When risk-based regulation aims low: A strategic framework

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Abstract

This article develops a strategic framework for regulators to employ when choosing intervention strategies for dealing with low risks and reviewing performance, building on the analysis by the same authors in the previous edition of this journal. The framework occupies the operational "middle ground" between risk analysis and formal enforcement action. At its core is a matrix, the Good Regulatory Intervention Design (GRID), which provides a framework to categorize sites or activities on the basis of two factors: the nature of the risk and the nature of the regulatee. Using GRID, regulators can select which intervention tools to use, and determine the overall level of regulatory intensity that should apply. GRID is accompanied by the Good Regulatory Assessment Framework (GRAF) for agencies to use in reviewing their performance and provides a step-by-step process for enabling "double loop learning." The article also argues that the process of developing such a framework highlighted the extent to which "low risk" and "high risk" regulation are distinct. "Low risk" means "low priority." Justifying why certain risks should not receive much regulatory attention requires a particular type of engagement, and has a bearing on the regulatory strategies that are adopted.

Keywords: low risks, regulation, strategy.

1. Introduction

In a companion article (Black & Baldwin 2012), we examined the particular issues that arise regarding the management of low risks, and considered how regulators tend to deal with lower risks in practice. Providing a review of strategies, however, only takes us so far. The key issue is how to select the intervention strategies to use in any given context. A "best practice" framework cannot neatly reconcile public expectations of universal protection with the regulatory reality of prioritization and rationing. It can, however, help regulators to identify those intervention tools that are likely to have the most potential and provide a rational and defensible basis for decisions. In this respect, other risk governance frameworks tend to gloss over the difficulties involved in making this selection, and where the matter is addressed in any detail, they are inclined to restrict the range of strategies applicable to low risks to routine monitoring. Much of their attention is focussed, instead, on methods of risk assessment and on engagement with the wider

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community (e.g. WBGU 2000; Cabinet Office, Strategy Unit 2002; FERMA 2002; Codex Alimentarius Commission 2003; IRGC 2005).

There are, however, a number of possible ways to devise a framework for intervention strategies. A simple approach would be to select one strategy of the many that are possible and to apply this to all lower risk sites or activities. A modified version of the US Environmental Protection Agency's Environmental Results Programme could be used, for example, to require all those operating low-risk sites or activities to adopt a program of self-certification supplemented by periodic inspections (EPA 2010). Requiring regulators to adopt only a single strategy, however, may be unnecessarily constraining, and, in some instances, may lead to ineffectiveness (Simon 2010).

An alternative option would be to focus on the nature of the risk alone and to select intervention strategies with reference to the amount of regulatory resources that each involves. We have argued that low risks can take a number of forms: they may be inherent or net, static or dynamic, systemic or non-systemic. Even within the low-risk category, some low risks are lower than others. Based on this breakdown, an intervention "pyramid" could be constructed with the least intensive regulatory strategies at the base used for inherent and stable low risks, and the more intensive used for net, dynamic low risks. Inherent low risks which are stable might, for example, be responded to with general binding rules, shared monitoring with other agencies (where possible), or by third party auditors over a relatively long (say, five year) cycle. NGOs or others might also be used to develop and deliver education and advice programs. With respect to net, dynamic low risks , more intensive strategies would be appropriate, such as bespoke licensing, self-certification verified by third party auditors with full regulatory audit supplementing periodically, but with a shorter (say, three yearly) monitoring cycle.

Such an approach would be consistent with the main thrust of most risk-based assessment frameworks, which direct resources to the highest risks. Using the nature of the risk to drive the intervention strategy, however, focuses on just one aspect of the task at hand and is largely divorced from the enforcement approach that most regulators take (and which many policy prescriptions urge them to take), which is to tailor their response to the attitude of the regulatee and their capacity to comply (Barrett & Fudge 1981; Baldwin 1990; Ayres & Braithwaite 1992; Braithwaite 2001; Neilsen & Parker 2009). It could be argued that a "pyramid" approach, which adjusted the intervention strategy simply to the firm's risk score, would capture both elements since compliance history forms part of that score. Most risk scoring systems, however, do not give significant weight to compliance in the overall risk categorization process, nor do they capture the reasons *why* regulatees fail to comply, despite research showing the need for regulators to take account the reasons for non-compliance as well as the fact of non-compliance.

The extensive literatures on regulatory enforcement and on business responses to regulation suggest that both compliance-orientated and enforcement activities (including for these purposes advice and assist visits, or education campaigns, as well as formal enforcement action) should vary with the behavior and compliance motivations of the regulatee (e.g. Kagan & Scholz 1984; Scholz 1991; Ayres & Braithwaite 1992; Kagan 1994; Gunningham & Sinclair 2009; Parker & Neilsen 2011). In practice, as the research for this project and the literature on inspections and compliance show, regulators do adjust their strategies on a firm-by-firm basis, often with reference to the compliance history of the

particular firm or site operator. Indeed, some regulators have gone a step further and grouped their regulated population according to their propensity to comply. Her Majesty's Revenue and Customs (HMRC), for example, characterizes those who pay value-added tax (VAT) on the basis of their predicted response to tax laws.[1] A similar approach is used by the Australian Tax Office, which uses categorizations of people's propensity to pay tax as the basis for structuring its interactions with them, an approach also adopted by the Australian Fisheries Management Authority.

Such targeting can enable the type of intervention to be tailored most appropriately to the type of regulatee (e.g. advice for those who are well-intentioned but ill-informed; strong enforcement action against those who are ill-intentioned).[2] The regulatee focus does not, however, deal with the nature of risks as such, other than risks of non-compliance. Not all instances of non-compliance pose the same level of environmental risks.

A disconnect thus exists between the risk-based categorization of sites and activities, which drives permitting and is meant to drive resource allocation, and the predominantly behavior-based approach of the enforcement manuals, and indeed of the preponderance of the literature on compliance and enforcement. There is, furthermore, a strategic gap between the risk-based assessment process and the enforcement process, with comparatively little development of strategies that might occupy the operational middle ground between these two stages of assessment and formal enforcement action.

Can a general strategic framework be developed for dealing with low-risk sites/activities that can bridge these two gaps? In this and the following section, we develop a framework for strategic decision-making that integrates risk and behavior, and which is based on a "really responsive" approach to regulation (Baldwin & Black 2008; Black & Baldwin 2010).

The "really responsive" approach suggests that there are five sets of factors, which should, and often do, influence how regulators behave and the effectiveness of regulation. Thus, once regulators are clear about their regulatory objectives, they should devise their strategies with an eye not merely to the kind of low risk at issue but to the *characteristics of different intervention tools*; the *cultures* – attitudes, motivational postures, and cognitive frameworks – of regulatees; *organizational settings* including the regulators' resource positions, legal mandates, and the systems of accountability and political sensitivities that (actually or potentially) impact on low-risk regulation; performance *assessment*; and finally, the need to establish systems that are marked by *sensitivity to changes* in risk characteristics. We expand on each of these in turn in the context of regulating low risks.

2. Key elements of a "really responsive" framework

2.1. The suitability of different tools

In choosing different strategies and tools for use with respect to lower risks, attention should be paid both to the potential of individual intervention strategies and to the ways in which they will interact. The different tools, as noted in the companion paper (Black & Baldwin 2012), have different strengths and weaknesses when judged according to different criteria and it is necessary to link these different capacities to the particular risk and regulatory sector.

In general terms, regulators should develop mixes of strategies that are suitable for discharging the main tasks of regulation (notably of detection, enforcement, performance

assessment, and strategic adjustment) (Baldwin & Black 2008). In particular, in relation to low risks, they should also be aware of the potential of the variety of non-routine inspection strategies discussed in the companion article – in particular proxy, third party, engagement, and incentive strategies (Black & Baldwin 2012) and should weigh up their respective strengths and weaknesses. They should, moreover, attempt to identify common (or "cumulative") risks that are best regulated generically with strategies that can apply across high numbers of sites/activities. Finally, they need to consider how intensively to apply their chosen tools.[3]

Challenges arise, however, because such tools often have divergent logics – they embody different regulator–regulatee relationships and they assume different ways of interacting. It is, accordingly, essential for a low-risk regulator to consider how numbers of tools are mixed, when there will be compatibilities of tool use, and when there will be tension or undermining (for similar reviews of compatibilities in intervention methods see Gunningham & Grabosky 1998; Gunningham 2007; Baldwin 2008). Of the tools discussed above, for instance, exemptions without registration are difficult to use in combination with systems of self-monitoring and self-certification by regulated firms. In contrast, there may be no reason why whistle-blowing strategies cannot be combined with licensing and permitting systems or why themed inspections cannot be used alongside requirements of mandatory performance disclosure by firms. The optimal mix of strategy is, moreover, likely to vary with different risk and regulatee characteristics.

2.2. Cultures

The appropriateness of a number of intervention tools depends on the motivation and capacity of the regulatees. Thus, the use of General Binding Rules to non-notifiable activities is liable to produce problems with organizations that are ill-informed about their legal requirements and ill-disposed to secure information on their obligations. Reduced frequency inspections will tend to be problematic when regulatees are ill-disposed to comply and likely to game the system. Themed, or ad hoc, investigations may, however, have considerable potential where there are particularly difficult regulatees who are engaged in an activity, or where the location of an activity enhances its risk to the environment. Visits to assist with compliance will work reasonably effectively with well-intentioned regulatees (as will rules requiring performance disclosures by firms) but may prove to be a waste of resources with "amoral calculators" who will not be inclined toward voluntary compliance (Kagan & Scholz 1984). In some areas of industry (as where risks are numerous and complex) it may be more necessary than in others to consider regulatees' cultures and, in such instances, behavior-targeted inspections will prove especially useful.

2.3. Organizational settings

In using its regulatory toolkit to control low risks, it is important for the regulator to be aware of the risk tolerance that it embraces and of the political risks that it is running. The regulator should consider such matters as the probability that a given tool will not detect or influence certain conduct and how it can cope with criticism when harm occurs or its inactions are exposed. Factors to be considered include particular ministerial, media, parliamentary, or public sensitivities concerning particular risks. The use of General Binding Rules without notification, for instance, means that there are high risks that some undesirable activities will escape attention and this may be particularly embarrassing for

the regulator in some sectors or in relation to some activities. Another potentially difficult tool is the third party inspection system – which may present particular problems of accountability, for example, or require the agency itself to inspect as a follow-up to an assessment of non-compliance by the third party monitor if formal enforcement action is to be taken.

Resourcing issues also have to be considered. The resources available for controlling low risks will generally be restricted by general budgetary constraints and by the regulator's balancing of higher and lower risk priorities. These budgetary limitations should be considered in selecting intervention tools and strategies. Some mechanisms may be especially useful when resources are very thin (e.g. reactive, complaints-driven, and whistle-blowing systems), others may only become live options when higher levels of resources are available (e.g. licensing and registration mechanisms). The agencies which were the subject of this research are beginning to develop resource calculators to make such assessments, but they were not sufficiently developed at the stage this research was conducted for any costing to be available for dissemination.

2.4. Assessment

The testing of performance is, as noted, vital if approaches to low risks are to be evaluated, adjusted, or justified. Different intervention approaches, however, vary in their conduciveness to such testing (as do different combinations of strategies). Themed inspections, for instance, tend to be useful for measuring both compliance levels and regulatory performance in a specified area but exemptions without registration can be expected to be far less conducive to testing and assessment. Measuring a proxy outcome, such as water quality, can in some circumstances offer a very useful guide to the performance of the regulatory system whereas regimes of mandatory disclosure can constitute highly dubious assessment procedures where the regulated concerns are ill-disposed and/or lack the capacity to comply. Reactive/complaint-driven mechanisms are useful for visible effects of non-compliance (e.g. where freshwater fish have died), but not so useful for diffuse pollution, which, by its nature, is difficult to detect.

2.5. Sensitivity to changes

It is important that low-risk regulators can both detect shifts in challenges or risks and have the capacity and commitment to respond to such changes by adapting and developing their approaches to low-risk sites or activities. The various intervention strategies and tools that are discussed in Section 3, however, vary in the extent to which they can foster responsiveness. Some tend to be attuned to static risks (notably exemptions without registration and General Binding Rules covering non-notifiable activities) but others will provide much stronger responsiveness to changes (notably reactive investigations, random inspections, and measures of proxy outcomes). In circumstances where regulators are not fully confident that risks and political expectations are fixed, a best practice approach would demand that they use a mix of intervention methods that allows them to cope with the shifts described.

3. Regulating low-risk sites – a proposed framework

Our argument is that, in developing and deploying strategies for dealing with low risks, regulators should be responsive to these five key factors and should look not just at the

nature of the risks addressed but also at the characteristics of different tools; the cultures of regulatees; organizational settings; needs to assess performance; and the necessity to be responsive to changes of challenge. How, though, is a regulator to determine which strategies to use in which circumstances, and what level of regulatory resources to apply in using them? A "best practice" framework cannot neatly reconcile public expectations of universal protection with the regulatory reality of prioritization and rationing. It can, however, help regulators to identify those intervention tools that are likely to have the most potential in relation to different risks and contexts. Such a framework can also provide a rational and defensible basis for decisions and can be referred to when strategic choices are subjected to public and political challenge.

The framework we propose has at its core a matrix that we call the GRID – the Good Regulatory Intervention Design. The aim of the GRID is to provide a framework for deciding systematically which strategies should be used for which type of risk and which type of regulatee. It operates on the basis that two key factors should guide decisions on the intervention tools to use.

The first is the *nature of the risk*. If an activity is inherently low-risk and liable to remain so during the period between strategic reviews, it can be dealt with by means of a strategy that might not be appropriate in the case of a net low risk (i.e. an inherently higher risk that is reduced by good management) – especially a net low risk that is not stable – because there is evidence that management may change between strategic reviews.

The second key factor is the *nature of the regulatee*. The attitude and capacity of the regulatee is particularly critical for determining whether a higher risk can be in fact classified as a lower "net" risk and for the intervention strategy that should be used. Some low-risk intervention strategies work well with well-motivated and high capacity[4] firms (e.g. self-certification systems) but would not prove successful where firms are ill-motivated and have a low capacity to comply (on capacity see Kagan & Scholz 1984; Baldwin 1990; OECD 2010; Haines 2011; on compliance motivations see Braithwaite *et al.* 2007). It is worth noting in this context that the capacity firms need to have in order to comply is in part a function of the complexity of the regulatory regime itself. The need to comply with complicated rules or extensive data requirements or to introduce complex processes, for example, increases the capacity demands that regulation requires of
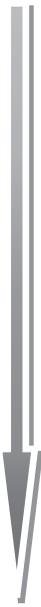
Table 1 Characterizing regulatees

Type of regulatee	Characteristics
Well motivated with high capacity to comply	Regulatees are willing to comply (judged on their records and/or officers' estimations) and are sufficiently well informed, resourced, and organized to allow compliance
Well motivated with low capacity to comply	Regulatees are willing to comply but are not sufficiently well informed, resourced, and organized to foster compliance
Less motivated with high capacity to comply	Regulatees are less willing to comply but they are sufficiently well informed, resourced, and organized to allow compliance if their motivation is improved
Less motivated with low capacity to comply	Regulatees are less willing to comply and are not sufficiently well informed, resourced, and organized to foster compliance even if their motivation is improved

Table 2 GRID matrix

Intensity of intervention increases according to risk type

Nature of the regulatee	Nature of the low-risk site/activity				Regulatory activity & intensity
	Inherent lower-risk – stable	Net lower-risk – stable	Inherent lower-risk – but may change or accumulate	Net lower-risk – but may change or accumulate	
Regulatees are Well motivated with high capacity to comply					Screening tools
					Monitoring tools
					Engagement & incentive mechanisms
	Low	Low	Low	Low	Regulatory intensity
Regulatees are Well motivated with low capacity to comply					Screening tools
					Monitoring tools
					Engagement & incentive mechanisms
	Low	Low	Medium–Low	Medium–Low	Regulatory intensity
Regulatees are less motivated with high capacity to comply					Screening tools
					Monitoring tools
					Engagement & incentives
	Medium	Medium	Medium	High	Regulatory intensity
Regulatees are less motivated with low capacity to comply					Screening tools
					Monitoring tools
					Engagement & incentive mechanisms
	Medium	Medium	High	High	Regulatory intensity

Intensity of intervention increases according to regulatee type

regulatees. This observation has two implications. First, that assessments of capacity are relative to the demands made by the regulatory regime. Second, that one way to increase regulatee capacity is to simplify the regime.

The breakdown of regulatee types set out in Table 1 involves a downward progression from those liable to demand low levels of intervention to those who need to be controlled by more intensive methods. It is worth noting that the order in which they lie in the GRID was the subject of considerable discussion during the project; the rationale for having those with low capacity and lower motivation at the bottom of the GRID is that even if the regulator manages to "turn" them to be more motivated, there is still the difficult problem of capacity to address.

In combining types of risk and types of regulatee, the GRID offers a framework for identifying potentially useful regulatory tools. The horizontal axis involves a progression in types of low-risk activity – from inherent and stable low risks that require the least intensive interventions on the left, to net low risks that are unstable and which call for more urgent attention on the right. The vertical axis involves a similar "progression of intensity" from those who are well motivated with a higher capacity to comply at the top to those who are less well motivated with a lower capacity to comply at the base.[5]

The bare GRID matrix is thus:

The right hand column of the GRID divides intervention tools into three types (in the ordering used in table 2 of the companion article [Black & Baldwin 2012]) and it also suggests a level of regulatory intensity that might be appropriate in the case of a particular combination of risk and regulatee type. Suggested regulatory intensity refers to the amount of regulatory resources to be applied to a site or activity and to the severity with which any sanctions are applied. Intensity is expressed relatively and is rated "high," "medium," "medium–low," or "low."

Accompanying the GRID (but not set out here) is an Intervention Guide: a list of the tools or strategies listed in table 2 in the companion article and an indication of the time frame required for their development, in order to aid planning. Each tool is assessed in the Guide against three criteria: its relative effectiveness in different situations and contexts; the manner and degree to which it could be rendered transparent and justifiable; and the degree to which it could be dynamic, or able to identify and/or respond to change. The Guide provides a short description of the intervention strategy, some of the risks of using it, and how these might be addressed. It also indicates which other strategies any particular strategy is likely to be compatible with, and which it is not (see SNIFFER 2011).

In some cases, notably for screening and rule-based strategies, the agency may not have any discretion regarding the strategy that it is to adopt, as this is prescribed by legislation. In certain instances, though, the agency may be able to decide, for example, to exempt low risk sites completely without the need for registration. With respect to monitoring and proxy, and engagement and incentive strategies, the agency is likely to have greater ability to exercise a choice regarding the strategies that it will adopt. The Intervention Guide does not include formal enforcement tools, though some of the strategies included may also be used as informal enforcement tools, for example advice and assistance. It would, therefore, be important in implementing the framework to ensure consistency between the agencies' enforcement guides and the intervention strategies selected using the GRID, particularly where both cover the same strategies.

In order to use the GRID, regulators have to be able to characterize risk types and regulate types accurately. Here regulators face a trade-off between accuracy and resources. The risks at issue are already categorized as being at the lower end of the regulators' risk spectrum and it follows that the resources spent in analysing into which "box" each site or activity is to be put should be less than would be the case if a similar framework was used for high risks. For low risks, we suggest that agencies apply a sector-based approach, but they could give discretion to regional managers or field officers to deviate from the "default" categorization (subject to justification). Such managers or officers might also be given the tasks of setting "review periods" – the frequencies with which they plan to conduct reviews of strategies for dealing with risks and their categorizations in the particular targeted area. Agencies and relevant staff will then be positioned to think methodically about the intervention tools that they will use in the coming period and to "populate" the GRID's boxes with the tools that are considered to have potential in relation to different combinations of risk and regulatee type.

An example can help to illustrate the process. The regulation of septic tanks has proved a particularly difficult issue for a number of the environmental regulators of the United Kingdom and Ireland. Septic tanks are used for small scale, on-site sewage treat-

ment for domestic wastewater for households not connected to the main sewer system. Most consist principally of a collection tank and an underground disposal field or percolation area. They are high in number (over 350,000 in each of England and Wales and over 400,000 in Ireland, for example), but most users are domestic households or small organizations such as hotels, residential care homes, or schools. Many are sited in areas of natural beauty and near watercourses (e.g. in the English Lake District). Domestic wastewater contains many substances that are potentially harmful to human health and the environment and in recent years there has been an increase in the contamination of groundwater, lakes, rivers, and streams as a result of lack of understanding of the treatment and disposal processes required for small scale domestic wastewater, which has led to poor design, siting, and installation of septic tanks (EPA 2007). At present, permits are required for those over a prescribed waste limit.

How should regulators manage the risks that they pose? Using the GRID, regulators would first characterize the regulatees and the risks on a sector basis. In a workshop run as part of the research project the septic tanks example was employed as a GRID case study and regulators concluded that most regulatees could be characterized has having low motivation (out of sight, out of mind) with low capacity to comply (small scale users with no relevant expertise). The risk could be characterized as a net low risk, which may change or accumulate. Regulators then considered which strategy to use from each set of strategies. (In this case, the screening/rule-based strategy was mandated by the legislature, but it was noted that using the GRID provided an opportunity for agency strategists to identify any strategic deficiencies and a basis for raising these with the relevant government/EU officials.) Each of the monitoring strategies was considered in turn. Some were quickly discarded: for example, routine monitoring was viewed to be too resource intensive – there are simply too many individual sites to be inspected on a regular basis (though it should be noted that Ireland has been required by the European Commission, following a ruling by the European Court of Justice in 2009, to introduce a planned system of regular inspections – showing, amongst other things, the limitations on an agency's discretion to fashion its own risk-based strategies). Themed monitoring which focused on an activity or control system was considered inappropriate for a simple activity such as this. However, themed monitoring on the basis of geographical location, prioritizing environmentally sensitive locations would be an appropriate strategy, particularly if used as a follow-up to findings from proxy strategies such as water sampling. Some low frequency random monitoring could be done, but, again, it was thought that it might be more fruitful to use proxy strategies such as water sampling first to decide where closer investigation is needed. Self-monitoring and certification could be adopted: this, it was suggested, might help to raise awareness and improve motivation. Such a strategy could be combined with information campaigns, information sharing with local authorities (who give licences for abstraction of drinking water), and working with interested parties such as parish councils or other local community groups to raise awareness; and with industry to improve the design and installation of the septic tank systems.

The resulting GRID for this case study is summarized in Table 3 (the tools are numbered as in table 3 of the companion article [Black & Baldwin 2012]). Note that although the regulatory intensity is marked as "high," it should be remembered that this means "high relative to other low risks."

Table 3   Applying GRID – septic tank case study

Nature of the regulatee	Nature of the low-risk site/activity	Regulatory activity & intensity
	Net low-risk – but may change or accumulate	
Regulatees are less motivated with low capacity to comply	Permitting regime now required by law where prescribed waste limit exceeded	Screening tools
	7. Themed monitoring in geographically sensitive areas	Monitoring tools
	8. Low frequency random monitoring	
	13. Proxy strategies (water sampling)	
	14. Self monitoring and certification	
	17. Information and inspection sharing	
	18. Information campaigns	Engagement & incentive mechanisms
	19. Dialogues with interested parties	
	20. Industry led (design/installation) solutions	
	21. Multi-agency approaches	
	High	Regulatory intensity

As part of the research, a further five case studies were worked through in agency workshops (diffuse pollution from agriculture; dry cleaners; unmanned oil pumping and storage sites; disposal of sanitary waste from trains on to railway lines; and radioactive elements in smoke detectors). The workshops supported the view that GRID can provide a systematic framework for considering which strategies are most appropriate for different types of risk and regulatees.

But, as noted above, it is important that regulators should also be able to assess their performance in an ongoing manner and to modify their approaches where necessary. We therefore developed a Good Regulatory Assessment Framework (GRAF) to provide a step-by-step process for enabling "double loop learning" (Argyris & Schon 1978). GRAF operates on the basis of the same logical framework as the GRID. It asks regulators a series of questions that are designed to evaluate whether the GRID has been used appropriately in their agencies (the full GRAF is set out in SNIFFER 2011). Those completing the GRAF are thus asked to score, on a five point scale, their agency's performance on such matters as: characterizing accurately the types of low risks and regulatees involved in a given low-risk area; in considering the strengths and weaknesses of the different intervention tools; in surveying the complete array of intervention options; in allowing tools to be used with appropriate intensity; and in assessing and modifying (where appropriate) their agency's overall performance regarding low-risk sites/activities.

The GRAF's scoring system is designed to allow managers quickly to pinpoint their areas of strength and weakness in selecting strategies for dealing with low-risk sites and activities. It also asks regulators to consider reasons for poor performance, and offers strategic managers the chance to identify possible improvements and to link reforms to feedback from field level officers.

The GRAF requires quite subjective assessments: as such it is prey to abuse in a number of ways, for example routinization, mechanistic decision-making, gaming by those completing the assessment so that scores are just below the required thresholds for

action, or simply ignoring it altogether. We consider these challenges further in the next section. It should be recognized, however, that any framework is subject to the same key vulnerability: it is not self-executing, rather its success depends on the willingness and ability of those using it to engage fully with the process.

4. Challenging the framework – will it work?

As outlined above, the regulators of low risks face a number of challenges. They have to be clear about the risks they are prepared to tolerate if they are to secure desired outcomes and to preserve public confidence in their regimes. They have to evaluate low risks with modest levels of resources. They have to deal with low risks in a consistent manner and have to be able not only to assess their performance in relation to low risks but also to be prepared and able to justify this performance. In addition, they must be capable of responding to changes in the nature of risks without investing a disproportionate amount of resources on monitoring and analysis.

The task of the project was to develop a framework for regulating low-risk sites that could be adopted by all four of the environmental agencies. One of the challenges in developing such a framework is that it has to be applicable to a wide range of different sectors and activities, and to the very different task environments of each of the agencies. Furthermore, it has to link to four very different sets of existing practices regarding risk analysis, risk scoring, and enforcement.

We therefore designed the GRID with the aim of creating a flexible decision-making tool that could act as the operational "middle ground" between risk analysis and formal enforcement action. The broad implication of the GRID, nevertheless, is that, as risk types move east on the GRID and firm types move south, it is likely to be appropriate to apply enforcement strategies with increasing regulatory intensity. The agencies' risk analysis processes provide the categorizations of the risk level of a site or activity, but do not provide a plan for intervention. The agencies' enforcement guides provide guidance on when to use formal as opposed to informal enforcement actions, but do not provide a guide on what broader intervention strategies may be used as part of the regulatory process. Both the risk assessment frameworks and the enforcement guides emphasize risk and behavioral characteristics in their analytical frameworks, though with more weight given to risk characteristics than behavior in the former and slightly more weight given to behavioral characteristics in the latter. In providing for a wide range of intervention strategies, and a matrix that combines risk and behavioral characteristics, the GRID is designed to incorporate these two sets of driving factors in a way that enables regulators to develop strategies within a framework of "structured flexibility."

Will such a framework prove to be operable, dynamic, transparent, and justifiable? The results of the project's third phase of research (agency workshops) suggested that the GRID/GRAF system offered its greatest potential as a strategic planning tool, primarily at the sector level.[6] The view from the regulatory practitioners was that, in integrating the two elements of risk and behavior, and in providing a broad range of intervention tools that could be used with respect to those in each category, the GRID provided an innovative matrix and a framework for structuring decision making about strategies for low-risk sites. It also allowed the regulators the flexibility to customize the GRID to reflect the particular expectations, costs, and challenges encountered in specific sectors. Agencies could identify which sets of strategies were to be used in particular sectors, and then allow

field officers to adjust strategic choices to some degree. The GRID, for example, could be used to design a sector intervention plan with concise guidance and a summary of main options for field officers to implement at the sub-sector level. Most interviewees thought that the GRID could be used as part of an annual planning cycle, or a two to three year planning cycle over time, or as part of a periodic strategic review. They suggested, moreover, that although the GRID/GRAF framework was designed with low risks in mind, it could be adapted to be used across a range of risks and at a number of different levels of decision-making.

A further conclusion was that agencies should populate the GRID themselves, rather than work to a set of strategies prescribed by others. It was agreed that it would not be feasible or useful to provide a "master GRID" that was populated with different strategies for each box, as it would not be applicable in all contexts and sectors. It was also agreed that a single strategy for low risk sites would not be advisable.[7] The range of sites, sectors, agency practices and the task environments of the agencies is such that a "single strategy" approach would be unlikely to be suitable to all circumstances. Instead, the combination of the "structured flexibility" of the GRID and accompanying Intervention Guide was preferred, for two main reasons. Intervention tools vary in character according to their context – a surveillance intervention in the chemicals industry (or a sub-sector thereof) might operate quite differently from one in farming. Further, the resource implications of using tools may also vary dramatically from context to context. In some sectors there may be sets of existing arrangements (e.g. reporting systems, existing third party monitors, or cooperation with other regulators) that would render the marginal costs of using these tools with respect to a particular type of risk quite small, whereas, in another area, these mechanisms might have to be established anew, making the strategy more costly and requiring a longer planning time.

The key question, however, is whether the GRID/GRAF approach will work in practice. One danger in using the GRID is that too many types of intervention tools will be suggested for a given combination of risk and regulatee type. A response to this challenge would be for each agency to consider developing a resourcing index tool to accompany the GRID. The GRID tool list could be coded by agencies to indicate whether tools are high, medium, or low cost. Regional managers could then be given a budget to use as a basis for determining which strategies to adopt within the given constraints, using the resourcing index as a guide. As noted above, some of the agencies involved are in the course of developing a resource allocation matrix to support the implementation of GRID/GRAF, but work was not sufficiently well developed at the time of the research for us to be able to give precise examples of the actual costs of different strategies.

A further potential problem of the GRID is that its use might prove too costly and too complex, particularly for low-risk sites or activities. There is a tension between accuracy in mapping the regulated sites or activities on to the GRID, and the resources that are needed to do so. In the logic of a risk-based framework, the amount of resources put into analyzing behavior has to be proportionate to the risks. For lower risks, as noted, the mapping would, therefore, have to be "broad brush" in nature and, for example, conducted on the basis of particular sectors rather than individual sites.[8]

One way of refining the broad-brush approach to categorization would be to allow sector-level categorizations to be fine-tuned by field level officers if necessary. Field officers could be allocated a prescribed set of tools but could be authorized to escalate their interventions where they found that risks were not controlled acceptably – though

they would have to justify this decision. GRID could also be the basis for useful discussions between field level officers and those in policymaking roles within agencies regarding the types of intervention strategies that could best be adopted in different circumstances. This would address one of the findings discussed above: that those in different positions within the agencies have a very different view of its activities.[9]

Is there a danger that, in enabling such a flexible approach, the GRID/GRAF framework could lead to inconsistent and non-transparent decision making? On this point it can be argued that the framework offers regulators a means of fostering a consistent approach to regulating low-risk sites or activities across the agency. As other organizations have found, peer panels can have a role in this respect when strategies are just being introduced – they are a way for the agency to develop a common language about risk, and to facilitate learning. The framework could also provide a good audit trail for decision-making internally, and brings potential improvements in the transparency of decision-making. It also allows agencies to explain their regulatory strategies more fully to those being regulated and to other interested parties. It could be published on the agencies' websites, for instance, and it could form part of a "decision letter" or an open decision and decision communication tool.

Will the GRID/GRAF system produce excessively complex sets of decision frameworks, with one for lower risks and another for higher risks? This is a possibility, but the initial findings of the research described here suggest, however, that, although it was designed with lower risks in mind, GRID/GRAF offers potential as a strategic planning tool at all levels of risks. When discussing the risks arising from diffuse pollution in agriculture, for example, the consensus was that animal farming presented a medium net risk which was likely to change/cumulate, but that risk could be encompassed on the GRID simply by extending the right hand columns to move up into higher risk categories. As such, agencies suggested that it could be extended beyond low risk sites into higher-risk areas and applied as appropriate at the sector, sub-sector, or site level for all categories of risk. Moreover, through using the GRID, officials recognized that different types of agricultural activities (arable and animal farming) had different risk and regulatee characteristics, whereas to that point they had treated the sector as having common features.

Finally, the agencies agreed that GRID could be used at a pre-regulatory stage when discussing strategies with policymakers, or when discussing possible changes to existing legislation. In particular, the Framework could help to highlight the impacts of legislative decisions on regulators by making the regulators' intervention choices clearer to policymakers in government.

The assessment element of the framework, GRAF, could be challenged on the basis that it is too subjective and could fall prey to mechanical box-ticking. This is a danger, but much depends on how it is perceived and adopted within the agencies. However, agencies were positive about GRAF, and recognized that it was a framework for assessing the quality of consideration that was being given to different tools and strategies and their appropriateness in different cases. It was not a tool for evaluating the quality of front line regulation. A consensus was that it was important that GRAF was not a "tick box" exercise. It would not have to be performed frequently but could be undertaken as part of a strategic review within the agency at annual intervals or longer, once implementation was established. GRAF could also be part of a cross-sector peer review or cross-agency peer review process to help establish a consistent view of risk within and across sectors

and develop consistent strategy. The agencies could develop an IT system which would facilitate the use of the GRID – for example by containing links to the specific tools, to a resourcing index, and to any "best practice" comments that accumulate across the agency over time. As noted above, some of the agencies are to start developing a resource calculator for individual strategies, but work was not sufficiently developed for precise costing to be available for dissemination.

Clearly, the practical implications of using GRID and GRAF can only be assessed once agencies have worked with them for at least one to two years. The optimistic aim is that agencies will use the GRID/GRAF framework to foster a wide-ranging conversation within the Agency regarding the strategies to be used with respect to different sectors – a conversation that will be fed into the decision and policy making processes that relate to lower risks. These conversations could occur within the agency both horizontally between sectors/regions and vertically, between officials at different levels within the organization. Agencies could also consider introducing peer panels for both GRID and GRAF, particularly in the early stages, to facilitate the development of a consistent approach to assessing risks across and within sectors and/or regions. The agencies could also use inter-agency peer panels to work through case studies using GRID, or use GRAF as part of an intra- or inter-agency peer review process.[10] They could use GRID/GRAF to structure discussions both with policy officials in government or the Commission, and with regulated operators and other interested parties, regarding the strategies that should be employed to manage low risks. By making the options clearer and the decisions more transparent, agencies could improve both their decision processes and what could be termed their "dynamic accountability" – their engagement of a wider range of actors in decision-making. Using GRID/GRAF would also allow them to justify their chosen approaches more systematically than is currently possible within the normal *ex post* accountability processes to which they are subject.

5. Conclusions

5.1. Reframing risk-based regulation

Risk-based regulation seeks to calculate the risks attached to certain behaviors, structures, or states of the world so that resources can be allocated accordingly. Although it is sold as a rationalistic and technocratic solution to a host of complex technical, social, and political problems, in practice it is no such thing. It can systemize decision-making and render what is tacit explicit, but what it cannot, in itself, deliver is a plan for what agencies should do. It does not determine how to construct discrete "risks" or suggest how risk creators are to be dealt with in order to increase compliance or the furthering of statutory objectives. Nor does it indicate the right balance between attention to lower and higher risks, or short- and long-term gains; or guide regulators on managing the political and institutional consequences of their intervention decisions. These are all matters of judgement that regulators have to confront along the way.

The framework proposed here is principally proposed as one aspect of a risk-based governance framework. As such, it plays the "risk-based game," running with the grain of risk-based regulation strategies rather than calling them fundamentally into question. The research process has, however, highlighted some of the complexities and tensions inherent in such strategies, and prompts some wider reflections on the project of risk-based regulation itself.

First, it is clear that how the risk is constructed and labelled by an agency is a highly complex process, in which, moreover, the scope for miscommunication is ripe. It was not part of the project to look at what risk *should* be categorized as "low" risk. It should be emphasized that what is "low risk" in an agency's risk-based framework is in fact code for what is "low priority." Criticizing an agency's characterization of what constitutes a "low risk" as technically unsound, or arguing that it is false to assume that low risks require low resources to be managed effectively, in effect misses the point. Such arguments fail to understand the role that such risk categorizations play in an agency's operational framework. They fail, moreover, to recognize the reflexive relationship between the role that the risk categorizations play in an organization's operations, and how risks are in fact constructed and assessed. It is commonplace in risk regulation to note the significance of how risks are configured and bundled for how they are managed, but the detailed intra-organizational research done for this project highlights the additional role of factors such as funding structures, legal mandates, costs, and resources, and internal organizational politics in that risk construction and categorization process. A perennially attractive assumption is that risks should be categorized before resource decisions are made, but, in practice, the two processes operate in tandem, with tensions surrounding decisions on how to organize risks (by site or activity) and whether to target biggest risks or those which have the greatest potential for risk reduction at the lowest cost.

Second, although risk-based regulation frameworks tend to impose unified sets of assessments which apply across risks in the regulator's remit, there is an argument for seeing low and high risk regulation as enterprises that differ in some important respects, rather than as the same game played with different stakes. It is true that, in some regards, low-risk regulation resembles higher risk regulation. Thus, in relation to all levels of risk, the regulators will have to be clear about their objectives and will have to come to grips with such familiar challenges as those of identifying and evaluating risks, of establishing priorities, dealing with potentially systemic issues, coping with change, and evaluating and modifying performance. The above discussion, nevertheless, reveals that practical and political challenges of low-risk regulation are, at least in some significant ways, quite distinct from those that arise with respect to higher risks.

Third, these variations of challenge stem in no small way from a central difference between the processes of controlling lower and higher risks. High risk targeting is a "mainstream" activity – this is what risk-based regulation is supposed to be about. Low-risk regulation, in contrast, can be viewed as something close to an aberration: an activity (or more pertinently, a reduction in activity) that needs to be specially justified. It has, moreover, to be justified (and analysed) without the consumption of significant levels of resources. The product of these two factors is that the processes of justifying low-risk regulation can take on a different character from those encountered with higher risks. Most notably, the balance between different forms of justificatory argument can differ. Risk targeting appears to place considerable weight on rational–technical reasoning. Priorities are established with reference to the risk-scoring regime that underpins and drives the system. With low risks, however, the logical consequences of the risk scoring rationale are less acceptable to a public that expects to receive a universal standard of protection against all risks and which may not accept that their particular concerns are not as high a priority for the agency as for them. The game of justification and legitimation, both to the public and to political overseers, therefore, changes in character. Rather than being rationalistic, it has to become more of an exercise in managing expectations

and creating assurance – most notably that low levels of regulatory intervention are not allowing excessive risks to be run or to develop. The balance favors political deliberations rather than technical ones – and this point applies to the agency's internal, as well as its external, politics. This finding is in contrast to other risk governance frameworks, which suggest that such dialogic processes should be reserved for complex and uncertain risks (e.g. IRGC 2005). The particular challenges of playing the low risk game mean that it may be equally, if not more, appropriate to pay attention to the more political aspects of strategic choices.

The nature of the challenges of justifying regulation can therefore change across risks. As argued, it may be that the balance between rational–technical and political deliberations is quite different in higher and lower risk regulation, and in ways that are not commonly assumed. Regulatory conversations, as a result, may display different characteristics across risk levels. It follows that, since most regulators will have to control risks of many different kinds and severities, they will have to justify their actions, not by engaging in a single rationalistic conversation or game with respect to all their activities, but by playing a cluster of games that are contentious and dynamic and which impact on each other in often unpredictable ways, but which ultimately have to be funded from the same pool of resources.

Thus, although the exercise engaged in during this research project was a technical, prescriptive one, an awareness of the particular issues that arise in the regulation of low risks compels us to reassess risk-based regulation more broadly. It does so, not least, by emphasizing that risk-based regulation cannot be viewed in any way as a mechanical and uncontentious approach that targets the highest risks and allocates priorities accordingly. Decisions regarding the balance of priorities between higher and lower risks are both contentious and shaped by particular conceptualizations of risk. The bad news, for those who are attracted to modes of numerical quantification, is that these matters are largely insusceptible of such determination and require the exercise of managerial and political judgments, and are shaped by considerations that range well beyond the technocratic.

Acknowledgments

Notes

1   The HMRC's Compliance Continuum seeks to capture the behavioral characteristics of all traders, from the compliant to the fraudulent, and to categorize each trader into one of seven categories: deliberate evader, avoider, chancer, failure, new business, trier, and compliant. Each firm is assigned to a category, and that categorization in turn is used to order the HMRC's inspection and enforcement policy (OECD 2010; HMRC 2009). The Australian Tax Office has adopted a similar approach. It commissioned research to find out why people did and did not pay tax. Based on this analysis, it then adjusted its practices for communicating with taxpayers

and its intervention strategies to fit the "motivational posture" or attitude of the different groups of taxpayers (Braithwaite *et al.* 2007; Leviner 2008).

2 A critical issue, however, is whether regulators should expend resources on those operators that are likely to be most responsive to their attentions (the "easy wins") or on those most likely not to comply (the "hard cases"). A focus on easy wins can mean that the more intractable operators are effectively unregulated and those who are inclined to comply may perceive the strategy to be unfair if they are targeted more than the most recalcitrant and irresponsible. The Scottish Environment Protection Agency (SEPA) is consulting on using a similar approach and has identified six categories of regulatee by compliance response: "Criminal, Chancer, Careless, Confused, Compliance, Champion" (SEPA 2010).

3 The intensity issue concerns the levels of resources put into regulating a particular activity, site, or sector. It could also include enforcement, notably the severity and frequency of the sanctions pursued.

4 "High capacity" to comply is used as shorthand and refers to a business that is well informed, well resourced, and well organized to foster compliance. For a similar definition see IRGC (2005).

5 Note that reversing the bottom two categories may be appropriate in different sectors, for example where there is a high potential for "gaming" the rules.

6 This stage of the research consisted of qualitative interviews with senior officials from the four environmental regulators, regulatees, government officials, and NGOs in England and Wales, Northern Ireland, Scotland, and Ireland. The main issues explored were whether the framework was too complex and too resource intensive, whether it could be adapted to fit the very different operational systems and environmental contexts of the different regulators, and whether (as we hoped) it could extend beyond low risks to be used across all the agencies' activities.

7 Some US agencies have adopted a particular strategy for all low risk sites (e.g. the Environmental Results Program [ERP]).

8 Categorizations, moreover, would have to be reviewed as regulatees can move between boxes. Indeed, it may be that changes in strategy (such as reductions in inspections) may cause such movements. These shifts pose resourcing challenges of their own.

9 It was also noted by the agencies that policy level determination of the strategies that should be used, and of the appropriate regulatory intensity to be adopted, could give protection to field officers if they were to be criticized for changes in regulatory action and priority.

10 The agencies involved could, for example, extend GRID/GRAF beyond the SNIFFER agencies to include those active in European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) or other networks.

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