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This article explores a style-phase model of staged organizational responses to external pressure for change against two competing hypotheses, focusing on demands for greater openness and transparency. A study of six risk regulation regimes in the United Kingdom revealed that only half were exposed to substantial pressures of this type. Responses of organizations in the "high-pressure" regimes were varied, but the overall pattern was consistent with a mixture of an autopoietic and staged-response hypothesis stressing blame prevention, and the article accordingly presents a hybrid "Catherine Wheel" model of the observed pattern. The article concludes by discussing the implications for policy outcomes.

RISK REGULATION UNDER PRESSURE *Problem Solving or Blame Shifting?*

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BACKGROUND: OPENNESS IN RISK REGULATION REGIMES

Openness and transparency in regulation is conventionally regarded as a formula for "good governance" because of its expected effects in reducing corruption and transaction costs, increasing legitimacy and legality of regulation, and improving policy quality through enhanced intelligence and learning (see, e.g., Bentham, 1931, p. 410, and 1983, p. 410; Brin, 1998; New Zealand Treasury, 1987, p. 48). The aim of this article is to

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assess how widespread demands for increased openness are in risk regulation and how organizations engaged in risk regulation and management respond to such pressures. To what extent or in what conditions do they seek to contain the pressure, alter what they do, or simply roll with the punch?

There are plenty of barroom anecdotes about the organizational politics of such responses. But research of a more systematic kind is still in its infancy. In a partial attempt to fill the gap, this article draws on a detailed study of risk regulation regimes (RRRs) in six different policy domains (see Hood, Rothstein, Baldwin, Rees, & Spackman, 1999). The aim is to explore how far conventional accounts of organizational responses to environmental disturbance describe institutional behavior in the face of pressures for increased openness and transparency. The next (second) section defines openness and identifies pressures for openness in the RRR six-pack referred to above. The third section lays out some hypotheses about expected institutional responses and outlines a standard disturbance-response model of institutional behavior in the face of pressures for increased openness. The fourth section describes observed institutional behavior in three regimes subject to strong pressures for increasing openness, and the fifth section assesses the fit between observed behavior and the hypotheses described earlier. The sixth section develops a hybrid form of two of the hypotheses, and the final section discusses what has been learned and its implications for policy.

DEFINING AND TRACKING RRR OPENNESS

Increasing openness is defined for this purpose as involving some or all of the following three elements: (a) greater transparency in organizational procedure; (b) wider participation in some or all elements of an RRR; and (c) heightened accountability in the sense of increased obligations on the part of those responsible for regulating and managing risks to explain and justify their behavior to others.

Indicators of a change in openness as defined above accordingly include changes in information rules (extending access to information) and participation rules (extending the range of players in the decision process) and de facto accountability by decision makers to public scrutiny. Openness in the sense defined above can be analytically distinguished from social pressures for increased openness in the form of campaigns by media, law courts, business lobbies, politicians, or other pressure groups.

The extent of media scrutiny overlaps the condition of openness and pressures for greater openness, but pressures for greater openness are here taken to mean specific demands for change in that direction coming from business interests, the media, and other lobby groups.

Some changes in openness in risk regulation and management may go across a whole society or legal jurisdiction (for instance, with freedom of information measures, human rights conventions, or larger cultural shifts). And there is no doubt that some domains of risk regulation, like food safety, health care, and nuclear power, have experienced considerable pressures for increased openness over the past decade or two. Nevertheless, social and political pressures to increase openness in RRRs do not seem to be of equal intensity for all types of risk, despite generalizations sometimes offered about risk regulation as a whole being exposed to such pressures (Health and Safety Executive, 1998, p. 6; Royal Commission on Environmental Pollution, 1998). Appendixes A and B describe changes in the three elements of openness noted above for six selected domains of risk regulation in the United Kingdom. Those domains are as follows: (a) domestic radon—a natural radioactive gas radon that seeps into homes in some parts of the country; (b) dangerous dogs; (c) road risk regulation, particularly concerning the changing balance of road risks between those in motor vehicles and other road users; (d) benzene—the car exhaust air pollutant and genotoxic carcinogen; (e) the release of pedophile ex-offenders into the community; and (f) pesticide residues in food and drinking water.

Appendix A summarizes the continuing “openness” characteristics of three RRRs (radon, dangerous dogs, and road risks) that do not seem to have been subjected to substantially increasing pressures for openness over the past two decades. Appendix B gives the same information for three other RRRs (benzene, pedophile release, and pesticide residues in food and drinking water) where pressures for openness appear to have grown. In each case, we present the salient features of the information rules and conventions operating within the RRR (legal obligations or conventions on reporting, collecting and disclosing information), the participation and scrutiny rules, and the amount of de facto accountability to public or media scrutiny by those regulating or managing the risk. Putting those three elements together enables us to assess the overall level of openness of the RRR, though that assessment is necessarily qualitative. Scoring overall regime openness is certainly not an exact science.

Nevertheless, even from a broad-brush qualitative analysis of a limited set of cases, we can draw at least three general conclusions. First, as noted

earlier, RRRs vary considerably both in their point of departure—the status quo level of openness—and also in the degree of change in openness over recent decades. Second, regimes starting from a low base in openness are not necessarily exposed to strong “catching up” pressures to converge with those starting from a high base. Although the appendixes include at least one case of an RRR (road risks) starting from a relatively high status quo level of openness that shows little change from the status quo level, the reverse does not always apply. The domestic radon case in the United Kingdom shows that in the absence of outside pressure, there can be a low degree of movement from a low status quo level (Leiss, Massey, & Walker, 1998).

Third, although all the three “change cases” described in Appendix A are regimes previously dominated by cohesive professional policy communities, Appendix B shows RRRs can move to greater openness in different ways and in response to different pressures. This finding shows the value of a comparative-regime approach for the analysis of regulatory dynamics and also suggests that a plurality of styles and routes to openness may lead to different policy or institutional consequences, given the conventional expectations about the effects of policy openness as summarized at the outset.

To better understand the consequences of openness pressures, the institutional responses in those regimes experiencing high pressures for change from the status quo need to be examined (given that neither the condition of openness nor pressures for greater openness appear universal or uniform in RRRs). Accordingly, we give a detailed account of institutional changes in the three cases in Appendix B, after considering hypotheses about institutional responses in the next section.

HYPOTHESES ABOUT RESPONSES TO PRESSURES FOR OPENNESS IN RRRS

What institutional responses to pressures for openness might be expected within RRRs? Many scholars have commented on the diversity of institutional theory (e.g., Hall & Taylor, 1997) and some have even questioned whether there is any distinctive institutional approach at all (e.g., John, 1998, p. 65). But a theme that runs through much institutional analysis is a vision of human organizations and conventions as relatively closed systems that adapt selectively to environmental disturbance (the disturbance in this case being pressures for increased openness). Selective

adaptation means that institutions adopt strategies for survival that seek to reconcile their own purposes and imperatives with environmental conditions or external demands. Institutions are thus seen as filters or distorting lenses in their dealings with the outside world (e.g., in Clay & Schaffer's [1984, p. 10] "bureaucratic paradox," in which organizations focus on what is readily doable whether it contributes to some larger purpose or not). Although such ideas are often linked with biological evolutionary-strategy metaphors, they can be derived from independent propositions about individual and social behavior.

Responses to demands for increased openness in risk regulation offer a particularly good test site for this institutionalist perspective. There are good reasons to expect the filtering or distorting processes that institutionalists emphasize because more transparency, participation, and accountability can increase the threat of blame and liability for failures or make regulators' work more stressful and conflict laden. Indeed, one of the reasons institutions limit openness in risk regulation in the first place is to limit or deflect blame and liability (in line with standard advice from lawyers and insurers to "never admit fault"). So in spite of the policy consequences conventionally expected to flow from increased openness, as discussed at the outset, there are especially strong reasons to expect a filtering response to demands for increased openness in risk regulation, whether in the form of privacy protection (Brin, 1998), official secrecy, or commercial confidentiality.

Three hypotheses about institutional responses to demands for more RRR openness were initially examined. None of them imply anything about the desirability or otherwise of organizational adaptation to pressures for change, and all of them were initially examined at the level of individual organizations rather than regimes (we shall return to the regime perspective later). The three hypotheses are as follows:

Null hypothesis. A null hypothesis is one of neutral compliance by organizations to external demands without perceptible filtering or distortion. Full compliance behavior can be considered a null hypothesis because, by positing that organizational responses to demands for increased openness will be straightforward and unproblematic, it runs against the central tenet of institutionalist analysis.

Autopoiesis. At the opposite extreme, a hypothesis drawn from the idea of autopoiesis (the tendency toward self-closure in the conceptual programs of bounded systems with rich patterns of "discourse" that makes it

impossible to exert direct control over those systems from outside (Brans & Rossbach, 1997, p. 432ff). From an autopoietic perspective, institutions would tend to respond to pressures for greater openness in ways that reproduced their own purposes (particularly over issues of blame shifting and blame avoidance) or *modi operandi* with minimal disturbance.

Staged-response pattern. Then there is a hypothesis somewhere between the first and the second that posits a staged-response pattern. The idea is that institutions respond to pressures for increased openness in a series of phases or steps that amount to a staged retreat or rearguard action away from some initially-preferred position in the face of pressure for abandonment of that position. Style-phase models of such staged-retreat responses are common in institutional theory (see, e.g., Beck Jørgensen, 1985, 1987; Joo, 1999). And it is common to distinguish, following Levy (1986), between first-order and second-order responses by organizations to environmental disturbance. First-order responses involve shifts in managerial arrangements and other organizational systems that leave core value systems or deeper structures unchanged. Second-order responses involve changes in those value systems.

In a well-known development of this general approach, Laughlin (1991) (see also Laughlin & Broadbent, 1995) and his colleagues have further differentiated first-order and second-order institutional responses to environmental disturbance. Laughlin divides first-order responses into rebuttal (responses designed to resist the disturbance) and reorientation (responses designed to change an organization without affecting its core values). Similarly, second-order responses, involving changes in core values, are divided into colonization (where new core values have colonized part of the organization) and evolution (where all stakeholders have absorbed the new core values). Evolution would have a different meaning at the level of regimes rather than single organizations, as we discuss later, but for the moment, the focus is mainly on adaptation at the level of individual organizations.

Laughlin does not present the four responses in style-phase terms, though he argues that the first three are "progressive" in some sense (Laughlin, 1991, p. 200). He suggests that evolution will normally be produced by forces different from the other three responses and argues that attempts to produce colonization change in organizations by increasing financial pressure will not always succeed. Nevertheless, for our third hypothesis, we modify Laughlin's approach by representing the four responses as progressive forms of staged retreat, going from the least to

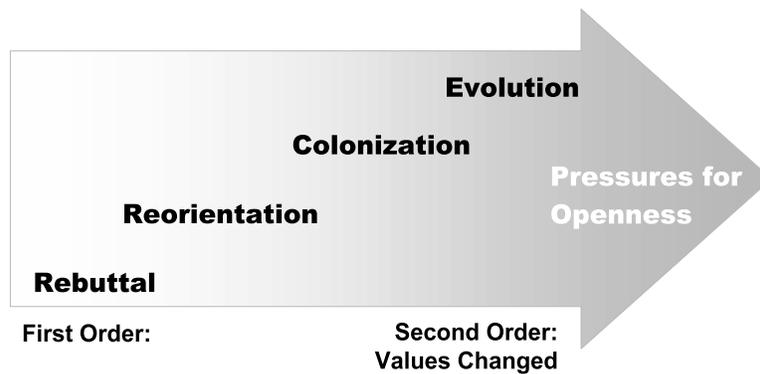


Figure 1: Institutional Responses to Environmental Disturbance: Laughlin's (1991) Four Types of Change Conceived as a Progressive Set of Responses

the most radical kind of adaptation as outside pressure for change continues. The hypothesis is that in such circumstances, organizations move from first-order to second-order responses following the pathway depicted in Figure 1. This hypothesis is a mixture of the null hypothesis and the autopoietic hypothesis in that it leads us to expect first-order responses to new environmental demands that involve some element of autopoiesis, to be followed later by responses that are closer to the null hypothesis.

A TALE OF THREE RRRs FACING PRESSURES FOR INCREASED OPENNESS

We now examine the relative plausibility of the three hypotheses set out above by analyzing the institutional dynamics of the three RRRs that were exposed to continuing pressure for increased openness as outlined in Appendixes A and B. This section gives a brief narrative account of developments in each of those three RRRs, and we assess the hypotheses in the light of these cases in the following section. The focus is on the collection of organizations involved in risk regulation in each regime, comprising both public-sector organizations and third-sector or corporate organizations with a role as intermediaries in regulation (notably in the form of

obligations on corporations to operate first-line controls subject to general oversight from regulators).

REGULATING THE RISK OF PEDOPHILES RELEASED FROM CUSTODY

Increased awareness and public discussion of the sexual abuse of children by adults has been observable in the United Kingdom and many other developed countries over the past decade. Although statistically, the greatest risk to children of murder or sexual abuse comes overwhelmingly from family members, public debate focuses largely on risks from strangers, particularly those with a criminal record for such offenses. Several interviewees from the police, probation, and social services told us that as recently as 15 years ago, neither these services nor the public saw the risk of child sexual abuse as widespread. The state was not obliged to collect systematic information on the whereabouts and risks of ex-offenders in the community. Such information as existed was limited and ad hoc, rarely shared among the relevant state organizations (police, probation officers, housing, and social-services professionals) and never relayed to the general public.

Professional and public concern about the risks from pedophiles in the community grew in the 1990s, in the context of controversial child sexual abuse investigations, releases from prison of high-profile ex-offenders, and cases of infiltration of state education and social welfare organizations by pedophiles. What-to-do debates focused on the information held by the state on offenders, the sharing of that information among police and other public agencies, and its public disclosure. Central to the debate was a risk/risk tradeoff issue. Reducing the risk of child sexual abuse by publicly identifying released pedophiles may increase the risk of vigilante activity. The prospect of increased vigilante activity in turn increases incentives for ex-offenders to go underground, out of the reach of support and surveillance services, thus potentially mitigating or confounding the intended goal of risk reduction. Such downside risks of transparency have been much stressed by civil libertarians both in the United States and the United Kingdom.

The U.K. government response to increased public concern was the 1997 Sex Offenders Act. Paralleling similar developments in the United States, the Act required the police to record the names and addresses of child sex offenders.¹ The U.K. regime was heavily biased against public

disclosure of information on the Sex Offenders Register, however, in contrast to the transparent arrangements adopted by some U.S. states under the 1994 Megan's Law (Brin, 1998, p. 19). Although the 1997 Act allowed for disclosure in some conditions, the state authorities committed substantial resources to preventing leaks and defending a no-disclosure policy. They avoided the use of court-imposed restrictions on offenders that would reveal identity and fought off pressures for disclosure through the courts.²

Even so, the legal requirement that police systematically collect information on ex-offenders potentially increased the "blamability" of police, probation, and other welfare bureaucracies for inept risk management if released pedophiles reoffended. In consequence, there were at least three changes in the institutional management of released offenders.

One strategy was the adoption of more collegial behavior among the various bureaucracies involved in the management of released offenders. This strategy aided the risk management process by increasing information flow between public agencies and, increasingly, trusted third-sector voluntary organizations. The adoption of collegial risk-management processes, however, also limited the blame potential for any single agency in the event of a tragedy by distributing responsibility among all parties.

Linked to the collegial strategy was the adoption of more formal written procedures or checklists for risk assessment and management of ex-offenders. The ostensible purpose of such protocols was to improve risk decision making, particularly in allocating scarce resources. But they also served the important purpose (as noted by many of our interviewees) of limiting blame by forming the basis of a procedural defense for officials if registered offenders committed further offenses.

A third change, albeit limited, was the classic "not in my backyard" (NIMBY) response, in the form of a few local authorities refusing to provide public housing for ex-offenders in their communities. In other cases, some local authorities and housing organizations had to shoulder increased burdens because a bias toward conservative risk assessment by local police and probation officials (seeking to protect themselves from blame in the event of reoffense) led to a large number of released offenders being classed as "high risk." Local authority reluctance to provide public housing for high-profile offenders led central government to create secure accommodations for a small number of hard-to-place offenders in one of the English prisons, but that move itself encountered substantial local resistance.

ARRANGEMENTS FOR CONTROL OF PESTICIDE RESIDUES IN FOOD AND DRINKING WATER

Risks to human health from pesticide residues in food and drinking water have attracted public and lobby-group attention since the early days of the environmental movement in the 1960s and have been identified as a “dread risk” in the well-known Oregon risk-perception studies (Slovic, Fischhoff, & Lichtenstein, 1980, p. 191). But until the 1980s, regulation focused on official approval of pesticides rather than on monitoring or controlling residue levels in food and drinking water. In an era of public-enterprise drinking water supply there was little or no external regulation other than a statutory duty to supply “wholesome” water. But this concept was not legally defined and it seems to have been assumed that professionalism and public service ethos on the part of water suppliers could be relied on to ensure drinking water was clean and safe (Healey, 1992). Food retailers and suppliers were similarly subject to general safety regulations that implied avoidance of excessive pesticide residue levels, but no specific limits were laid down in law.

That fairly relaxed approach to regulation of pesticide residue levels changed both for food and drinking water in the 1980s, though in different ways. In the case of food, the U.K. government started to introduce statutory maximum residue levels for some pesticides in 1988. Commercial confidentiality arguments largely prevailed, however, such that food retailers and suppliers were not obliged to disclose pesticide residue levels to consumers, and the same went for the local authorities responsible for enforcement. At central government level, some ad hoc monitoring of pesticide residues was undertaken by the Ministry of Agriculture, Fisheries and Food (MAFF) from 1957, and from 1988 this monitoring developed into a systematic testing program with aggregated results published annually but sample sources anonymized.

As pressure continued for more openness and transparency, the Pesticides Safety Directorate—the U.K. Government agency responsible for pesticides—responded in two ways. First, it extended participation in debate over pesticide regulation by establishing a Pesticides Forum in 1996, which included a broader group of stakeholders, such as established and trusted consumer and green groups, than the formerly narrow group of insider expert and agribusiness consultees. Second, in 1999 central government decided to move away from the previous aggregated and anonymized residue reporting to a new “name and shame” approach that identified the retailers and suppliers of food tested (MAFF, 1999). This apparently radical shift toward greater transparency was limited, however,

in that annual reporting allowed errant food suppliers to claim that the problems identified had long been remedied, with suppliers notified at least 8 weeks in advance of publication. It also led, perhaps predictably, to greater scrutiny of the adequacy of the government's sampling and testing methodologies by supermarkets, putting more pressure on the transparency of those arrangements.

A more substantial shift toward transparency took place in the case of drinking water, which perhaps offers the clearest case of a move from a first-order to a second-order response in the face of demands for more openness. In 1980, levels of pesticide residues in drinking water were limited to a surrogate-zero level of 0.1 ppb by a much-discussed European Commission (EC) Drinking Water Directive (1980) that epitomized the precautionary doctrine in risk management. The initial response to this directive was far from transparent. At first (according to industry and regulatory officials we interviewed), it was simply assumed that the EC's surrogate-zero threshold was by and large being met, conveniently rendering any extensive monitoring effort unnecessary. Research in the early 1980s, however, revealed that pesticide levels in drinking water in the United Kingdom, and particularly England, exceeded the EC limit in many cases. The U.K. government responded by invoking scientific advice that most of the breaches did not represent any health hazard and campaigned (unsuccessfully) on several occasions for the replacement of the EC's blanket precautionary limit by generally higher health-based limits for individual pesticides.³ In the meantime, U.K. Ministers formally advised water companies that they did not have to observe the precautionary limit as long as health-based limits specified by government were met (see Healey & Jones, 1989).

Only a few other European Union (EU) member states undertook any monitoring for pesticide residues in drinking water. Member-states response to EU requests for information tended to be one of delay, meaning that the EC had little information on this subject. Even though monitoring became mandatory across the EU after the renegotiation of the directive in 1998, delay in reporting is likely to be a continuing feature of many member state responses.

A major step toward transparency in the U.K. regime came with the privatization of drinking water supply in England and Wales in 1989 (Ward, Buller, & Lowe, 1995). This privatization conveniently removed direct public responsibility for water supply in those parts of the country (specifically England) where pesticide contamination of drinking water was a real issue. Part of the privatization settlement was an enhanced regulatory

regime that embodied freedom of information requirements over pesticide residue levels along with mandatory monitoring, such that breaches of the limit were openly established. Water companies had to put forward plans to deal with pesticide residues and because privatization around £2bn has been spent on compliance, with the costs fully borne by captive consumers because the price control regulatory regime for drinking water allowed full cost pass through.

ARRANGEMENTS FOR CONTROL OF AMBIENT BENZENE

Benzene, an air pollutant associated mainly with vehicle exhausts, has been known as a genotoxic carcinogen for almost 30 years. But until the 1990s, little or no information was collected on levels of ambient benzene and there were no legal maximum limits. A similar “unpolitics” (Crenson, 1971) applied to benzene in other European countries. Indeed, one interviewee claimed that ambient benzene only came onto the risk regulation agenda in the late 1980s when a petrochemical company objected to proposals to reduce levels of lead in petrol on the grounds that benzene emissions would be increased.

The long delay in introducing monitoring or targets for benzene began to change in the 1990s. Systematic monitoring of urban air quality began to develop in the early 1990s, replacing an earlier uneven and ad hoc approach. And, following the line of least resistance, government began publishing the results (on CEEFAX and the Internet) to avoid the need for bespoke responses to green groups and others demanding data under European rules on freedom of access to environmental information (SI 1992 No. 3240). Specific targets for benzene, with a long lead time, began to be introduced from the mid-1990s. In 1997, the U.K. government set an “objective” (whether it is a justiciable limit is ambiguous, according to the government’s own lawyers) of not more than 5 parts per billion as an air quality standard, to take effect only in 2004 (SI 2000 No. 928) In a parallel process, the EU set a more stringent European objective of just over 1.5 ppb to be achieved by 2010, accompanied by mandatory monitoring by member states (see Department of Environment, Transport and Regions, 2000). The delay built into both of these targets reflected a calculation that changes in vehicle engine and fuel technology would eventually make the targets achievable without excessive pain to bureaucrats or voter drivers (see Department of Environment, Transport and Regions, 1998a, p. 7). But even then the long lead time creates the possibility that targets could

be altered later if nonachievement seems likely closer to the operative dates.

In setting the benzene objective, the U.K. government drew on the recommendations of an expert panel (Expert Panel on Air Quality Standards & Department of Environment, 1994) that used a new methodology for assessing risk from genotoxic carcinogens. The objective provoked pressure for more transparency from the petrochemical industry, fearful that its interests might be threatened by the new standards. The department responsible (Department of Environment, Transport and the Regions) responded to such criticism in a review of advisory processes, concluding that full openness might inhibit candid discussion among expert advisors. The proposal was therefore to publish nonverbatim minutes or not attribute remarks to named individuals (Department of Environment, Transport and the Regions, 1998b, p. 11).

The advent of transparent monitoring and quantified standards for air quality was accompanied by at least two notable institutional changes. One was legislation in 1995 (The Environment Act 1995) that laid on local authorities the responsibility for assessing and reviewing air quality in their areas to meet centrally-imposed standards. This legislation could be interpreted as an effort by central government to share or shift blame in the U.K. context, even though the division of responsibilities between central and local government (for instance, over trunk roads and local roads) create fertile opportunities for mutual blame avoidance.⁴ A second development was that if local authorities failed to achieve the U.K. targets set to take effect in 2004, the preparation of an action plan to reduce benzene levels as part of an Air Quality Management Zone would serve as a procedural defense against legal or regulatory sanctions.⁵

EVALUATING THE INITIAL HYPOTHESES

Table 1 summarizes the institutional responses to openness pressures within each of the three "high-pressure" RRRs described above, identifying responses that are consistent with the three hypotheses set out earlier. It may surprise those who see the first two hypotheses as "straw men" to find that both of those hypotheses were consistent with several elements of observed organizational behavior within each of the three high-pressure RRRs. However, neither the null hypothesis (of straightforward responses to demands to openness pressures) nor the autopoietic

TABLE 1
Institutional Responses to Pressures for Increased Openness Within Three Risk Regulation Regimes

	<i>Risk Regulation Regime Domain</i>		
	<i>Arrangements for Release of Pedophiles</i>	<i>Control of Pesticide Residues</i>	<i>Control of Ambient Benzene</i>
Degree and type of pressure for openness	Strong public and media pressure for public disclosure over released pedophiles but counterpressures on privacy from human rights lobbies and institutions	General public and media concern for more information over pesticide residues; business concern with commercial confidentiality and regulatory requirements	General public and green lobby pressure for more information on general air pollution, rather than benzene in particular; strong business pressure for transparency over standards
Features of regulator response			
Fitting null hypothesis	Substantial resources committed by police to collection of information on released ex-offenders	Post 1989 privatized water companies now generally meet European Commission limits after public disclosure at first revealed breaches of those limits	Many local authorities adopted a “get on with it” approach and central government took line of least resistance in publishing monitoring data under European Union monitoring rules
Fitting autopoietic hypothesis	Alteration of procedures to keep public disclosure to the minimum	Pre-1989 state-owned water suppliers simply ignored EC limits (but on Ministerial advice)	Flexible approach to national targets and objectives—goalposts movable in the event of noncompliance

Fitting staged response hypothesis	Not much more than “first-order” responses discernible (e.g., more resources committed to explaining policy of nondisclosure); alteration of procedures to limit possibility of blame shifting by “hang-together” approaches; extension of checklist approach and written procedures to provide procedural defense against blame; NIMBY approach of refusal to house by a few local authorities	Not much more than first-order responses discernible in food (with reorientation of regulators to “control of control” but limited and delayed disclosure policy over noncompliance). Apparently, clearer case of progression to second order in drinking water, with eventual move to “transparent compliance” approach after earlier delay and regulatory collusion over evasion.	Not much more than first-order responses discernible, with developing “inertia compliance” approach of delaying onset of targets until long-term technological changes can be expected to deliver compliance without “hard choices,” linked with reorientation of formal responsibility to make culpability ambiguous in the event of noncompliance.
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NOTE: NIMBY = not in my backyard.

hypothesis (of closed discourse communities transforming every external demand into “self-reproduction”) can account for all the observed responses on its own. There was a substantial amount of organizational behavior that fits institutionalist expectations of distortion or filtration, but there were also substantial changes in behavior or the distribution of power. For instance, water companies and regulators had to get used to a transparency regime that would have been unthinkable 20 years before and new benzene standards set the stage for an attempt by central government to shift at least part of the blame (or glory) over compliance to local authorities.

By a process of elimination, we might conclude that observed organizational behavior in these three cases fits the staged-response hypothesis more closely than the other two. Recall from Figure 1 that Laughlin and Broadbent (1995) divided first-order institutional responses to environmental disturbance into rebuttal and reorientation strategies. Both strategies were readily observable in the three high-pressure RRRs. Problem denial and resistance to demands for transparent operation occurred in some form in all of them, often (but not always) at an early stage of policy development—such as the defensive information-sharing approach developed in the pedophiles regime. Reorientation also figured prominently in institutional behavior, notably in the redistribution of responsibilities with the aim of reducing blame or liability or the introduction of additional complexity into organizational structures. An example was central government’s designation of local authorities as responsible for local air quality with the advent of standards and monitoring, creating a structure in which blame for failure to meet targets is ambiguous.

But little evidence could be found of a clear progression from a first-order of unchanged institutional values to a second-order when those values had changed. Drinking water seemed to be the only fairly clear-cut case of such a progression because it moved from an initial pattern of see-no-evil denial and regulatory collusion over evasion in the public-enterprise era to a substantially transparent regime after privatization. Across much of what was observed in institutional responses, it seems hard to argue that there was a clear shift between what Laughlin (1991) and similar analysts see as first-order institutional responses to disturbances to second-order responses at a later stage.

Indeed, the organizational value that seems most consistent with the pattern of responses described in the last section is that of limiting blame and liability. But blame-and-liability limiting considerations had different implications for organizations dependent on their institutional position. In

the high-pressure regimes, public sector regulators adopted reorientation or rebuttal strategies where new standards threatened to increase their exposure to blame or make their jobs more stressful, as in the case of pedophiles. But those public regulators took up different stances where openness could not be expected to have such consequences (as in the case of ambient benzene, where the long delay over implementation against a changing pattern of vehicle and fuel technology meant standards would be likely to be reached by a process of inertia compliance).

Similar variation applied to private-sector organizations where they formed part of the regulatory regimes, notably as intermediaries applying enforced self-regulation (Ayres & Braithwaite, 1992), as in the cases of pesticide residues in food and water. Where such organizations were in competitive markets, as in the case of food and agribusiness companies, blame-and-liability limitation led them to press for greater transparency over regulatory standard setting, but to oppose it over enforcement on grounds of commercial confidentiality. However, private sector organizations in monopoly positions with pass-through price control regimes, as in the case of the privatized water utilities, had much less reason to adopt such a position. If blame-and-liability limitation was a key consideration in organizational responses to demands for greater openness, it played out differently according to institutional position and type, and it could play out differently at regime and organizational level.

MODIFYING THE INITIAL HYPOTHESES

A hypothesis that would fit best with these, admittedly limited, observations seems to be a mixture of the second and third hypotheses (i.e., a weak form of autopoiesis and a staged-response approach dominated by first-order responses at an organizational level). A modified hypothesis of that type, compatible with the behavior observed, would have the following seven components.

1. The response of individual regulator organizations to demands for increased openness in RRRs is heavily conditioned by the expected implications for blame and liability, but those implications are not the same for all organizations.
2. Where a shift to increased openness and transparency has major expected implications for blame and liability, organizations facing demands for greater openness will tend to engage in blame-prevention reengineering

TABLE 2
Six Varieties of Institutional Response

<i>Institutional Response</i>	<i>Risk Regulation Regime Domain</i>		
	<i>Management of Pedophile Release</i>	<i>Pesticide Residues in Food and Drinking Water</i>	<i>Ambient Benzene</i>
Delay	Public disclosure of information about pedophiles only as final resort	Heavy emphasis in drinking water (e.g., delay by some European Union [EU] member states in reporting levels of pesticide residues in drinking water and built-in delay in “naming and shaming” policy over food)	Heavy emphasis—20-year delay in developing monitoring after discovery of benzene as a genotoxic pollutant; delay in EU member states’ response to Commission demands for information; delay of onset of targets until technological change makes them likely to be achievable without pain
Simple rebuttal	Rejection and legal contestation of demands for greater public disclosure	Original denial of compliance problem over drinking water, followed by assertion that no health hazard involved in breach of European Commission precautionary limits; use of commercial confidentiality to limit public disclosure over food	

Organizational reorientation	Pooling information to share blame for management of risks of registered pedophiles	Privatization of water in England and Wales creating greater ambiguity over blame in failure to meet standards	Assignment of management responsibilities to local authorities, creating a structure of studied ambiguity through organizational complexification over blame for nonachievement of targets
Service abandonment	Some local authorities refusing to house registered pedophiles		
Protocolization	Checklist approach as a procedural defense against blame	“Due diligence” checklist defense developed in food after 1990 Food Safety Act, and in water	“Management plan” as potential defense against blame by local authorities not in compliance with targets
Prebuttal	Increasing effort of agencies to explain management of offenders in the community to local residents without disclosing specific information	“Control of control” approach in food to limit regulator exposure to blame	

(BPR),⁶ seeking to transfer or dissipate the increased blame or liability that increased transparency or new information requirements might bring.

3. The repertoire of BPR responses at the organizational level can be broadly characterized in Laughlin's (1991) terms as variants of rebuttal and reorientation behavior, but comprised at least six different specific responses, as shown in Table 2. Apart from simple rebuttal and reorientation in the ordinary-language sense of these terms, the four other observed responses were as follows:
 - *Delay* in responding to demands for greater openness was a feature of observed organizational behavior in all the high-pressure regimes. Delay is a common bureaucratic response to freedom of information regimes (see, e.g., Roberts's [1998, pp. 3-6] analysis of responses to Canadian freedom of information legislation). The clearest example from the three regimes was the delay by EU member states (in some cases by up to several years) in supplying information to the European Commission on pesticide residue levels in drinking water in the mid-1990s. Variants on the delay theme also included planned obsolescence in reporting violations of standards (pesticide residues in food) and delaying the onset of targets when monitoring information becomes available (ambient benzene). Finally, in the pedophile regime, the police only disclosed the identity of known offenders to the public as a last resort if nothing else could ensure public safety.
 - *Prebuttal* was also an observed BPR response by organizations facing demands for increased openness—attempts by organizations to respond to anticipated criticisms or demands for information before they materialize. At one level, this response involves an increase in organizational sophistication or capacity to cope with a “goldfish-bowl” existence (more flak-catchers and environmental scanners to get the organization's retaliation in first, which was a notable feature of police responses to the 1997 Sex Offenders Act). The key feature of prebuttal is the manufacture of excuses or alibis in advance, such that attempts to blame an organization in the light of increased transparency will fail to hit their target.
 - *Protocolization* or formalization of organizational operations, was a third observed BPR response, and indeed such behavior is a standard bureaucratic approach to minimizing blame and liability problems (see Lawton & Parker, 1998). Following transparent rules potentially provides due diligence defenses when an organization's risk management comes to be questioned and produces a verifiable audit trail for regulators (see Power, 1997). As the account of the three RRRs in section 4 indicated, protocolization in some form appeared in all cases and particularly in the pedophile regime, where it was central to the defensive BPR strategy of the public organizations concerned.
 - *Service abandonment*—the abandonment of some types of service altogether—was observable as a drastic BPR response to openness pressures in some cases. Such a response is more commonly observable among regulatees (particularly small or marginal operators faced

with increasing regulatory burdens) than among regulators or public authorities. But it can occur in the latter case, for instance, when public authorities stop issuing advice or information for fear of blame, legal liability, or other adverse reactions. In the three high-pressure regimes, the clearest case of service abandonment was observed in the pedophiles regime. That was the refusal by some local authorities to resettle pedophile ex-offenders classed as high risk by the joint deliberation process described above. That service-abandonment response partly created the need for a national back-stop facility as described earlier.

4. The six types of blame prevention reengineering responses discussed above and summarized in Table 2 will not necessarily succeed in deflecting blame in practice, and need not necessarily follow any fixed or uniform sequence. Although simple rebuttal can often be expected to come at an early stage in the sequence of responses, these cases suggest that rebuttal may precede, follow, or accompany a delay response, and rebuttal's "cousin" prebuttal may come later in the sequence of responses. Service abandonment, protocolization, and reorganization of organizational boundaries, procedures, or responsibilities likewise need not take place in any particular order.
5. Many of the six organizational BPR responses observed here are hard to categorize according to the distinction between first- and second-order responses discussed earlier. Many if not all of them could be responses of both types. For example, prebuttal might be a sophisticated first-order response, representing a high point of anticipation and manipulative capacity. But it could also be a second-order response by an organization that has so thoroughly absorbed openness values that its public information base constitutes a way of nipping in the bud demands for more transparency. Protocolization also seems ambiguous in terms of any distinction between first-order and second-order responses because it could either be a symptom of an organization that has adopted new values or simply function as an official shield against prying outsiders, offering a procedural defense that established routines have been followed. Service abandonment too might be an extreme form of first-order response—perhaps the only way to keep underlying values unchanged—or it could be the ultimate expression of change in values.
6. This account of organizational responses to pressures for increased openness in RRRs, represented in Figure 2, is a mixture of weak autopoiesis and a less linear form of our initial third (staged-response) hypothesis. It looks less like an evolutionary ladder or stairway than a Catherine Wheel (a type of rotating firework). It conceives of a problem space (constituted by demands for increased openness and accountability over risk management) to which organizations within a regime can respond in any of the ways discussed above. If those responses relieve the openness pressure, the system moves out of the problem space. But if the response fails to relieve the pressure, the system returns to the problem space for another iteration. There is no automatic sequence of response and no necessary ladder process. Apart from simple rebuttal (but not prebuttal), each of the

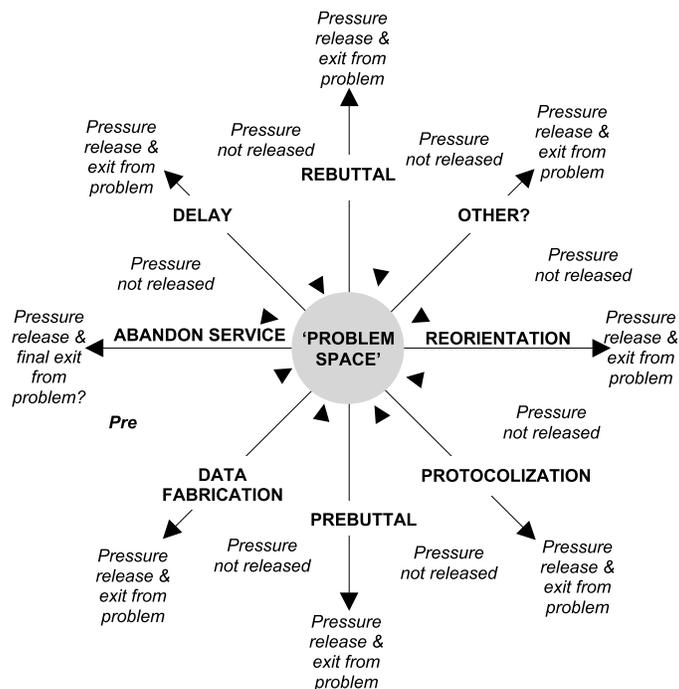


Figure 2: A Catherine Wheel Approach to Institutional Blame Prevention Reengineering

organizational responses depicted in Figure 2 could be linked with both value change and value stasis.

7. Outcomes for openness at regime level will depend on the combination of individual organizational responses, and on the distribution of power among the various organizations in the regime. Even if some organizations within an RRR adopt a null-hypothesis response to pressures for greater openness, the regime as a whole will not necessarily exhibit greater openness if other organizations adopt autopoeitic or first-order responses.

CONCLUSION

The analysis here is based on a limited number of cases, so conclusions are tentative and the repertoire of observed responses by organizations to pressures for increased openness is not likely to be exhaustive. For instance, the response of data falsification, which has been observed in

other risk and safety regimes (for example in nuclear safety and chemical safety; see *The Independent*, 1999; Millstone, 1986, p. 99), was not observed in the three high-pressure regimes examined here, though it is included among the repertoire of possible responses in Figure 2. Detailed investigation of more cases and further differentiation of types of pressures for increased openness (distinguishing, for instance, different sources and patterns of incidence over time) is needed for systematic identification of what types of pressures for openness produce what types of BPR responses in what types of organization.

Nevertheless, three fairly clear conclusions can be drawn from this study. First, not all domains of risk regulation are exposed equally—or at all—to long-term pressures for greater transparency and openness. Only half of the cases considered here fell into that category. Second, observation of institutional responses in three RRRs exposed to openness pressures suggests institutional filtering or distortion processes can readily be detected. The null hypothesis was compatible with only a minority of observations, and hence, it seems dangerous to base design of regulatory arrangements on some version of the null hypothesis. Such an assumption may lead to unanticipated “toothpaste tube” outcomes (in the language of Baldwin & Hawkins, 1984, p. 582) in which a squeeze at one point in a regime is accompanied by a bulge at another and the net change is problematic. Something closer to an institutional-design equivalent of the well-known precautionary principle would seem a more robust basis for policy.

Third, much of what was observed in the three high-pressure RRRs is compatible with a model of dynamic interaction between organizations and their environment in which inertia is the default response and BPR considerations heavily influence a varied repertoire of further responses. The Catherine Wheel schema portrayed by Figure 2 summarizes such a model. The implication is that society-wide generalizations about risk regulation based on aggregated conceptions of risk society (Beck, 1992) will have little power to predict or explain the variety (both static and dynamic) of risk regulation regimes. A less aggregated level of analysis, and more attention to institutional filtering, is needed for that purpose.

Three other more tentative and closely related conclusions can also be drawn from this study. One is that what happens over transparency and openness at the regime level of risk regulation can be different from what happens at the level of individual organizations. For example, in some risk domains numerous organizations may move to higher levels of openness, but the regime as a whole remains limitedly open because a key group of

players whose information is needed to complete the loop in some way stay at the level of first-order responses. Something approximating to that pattern was exhibited in the pesticide residues in food regime (where enforced self-regulation by food retailers remained largely within the realms of commercial confidentiality). A regime can involve commercial confidentiality as the main bulwark against disclosure even if public institutions become procedurally more open. Alternatively, even if the various regulator organizations within an RRR respond to pressures for openness by increased organizational complexification (as in subcontracting or decoupling of RRRs), the upshot may be a regime that is even harder for ordinary consumers, workers, or citizens to understand, hence substantively more opaque even if each component organization is procedurally more open.

Equally, in some domains all that is needed for the regime as a whole to move to greater transparency and openness is for one powerful organizational player to change its position. As we saw, in the case of pesticide residues in water, the U.K. central government's move to privatize the drinking water supply in England and Wales meant that it no longer had an interest in opacity over pesticide levels, and the result was a regime that was substantially open. To understand regulatory dynamics over openness, a distinction between regime and individual organizational responses and outcomes is crucial.

A further conclusion is that strategies intended to avoid blame will not necessarily achieve that effect in practice (which is why Figure 2 incorporates an iterative search) and may still produce effects incorporating some of the policy consequences conventionally associated with increased openness, as noted at the outset. For example, even if the police response to statutory requirements for registration of pedophile ex-offenders is interpreted as dominated by BPR considerations of locking in all the other public-sector players into collective deliberation, the effect of that strategy was nevertheless to enhance intelligence and shared information across the regime. Similarly, even if blame-shifting was a key factor in U.K. central government response assigning responsibility to local authorities for ambient benzene in the face of openness pressures, those authorities nevertheless had to compile explicit and locally-oriented responses against a background of published benzene monitoring data. Although BPR-dominated responses to pressures for increased openness may in some conditions detract from policy effectiveness through the side-effects they produce (for instance, in service abandonment or goal displacement through protocolization, one of the classic sources of

bureaucratic dysfunction identified by Merton, 1960), they can also in some conditions contribute to greater policy capacity and intelligence.

Finally, this analysis shows that regulatory regimes and organizations can respond to openness pressures from different starting points and in different ways. Not all of the responses included in the Catherine Wheel model in Figure 2 are necessarily available to all organizations in a regime. And if responses and starting-points are diverse, so are the policy consequences of shifts in openness and transparency. For example, in the pedophile regime, change began from a low level of transparency and took the form of increased internal openness among the professional-bureaucratic players in the field rather than disclosure to the public at large. Given the risk/risk tradeoffs involved in increased openness to the public at large in that domain, it is far from indisputable that full public disclosure would lead to an increase in overall policy effectiveness in limiting risk. The same does not apply to risk domains like pesticide residues and ambient benzene.

The purpose of this article is primarily descriptive and comparative. The study it describes sought to observe and analyze institutional responses to pressures for increased openness in RRRs, not to follow the many authors who have discussed the inherent desirability or otherwise of increasing openness in risk management (e.g., Shrader-Frechette, 1991) or the much-discussed policy dilemmas associated with such openness.⁷ Nevertheless, descriptive and analytic work of this kind has implications for normative questions of policy and institutional design.

APPENDIX A
Changes in Openness and U.K. Risk Regulation Regimes:
Three Cases With Little General Increase in Pressures for Openness Over 20 Years

Domain	Enduring Features			Overall Openness
	Information Rules (a) Reporting/ Collecting Obligations; (b) Publication/ Disclosure Obligations	Participation and Scrutiny Rules (a) Consultation Obligations; (b) Formal Public Accountability Rules	De Facto Accountability to Public Scrutiny	
Radon in homes	(a) No obligation on property owners to undertake tests; no obligation on government to assess radon levels (apart from a 1990 EC recommendation that member states assess radon levels); U.K. government by convention has conducted a U.K.-wide survey of radon levels by area (b) <i>Caveat emptor</i> rule on disclosure for property vendors: Government by convention publishes radon levels by area but not house by house	(a) Consultation by convention only with international policy community of radon experts and U.K. radiation professionals (b) Limited formal accountability rules with responsibility located in an expert U.K.-wide quango relatively detached from government departments	Low—kept within professional sphere	LOW Low salience and “expertized” but with official risk database providing general information
Dangerous dogs	(a) No general obligation to register dogs (except for four types specified in 1991 and in North Ireland); no obligation on public reporting of dog attacks and or for state authorities to collect or collate dog accident statistics (except North Ireland)	(a) Ministers obliged to consult domestic dog experts but little international consultation b) Parliamentary scrutiny/questions to Ministers; other formal accountability (through local councilors and police	Variable media and Variable media and depending on public salience of issue	MEDIUM Occasional high salience but no official risk database

(b) No obligation for dogs to carry ID (by chips/collar tags, etc.) except for four types specified under 1991 Act and no obligation to publish or disclose any risk information

Road accident risks	<p>(a) Statutory obligation to report vehicle accidents and, since 1974, for local authorities to assess and reduce road risks. Vehicle manufacturers obliged to conduct safety tests, and by convention a new European Union (EU) assessments of safety performance of cars</p> <p>(b) By convention national government publishes aggregated road accident data and values of benefits of prevention of road accidents for use in cost benefit analysis and appraisal of safety projects, and local road accident statistics are disclosed by discretion. Commercial confidentiality over vehicle safety test data but by convention EU publishes results of car safety performance program</p>	<p>(a) Local authorities obliged to consult local residents for traffic management schemes requiring Road Traffic Orders. Safety standard setting for vehicles expertized.</p> <p>(b) Mainly through local councilors for local road safety engineering but limited by professionalized and “protocolized” nature of road traffic engineering</p>	Medium mainly localized, occasionally higher in response to “big news tragedies”	MEDIUM TO HIGH Mainly localized salience and largely “expertized” but with official risk database providing general information, and slowly increasing information on car safety performance
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APPENDIX B
Changes in Openness and U.K. Risk Regulation Regimes:
Three Cases Subject to Increasing Pressures for Openness Over 20 Years

<i>Domain</i>	<i>Status Quo Features</i>				<i>Post-Status Quo Features</i>			
	<i>Information Rules</i>	<i>Participation and Scrutiny Rules</i>	<i>De Facto Accountability to Public Scrutiny</i>	<i>Overall Openness</i>	<i>Information Rules</i>	<i>Participation and Scrutiny Rules</i>	<i>De Facto Accountability to Public Scrutiny</i>	<i>Overall Openness</i>
Ambient Benzene	(a) No legal obligation to collect information on ambient benzene until 1997 (b) No legal obligation to disclose	(a) By convention consultation restricted to professionals (b) No defined regulator responsibility apart from general Ministerial responsibility	Minimal until 1990s	LOW	(a) Statutory obligations on local authorities and other bodies to assess and manage ambient air quality. business and public pollution (b) Statutory disclosure of ambient benzene	(a) Ministers obliged to consult widely on ambient air quality policy. European Union (EU) consultation with public interest groups by convention (b) Overlapping local authority, quango, and	Medium—low specifically for benzene but relatively high media and political engagement on general ambient air	MEDIUM TO HIGH Move to more transparent standards and information on quality from a low base

					levels under EU Freedom of Information rules and public dissemination	central government responsibility		
Pedo- philes	(a) No general duty on government to collect information on offenders and no general duty on offenders to report	(a) No obligation to consult and little/no consultation by convention	Low—kept within professional sphere	LOW	(a) Police duty to keep record of released offenders and offenders' duty to report	(a) Consultation and exchange of information across public agencies by convention including other organizations by discretion	Low—kept within professional sphere	LOW Creation of official database and consultation across government but limited or no general disclosure
	(b) No duty or convention to disclose	(b) Orthodox ministerial and police accountability			(b) No change on publication/disclosure obligations	(b) No change on formal public accountability rules		
Pesticide residues	(a) General duty on food and drinking water suppliers to test for fitness for human consumption	(a) No general consultation outside professional community	Low—kept within professional sphere	LOW	(a) Obligation on food and drinking water suppliers to test for pesticide residues	(a) More general consultation by convention beyond a narrow professional group (except for approvals)	Medium—increasing media and political engagement	MEDIUM Starting from low base, more transparency on water and to a lesser extent on food

APPENDIX B Continued

	<i>Status Quo Features</i>				<i>Post-Status Quo Features</i>			
	<i>Information Rules (a) Reporting/ Collecting Obligations; (b) Publication / Disclosure Obligations</i>	<i>Participation and Scrutiny Rules (a) Consultation Obligations; (b) Formal Public Accountability Rules</i>	<i>De Facto Accountability to Public Scrutiny</i>	<i>Overall Openness</i>	<i>Information Rules (a) Reporting/ Collecting Obligations; (b) Publication/ Disclosure Obligations</i>	<i>Participation and Scrutiny Rules (a) Consultation Obligations; (b) Formal Public Accountability Rules</i>	<i>De Facto Accountability to Public Scrutiny</i>	<i>Overall Openness</i>
<i>Domain</i>	(b) No duty or convention to disclose information until late 1980s for both water and food suppliers	(b) Mix of local authorities and central government for food; minimal for water providers			(b) Water regulators obliged to publish residue data. Food regulators introducing "name and shame" policy by convention	(b) No change for (food on formal public accountability rules; specific regulators for water since 1988		

NOTES

1. As well as some other types of sex offenders.
2. In a 1997 test case, a court upheld the status quo, holding that disclosure should be only on a need-to-know basis, not a matter of general entitlement (R v. Chief Constable for the North Wales Police Area Authority et al., July 10, 1997).
3. A few pesticides present risks to health at residue levels below 0.1ppb.
4. In a European Union (EU) context, central rather than local government would be answerable to the European Court of Justice over failure to meet standards.
5. By contrast, the EU regime required member states were obliged to meet specified targets by 2010, but the even longer implementation lead time creates scope for member states to apply for derogations from the Air Quality Directive (96/62/EC) and its associated directives before the target takes effect.
6. BPR in the language of management science conventionally denotes "business process re-engineering." But BPR as blame prevention engineering seems equally important in organizational behavior.
7. Such dilemmas include the danger of increasing public risks through exploitation of information by criminals or terrorists (Sieber, 1981), through panic responses to official information (Partridge, 1988, pp. 330-343) and through complacency or placation, with reduction in care and alertness.

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