, this time induced by cognitive understandings of the nature of financial systems, and thus the risks being created.<sup>28</sup>

How parties understand the role and nature of good regulatory administration can itself shape risk constructions. Thus, Elizabeth Fisher draws a contrast between deliberative-constitutive and rational-instrumental conceptions of administrative constitutionalism. In the former, the role of public administration is characterized in flexible, discretionary terms, and, in the latter, it is understood more mechanically as a ‘transmission-belt’, ‘Weberian-type agent of the legislature’.<sup>29</sup> These respective paradigms will correspond to quite different perspectives on the identification and control of risks, with the former emphasizing risk identifications through flexible, deliberative procedures (with no separation of scientific and political processes) and the latter relying much more heavily on technical/analytical evaluations of assigned tasks that are set out in legal mandates.<sup>30</sup>

Cultural theory, in turn, suggests that different attitudes or worldviews will lead to different approaches to risk construction. Thus, as deployed by Mary Douglas and others, cultural theory places emphasis on two main forces that impact on attitudes to problems and solutions: those flowing from ‘grid’ and ‘group’ – where ‘grid’ denotes the degree to which lives are circumscribed by conventions, norms or rules, and ‘group’ refers to the constraints on individual choices that stem from collective social forces and processes.<sup>31</sup> This form of analysis suggests that four broadly different types

27 *id.*, pp. 43–4. Also C. Elder and R. Cobb, *The Political Uses of Symbols* (1983). On ‘emplacing risk objects in the conceptual frameworks inhabited by actors’ see Hilgartner, *op. cit.*, n. 13.

28 Financial Services Authority (FSA), *The Turner Review: A Regulatory Response to the Global Banking Crisis* (2009).

29 See E. Fisher, *Risk Regulation and Administrative Constitutionalism* (2007) 28–40; A. Deville and R. Harding, *Applying the Precautionary Principle* (1997).

30 Fisher, *id.*, pp. 32–5.

31 See M. Douglas, *In the Active Voice* (1982) 183–254; M. Thompson et al., *Cultural Theory* (1990); Hood, *op. cit.*, n. 13, ch. 1. The ‘grid/group’ breakdown purports to ‘capture much’ without being exhaustive (Hood, p. 6) and is arguably narrower than the ‘theoretical, operational, political’ breakdown employed here – though the boundaries of grid and group are subject to debate: see V. Mamadouh, ‘Grid-group cultural theory: an introduction’ (1999) 47 *GeoJournal* 395. For critiques of ‘grid/group’ and its limitations in explaining attitudes to risk, see A. Boholm, ‘The Cultural Theory of Risk: An Anthropological Critique’ (1996) 61 *Ethnos* 64; S. Olteidal et al., *Explaining Risk Perception: An Evaluation of Cultural Theory* (2004).

of attitude, or worldviews, will produce different approaches to risk perceptions and identifications.<sup>32</sup> *Fatalists* (actors subject to high-grid and low-group forces) will tend to structure risk identifications with reference to the stipulations of rules and norms, but will lack cohesion in interpreting and applying those rules. *Hierarchists* (high grid, high group) will also structure risk identifications with pronounced reference to rule structures but will approach those rules in a socially more coherent and coordinated fashion. *Individualists* (low grid, low group), in contrast, will prioritize risks with reference to impacts on themselves and will favour controls based on markets and the pursuit of individual interests rather than rules and social forces. *Egalitarians* (low grid, high group) will identify risks and priorities with reference not to rules but to the group ethos and to collective deliberations, interests, and approaches.

## 2. Operational drivers

A second set of drivers of risk identification derives from the constraints on regulatory operations that stem from regulators' legal, organizational, resourcing, and informational frameworks and positions.<sup>33</sup> For most regulators, the starting point for their operations is their legal mandate. The United Kingdom's then Financial Services Authority (FSA), for example, framed the groups of risks on which it focused as 'risks to objectives'.<sup>34</sup> The FSA was, indeed, one of the first United Kingdom regulators explicitly to prioritize the issue of risk identification and selection. In its early days it constructed a 'risk map' and balanced its attention to firm-based, consumer and industry-wide, external environment and thematically-defined risks. This was seen by that agency to be at least as important as how it went about quantifying any given risk.<sup>35</sup>

Whether a phenomenon or activity is identified as a risk will depend on a regulatory body's interpretation of its mandate, as will its making trade-offs between the often conflicting outcomes that the mandate expects it to achieve.<sup>36</sup> In the case of the FSA, for example, the Authority was required

32 See Hood, id., p. 9.

33 C. Hood, H. Rothstein, and R. Baldwin, *The Government of Risk* (2001) 63.

34 See J. Black, 'The emergence of risk-based regulation and the new public risk management in the United Kingdom' [2005] *Public Law* 512.

35 See FSA, *Building the New Regulator: Progress Report 2* (2002) 5–6.

36 The failure of the mandate to cover a matter is likely to mean that the risk is not seen or addressed. The Buncefield Major Incident Investigation Board, in its report, *The Buncefield Incident 11 December 2005: The Final Report* (2008) found that no one involved in the planning or regulatory regime with respect to the petrochemical storage site had considered the risks to the surrounding inhabitants from an explosion on the site as it was not in their mandates to do so. The Royal Commission Report on the *Pike River Coal Mine Tragedy* (2012) found that the licensing authority did not have a mandate to consider health and safety in issuing licences. Prior to the financial crisis, the FSA was not required specifically to maintain

both to consider the competitiveness of the United Kingdom's financial system and to ensure appropriate consumer protection. It sought to deal with that tension in accordance with its interpretation of its mandate, and it is worth noting that its risk-based framework went through several iterations during the FSA's lifespan.

In some regulatory systems, certain risks are selected not so much with reference to mandated objectives as to the categories of sites, activities or regulated firms that the legal regime establishes. In environmental regulation, for example, it is common for statutes, first, to create vertical 'silos' of risks, and then, within each silo, to establish tiers of registration or licensing arrangements. These legally-structured arrangements, in turn, influence the way in which risks are 'sliced and diced' for operational purposes. In the environmental sector in England and Wales there are four main statutory regimes: for pollution prevention and control; waste management; water quality; and radioactive substances. Within each regime, there are statutory 'tiers': for some activities and/or sites specialist licences are required, for others a standard licence, for others notification, and so forth. Risk categorizations in such regimes can thus relate to legal frames rather than the levels of risk that scientific assessments might produce. Thus, when the Environment Agency (EA) first introduced a risk-based regime, it confined it to those activities requiring an integrated pollution permit control (IPPC) licence and only after a few years did the EA extend risk-based regulation to other parts of its remit.<sup>37</sup> In the United States medical field it has similarly been argued that risk categorizations have been strongly structured by the laws and rules that govern clinical practice.<sup>38</sup>

Configurations of enforcement powers may also shape risk constructions and prioritizations: as Wildavsky has pointed out, a public official will tend not to take a problem seriously unless something can be done about it.<sup>39</sup> Thus, the Commission investigating the United States Deepwater Horizon disaster found that Minerals Management Service officials were aware of the significant environmental risks posed by new off-shore drilling technologies, but there were no rules in place to regulate them. As a result, the risks were simply not recognized, in operational terms, by the agency, because it had no power to act.<sup>40</sup>

financial stability, although it was responsible for the prudential regulation of banks and insurance companies.

37 See, similarly, Environment Agency, *Guidance on Low Risk Waste Activities* (2010).

38 C. Heimer et al., 'Risks and Rules: the "Legalization" of Medicine' in Hutter and Power, *op. cit.*, n. 13.

39 A. Wildavsky, *Speaking Truth to Power* (1979) 42, quoted in Rochefort and Cobb, *op. cit.*, n. 13, p. 25.

40 National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, *Deepwater – the Gulf Oil Disaster and the Future of Offshore Drilling, Report to the President* (2011).

The legal powers of regulators may, moreover, vary across the different tasks of regulation. Risks will, therefore, tend to be constructed in the light of the particular powers that the regulator has to deploy in order to discharge different tasks – be that carrying out investigations, defining compliance or prosecuting. Where units within a regulatory body operate with different powers in discharging different tasks, they will tend to construct risks differently.<sup>41</sup>

Managerial constraints also affect risk constructions. As Douglas has observed, risk managers tend to select for attention those risks that they think they can manage.<sup>42</sup> When operations are complex and risks numerous, judgements necessarily have to be made on risk groupings so as to produce operationally manageable and effective regimes. This will involve the creative distillation by the regulator of the various laws it has to implement into a smaller number of overriding objectives that it can then use to organize its activities. In the mid 2000s, for example, the Netherlands environmental regulator, VROM, was charged with over 270 specific legislative tasks. A key stage in developing its risk-based framework was, therefore, to synthesize this legislative morass into four different types of harms and work programmes.<sup>43</sup> In England the Care Quality Commission (CQC) has recently gone through a similar exercise after struggling to create an effective risk-based system of inspections of the quality of care in hospitals, care homes, GPs, and dentists. It distilled its objectives into five core elements: ensuring care is safe, effective, caring, responsible, and well-led.<sup>44</sup> Such distillations, moreover, may still leave scope for further managerial judgements. Thus, selected objectives can conflict, so that trade-offs have to be made (care may be effective but not caring, for example, and vice versa).

The funding structure of a regulator can also structure risk prioritizations. In environmental regulation in the United Kingdom and Ireland, regulators are funded by licence fees collected from the regulated parties.<sup>45</sup> Those in higher risk categories pay higher fees. There is, therefore, an in-built reason

41 Hood, Rothstein, and Baldwin, op. cit., n. 33, pp. 24–6; B. Hutter and S. Lloyd-Bostock, 'Field-Level Perceptions of Risk in Regulatory Agencies' in Short and Clarke, op. cit., n. 13.

42 M. Douglas, *Risk and Blame* (1992); P. Goodwin and G. Wright, *Decision Analysis for Management Judgement* (2004) 300.

43 J. Black, 'Constructing and contesting legitimacy and accountability in polycentric regulatory regimes' (2008) 2 *Regulation & Governance* 137.

44 Care Quality Commission, *Raising standards, putting people first – Our strategy for 2013 to 2016* (2013).

45 Fee levels for the Environment Agency, for example, are set on a cost-recovery basis – see National Audit Office, *Effective inspection and enforcement: implementing the Hampton vision in the Environment Agency* (2008) 13. The Health and Safety Executive (HSE) has, since October 2012, operated a Fee for Intervention (FFI) cost recovery scheme in which non-compliers are liable for costs of inspection, enforcement, and so on (Health and Safety (Fees) Regulations 2012).

not to lower the risk categorization of any one operator. The funding model, moreover, drives the agencies into inspection-based modes of intervention, spending time on site, as regulated operators want to see that they are ‘getting their money’s worth’ from the regulator.<sup>46</sup> Such modes of intervention, in turn, are liable to shape particular ways of constructing risks: in many cases, regulators will look to risks that occur at individual sites rather than arise from more general practices, since addressing risks on a sectoral or system-wide basis is harder to implement when the agency is funded on an individualized cost-recovery model. Resource pressures can drive risk identifications in yet another way. Regulatory managers who are aware that resources will follow key risks may, as a result, manipulate risk identifications and prioritization in a bidding war for resources between organizational units.<sup>47</sup>

The roles performed by regulatory actors within an agency can, in addition, structure risk identifications and can lead to divergences of approach across a regulatory body. Thus, regulatory managers may not see risks in the same way as field enforcers or front-line supervisors. In the health and safety fields, for instance, there is evidence that inspectors on the ground tend to see risks in safety (rather than health) terms to a far greater degree than their managers.<sup>48</sup> Inspectors’ perceptions and constructions of risk are liable to be shaped by the visibility and tangibility of the problems they encounter, and by personal experiences (for example, traumatic accident investigations).<sup>49</sup> These experiences are not likely to be reproduced at head office, where regulatory personnel are at some distance from the coalface.<sup>50</sup> Similarly, the ways in which tasks are allocated and defined in organizations will also play a part in shaping risk selections. Thus, when roles were created for ‘chief risk officers’ in the 1990s financial sector, this both reflected and institutionalized a specific approach to identifying and dealing with risks.<sup>51</sup> More generally, distributions of skills and organizational functions within an organization also provide framing structures for risk and problem identification – as where an agency is divided into legal, investigative, and specialist

46 Interviews with environmental inspectors conducted by the authors as part of the SNIFFER project, on file with authors. See R. Baldwin and J. Black, *Development of Regulatory Approaches to Low Risk Sites and Development of a Good Practice Framework: Final Project Report* (2011).

47 Black, op. cit., n. 34.

48 B. Hutter, ‘Ways of Seeing: Understandings of Risks in Organizational Settings’ in Hutter and Power, op. cit., n. 13.

49 A manifestation of the availability bias: see A. Tversky and D. Kahneman, ‘Availability: A Heuristic for Judging Frequency and Probability’ (1973) 5 *Cognitive Psychology* 207, at 221.

50 See Hutter and Lloyd-Bostock, op. cit., n. 13; D. Nelkin and M. Brown, *Workers at Risk* (1984).

51 M. Power, ‘Organizational Responses to Risk: the Rise of the Chief Risk Officer’ in Power and Hutter, op. cit., n. 13.

risk units, or where there are competing specialisms (engineers versus biologists, or lawyers versus healthcare specialists).<sup>52</sup>

Functional considerations, moreover, can lead regulators to organize risks in a way that reflects the industrial or commercial structures that they encounter.<sup>53</sup> British environment agencies, for example, have often focused on the risks posed by particular sites rather than particular activities, because sites are often dispersed and the range of activities undertaken at those sites is frequently highly varied. A regulator's established regime for collecting information can also mould risk identification. The systems and processes that organizations put into place for management purposes, and those that they use for gathering information on risks, will often be closely linked.<sup>54</sup> An aspect of this linkage is that risks are often constructed from, and accordingly shaped by, the processes that supply information to the regulator and which create methods of communication.<sup>55</sup> Regulators, it can be said, will often choose the pragmatic path of 'collecting data which is collectable'.<sup>56</sup> Information that is gathered on this basis will be structured around an assumed, and particular, breakdown of risks with the effect that these risks will be treated as relevant risks and the information will be given weight in a self-validating process.<sup>57</sup>

Operational factors, in addition, can induce regulators to focus on frequently occurring or immediate events of relatively low impact rather than on issues which are important but less often encountered or more distant in time. Here the difference, and indeed the tension, between focusing on problems and focusing on risks come to the fore. Inquiries into mining and chemical disasters have found that health and safety inspectors tend to focus on occupational safety problems such as slips and trips rather than low-probability but high-impact events such as explosions (which are more properly risks).<sup>58</sup> Investigations of failures to monitor the prudential risks of banks have also revealed that regulators have attended to immediate problems (in the FSA's case, mis-selling of retail financial products and the continuing policy implications of the failure of an insurance company) and devoted little time to issues considered to present a low-probability risk, notwithstanding the potential (and actual) high impact of bank failure.<sup>59</sup>

52 See Sparrow, *op. cit.* (2008), n. 2, p. 48. The same effect can be produced across institutional frameworks and settings – see *Buncefield Report*, *op. cit.*, n. 36.

53 A point made in relation to large-scale pig farms in Ireland – EPA interview 2013.

54 As noted above, risks and management approaches, it can be said, are not independent but co-produced: Hutter and Power, *op. cit.*, n. 13, p. 9.

55 B. Hutter, *Risk and Regulation* (2001); C. Heimer, 'Your Baby's Just Fine' in Short and Clarke, *op. cit.*, n. 13, p. 187; Sparrow, *op. cit.* (2008), n. 2, pp. 49–55.

56 Power, *op. cit.*, n. 13, p. 116.

57 This is, of course a syndrome that enhances model risk – the risk that the model itself is flawed: see Black, *op. cit.*, n. 6, pp. 185–224.

58 *Pike River Report*, *op. cit.*, n. 36; *Buncefield Report*, *op. cit.*, n. 36.

59 FSA, *The Failure of the Royal Bank of Scotland: Financial Services Authority Board Report* (2011) 262.



Dealing with problems in the here and now can occupy so much attention and resources that risks that may materialize in the future fail to be dealt with in a strategic way.

### *3. Political, communicative, and reputational factors*

Regulators, even legally independent regulators, need a political licence to operate. They have to maintain their reputations and legitimacy in the eyes of a wide range of legitimacy communities, who are often making competing demands on them. Their accountability relationships are multiplied where the regulators are located within a multi-level governance structure.<sup>60</sup> Most United Kingdom regulators are situated within an EU regulatory regime, and many (though not necessarily the same group) are nested within global regulatory structures, such as Codex Alimentarius for food safety, the International Maritime Organization for maritime safety, or the global committees of financial regulators or competition regulators.

The accountability and legitimacy requirements imposed on regulators can play an important role in structuring risk identification, assessment, and prioritization. Thus, the environmental regulators in the United Kingdom and Ireland include, in their risk-based frameworks, those emissions to air and discharges to water and sewers which they are required to report on to the European Environment Agency.<sup>61</sup> They are legally instructed to collect this information, and this, in turn, brings the relevant risks onto the agenda in a 'packaged' form. Similarly, the application, within government, of performance indicators (such as safety or environmental targets) will often impose frameworks that regulators will feel driven to reflect in their own risk constructions and priorities.<sup>62</sup> Political priorities also shift, requiring regulators to take into account new and different risks, though rarely allowing them to drop old ones.

More generally, Douglas has argued that classifications of risks tend to reflect the regimes that are established for rendering account and holding to blame.<sup>63</sup> The players of the 'blame game', moreover, are likely to consider issues of potential blame attribution when deciding which categorizations of risk they will assume responsibility for controlling.<sup>64</sup> 'Risks' can thus be recognized, constructed, and prioritized with reference to the operating systems for ascribing responsibility and allocating blame.<sup>65</sup> This is, moreover, a

60 See Black, *op. cit.*, n. 34.

61 For a discussion of the influence of the EU in dealing with risks from septic tanks in Ireland, see Baldwin et al., *op. cit.*, n. 18.

62 See Hutter, *op. cit.*, n. 55, p. 268.

63 See M. Douglas, 'Risk and Blame' in Douglas, *op. cit.*, n. 42.

64 C. Hood, 'The Risk Game and the Blame Game' (2002) *Government and Opposition* 15.

65 See Power, *op. cit.*, n. 13, p. 113.



reflexive process. Modes of holding to account, measurement methodologies for evaluating performance, and risk identifications are all matters that structure and reinforce each other: 'Definitions, responsibilities, concepts of error and of loss, and potential risk management jurisdictions are mutually constitutive.'<sup>66</sup>

Regulators also need a social licence, in other words to be seen as legitimate in the eyes of different social groups or legitimacy communities. Different groupings within society, however, will tend to frame risks differently.<sup>67</sup> Those groups will reflect a variety of economic or political interests and they are likely to seek to induce the regulator to frame risks in a particular manner.<sup>68</sup> A key contention of social amplification theory is that a variety of social amplification stations, such as scientists, the media, and government agencies, filter signals about risks and, in doing so, either intensify or attenuate aspects of risks.<sup>69</sup> Such filtering systems will operate, sometimes in competition, sometimes in a mutually reinforcing manner, to establish risk priorities.<sup>70</sup> Regulators who are concerned to sustain support for their actions will tend to categorize risks in ways that respond to public (or group or industry) perceptions of risk and their respective expectations of the regulator.<sup>71</sup> The Food Standards Agency in England and the United Kingdom Health and Safety Executive, for example, takes into account public attitudes to risk, as well as their statutory objectives, in identifying which risks they should focus on. In Ireland, the Irish Environmental Protection Agency (EPA) has included odour as a 'risk' that merits focus because unwanted odours give rise to a considerable volume of complaints – illustrating also the conflation in practice of 'risks' and 'problems'.<sup>72</sup>

Governmental pressures to regulate in certain ways can also drive the framing of risk identifications. Thus, if a government presses a regulator to help small enterprises by adopting an increasingly 'one-stop shop' approach to regulation,<sup>73</sup> this will tend to favour interventions at specific sites and the addressing of numbers of risks at single visits to those sites (a process often

66 *id.*, p. 120.

67 O. Renn, *Risk Governance* (2008) 47.

68 *id.*, p. 65. See, also, J. Portz, 'Plant Closings, Community Definitions, and the Local Response' in Rochefort and Cobb, *op. cit.*, n. 13; F. Baumgartner, *Conflict and Rhetoric in French Policymaking* (1989).

69 See R. Kasperson et al., 'The Social Amplification of Risk: A Conceptual Framework' (1988) 8 *Risk Analysis* 177.

70 See Pidgeon et al., *op. cit.*, n. 20, p. 114; H. Otway and B. Wynne, 'Risk Communication: Paradigm and Paradox' (1989) 9 *Risk Analysis* 141.

71 Hood et al., *op. cit.*, n. 33, p. 64.

72 The majority of complaints that the EPA receives regarding licensed IPPC and waste sites relate to nuisance odours: see EPA, *Air Guidance Note 5 (AG5) Odour Impact Assessment Guidance for EPA Licensed Sites*, at <[www.epa.ie/pubs/advice/air/emissions/AG5-V11.pdf](http://www.epa.ie/pubs/advice/air/emissions/AG5-V11.pdf)> 6.

73 See the Hampton review on reducing numbers of inspections and the numbers of different regulators that deal with businesses: P. Hampton, *Reducing Administrative Burdens: Effective Inspection and Enforcement* (2005) 55–69.

advocated by regulated firms). Such a regulator will be driven by this logic to categorize risks with reference to particular sites rather than to assess risks on a sectoral or systemic basis. Political or reputational risks to the regulator itself can be a further factor in framing risks. In VROM's framework, for example, 'social impacts' were a separate category of impact that captures issues that have current political and media salience. Regulators' political risks could thus be incorporated into both the categorization of risks and the measurement of risks.<sup>74</sup>

The nature of the harm, and the particular susceptibility to harm of certain categories of individuals or environmental sites, can also be an important driver of risk prioritizations. In a 'pure' risk model, probability and impact will be equally weighted but, in practice, risk-based models vary considerably in the role that impact plays in driving risk prioritization decisions. Impacts that are of high political salience or public sensitivity will thus be given special weightings in setting risk priorities. Impacts on large numbers of people, for example, are often categorized as high-risk even for low-probability events. In some contexts, this approach can move attention away from looking at risks in aggregate (for example, overall pollution in a catchment area) to a focus on specific kinds of impact (as with fish-kills in a given watercourse). In other contexts, the issue of aggregation will loom large because it is aggregation that triggers the harm (as where air quality crosses a tolerance or acceptability threshold). The United Kingdom Food Standards Agency's risk evaluation framework, for example, looks to both the nature of the micro-organisms that are present in the food and the number of people likely to consume the food. The Health and Safety Executive's risk framework also combines consideration of the nature of the harm, the probability of its occurring, and the number of people likely to be affected.

The distribution of the harm may thus have a political significance that affects its classification and prioritization – where it impacts on areas or parties of special concern. The Solicitors Regulation Authority provides another example. It includes vulnerability of consumers of legal services in its impact assessment: thus those seeking immigration and asylum advice are deemed more vulnerable than those seeking advice on commercial contracts, and risks to the former are prioritized accordingly.<sup>75</sup> The United Kingdom financial regulators have modified their approaches over the last few years to adjust their focus on the aggregate scale of impacts so as to give more weight to the nature of the impact. Accordingly, the Financial Conduct Authority has a higher tolerance of financial loss for non-retail customers than it does for retail consumers.<sup>76</sup>

74 On regulators' sensitivities to blame as a factor in selecting risks, see J. Black, 'The Role of Risk in Regulatory Processes' in Baldwin et al., op. cit., n. 4; Douglas, op. cit., n. 31.

75 Solicitors Regulation Authority, *Risk Framework* (2014).

76 FCA, *How the Financial Conduct Authority will report on and investigate regulatory failure* (2013).

#### 4. *Summary*

Risks and ‘problems’ are thus conceived of in different ways under the influence of a variety of drivers. When there is mutual constitution, the drivers reinforce each other – as when the rules break down risks in a manner that corresponds to the political priorities of the community affected by regulation. When there is competition, the messages provided by the different drivers often favour different breakdowns of risk priorities. This can produce tensions within regimes – as when the rules impose a charging regime based on site-based inspections, there is, accordingly, a highlighting of existing risks at individual sites, and this hinders the addressing of those emergent and systemic risks that operational and reputational considerations would draw attention to. As cultural theory emphasizes, drivers vary in strength and different combinations of weaker and stronger drivers produce distinct approaches to risk identification and to regulatory challenges. Competitions between drivers can also change regimes over time – as when operational drivers of risk identification are trumped by new laws so that the ‘risks’ that were addressed in establishing a control regime in the field are not the same ‘risks’ as those that constitute the legal focus of attention some years later, or when social and/or political priorities change.<sup>77</sup>

### THE OPERATIONAL CHALLENGES POSED BY INTERACTING DRIVERS

Interactions between different drivers and shapers of risk and problem identification, selection, and prioritization can present regulators with a number of functional and procedural challenges.<sup>78</sup>

#### 1. *Functional challenges*

Risks, as discussed above, are commonly analysed, ordered, managed, and controlled in a manner consistent with a ‘rational-instrumental’ model of administration.<sup>79</sup> Risk decisions, within such an approach, are based on analyses of the risks to regulatory objectives that are presented by different sites or activities.<sup>80</sup>

<sup>77</sup> See, also, Sparrow, *op. cit.* (2008), n. 2, p. 98.

<sup>78</sup> Not considered here are ‘constitutional’ and ‘justice’ benchmarks of regulatory legitimacy, see Black, *op. cit.*, n. 43, pp. 137–64; on evaluating regulation generally, see R. Baldwin, M. Cave, and M. Lodge, *Understanding Regulation* (2012) ch. 3.

<sup>79</sup> See Fisher, *op. cit.*, n. 29. As noted in the text to fn. 29, a ‘deliberative-constitutive’ paradigm of regulatory administration would favour a less mechanical use of mandates in setting risk priorities.

<sup>80</sup> See Black, *op. cit.*, n. 34.

A central problem with the rational-instrumental model is that moving from a statement of statutory objectives to a set of key risks, to a breakdown of more specific risks is not a mechanical process – it involves a host of discretionary and value-laden decisions. The discussion above reveals that, in making such decisions, regulators may be impacted by a broad array of drivers beyond legal mandates, from theories, ideas, and discourses, to managerial, functional, and bureaucratic pressures, to information, communications and data systems, accountability structures, political pressures, and sensitivities regarding certain impacts.

The results may be sub-optimal – as was seen in the pre-2008 financial services sector when the serving of objectives was undermined by a host of pressures. The ‘rational-instrumental’ operation of risk-based regulation did little to ensure that key systemic risks were identified and selected for priority attention.<sup>81</sup>

This is not to suggest that a ‘deliberative-constitutive’ approach, with its stress on flexibility and deliberation, would offer an easy means for a risk-based regulator to deal with complex competitions between different drivers of risk identification. It does, however, invite the regulator to address, directly, such competitions and to do so in an ongoing and transparent way. What cannot be assumed, of course, is that all of the various actors in a risk-regulation regime will subscribe to the same vision of administration – be that ‘rational-instrumental’, ‘deliberative-constitutive’ or some other. As noted above, competitions between these visions will themselves produce different perceptions of risk priorities.

Competitions between drivers will, in addition, bring the danger that regulators who are carrying out different tasks within the same agency may be addressing differently conceived ‘risks’.<sup>82</sup> The result of such ‘framing differences’ may well be a degree of ineffectiveness, uncertainty, and friction. Similar difficulties arise when staff with different skills, disciplinary backgrounds, and roles may construct risks differently even when operating within the same organization under one mandate.

Where numbers of regulators act in an area, and numbers of pieces of legislation are involved, there is considerable potential for problematic divergence on risk constructions. Let us assume, for example, that numerous farmers are using a chemical in their sheep-dips that poses risks to water-courses and groundwater (potentially killing invertebrates in rivers and affecting drinking water quality in other locations). The activity clearly poses risks to the environment, to animal health, and to human health. Each one of these harms, however, may well be subject to different legal regimes,

81 In cultural theory terms it might be argued that this was a ‘high grid, low group’ scenario in which a lack of group coherence undermined the consistent application of rules and norms.

82 On the main tasks of regulation, see R. Baldwin and J. Black, ‘Really Responsive Regulation’ (2008) 71 *Modern Law Rev.* 59.

and these may or may not be the responsibilities of more than one regulator. An environmental regulator will see the use of the chemical as an environmental risk; a health and safety regulator as a risk to human health. Not only will each construct the risk differently, they may afford it a different priority. Lack of regulatory co-ordination and effectiveness may result, as has been seen in practice. Thus, the ‘risks’ of genetically modified organisms have been variously characterized in a multitude of ways which are largely irreconcilable, including as risks to human health, risks to the environment, risks to the business model of farming, and/or risks to a way of life. In the Buncefield case, where vapour released from a petrol storage tank caused a significant explosion, the two regulators of the Buncefield site, the Health and Safety Executive (HSE) and the Environment Agency, prioritized the risks posed by the site differently with respect to their mandates, with the HSE giving it a higher priority than the EA. This, in turn, led to conflicts in the operation of the joint inspection regime that the regulators were required to adopt, and to a recommendation that they provide a common risk ranking for sites they jointly regulated.<sup>83</sup>

Competitions between drivers produce a particular challenge for problem-centred regulation: how problem-centred work can be carried out within the context of the regulator’s other operations. (A risk-based system, in contrast, can in principle be rolled out across all of the agency’s different operations.) Sparrow suggests, as noted, the establishment of an ‘*organizational interface*’ between problem-centred work and other types of activity (for example, process-driven interventions) so that ‘all the proper interactions between them can be understood and facilitated.’<sup>84</sup> He concludes that managers must always appreciate the distinctive nature of problem-centred work but they must prevent it from ‘becoming detached from the remainder of operations.’<sup>85</sup>

Such prescriptions, however, do not in themselves serve to identify the proper scope and extent of the problem-centred regime. The irony is that, in practice, the boundaries between problem-centred and other forms of work are liable to be contested by the same sets of drivers as will compete to define the ‘problems’ at issue. Thus, a strong ‘political sensitivity’ driver may both focus attention on a particular outcome (for example, a fish-kill) and it may drive regulatory managers to see this harm as an issue to be addressed by establishing a project team. In contrast, a mode of information collection that is linked to a set of legal enforcement powers may lead regulators to slice and dice problems according to the framework established

83 See *Buncefield Report*, op. cit., n. 36 on the policy and procedures of the Health and Safety Executive’s and the Environment Agency’s role in regulating the activities on the Buncefield site under the COMAH Regulations (especially recommendations 4, 17, and 18).

84 Sparrow, op. cit. (2008), n. 2, p. 157.

85 id., p. 165.

by that set of powers. Problem-centred regulation could, in the latter situation, operate in a manner consistent with a process-driven rather than a problem-centred approach.

Sparrow suggests that where there is organizational embedding of his approach, there is no ambiguity about ‘carefully identified problems’. A concern, however, is that there will always tend to be ambiguity about the nature of the key problems the regulator faces because of competitions between drivers of both problem and risk selection. Given the array of competing drivers outlined above, it is optimistic to think that problem-centred regulators can establish authoritative constructions of ‘important problems’ without overcoming severe challenges. Embedding a problem-centred, or indeed a risk-based, approach also involves the fostering of a consistent conception of key problems or risks throughout a regulatory body. Sparrow notes that, when defining a problem precisely, choices have to be made, multiple and competing perspectives have to be considered, and negotiations undertaken on the framing of a problem.<sup>86</sup> He suggests, nevertheless, that a precise (authoritative) problem definition can be produced. Sparrow contends that dedicated project teams can in some contexts usefully focus on ‘the identification and calibration, and mitigation of a wide range of risk exposures’,<sup>87</sup> but the above discussion highlights the difficulties of fostering common, unambiguous conceptions of key problems across different organizational departments, skills, operations, sectors, and tasks, not to mention different political and accountability contexts. A further issue is whether common understandings can be sustained over time as different units wrestle with their particular, and evolving, implementation challenges. These problems are compounded when regulators have to interact with other agencies who have different remits in the operation of the regulatory regime.

Here it is worth noting the experience of the Scottish Environmental Protection Agency (SEPA) since this is a United Kingdom agency that has explicitly sought to reform its regulatory approach along the lines advocated by Malcolm Sparrow. Starting in 2009, SEPA addressed the challenge of embedding a new problem-centred approach in a series of stages.<sup>88</sup> Theoretical, operational, and political considerations played their own distinct roles in the SEPA response. In the first instance, a group of senior SEPA staff reviewed key issues and priorities in 2009–10 and identified around a half-dozen projects as candidates for a ‘problem-based’ approach. The

<sup>86</sup> *id.*, p. 159.

<sup>87</sup> *id.*, pp. 156, 164–5.

<sup>88</sup> This account is based on SEPA publications supplemented by semi-structured interviews (conducted in December 2013) with a small number of SEPA managers and policy makers who were selected for their close knowledge of and/or involvement in the SEPA regulatory reform programme. Central publications referred to are: SEPA, *Response to the Better Environmental Regulation: SEPA’s Change Proposals* (2011); SEPA, *Consultation on Proposals for an Integrated Framework for Environmental Pollution* (2012).



following year this group sought to place ‘key problem’ identification onto a stronger evidential basis to avoid dangers that the ‘pet projects of the loudest shouters’ would be prioritized. A broad range of managers was accordingly canvassed concerning key areas and their suggestions were analysed. The top ten issues were then identified and these were whittled down in number. Officials were asked to justify and re-evaluate the selection of these priority projects, and this resulted in the selection of six or seven projects for taking forward.<sup>89</sup>

A benefit of this broad consultative process was seen to be its generation of staff buy-in. Political considerations of an internal nature, however, impacted on the selection of projects in so far as senior staff decided to spread the projects across different sectors within the organization so as to avoid seeming to favour certain groups.<sup>90</sup> SEPA’s reforms also demanded coordinations and agenda alignments with other agencies. Thus, environmental crime might have been a continuing SEPA priority, but this was not necessarily the case for the police. As one senior SEPA manager argued, problem solving forces a regulator into the kinds of engagement that are needed to deal with such coordination issues. Just as internal political pressures led SEPA managers to ‘spread projects’ when establishing risk priorities, external pressures demanded close engagements with other agencies whose collaboration was needed to gain a common alignment of priorities on particular issues.<sup>91</sup>

The next stage of problem identification was to seek more data from external sources. SEPA focused on needs to consult stakeholders such as businesses and local authorities about key problems; to obtain the correct data to set priorities; and to secure the resources required to analyse the data obtained through consultation.<sup>92</sup>

Once the issues for priority attention had been identified, the managerial challenge was to coordinate a focus on problems with attention to other tasks or ‘business as usual’. This required planning within SEPA and ‘sign-off from the top’. Resource considerations also loomed large in SEPA’s move to a problem focus. The shift was designed to stimulate the more effective production of desired regulatory outcomes but it was recognized that it required a good deal of staff training and the approval of resources for key projects.<sup>93</sup> Resourcing, indeed became a central focus for discussion – as one senior manager said, ‘Competition for resources is now a key issue. Discussions tend not to dispute the merits of the work but the priority issue: and resource limitations make prioritizing more urgent.’<sup>94</sup>

89 SEPA staff interview, December 2013.

90 SEPA staff interview, December 2013.

91 SEPA staff interview, December 2013.

92 Interview December 2013 and see SEPA, *op. cit.* (2011), n. 88, pp. 8–10.

93 Interview December 2013 and see SEPA, *id.*

94 SEPA staff interview, December 2013.



Overall, SEPA's efforts suggest that a good deal of managerial commitment, and leadership, is required if the respective roles of 'problem' and of 'process' work are to be understood and accepted within and across organizations. Its experience also suggests that competitions for resources will often lie at the heart of discussions on the respective scopes of these kinds of work.

Competitions between drivers of identification also give rise to more particular challenges in relation to the central tasks of regulation, namely, setting objectives, gathering data or information, developing regulatory strategies to affect behaviour, enforcing, evaluating performance, and modifying in the light of that performance evaluation.<sup>95</sup>

#### (a) Establishing clear regulatory objectives

Risk-based approaches are focused primarily on ensuring that a regulator meets its objectives. Those objectives, however, may be at tension, requiring regulators to make trade-offs between them. Moreover, the objectives may be ill-specified. Regulators may be charged to implement multiple pieces of legislation or delegated legislation and will need to 'translate' those provisions into objectives in order to operationalize the risk-based approach. Risk identifications, selections, and prioritizations, accordingly, may be based on interpretations of multiple specifications of legal mandates, as well as on the basis of the other theoretical, operational, and political/reputational drivers noted above. Putting objectives into operation involves the promulgation of those objectives throughout the regulatory organization. General risk objectives will have to be translated into sub-risks (smaller clusters of risky activities) that can be a focus of implementation measures. Challenges arise here because different departments or units within an agency are likely to select and construct sub-risks differently, particularly if there is no coordinating cross-organizational conversation. Variation can be horizontal, with different regional offices having different modes of categorization and ranking, and/or vertical, with differences between front-line officials and those in the higher echelons of policy and management. The overall effect is that objectives can be seen in different ways across the organization as risks are categorized and dealt with differently. Agencies' aims, as a result, are liable to be fragmented and difficult to bring together into a coherent regime.

#### (b) Detecting and information gathering

Data is critical to any risk-based regulatory regime. In order to assess the probability of a risk crystallizing and the impact if it does, regulators have to create risk indicators and collect data to enable them to assess a state of affairs with respect to those indicators. The scale of the issue should not be

95 On the core tasks of regulation, see Baldwin and Black, *op. cit.*, n. 82.

underestimated. The CQC at one point had 1000 outcome measures, assessment of which required the analysis of 1.2m quantitative data items and 100,000 qualitative data items.<sup>96</sup> The problems in utilizing such a significant amount of data are compounded if different indicators, which the data items are meant to inform, are rooted in framing differences.

The special danger is that framing differences produce flawed data. Risk analysts within regulators (and their risk models) commonly have to rely on information supplied by field inspectors. If the latter categorize risks with reference to operational considerations such as local sensitivities to certain harms, the danger is that they will not deliver information that is organized according to the same framings of risks as those used by the analysts. To give a simple example: in the hypothetical sheep-dip example discussed, the danger is that the policy makers will look to gather information on risks of non-compliance with individual farm discharge consents, but the field inspectors will be focused on risks to watercourses (because of local political concerns). One way to address this is to give inspectors or supervisors check lists to inspect against, as the HSE did with its 'topic packs' and the CQC has done with its 'general lines of enquiry' for inspectors. Such responses can, however, raise issues regarding the scope that is allowed to inspectors to use their judgement or to capture indicators or concerns which are 'off-list'.<sup>97</sup> If they do not have such scope, they may fail to address or detect new challenges. Conversely, inspectors may collect information with reference to the risks that they see as relevant within their own framing mechanisms, but the messages sent from the field will not impact at the policy level because they relate to matters that are not on the policy agenda.

### (c) Responding through strategy development

It is difficult to develop regulatory strategies with a clear sense of purpose in the face of concurrent and competing framings of risk. This is liable to be the case, not least, because the information available to strategists will tend to be fragmented for the reasons discussed above and it will tend to be compartmentalized (in a number of different) ways that reflect the particular purposes for which it was collected.

When different drivers act in a mutually reinforcing manner, this can lead to circular reasoning. Strategies will be developed with reference to 'given' risks that have been shaped by a mixture of legal obligations, enforcement methods and powers, political pressures, and data systems. As a result, the regulators will employ new strategies and tools to address those risks rather than rethink the ways in which they construct and prioritize risks. They will,

96 A.-L. Beaussier et al., 'Why Risk-based Regulation of Healthcare Quality in the NHS Cannot Succeed', HowSAFE Working Paper no. 5, Kings College London (2015).

97 Black, *op. cit.*, n. 43.

perhaps unwittingly, be posing to themselves such questions as: ‘Which intervention methods are best used in relation to the risks that we have constructed with reference to our intervention methods?’ The effect will be that their reform efforts will tend to create a new world in the image of the old one and that structural problems will be unaddressed.<sup>98</sup>

#### (d) Enforcing

The combination, in practice, of theoretical, operational, and political drivers of risk identification explains why field inspectors or front-line supervisors have, in many scenarios, to square the circle. They have to serve the objectives and address the risks that policy makers have identified, but they have to reconcile their own visions of risks with those of policy officials. As noted, field operators will tend to identify and prioritize risks with reference to such matters as available resources, relevant business configurations, local political considerations, and past field experiences. They are generally less attentive to macro-political issues than head-office policy makers.<sup>99</sup> In such situations, the regulators’ risk-based models become the fictions that firms’ compliance plans can be: they exist in theory but in practice the organization adopts quite different approaches, as was the case with FSA supervision, as noted above.

When regulators seek to take formal enforcement action such as impose fines or institute prosecutions, they will then have to reconfigure the risk according to a legal framework. As Hawkins’s research illustrates, what field officers may see as the relevant set of risks, and the correct data to support their claim, may not be the same as is recognized in law: events have to be reconstructed from the language of risk into one of duties and liabilities.<sup>100</sup>

A particular challenge arises when the regulator has redefined its objectives through a distillation and interpretation of its legislative framework. Such distillation may facilitate the development of policy and inspection priorities, but when the regulator wants to take enforcement action, it has to go back to the legislative framework. That framework may drive risk and problem identifications in a manner that is inconsistent with the political/policy drivers espoused by the regulator under a risk-based or outcomes-focused approach. Furthermore, other factors may come into play in determining when and whether to take enforcement action. As a result, multiple frameworks may be operating simultaneously.

To return to the experience of SEPA, when it sought to move away from a regime in which the statutory framework drove risk identification, it saw this as shifting from a focus on ‘box ticking inspection programmes and from

<sup>98</sup> See, for example, Vaughan, *op. cit.*, n. 21, pp. 65–6.

<sup>99</sup> Hutter, *op. cit.*, n. 55.

<sup>100</sup> See K. Hawkins, *Law as Last Resort* (2002) ch. 8.

permit compliance' towards a targeting of 'key environmental harms'.<sup>101</sup> The 'key-harms' approach, however, did not determine enforcement priorities. When targeting enforcement resources, SEPA suggested that risk priorities would be established with reference to an analysis of *regulated operator types*.<sup>102</sup> Operators were to be classified with reference to a site-based assessment of their performance in adhering to relevant licence conditions under the *statutory* Pollution Prevention and Control regime.<sup>103</sup> The 'problem focus', said SEPA, would not replace routine regulatory work on licensing, inspecting, and so on, since this was necessary to protect and improve the environment and comply with European law. In practice, problem solving meant: 'gathering intelligence on specific harms and intervening to solve them'.<sup>104</sup> It was also anticipated that field enforcement would, at least to a degree, be structured by the *legal powers* that inspectors are given under different statutes.

The structure of the legal regime therefore posed considerable challenges for SEPA in seeking to construct an 'integrated' regime around key impacts and outcomes. From 2009 onwards, SEPA argued that a new legislative regime was required in order to overcome the difficulty of applying different laws to the four regimes controlling air, water, waste, and radioactive substances. In SEPA's words, the fourfold division of regulatory efforts had resulted 'in duties and definitions that are not aligned. It makes them complex to understand and administer and results in multiple permissions, multiple inspections ...'.<sup>105</sup> SEPA saw a move away from the 'four-regimes' model to be a pre-condition for not only a more targeted regulatory approach but also a lower-cost regime (involving, inter alia, 'single permissions' for sites and the issue of permits at the corporate level).<sup>106</sup>

The challenges involved in relegislating were not inconsiderable. A central difficulty for SEPA was that its funding was tied to charging under the permitting and related systems within the four legislative regimes that were in place. A move to problem solving demanded, therefore, a new funding model, with new cross-subsidies or new funding streams and charging with reference to risks and operators' performance levels.<sup>107</sup> When SEPA published its proposals for new legislation in 2012, these were

101 These harms would relate to environmental outcomes, such as damage to the water environment from pollution, abstraction, modifications to the physical habitat, and the presence of invasive alien species: see SEPA, op. cit. (2011), n. 88; SEPA, *Significant water management issues in the Scotland river basin district* (2007).

102 SEPA (id. (2011), p. 9) devised a typology of regulated operators that will be recognizable to many regulators: Criminal; Chancer; Careless; Confused; Compliant; Champion.

103 id.; see, also, SEPA, op. cit. (2012), n. 88, p. 27.

104 id. (2011), p. 10.

105 id., p. 10.

106 id., p. 14; SEPA, op. cit. (2012), n. 88, pp. 14–15.

107 id. (2011), p. 16; id. (2012), p. 5.

designed to offer such flexible funding and also reforms of enforcement powers so as to offer a ‘joined-up and flexible range of sanctions’ that was consistent with a risk-based, outcome-focused approach.<sup>108</sup> (The Regulatory Reform (Scotland) Act 2014 was the end-product of these proposals.)<sup>109</sup> SEPA conceded, however, that the grip of the existing legal framework could not easily be broken: a completely integrated regulatory approach was not possible due to the specific requirements of some EU Directives.<sup>110</sup>

How, in summary, did SEPA deal with the tension between different drivers of problem identification? In the first instance, SEPA senior staff identified key problems on their own account. They then sought to pinpoint problems through a broad process of consultation across the organization’s managers. At a third stage of their approach, a more technocratic approach was adopted, in which there was reliance on data collection and on the judgement of senior managers. It was said within SEPA, ‘we trust managers to identify the key issues to be attended to’.<sup>111</sup>

SEPA’s experience, nevertheless, emphasizes how strongly existing constellations of legal rules, information systems, and distributions of skills will all tend to impact on conceptions of risks and problems for the purposes of intervention. SEPA aimed to develop a coherent, integrated, and cross-mandate approach to risk identification and assessment but it was saddled with the legacies of both domestic and EU rules. Further operational difficulties for SEPA included dealing with the funding implications of moving away from the charging regimes structured by the extant legislation; meshing its new prioritization of key problems with ongoing demands to maintain ‘business as usual’ in key areas; and effecting desired reforms within given resource constraints.

#### (e) Assessing performance

A supposed strength of risk-based regulation is that risk scores offer a ready means of calculating regulatory successes and failures. Average risk scores in a sector, for instance, can be added-up annually and comparisons made year on year. If, however, theoretical, operational, and political drivers compete, risks will be constructed in numbers of ways and this will make comparisons between risks difficult. ‘What is being scored’ becomes a central issue – is it the individual company, the type of risk, the particular

108 *id.* (2012), pp. 6–9.

109 The Regulatory Reform (Scotland) Act received the Royal Assent on 19 February 2014. It empowered Scottish Ministers, by secondary legislation, to simplify and update SEPA’s objectives and duties so as to serve one purpose – that of ‘protecting and improving the environment’ (see ss. 51 and 58) – and to give SEPA additional enforcement powers.

110 SEPA, *op. cit.* (2012), n. 88, pp. 6–8.

111 SEPA staff interview, December 2013.

type of harm, the risk to agency reputation, and so on?<sup>112</sup> Even, moreover, if the target of risk evaluations is clear (for example, there is attention to individual operators) questions still have to be answered on how the risks that such targets give rise to should be identified: ‘Risks to what?’ becomes the issue.

#### (f) Modifying approaches and the challenge of change

For regulators a constant challenge is to respond dynamically to new issues and to break out of the chains of the past. For risk-based regulators, the difficulty that is often referred to is that of ‘model myopia’ – the tendency to act on the basis of risks that have been identified and assessed by established systems.<sup>113</sup> Regulatory responsiveness demands that agency strategists receive information regarding new risks and risk creators. As noted above, however, such information may be difficult to generate or transmit for a number of reasons. Legal mandates may be blind to particular risks as they do not relate to objectives as interpreted at a given time; theoretical perspectives and cognitive framings may exclude such risks; operational factors can mean that data is not collected on them and political/reputational concerns may not include them as issues for prioritization.

#### 2. *Procedural challenges: communications about risk*

Many of the points made in discussing substantive challenges bring associated procedural difficulties, and competitions between drivers of risk identification can produce markedly negative impacts on regulators’ attempts to justify themselves to politicians and the public. A first difficulty flows from the already noted tendency for differently-placed regulatory staff to construct risks differently. This propensity can be expected to lead to two issues. Managers face a challenge in ensuring that there are clear and convincing communications on risks throughout their organizations and, in addition, problems may be encountered in sending consistent communications about priorities to those beyond the regulatory body. Risk-based regulatory approaches hold out the promise that the regulators will be able to justify their selections of priorities on the basis of rational and systematic decision making. This will be difficult if divergent messages on risk priorities are delivered by regulators, policymakers, enforcement officials, regulatory lawyers, and other staff members.

A second set of justificatory difficulties is liable to arise when the various drivers of risk identification impact differently on the regulatory body and on the public. Public perceptions of risk are often shaped by complex combinations of personal experience, media amplification, and normative judge-

<sup>112</sup> See Beaussier et al., *op. cit.*, n. 96.

<sup>113</sup> There may also be system blindness to particular risks: see Black, *op. cit.*, n. 6.

ments. Popular conceptions of risk, moreover, often differ from technical assessments, as is well noted in the risk literature. As for the regulators, the above discussion indicates that their own constructions of risks are not necessarily based solely on technical assessments but may be driven by a range of factors, from theories, ideas, and discourses, to managerial, functional, and bureaucratic pressures, to information, communications and data systems, accountability structures, political pressures, and sensitivities regarding certain impacts. As a result, there are likely to be instances when the regulators' identifications, selections, and prioritizations of risks differ in a pronounced fashion from those of the public. A common example concerns the risks of road deaths as compared to those caused by train or plane crashes. Similarly, when regulators assess operators as 'high-risk', this categorization is often driven by factors that impact far more strongly on regulators than on those outside the control regime. As a result, the regulator's risk categorizations can be difficult for firms and the public to understand and accept.<sup>114</sup>

Regulators may be especially sensitive to political drivers of risk identification when they come under pressure to explain their actions in the wake of a regulatory failure. What constitutes a regulatory failure can, however, be seen differently by different constituencies under the impact of different drivers of risk identification, selection, and prioritization. The United Kingdom financial regulators created after the crisis are now under a statutory duty to report on 'regulatory failures' and the Financial Conduct Authority (FCA) has issued a document on what, in its view, constitutes a regulatory failure. It defines 'failure' in terms of aggregate consumer detriment: a loss of under £30m is not a failure, but one of over £150m is. As for losses between those two figures, whether or not they constitute failures depends on the type of consumers affected. The FCA has also published various case studies that deal with possible regulatory failures. What is clear from these case studies is that technical drivers of risk identification have to a degree given way to political ones: aggregate loss is not itself the sole driver of failure definition; what matters also to the FCA is the distribution of that loss. Thus, instances in which large numbers of individuals lose £100 each count less in the regulator's prioritization than those in which fewer individuals lose £3,000 each, even where the total loss is the same.<sup>115</sup> The notable challenge in the coming years will be whether these publicly-stated risk tolerances by the regulator will be accepted by politicians or the public when some of these risks crystallize.

A third set of justificatory difficulties flows from the more particular functional challenges discussed above. Competitions between drivers present significant challenges to the setting of objectives, the framings of data, and

114 See Baldwin and Black, *op. cit.*, n. 82.

115 FCA, *op. cit.*, n. 76.



the selection of strategies as well as to enforcement, performance assessment, and the modification of regulatory approaches. All of these challenges are likely to be echoed by procedural difficulties. Thus, if statements of objectives, strategic initiatives or performance assessments are afflicted by divergences of view on the risks that should be the focus of attention, this will detract from the ability of the regulator to explain and justify its aims, its strategic directions, and its level of performance. The project of regulatory justification is rendered a degree more difficult across the board by unresolved contests between risk identification drivers.

## CONCLUSIONS: IMPLICATIONS FOR RISK-BASED AND PROBLEM-CENTERED REGULATION

The literature on risk identification reveals that a host of theoretical, operational, and political drivers often interact in the construction of risks. Understanding the interactions between these different drivers provides a way for regulators and theorists to conceive of the challenges of risk-based and problem-centred regulation and, in doing so, it provides a basis for devising responses to these challenges.

The above discussion also constitutes an argument for paying greater attention to the ways in which risks and problems are selected for attention. Risk and problem identifications, it has been suggested here, can be seen as the building blocks of regulation. Approaches to risk/problem identification are not only multiple but they are liable, as noted, to vary according to the regulatory tasks that are being undertaken as well as the sectors within which risks/problems are encountered. The processes of risk selection and identification tend, however, to be far less visible, and far more deeply embedded in organizations than those of evaluating the risks/problems that have been selected for attention.

Competitions between different drivers of risk and problem construction, it has been argued, produce a series of functional and procedural challenges and, while these can be addressed, there is no simple way to reconcile distinct differences of viewpoint, especially when those differences tend to be implicit and buried deep within the processes of selecting risks or problems for attention. Difficulties arise also when drivers are self- or mutually reinforcing. When this is so, all participants within a debate about the selection of risks/problems will tend to have stances that are inherently entrenched – particular actors select risks/problems in a way that reflects factors such as their fundamental values and information systems. For such reasons, they will be slow to respond to the regulators' entreaties to see the world, and risks/problems, in new or alternative ways.

The prevalence of interacting drivers of risk and problem identification makes life difficult for risk-based and problem-centred regulators but, as seen at SEPA, there are potential responses to the challenges faced. In

seeking to establish clear objectives internally, regulators can use leadership and participatory processes to foster commonly accepted visions of priorities, though they face the potential challenges noted above. Another way to rise to challenges is to operate processes that are targeted at certain risks – as identified with reference to drivers that are disclosed. Thus, a regulator that desires to control a number of politically salient risks/problems can do so by openly acknowledging that it is concerned to identify and regulate certain risks/problems with reference to certain themes or public concerns, rather than confine itself to technical assessments of risks.

Clarity in decision and policy making requires that different ways of clustering activities into risks/problems are openly acknowledged within regulatory organizations. Bringing the whole organization into the risk/problem ‘conversation’ within organizations can help to bring the issue of the risk/problem construction frameworks of the field and head office, or other parts of the organization, into the open and help to render them consistent. One way to encourage this process is for policy makers to operate feedback loops from the field so that such matters as local sensitivities and the dictates of effective compliance seeking will be fed into policy making. This will allow the policy makers to make it clear, inside and beyond the organization, that risks/problems are being identified with reference to certain factors for some purposes and with reference to other matters for other purposes. This is the approach that SEPA adopted and its experience suggests that such deliberative processes, or risk conversations, can help to produce more coherent risk/problem identifications across the organization, or indeed between different regulators who have to regulate the same site for different risks/problems (for example, environmental and health and safety).

Where an organization as a whole is dominated by a particular set of ideas and an accepted discourse about risks/problems, there is a risk of myopia or system-blindness. This results when feedback loops reinforce the currently dominant frame and stand in the way of the adjustments that are needed to make that framework relevant to a shifting world. Two further dangers should be heeded. The first is the cherry picking of politically salient issues to the detriment of attention to other risks/problems of a less visible but potentially more serious nature. The second is succumbing to the belief that all or the majority of risks/problems can be responded to with a project/problem-centred approach. As projects multiply in number, coordination costs will tend to rise and this will produce a point of diminishing return from the method.

Gaining a common understanding of what constitutes a ‘risk’ or a ‘problem’ within an organization is hard enough, but communicating with political overseers and the public within and beyond the agency is even more challenging. One way to deal with external communities is for the regulators to take on board alternative visions of risks and problems when they are discharging the various tasks of regulation. An awareness of a variety of views may be generally salutary, but there is rarely a single view of risk, and

factors such as risk amplification effects mean that public perceptions of risk can frequently shift. A regulator may, therefore, find itself reacting to constantly shifting public or political perceptions and pressures rather than managing risks strategically in line with its own objectives, mandates or working constraints.<sup>116</sup> A more hopeful way forward may be for regulators to focus on communicating the rationales for their identification, selection, and prioritization of risks to external communities, facing head-on the public scrutiny that transparency brings, and being open about the complex balancing of risks, resources, and reputations that risk-based regulation involves.

To end on a positive note, the above analysis does provide a number of constructive messages for both risk-based and problem-centred approaches. In stressing the centrality of risk/problem selection, it pushes theory in a more productive direction, it identifies a set of challenges that regulators need to address if they are to control more effectively and communicate more convincingly on risks and problems, and it provides a conceptual framework for coming to grips with risk and problem identification, selection, and prioritization. As such, it adds to our understanding of the dynamics of risk-based and problem-centred approaches and it provides a basis for dealing with the competing forces embedded within those approaches.

116 See Sunstein, *op. cit.*, n. 25.