BEYOND COMPLIANCE: NEXT GENERATION
ENVIRONMENTAL REGULATION

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Introduction

The environmental impact of industry, especially pollution, has been subject to regulation for at least three decades, under an approach which is somewhat unfairly called “command and control” regulation. This approach typically specifies standards, and sometimes technologies, with which regulatees must comply (the “command”) or be penalised (the “control”). And it commonly requires polluters to apply the best feasible techniques to minimise the environmental harm caused by their activities. Command and control has achieved some considerable successes, especially in terms of reducing air and water pollution. However, it has been widely criticised by economists, for inhibiting innovation, and for its high costs, inflexibility, and diminishing returns.

The problems of command and control can be overstated and its considerable achievements too easily dismissed. Nevertheless its limitations have led policy-makers and regulators to recognise that it provides only a part of the policy solution, particularly in a rapidly changing, increasingly complex and interdependent world. As one USA Environmental Protection Agency official put it: “as the world changes, patterns of law and governance must change with it”. However, regulatory reform must take place in an environment of shrinking regulatory resources, making it necessary in some contexts to design strategies capable of achieving results even in the absence of a credible enforcement (as when dealing with small and medium sized enterprises), and in almost all circumstances, to extract the “biggest bang” from a much diminished “regulatory buck”.

This paper is about how to design regulation and alternatives to regulation in this economic and political context, in a manner that is both effective in protecting the environment and efficient in that it does so at least cost to regulators and regulated enterprises. It takes as its starting point, the proposition that command and control regulation has indeed made a substantial contribution in many areas of environmental policy, particularly in relation to laggards, and will continue to do so. However, it is also clear that “the low hanging fruit” has largely been picked, and that in an increasingly complex, diverse and interdependent society, command and control is a blunt tool, which is not well-suited to meet many of the challenges which lie ahead.

The intention is not to rehearse the conventional arguments about the strengths and weaknesses of command and control but rather to examine the next generation of regulation and regulatory tools developed to curb the environmental excesses of business. In doing so, we distinguish between the regulation of large enterprises and of small and medium sized enterprises (SMEs). These two groups are treated differently, because for the most part, the problems they face, their motivations, and above all, the instruments most likely to be effective in improving their environmental performance, are quite distinctive. We also distinguish between policies designed to bring laggards up to a minimum level of compliance and those designed to reward leaders for going “beyond compliance” with the regulatory status quo.

The principal methodology used to conduct the field work component of the project was semi-structured interviews with a representative sample of stakeholders, and in particular with business enterprises, government inspectors and a variety of other groups who also have a direct role in, and experience of, the regulatory process. These included industry associations, environmental and community groups, and environmental professionals. This sample was supplemented by strategically targeted interviews with other key actors identified on the basis of “snowball” sampling.
Regulating SMEs

SMEs represent a very high proportion of all businesses in industrialised economies. SMEs have different environmental performance characteristics from their larger counterparts. In particular, they commonly have a higher level of environmental impact per unit; and lower compliance rates with health, safety and environmental regulation. Although their individual environmental impact may be small, their aggregate impact may, in some respects, exceed that of large business.

The effective regulation of SMEs is a substantial policy challenge for environmental agencies, not least because this group has a number of unique characteristics which inhibit the application of conventional regulatory measures. These include:

- a lack of resources – this is exacerbated by higher compliance costs, a shortage of capital and economical marginality;
- a lack of environmental awareness and expertise – many are ignorant of their environmental impact, technological solutions to their environmental problems, or their regulatory obligations;
- a lack of exposure – including lower public profiles which means that pressure groups gain little prestige, headlines or publicity by targeting SMEs;
- a lack of receptivity to environmental issues – many SMEs have not integrated environmental issues into their business decisions, making it difficult to persuade them of economic benefits;
- the sheer numbers of such enterprises – this leads to infrequent inspections, and many businesses slip through the regulatory net and are untouched by environmental policy initiatives.

Recognising these problems, how can policy makers overcome the barriers to improving the environmental performance of SMEs, and design a strategy for their efficient and effective regulation? How can they bring the large majority of SMEs into compliance with environmental regulation? How can they persuade them to integrate environmental considerations into their core business activities? And recognising the diversity of SMEs, how can they develop policies which both bring laggards up to the minimum legal standard while encouraging and rewarding leaders for going far beyond it?

In this section I seek to specify a series of instruments that are capable of substantially influencing the attitude and behaviour of SMEs and of engaging both leaders and laggards. I do so by drawing from the international literature on best practice regulation, and on field work conducted in Victoria and Western Australia. In the following section, recognising that different industry sectors have quite different characteristics and require different instruments and policy mixes, I seek to develop an industry-specific strategy for improving the environmental performance of SMEs.

Education and Training

Ignorance and a lack of capability are common explanations of poor environmental performance in SMEs. Beyond a limited understanding of their regulatory obligations, the cleaner production literature suggests that SMEs are simply unaware of many financially attractive opportunities for environmental improvement. The large majority of SMEs simply do not possess the knowledge, skills or solutions necessary to allow them to integrate fully the environment into their business practices, suggesting that education and information would have considerable value.

However, many education and informational initiatives have been unsuccessful. Much depends upon how the information is presented and packaged, and upon who presents it. A number of issues are crucial to successful policy implementation. These are:
• capitalising on win-win solutions – the starting point for effective communication, information dissemination and education should be to focus on those circumstances where good environmental practice can also be good business practice and to emphasise that what is good in environmental terms may also be good for the economic bottom line;

• developing industry-government partnerships – the aim of such partnerships is to actively engage an industry in the development of a cleaner production strategy that is tailored to their circumstances. This generates ownership, increasing awareness and the level of commitment to its implementation, and emphasises improved environmental management practices;

• the right people disseminating the information – which must not only be transmitted, it must also be received. This is most likely to be achieved where there is face-to-face distribution from trusted sources (customers, suppliers and competitors, industry peers, networks and associations) that emphasises practical solutions. Information should also be sector specific, and delivered in a coordinated fashion;

• developing codes of practice – SMEs often require much more specific guidance on what is required of them than their larger counterparts. Codes of practice are an effective way to provide practical guidance as to how to achieve compliance, and may be a valuable vehicle for promoting appropriate cleaner production benchmarks within an industrial sector.

• exploiting third party leverage – most SMEs have frequent interaction with professionals (banks, lawyers, insurance companies) and larger companies along the supply chain, and rely on them as credible sources of information. This provides opportunities for using such professionals both to disseminate information and to exert pressure on SMEs to pursue opportunities for using environmental improvements to achieve greater business success. On the basis of enlightened self-interest (backed-up by government persuasion), accountants might verify rudimentary environmental audits, banks might require an environmental check list for loan approval, insurers might seek a statement of hazards identification and control, and larger enterprises may impose environmental management requirements; and

• integration with other strategies – information and education must be seen as one component of a broader, integrated preventative strategy. What is needed is a hierarchy of controls, beginning with the facilitation of voluntary action through the dissemination of information and advice and support for cleaner production initiatives, escalating through the use of positive and negative incentives, and culminating in the enforcement of command and control legislation for recalcitrants who are unpersuaded by less interventionist strategies. However, information and education are almost always a necessary base from which other more interventionist instruments can be launched.

Facilitating Self-Inspection and Self-Audit

Given the limited resources of most regulatory agencies, and the limited reach of many conventional regulatory strategies, there is a need to shift away from direct regulation towards a variety of alternative strategies, involving voluntary compliance, self-assessment and the use of third parties as surrogate regulators. Two instruments with considerable potential are self-inspection and self-audit. These are less comprehensive and ambitious in scope than environmental management systems (EMSs) (which are discussed in a separate section below). For example, they seek regulatory compliance as opposed to continuous improvement, and generally apply to a more limited range of issues than EMSs.

There is an increasing number of examples of this approach both in the case of environmental protection and related areas. The Queensland Division of Workplace Health and Safety, for example, provides audit documents that enable enterprises to self-audit and to illustrate how safety
risks can be identified and controlled, thereby encouraging all organisations to take greater internal responsibility for risk management. In Western Australia, a somewhat similar approach has been taken in relation to control the disposal of waste solvents.

One of the most advanced approaches to promoting voluntary self-inspection and self-audit amongst SMEs has been introduced in Minnesota through the Environmental Improvement Act of 1995. Under this statute, SMEs are encouraged to self-inspect, and to report the results to the State regulator, by being offered (limited) statutory protection from enforcement action. An additional incentive for participation is a “green star” award for enterprises which do a complete environmental audit or inspection. SMEs are given a clear understanding that the choice is “not between compliance and non-compliance but between a low-cost, low-stress, collaborative route to compliance on the one hand and fines, liability, and public notoriety on the other”.

Without maintaining a credible threat of enforcement the regulator lacks the leverage to get small businesses to invest in self-monitoring, let alone compliance. Without establishing an attitude of assistance and forgiveness the regulator will be unable to win the trust of small business owners, and those owners will be unwilling to accept the technical assistance they need to identify and correct their problems. A strong education and outreach program has successfully linked those levers.

In summary, the more SMEs can be persuaded to do for themselves, the more committed they are likely to be to the outcomes and the more successful they are likely to be in achieving them. Self-inspections and self-audit show considerable promise in this context, and, in conjunction with the use of codes of practice and check-lists, can make a very considerable contribution.

A Systematic Approach to SME Environmental Performance

EMSs hold out the promise of achieving continuous improvement and cultural change in enterprises’ approach to the environment, have the capacity to integrate production with environmental considerations, to improve competitiveness and to increase profits. The conventional wisdom has been that EMSs are more suited to large businesses, with their complex operations and sophisticated management processes. Increasingly, however, it is recognised that there are extensive benefits to be gained by SMEs who adopt formal EMSs. Yet it is likely that SMEs will respond differently to larger businesses to the prospect of adopting EMSs, and that a different type of EMS will be suited to their circumstances. The challenge for regulators is to tailor EMSs to the particularities of SMEs.

The key, at least for SMEs with less than 50 employees, is to focus on simple, accessible improvements in management practices, rather than the introduction of formalised, administratively complex EMSs. For a five person enterprise, for example, an EMS may be recorded in a few pages, or by using software tailored to individual SMEs and avoiding substantial documentation. Pursuing an even more informal approach, the New South Wales WorkCover Authority is encouraging enterprises to develop their own risk management procedures. Here, references to formal systems are avoided, and instead, a management approach develops uniquely in each particular workplace, accommodating the needs, expectations and responsibilities of individual workers.

The pressure to maintain liquidity, the emphasis on short-term profit, and the pressures resulting from economic marginality all militate against the voluntary adoption of EMSs. How then, might enterprises be encouraged to overcome these barriers? One potentially powerful driver is supply chain pressure (addressed below). Another potential driver is government, which can play three key roles in encouraging the use of EMS by SMEs. First, it can provide information and education. For example, in Canada, a recorded Question and Answer phone system is accessible to anyone interested in generic information regarding EMSs; and a web based learning tool has been developed which breaks down the key elements of an EMS aligned to ISO 14000 into easy pieces in
a matrix. Second, it can provide external subsidies to help cover the cost of EMS adoption by SMEs. However, whether or to what extent SMEs would respond to subsidies and other incentives remains an open question. The take up of such initiatives in both UK and Minnesota has been low, and the subsidy involved may need to be quite substantial before it has much impact. This would put a substantial and likely unacceptable, financial burden on the state. Certainly the use of such subsidies on a large scale is likely to prove prohibitive.

Buyer Supplier Relations

In many sectors there are massive disparities of commercial power along the supply chain that can be harnessed in the interests of environmental protection. Larger enterprises, in particular, may be able to impose product and process preferences on other enterprises, using their market power to influence the behaviour of upstream suppliers and downstream buyers. Supply chain pressure thus offers a valuable means of influencing the environmental behaviour of SMEs. And given the difficulties government faces in regulating SMEs directly, it may prove to be an important and effective complementary strategy. Importantly, a number of studies report a high level of compliance with safety, health and environment requirements where these are addressed under customer dictated schemes.

The motivation for larger enterprises to employ these initiatives is complex. It includes risk minimisation (a supplier closed down for poor environmental performance could both disrupt the supply chain and cause serious reputational damage to its trading partner) and cost savings from more efficient production practices, including reduction in waste disposal. However, at present, only a very small minority of companies are imposing such requirements on their supply-chain partners, and the vast majority of SMEs report no pressure from their customers to improve their environmental performance.

Government can play a variety of roles in encouraging, facilitating and rewarding large companies to be more proactive in exerting pressure on the SMEs who are their customers. It might for example:

• exert its own supply-chain pressure through its procurement policies, and make it a condition of tendering for government contracts that the applicant/tenderer commit to maintaining specified environmental standards up and down the supply chain;
• make this a condition for the granting of regulatory flexibility (as under the USA EPA’s Environmental Leadership Program);
• encourage larger enterprises to form partnerships with smaller buyers and suppliers and provide public recognition to those who do so;
• hold this out as an important feature of environmental best practice models;
• insist upon such a requirement directly in legislation; or
• require such efforts to be articulated in corporate environmental reporting.

Another strategy, targeted specifically at waste reduction and management, relates to the control of the suppliers of inputs. For example, it is possible for regulators to either require by regulation, or to persuade the suppliers of various substances (against the threat of regulation in the event of refusal) to increase the amount they charge those to whom they sell their product. They might then use this amount to cover the cost of recovery and appropriate disposal. To be successful, such programs must also include a means of encouraging or ensuring the return of unwanted substances and containers to the suppliers. This can be achieved in part by making the return of the chemicals cost-free, since the cost of recovery and disposal has already been built into the price of purchase. The most advanced example of controlling the suppliers of input has been developed under regulation in British Columbia.
Industry Co-Regulation and Self-Management

Self and co-regulation have become increasingly popular policy instruments to curb environmental harm. We use the term co-regulation to refer to a hybrid policy instrument involving a combination of government set-targets and industry-based implementation, with even this latter element being underpinned by government controls. This must be distinguished from pure self-regulation, which involves giving industry very considerable autonomy in relation to both goal setting and implementation. Our use of the term co-regulation (which we use throughout as a convenient shorthand) resonates strongly with the concept of “industry self-management”. This term describes the transfer of the responsibility for administering legislation and regulations from government to industry. Specifically, it involves the creation of not-for-profit, self-funded corporations, led by industry councils or similar bodies to deliver services and programs in specific markets. Ideally, this is a policy strategy that leaves the government free to focus on its core business of setting policy directions and establishing environmental standards. It also means tapping into sectoral best practices and letting industry deliver the services themselves.

Almost uniformly, policy discussions about self and co-regulation assume that these instruments can only be applied to the behaviour of large enterprises in particular contexts. Very little attention has been given to the possibility that self or co-regulation could be credible policy options for addressing the environmental problems of SMEs. The assumption has been that SMEs have little to gain from self-regulation, or self management, which in this sector is likely to be a sham.

Yet as the regulatory state retreats, and the prospects of effective direct intervention into the affairs of a myriad of small business becomes even less plausible, there is a pressing need for other instruments to fill the policy void. We argue that even in relation to the environmental problems of small business, co-regulation, though not pure self-regulation, may have a positive role to play in some contexts, and circumstances. The crucial question is which ones? Recent Canadian research suggests the following criteria for identifying a sector’s readiness for co-regulation or self-management:

- a successful track record of professional development programs by the industry, such as a code of ethics;
- a documented history of consultation and partnership with government and others to solve marketplace problems;
- a demonstrated capacity to perform some legislated functions on behalf of government;
- the existence of a representative national or provincial industry group or association; and
- proven ability to protect consumer interests, including providing high quality service.

Even when these criteria are largely satisfied, industry co-regulation is clearly no panacea, and must be used selectively and with caution. Nevertheless, our research on the control of ozone depleting substances (see below) suggests that co-regulation or industry self-management is a viable regulatory technique for addressing some of the environmental problems of SMEs.

Incentives

The potential application of economic instruments to environmental policy is well recognised largely because such instruments have the capacity to give enterprises much greater flexibility than command and control regulation in tailoring responses to their individual circumstances and achieving least-cost solutions. In principle, economic instruments which provide incentives should be an effective means of encouraging improvements among SMEs because “these are the companies most likely to respond to the potential financial benefits inherent in many incentive options … smaller business appear to respond more to marginal changes in taxes”. In practice, however, the scope for introducing such instruments in relation to SMEs may be limited.
For example, it would be impractical to design and implement a tradeable permit system in relation to SMEs because of the overwhelming difficulties in monitoring and enforcing such permits when there is a large number of small, disparate polluters (or there are non-point sources of pollution). For these reasons, instruments such as tradeable permits are not appropriate for curbing the environmental excesses of SMEs directly, and the main market creation schemes, such as the USA acid rain permit trading program, engage only with large point source polluters.

In contrast, some commentators have suggested that tax policy would probably be a considerable incentive for SMEs, and survey evidence suggests that SMEs have a clear preference for tax-based incentives over alternatives such as free energy audits. Unfortunately, environmental agencies do not have control over tax policy and seeking to persuade central government treasury and key financial departments of the value of tax-based environmental incentives has usually proved to be a futile pursuit. Moreover, even such tax incentives as have been targeted at SMEs in other countries have not been notably successful.

More direct incentives can be provided through such mechanisms as audit and technology assistance and via government procurement policies. Effective dissemination of information about such instruments may be particularly important since “previous initiatives, introduced to encourage action by SMEs have had limited success, due in part, to a lack of awareness about their existence.” Finally, as many economists have rightly pointed out, the removal of perverse incentives (such as fossil fuel subsidies, and particularly those that inhibit cleaner production) is probably the logical, and crucially important, starting place.

Government Regulation

International and Australian surveys suggest that environmental regulations are the most influential factor driving environmental management strategy. Yet in the case of SMEs, successfully implementing regulation is enormously difficult. Enforcement in particular, represents an enormous challenge for already over-stretched regulatory agencies, confronted with the vast numbers of SMEs. There is no ready resolution to the problem of the huge disparity between the number of SMEs and the number of regulators. But what can be done is to develop a number of strategies that at least serve to mitigate the problem.

One strategy is to reserve the threat of direct regulation for the minority who demonstrably are unwilling to take voluntary action. By passing the responsibility to SMEs to regulate themselves and devising mechanisms which, albeit crudely, alert regulators to those who manifestly do not do so, regulators can focus their enforcement resources on a small minority of the total pool of SMEs: the true laggards. To the extent that adequate statistics are available, then inspections can be targeted at those who are in the highest risk category for non-compliance. However, adequate statistics are rarely available and for the most part, much cruder strategies will be necessary, such as targeting those who have failed to respond to an invitation to self-inspect and self-audit and to send the results to the agency, or whose self-reporting data is wildly at odds with that of most of their industry peers.

Under almost any approach, a heavy reliance on complaints and reports from the public will remain a necessary and, given the resource constraints, inevitable part of the regulatory regime for SMEs. The role of public complaints and reporting can and should be enhanced. Publicity campaigns, in particular, can be used to sensitise the public to the importance of correct environmental behaviour (eg the consequences of unauthorised dumping of chemicals or waste) and to encourage them to report such behaviour to the authorities. For example, “dob in a polluter” provisions, accompanied by the relevant agency phone number and guarantees of anonymity, have proved quite successful in areas such as motor vehicle emissions. It should be acknowledged that “after the event” complaints and reports, however, need to be accompanied by other strategies that emphasise preventing pollution at is source and accidents before they happen.
Another strategy to compensate for grossly inadequate regulatory resources is to encourage enterprises to report voluntarily their offences. For example, amendments to the Western Australian Environment Protection Act encourage voluntary reporting of offences by providing authority for the regulator to modify penalties if certain conditions are satisfied. As has been pointed out, these provisions “leave a person to weigh the merits of ‘coming clean’ with a confession for a reduced penalty versus the likelihood of an offence being discovered later”.

Given the scarcity of regulatory resources, it is also essential for regulators to adopt enforcement measures which are both efficient (in terms of consuming the minimum of scarce resources) and effective (in terms of deterrence). The best option is often the use of administrative directions (clean up notices, pollution abatement notices, and non-statutory field directions). These measures allow action to be taken swiftly without the necessity of going to court. Appeals are rare and infrequently successful. In contrast to the cumbersome and time consuming nature of the traditional prosecutions, administrative orders are a quick and simple mechanism capable of being used to deal with serious hazards immediately once they are detected. Moreover, such orders are particularly flexible in that they do not necessarily specify how an employer may come into compliance thereby leaving her or him free to choose the least cost method and avoid unnecessary expense.

On-the-spot fines also have considerable potential. Research suggests that such penalties can provide credible deterrence at a very modest administrative and legal cost. Provided that use of these fines does not become a substitute for more serious enforcement action in serious or repeat cases, and provided they do not serve to trivialise offences through misuse, then they have considerable value.

Another strategy for maximising the impact of very limited agency resources is through rotating industry-specific campaigns and blitzes. Carefully managed, these can create the impression of a substantial regulatory capability and threat of enforcement, with only very limited regulatory resource commitment. There is convincing evidence to suggest that the very fact of an inspector’s visit, coupled with some form of enforcement action may have a significant impact on behaviour, even in circumstances where compliance costs exceed the economic benefits to the employer of compliance.

However, given that regulators cannot afford to inspect too many premises, they may achieve considerable leverage by exploiting the gap between perception and reality. For example, they may target a particular industry sector, announce in advance that they will be inspecting premises in the area, offer a partnership approach (for example, involving self-inspections, self-reporting, and subsidised audits) and reserve actual inspections and enforcement action for those who do not volunteer for this approach. Through a limited campaign, using only modest resources they may: visit the area (making their presence highly visible); accompany this by publicity in the trade and local press: issue on-the-spot fines where they identify substantial non-compliance: hold out the threat of more serious penalties for laggards: and publicise all of this to the widest possible extent.

It is also important (on restorative justice principles) to restore enterprises to a position where they have both the capacity and willingness to comply after they have committed a breach. It is therefore an important tool for regulators to use in responding to compliance failures”. In the environmental context, the compliance plan is perhaps the best example. This mechanism provides that, in situations where an existing industry enterprise cannot comply with new legislative requirements, it may prepare and submit such a plan. A plan can also be required where there is evidence of poor environmental performance or the presence of a high environmental risk.

Finally, since there is no single policy option that is unproblematic and effective in isolation, the challenge is almost invariably to find an effective policy mix. A starting point in developing appropriate combinations of instruments, and in determining the sequence in which they should be used for maximum effectiveness, is to recognise the different circumstances confronting SMEs.
Towards a Sector Specific Approach to SMEs

The above analysis has evaluated a number of policy instruments which, used individually and collectively, could achieve substantially improved environmental performance by SMEs. However, it is critically important to emphasise that not all of the above instruments will be appropriate in all circumstances or to all SMEs. Effective regulatory design involves tailoring a particular combination of policy instruments to particular circumstances. Most commonly, this involves developing sector-specific policy prescriptions and recognising that even within each sector, there are likely to be a variety of different players with different degrees of competence and different motivations. For example, it will be necessary to ascertain:

- whether or not the industry has a high profile (since this may determine the degree to which SMEs might be susceptible to public/consumer pressure);
- the level of sophistication in the industry (since this is likely to indicate its capacity to adopt complex EMSs, and the need for education and training);
- the degree of uniformity in size and management practices of an industry (the greater the diversity, the greater the need to develop different strategies for different sub-categories);
- whether or not there is a well organised industry association, or such an association can be established (which will be necessary but not sufficient to determine its capacity to adopt self-regulation);
- the presence of readily identifiable third parties with commercial power (raising the possibility of nurturing regulatory surrogates and establishing a supply chain approach);
- whether the environmental issues are disparate and numerous, or focussed and limited in number (in the case of the latter, regulators may achieve a bigger bang for the regulatory buck); and
- the prevailing culture of the industry, and its potential receptivity to different types of approaches.

Regulating Large Enterprises

The task of regulating large enterprises is very different from that of controlling the behaviour of SMEs. Most such enterprises, unlike SMEs, are sophisticated in their general (and increasingly in their environmental) management, and have substantial units devoted to legal and environmental issues. They commonly have long term business plans, complex systems of controls designed to manage business and legal risks, including EMSs, and, equally important, deep pockets.

In most industry sectors, some large laggards remain, but an increasing number of large enterprises are also increasingly accepting of their obligation to comply with environmental regulations (although they often lobby fiercely to block new ones). Some indeed, have set environmental goals intended to take them beyond compliance with existing environmental regulations, and others build in a “margin of error” which ensures that even when unanticipated fugitive emissions occur, they remain within their legally prescribed emission limits.

Many large companies are also reputation sensitive. They have become acutely aware that damage to their corporate image caused by poor environmental performance can undermine their share value, prejudice their standing with governments and thereby threaten investment opportunities, bring unwanted attention from regulators, and incur the wrath of environmental groups and local communities. Large enterprises are elephants rather than foxes: they are big, readily identifiable, and easy to target. Whereas regulators may have considerable difficulty even finding some SMEs, and can inspect them only very rarely, this is not the case with large corporations.
These characteristics facilitate the use of a range of regulatory strategies that have little resonance for SMEs, and make redundant the use of others which are fundamental to successful SME regulation. For example, education and compliance assistance strategies, while crucially important in relation to SMEs, have little, if any application to large enterprises. In contrast, other strategies, such as “shaming” poor environmental performers through informational regulation, while almost entirely irrelevant in the case of most SMEs, can be particularly potent when applied to large reputation sensitive organisations.

Again, because the population of large enterprises includes those who are contemplating going beyond compliance, policy instruments directed at this group should be designed not merely to drag industry laggards up to the standards of minimum compliance but also to reward, facilitate and encourage environmental best practice and environmental leadership.

Finally, large enterprises, by virtue of their sophisticated systems of internal control (including EMSs) have a much greater potential capacity for environmental self-management and self-monitoring than their smaller counterparts, although whether they have a self-interest in developing it is another matter.

Voluntary Approaches

Voluntary approaches are “schemes whereby firms make commitments to improve their environmental performance beyond legal requirements”, and include self-regulation, voluntary codes, environmental charters, co-regulation, covenants and negotiated agreements. Recently, such approaches have become an increasingly popular environmental protection tool, and their use has permeated worldwide. The reasons for this new-found interest in voluntarism include the limits of command and control regulation, the need to fill the vacuum left by the retreat of the regulatory state, and the interest of industry itself in seeking (at best) a flexible, cost-effective and more autonomous alternative to direct regulation, or (at worst) a means of avoiding the imposition of binding standards altogether.

From an environmental policy perspective, the increasing reliance on voluntary approaches raises a number of important issues. Not least, how do they work, where do they work, what are their strengths and limitations and how can they best be used within the overall framework of environmental policy design? In the following sections, following the classification developed by the OECD, we explore these questions in relation to the three types of voluntary arrangement which are the most prevalent and the most important in environmental policy terms.

Unilateral Commitments

Unilateral commitments consist of environmental improvement programs set up by enterprises or industry associations and communicated to their stakeholders, with both the targets and determinations of how they are to be met and monitored at the discretion of the enterprises or associations themselves. Although they do not involve other groups directly, a major motivation for them is to protect environmental reputation by gaining credibility with stakeholder groups. This in turn may serve to forestall anticipated regulation, ease the compliance burden, mitigate external pressure for improved environmental performance, or earn rewards from customers, financial markets or consumers.

Unilateral commitments at industry level (ie an industry based code of practice under which individual enterprises set their own specific individual targets) are likely to work best when the following conditions are present: there are relatively few industry players; the exit costs are high (for example, quitting the scheme will draw adverse reaction from markets, competitors or
regulators), there is a history of cooperation between member companies; expertise and resources for regulation are available in the industry; non-compliant behaviour can be punished; consumers value compliance; fair dispute settlement mechanisms are in place; and, some role is available for public participation.

A major concern for collective initiatives is to curb the incidence of free-riding, whereby rogue enterprises seek to claim the public relations and other benefits of scheme membership while avoiding the obligations it entails. Unfortunately, free-riding is often an insurmountable problem, because the criteria identified above, are only likely to be met in a small number of circumstances. In practice, individual targets are often set to a lowest common denominator and are not measurable, enforcement is often weak, and such initiatives commonly lack many of the virtues of conventional state regulation, “in terms of visibility, credibility, accountability, compulsory application to all, greater likelihood of rigorous standards being developed, cost spreading, and availability of a range of sanctions”.

The paucity of success stories in the literature should make governments extremely reticent about relying on unilateral programs as a basis for providing any form of regulatory relief or other concessions, notwithstanding industry suggestions that it should do so. Indeed, the history of the Institute of Nuclear Power Operations (INPO) which is arguably the most successful such initiative of all suggests that an underpinning of government regulation and enforcement will almost invariably be crucial to maintain credibility and effectiveness.

Thus one general conclusion from the available literature is that industry-level unilateral commitments are likely to have greater credibility as an environmental policy instrument when they are used not in isolation, but in combination with some form of direct government intervention or third party oversight, or both (in which case they become neither entirely unilateral nor entirely voluntary!). Government may directly engage in the self-regulatory process by jointly negotiating targets and strategies, and providing, if necessary, external verification and/or ratification. On other occasions, independent third parties, such as NGOs, may play a crucial role in its oversight and success. We develop these points in our case study on the mining industry below.

Public Voluntary Programs

Public voluntary approaches have been defined as programs devised by an environmental agency in which individual enterprises are invited to participate. In their most common form, the regulatory agency pre-sets a target (in terms of enterprise-level environmental performance) and invites enterprises to commit to achieving it as part of a formal program. Inducements to join may include some technological or financial assistance and public relations benefits, as for example, from the right to take advantage of a green logo.

Industry “challenge” programs are perhaps the best known form of public voluntary program. Many of these are within the areas of energy efficiency and chemical use reduction where government hopes to stimulate enterprises to identify win-win solutions from which they will derive economic benefit at the same time as achieving environmental improvements. Most of these agreements, at least in the USA, “require participants to sign non-binding letters of agreement such as a Memorandum of Understanding (MOU) which imposes no sanction for program withdrawal. Failure to meet the MOU terms means that the company can no longer claim the benefits of participation, which usually consist of public recognition”. Two of the most notable examples are the USA EPA’s 33/50 and Green Lights programs and Canada’s Accelerated Reduction/Elimination of Toxics (ARET) program.
Claims as to the success of these initiatives have been challenged on the basis that the reductions achieved may or may not be voluntary and even to the extent they are, may not be attributed to the program. However, it may be that the greatest contribution of such programs is in terms of “soft” effects which are not measurable, such as the diffusion of information on pollution abatement techniques in industry. Not least they “commonly include technical assistance, decision-support too, best practice guidelines, evaluation tools, and training sessions, thus improving the level of knowledge in the participating companies. Besides, they frequently exhibit a function of “signalling” via the use of a logo … or promotional supports. They thus improve public recognition of efforts for greening business strategy. In turn, such reputation gains provide industry with long-term incentives to commit to environmentally friendly trajectories”.

As with other types of voluntary approach, the design of such initiatives will have a strong bearing on their potential to achieve their goals. Most voluntary programs have serious weaknesses, not least of which are the lack of credible targets to take participants substantially above minimum regulatory levels (where regulation exists) or beyond business as usual, and the strong temptations to free-ride. While such programs may have significant soft effects such as information diffusion and technical assistance, and can be established by government at low cost, nevertheless their overall contribution to higher environmental standards is a very modest one.

**Negotiated Agreements**

Negotiated agreements involve specific commitments to environmental protection goals elaborated through bargaining between industry and a public authority. They have been developed as part of an explicit attempt to improve environmental policy outcomes without overburdening industry or putting it at a competitive disadvantage, and in particular to promote a quicker and smoother achievement of objectives than the cumbersome and often conflict-ridden route of legislation. In Europe they represent by far the most popular and important form of voluntary initiative. Here, they are usually entered into by an industry association and government against a backdrop of threatened legislation: the tacit bargain being that if the industry will commit to reach given environmental outcomes (eg an industry sector target) through its own initiatives, government will hold off on legislation it would otherwise contemplate enacting to address the problem.

The Dutch environmental covenants, represent (in European terms) an unusual hybrid, since these agreements both address collective and sector wide environmental issues and are legally binding on individual companies through the permit system, and are thus intimately linked to mainstream command and control approaches. Rather than playing an ancillary or supporting role (as is the case with many European collective agreements), they are a key component of Dutch environmental policy. Under those agreements enterprises draft environmental plans for each of their plants (identifying environmental targets and how they propose to achieved them) which in turn are set at a level intended to achieve the framework targets established in the National Environmental Plan. Local permit authorities have a role in approving and reviewing the individual environmental plans, and failure to establish or meet plans would result in tougher permit requirements being imposed. Thus companies can be made individually legally liable. A critical distinction between the Dutch approach and almost all other environmental agreements is that in the case of the former the government sets non-negotiable goals based on collective performance objectives previously established under the National Environmental Plan. As a result “government and industry have compatible objectives for negotiations: to find the most cost effective means to achieve those goals”.

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The tension between the goals of government and industry under the mainstream (and non-binding) voluntary agreements raises a number of challenges for policymakers. First, to the extent that the agreement would commit industry to doing something it would not otherwise choose to do (i.e., spend money on environmental improvements which do not otherwise enhance profits), then the agreement must provide sufficient incentives to deliver a net gain. Such incentives might include reputation enhancement (e.g., bestowing the status of a “green enterprise,” for example through a green logo), facilitating a price premium or expansion of market share, or the provision of regulatory concessions. The latter is likely to be by far the strongest incentive to join, and a substantial number of agreements have involved implicit or explicit bargains of this nature. Second, since industry would prefer to obtain whatever benefits are available under the program at as little cost as possible, it is likely to negotiate hard so as to minimise its commitments. Most commonly, this implies negotiating for as low a performance target as possible, and ideally one that can be met as a result of improvements taking place already, without necessitating any additional action or expenditure.

Third, where the costs of participation are substantial but the enterprise has sufficient incentive to join, it may seek to gain the benefits of participation without bearing the costs. That is, it may default, and hope to free-ride by gaining the reputation benefits and regulatory concessions consequent on participation without discharging its responsibilities under the agreement.

Fourth, these tensions generate risks of a phenomenon tantamount to regulatory capture, whereby regulators, by virtue of a too close association with industry (and the closed-door nature of many negotiated agreements), or in consequence of informal inducements (such as the promise of future employment in the regulated industry) acquiesce in the negotiation of targets and other conditions that are unduly favourable to industry and contrary to the public interest.

The first generation of voluntary approaches achieved only very modest success. The reasons include: the central role of industry in the target-setting process, the scope for free-riding, the uncertainty over regulatory threats, non-enforceable commitments, poor monitoring and lack of transparency. In turn, the manifest deficiencies in the design of first generation instruments suggest a number of lessons about how to design such approaches better in the future. For example, the OECD has identified a number of “success” criteria which if followed, may achieve more positive results.

To conclude, the evaluation of negotiated agreements requires a dynamic analysis: the second generation of such agreements are somewhat different from the first, and considerably more likely to provide public interest benefits. Much more specific targets now tend to be set by government rather than vaguer goals being determined to industry, government negotiators are much more sensitive to the risks of setting targets that merely reflect improvements that would happen anyway, and there is a movement towards linking negotiated agreements with other policy instruments, such as taxes, or to complement rather than replace existing regulations. Greater efforts are also being made in terms of transparency and third party input. Whether these developments will justify the faith of advocates of voluntary approaches, and whether the additional transactions costs of building in essential checks and balances, will render such instruments too costly, remains to be seen.

**Regulatory Flexibility**

An increasing number of large enterprises now recognise their obligations to comply with environmental regulation and do so irrespective of the likelihood of detection or sanction, in contrast to an earlier generation which frequently sought to evade it. Increasingly, such corporations are also developing environmental strategies which incorporate pollution prevention, internal compliance auditing and compliance assurance programs. Some are also actively seeking out win-win outcomes.
These developments raise considerable challenges for the traditional system of regulation. That system was primarily concerned with bringing enterprises up to a minimum legal standard, a function which is still important with regard to laggard companies, but which is increasingly irrelevant or counterproductive in relation to companies which are ready, willing and able to go beyond compliance. For these companies, the challenge is to design environmental policies which reward, facilitate and encourage them to do so.

A number of regulatory flexibility initiatives have been introduced for this purpose, particularly in the USA. The incentives or rewards offered for participating in these initiatives include fast tracking of licences or permits, reduced fees, technical assistance, public recognition, penalty discounts under certain conditions, reduced burdens from routine inspections and greater flexibility in means permitted to achieve compliance. In return for the various incentives offered, industry is expected to go beyond compliance though an EMS based approach to environmental protection (and in some instances to engage in stakeholder dialogue, to be more transparent, and to take greater responsibility for the environmental behaviour of others in the supply chain).

However, an EMS should be used to complement rather than to replace other regulatory tools. While it is possible to envisage a scaled back role for command and control regulation, particularly in relation to environmental leaders, it will still be necessary (at least in the short term) to maintain a variety of oversight and regulatory fall back mechanisms (in particular, performance measures) to ensure that the system actually delivers the benefits of which it is capable in principle. For these reasons, many policy analysts argue that the new regulatory flexibility initiatives must be based on “ISO Plus” rather than merely on conformity with ISO 14001 itself. Unfortunately, this has not necessarily been the case in practice. My own past analysis suggests that there are four key components necessary to the successful implementation of such regulatory flexibility initiatives. These are:

- that those enterprises engaging in regulatory flexibility should adopt practices and processes that lead to the pursuit of beyond compliance goals and include outcome-based requirements, the achievement of which can be measured through specific performance indicators;
- that there should be independent verification both of the functioning of their management system and of environmental performance under it (eg by a third party environmental auditor), with the results or a summary of the results available both to the regulator and third parties such as community groups (transparency);
- that there should be an ongoing dialogue with local communities concerning beyond compliance goals and the means of achieving them (this ensures the credibility and legitimacy of the process and enables third party input and oversight); and
- that there should be an underpinning of government intervention; acting as a safety net which only “kicks-in” when triggered by the failure of the other less intrusive mechanisms described above.

In the USA, state and federal regulators are now moving towards a more systematic approach, designed to provide rewards and incentives for improved compliance and high environmental performance through a two track system of regulation. Under this approach, enterprises (or at least enterprises with certain environmental credentials) are offered a choice between a continuation of traditional forms of regulation on the one hand, and a more flexible approach (the central pillars of which are usually the adoption of an environmental management system, periodic internal environmental audits, and community participation) on the other.
The ultimate test of the success or otherwise of regulatory flexibility initiatives such as the above is an empirical one. Despite their very considerable potential, the jury is still out on the strengths, weaknesses and ultimately, the success of EMS based regulatory flexibility initiatives more generally. It will be some time before we know whether, and if so, to what extent, the benefits of the various initiatives outweigh the costs and whether they will indeed, overcome many of the problems of traditional forms of regulation. Or indeed whether the skeptics are correct in questioning why so many resources are being devoted to making the top 20% (or perhaps only the top 5%) even better, rather than concentrating on the most serious problems or on under-performers. The case study of the Victorian accredited licensing (below) explores this question in greater depth.

**Economic Instruments**

Economists argue that economic instruments are usually more cost-effective than direct regulation, in large part because they give companies more flexibility as to how they achieve resource productivity and prevent pollution. Moreover, as the World Business Council for Sustainable Development asserts, “they provide continuous incentives to producers to conserve resources, prevent pollution and step up technological and organisational innovation [and] are the most direct way of changing producer and consumer behaviour toward more efficient resource use”. For all these reasons, economic instruments are a potentially important policy tool.

The full range of economic instruments that might be deployed in environmental policy is quite extensive. We focus on (i) the use of price signals in the shape of taxes or charges, (ii) property rights in the form of tradable permits, and (iii) supply side instruments in terms of subsidies, as representative examples of economic instruments which can be applied in the area of point-source pollution control.

A pollution tax or charge, should ideally be set so as to assign to the polluter an appropriate price for the pollution they emit. Aware of this price, the polluter has an incentive and an opportunity to design the least cost method to reduce emissions up to the point where it is more rational to pay for the pollution. The greatest advantage that environmental taxes and discharge fees have over conventional regulation, is that both instruments allow enterprises to make individual choices about environmental performance free from outside interference and in doing so give them an incentive to innovate and reduce pollution at the lowest cost.

In practice, such tools have often been misused to produce the worst of both worlds. One the one hand, politicians have been reluctant to impose the full amount of tax necessary to implement the polluter pays principle for fear of a political backlash. On the other hand, the taxes are often imposed more with an eye to boosting the government’s overall revenue, than to provide a more efficient and effective replacement to command and control.

Four broader objections can be made to the use of taxes and charges. First, there is considerable difficulty in setting a tax or charge at the right level. This is because the costs and choices facing polluters may not be known to policy-makers. Second, where prices are relatively inelastic due to limited input substitutability, costs may simply be transferred to final consumers with no consequential environmental benefit. Alternatively, the size of the tax or charge would need to be very large and thus undermine the cost-effectiveness of the instrument. Third, enterprises may not respond rationally to price signals. Where taxes or charges represent only a small proportion of outlays, costs might simply be ignored or not noticed. And fourth, taxes and charges may be perceived as legitimating or condoning environmentally harmful behaviour. Nevertheless, carefully designed, taxes and charges can be both efficient and effective, as the introduction of a nitrogen oxide charge on energy production in Sweden some years ago and the use of carbon dioxide taxes in Scandinavia, demonstrate.
Tradable permit schemes, in contrast, adopt a property rights approach to achieving efficient, pollution control. Under such schemes the regulatory authorities set a target as to how much pollution will be allowed in an industry or an area over some fixed price period. This quantity is then divided into permits, which are auctioned or otherwise distributed to polluters. Enterprises who keep their emissions below the allocated level are free to sell their excess, and those that anticipate polluting beyond their allocated level must buy permits from others who have reduced their emissions below their allocation and have credits to sell (or purchase them from periodic or one-off auctions). In either case the trading system provides incentives to participating enterprises to reduce emissions so far as they efficiently can, and also gives them the flexibility to do it in the least cost manner. In essence, the government has created limited property rights, providing the foundation for a private market.

Only a modest number of market creation schemes have so far been introduced. Some, such as the USA acid rain permit trading program have the capability to work with considerable effectiveness, albeit with far less equity. Indeed, this program is widely regarded as being a great success, and is the proposed model for an international permit trading system in relation to carbon emissions and global warming. However, other schemes have suffered serious design faults with the result that very few trades have actually taken place and monopolistic and anti-competitive behaviour has emerged. It is difficult to escape the conclusion that despite potential efficiency gains, market creation may be restricted to applications where the use of permits can be easily monitored and verified, and where there are good trading prospects. In these circumstances, well-designed schemes have the capacity to deliver substantially reduced pollution loads and a substantially lower cost to industry.

Supply-side incentives refer to direct or indirect payments, including tax concessions and subsidies, conditional upon desired conduct. For example, they include: tax concessions for the purchase of cleaner production technology; tax deductions for the expenses of environmentally responsible activity, such as mine site remediation; and lower tax rates on preferred products or materials, such as energy efficient cars or unleaded petrol. The use of such subsidies is usually deplored by environmental economists because (by blocking the internalisation of external cost in prices) they contravene the polluter pays principle and are for this reason inefficient, and because they are a drain on public revenue. Treasury Departments often oppose such incentives because of the difficulties in classifying products and practices which might attract the subsidy, and because they have the potential to lock in current technologies at the expense of as yet unknown alternative solutions.

Even where subsidies may be justifiable, they may not be effective. Research data indicates a strong correlation between the level of supply side incentives and their uptake. Nevertheless, in recent years, such approaches have become increasingly sophisticated. For example, the Netherlands has an accelerated depreciation program for specific clean technologies, and Costa Rica now runs a transferable reforestation tax credit scheme under which landholders receive a tax credit for keeping their land forested or for returning land to native species cover.

To summarise, there is evidence that economic instruments, carefully designed, can make a valuable contribution to specific environmental problems, and in some circumstances (as with the acid rain program) have proved far more successful than previous policies. However, the more extreme claims of some economists, that command and control regulation is inevitably inefficient, or less efficient than economic instruments such as effluent taxes and marketable pollution permits, has been challenged both as a matter or economic theory and of experience.
Informational Regulation

An increasingly important alternative or complement to conventional regulation is what is becoming known as “informational regulation”. This has been defined as “regulation which provides to affected stakeholders information on the operations of regulated entities, usually with the expectation that such stakeholders will then exert pressure on those entities to comply with regulations in a manner which serves the interests of stakeholders”. In contrast to command and control, informational regulation involves the state encouraging (as in corporate environmental reporting) or requiring (as with community right to know) the provision of information about environmental impacts but without directly requiring a change in those practices. Rather, this approach relies upon economic markets and public opinion as the mechanisms to bring about improved performance.

Informational regulation is targeted almost exclusively at large enterprises, and in particular at public companies (which are vulnerable to share price and investor perceptions) and those who are reputation sensitive, because is it essentially these types of enterprise which are most capable of being rewarded or punished by consumers, investors, communities, financial institutions and insurers on the basis of their environmental performance. The overall strategy is to empower these groups to use their community and/or market power in the environmental interest by providing them with a sufficient quality and quantity of information as to enable them to evaluate an enterprise’s environmental performance. Such a strategy becomes even more effective as companies recognise the importance of protecting their “social license” and the need to improve their environmental performance in order to do so. There have been a number of experiments with the use of informational regulation that have demonstrated its potency even in circumstances where conventional regulation is weak.

Informational regulation is growing rapidly, partly because the success of some of the early initiatives has generated interest in their expansion, partly because it offers a cost effective and less interventionist alternative to command and control in a period of contracting regulatory resources, partly because of its capacity to empower communities and NGOs, and partly because changes in technology make the use of such strategies increasingly viable and cost-effective.

Informational regulation can take a number of different forms. Probably the most successful and best known of these is the use of community right to know (CRTK) and pollution inventories. The basis of these policy instruments is to require individual companies to estimate their emissions of specified hazardous substances. This information is then used to compile a publicly available inventory, which can then be interrogated by communities, the media, individuals, environmental groups and other NGOs who can ascertain, for example, the total emission load in a particular geographical area, or the total emissions of particular companies. The latter information in particular, enables comparison of different enterprises’ emissions and can be used to compile a “league table” which identifies both leaders and laggards in terms of toxic emissions. Such benchmarking exercises, facilitated by easy access to the relevant information, enable the shaming of the worst and rewarding of the best companies. The evidence suggests that well-informed communities use this information both to ensure tight enforcement of regulations and to pressure enterprises to improve even in the absence of regulations. The foremost example of this approach is the USA Toxic Release Inventory (TRI).

Recognising the potential value of this approach, a number of countries have followed the USA example, and introduced laws compelling disclosure of pollution and chemical hazard information. However, not all such inventories and similar instruments will be equally effective and much will depend upon their particular design features. While the large majority of assessments of the USA TRI are strongly positive, the more recent Canadian scheme has yet to prove its worth, and there is only weak evidence that the latter has been effective in promoting voluntary emissions reductions.
In Australia, the National Pollutant Inventory (NPI) was so severely weakened by industry-proposed amendments that environmental groups withdrew from the consultation process and the quality of information available under it remains extremely problematic.

A second form of informational regulation is through the practice of corporate reporting on environmental (and on ethical and social) performance. Such reports can be used by companies both as a means of communicating with stakeholders and as a management tool to enhance their performance. Beyond this, motives for producing such reports vary substantially. They may include building goodwill and protecting corporate reputation, overcoming past bad publicity, enhancing product marketing and communicating with employees. However, unsurprisingly in the light of these mixed motives, many of the early environmental reports were far more public relations exercises than serious attempts to disclose environmental information of value to stakeholders in assessing the corporation’s overall environmental performance. Even genuine attempts to provide relevant information foundered because of a lack of common standards as to the type of information to be included. Much of the information reported was qualitative and difficult to evaluate, and there was a lack of consistency in relation to its collection, analysis and presentation. These problems were exacerbated by a lack of independent verification.

It will be a considerable period before corporate environmental reporting reaches the same level of comparability, consistency, credibility and relevance as has been largely achieved by financial reporting. Nevertheless, in the long term, environmental reports which use common reporting criteria and measurements and standardised (possibly sector-specific) formats, and which are independently and professionally verified by third parties, will provide a variety of external stakeholders with valuable information which can and no doubt will be used, to reward good performers and to shame recalcitrants into improvement. For example, as with pollution inventories, communities, NGOs, insurers and stock markets, are likely to use this information as a means of ranking enterprises according to their environmental performance and responding accordingly. The growth of socially responsible or “ethical” investment funds, which seek to balance financial performance with social and environmental issues, may provide additional significant rewards to good environmental performers, as these funds become significant players in investment markets.

A third form of informational regulation is product labelling and certification. Surveys indicate that many consumers are taking environmental considerations into account when they purchase goods and services. There is evidence, however, that unassisted markets do not provide accurate information to consumers and in some cases may mislead them about the environmental performance of specific products. In order to inform the public about the environmental “soundness” (or otherwise) of various consumer products, governments can contribute to the development of labelling standards, and of eco-labelling schemes. This can help inform consumers, and sustain markets for environmentally appropriate goods and services. Private accreditation schemes, with appropriate safeguards, might achieve similar results. However, the experience of establishing eco-labelling schemes within and between nations has been mixed at best.

Finally, informational regulation strategies work better in some circumstances than others. The evidence suggests that they work best with respect to large companies and well educated communities. CRTK, for example, relies heavily on the energies of local communities in using the information and pressuring enterprises to improve their environmental performance. Where an environmental hazard involves no immediate threat to human health, or where there is no identifiable local community, or where we are dealing with non-point source pollution, not readily measured and traced back to its origins, then this instrument has far less to offer. Similarly, corporate environmental reporting is dependent upon the willingness of public interest groups to follow through on its results and to both shame bad performers and praise good ones. Finally, eco-labelling relies upon the willingness of consumers to buy “green” products and upon their capacity to distinguish between these and other classes of product.
Recognising these limitations, an integrated strategy, using informational regulation in combination with other instrument types, is demonstrably likely to be more effective than a stand alone approach. One example of information regulation in Canada provides evidence of this. In this case, as a means of bringing extra pressure to bear on non-compliant organisations and in order to bring about greater transparency, the British Columbia Ministry of Environment publicly lists enterprises that either do not comply with the existing regulations or that are of concern, and where the Ministry continues to undertake legal action for those violating the regulation. A study of this scheme found that public disclosure is providing reduction incentives beyond traditional compliance levels (ie beyond those set in place through traditional regulatory approaches of enforcement and fines and penalties).

This example also serves to illustrate that informational regulation need not be particularly complex, nor introduced at federal level, to be effective. Even state government regulators without the constitutional or political capability to introduce pollution inventories, can achieve substantial results through the use of much cheaper and simpler strategies. Extrapolating from the available evidence described above, it would seem likely that even something as simple as an on-line public register of prosecutions subject to modest procedural precautions (such as not publishing cases subject to appeal) would provide a positive incentive to improved environmental performance at minimal public cost.

Another positive example of informational regulation is provided by the PROPER PROKASIH in Indonesia. Under this program, priority polluters are required to negotiate (legally unenforceable) pollution control agreements with teams comprising public agencies, environment groups and regional development groups. Regulators rank the performance of individual facilities using surveys, a pollution database of team reports, and independent audits. An enterprise’s pollution ranking is readily understood by the public, being based on a colour coding (gold and green for the best performers, black blue and red for those not in compliance). The program has been very successful in improving the environmental performance of participating enterprises. A recent study which examines the program over time, suggests that community pressure and negative media attention, and increased likelihood of obtaining ISO 14000 certification, are the major stimuli for improved environmental performance.

Shaming takes place in a different form under various information regulation initiatives described earlier. For example, under the TRI, we saw how companies were required to calculate and disclose estimated emissions of specified hazardous substances. This information is then used by environmental groups and others to develop league tables and similar mechanisms which can then be publicised in order to shame the worst performers. Thus the Environmental Defence Fund (EDF) has developed a publicly accessible database called Scorecard, which is based on TRI data and provides information on pollutants and rankings of individual enterprises. There is no doubt that, notwithstanding methodological criticisms, such databases have succeeded in pressuring large chemical companies and others to address and in some cases, substantially improve, their environmental performance. The USA General Accounting Office estimates that “over half of all [TRI] reporting facilities have made one or more operational changes as a consequence of the inventory program” and EPA credits a 40% reduction in toxic chemical releases to the TRI.

Compliance and Enforcement

In this final section, we propose to highlight a number of important changes in the architecture of compliance and enforcement. First, contract law is replacing criminal law as the principal enforcement mechanism in a number of circumstances. Take the case of unilateral agreements, negotiated agreements and other voluntary codes. These programs are often criticised for the fact that they cannot be enforced by means of the traditional criminal law. Industry associations for
example, cannot fine their members or send them to jail, only the state has these powers, and only in the case when specific criminal laws have been proved to be breached. Even where the state is a party to a negotiated agreement, it lacks these powers although it may choose to return defaulters to the traditional regulatory system and its sanctions (as with the Dutch covenants) or introduce new regulation where voluntarism fails.

But the lack of criminal law powers is not the end of the enforcement story. On the contrary, contract law is becoming an important substitute enforcement tool, at least for those agreements which are contractually binding. For example, in 2000, a personal information protection program under a contract-based voluntary code was enforced through the courts in precisely this way. Similarly, in 2001, the Forest Stewardship Council (FSC), the central rule-making and rule-oversight body for a sustainable forestry certification program (www.fscoax.org), suspended the activities of a European-based FSC accredited certification body, again on the basis of breach of the contract which exists between the FSC and accredited certification bodies (and again between certification bodies and individual forestry operations). To give on further example, by mid 2001, the American Forest and Paper Association, which runs a unilateral program (ie industry self-regulation) had expelled a total of 16 industry members for failure to uphold the standards set by the program (www.afandpa.org/forestry/sfi/menu.html).

This is not to suggest that most voluntary codes and agreements are being effectively enforced by this mechanism. Indeed, the enforcement failings of voluntary approaches often remain serious. Some are not, in any event, contractually binding, and many lack formal mechanisms of monitoring and compliance assurance. But at the very least, contract offers an important alternative enforcement mechanism where the political will is there to use it. The effectiveness of contract may also depend on the extent to which there are identifiable motivations for contractors to take action to ensure compliance by contract partners with the terms of voluntary programs. For example, it has been suggested by Webb (2001) that “the likelihood of publicly disclosed enforcement actions for voluntary code programs will increase where the rule making and oversight body for that program has identifiable, well-represented interests which are different from the industry being regulated (albeit voluntarily regulated) and is distinct from the rule implementation body and indeed separate from the individual adherents”.

A second mechanism which is taking on increasing significance as a vehicle of informal social control is corporate shaming (Braithwaite 1989). This can take a variety of different forms, and can be targeted at either senior or middle management. For example in relation to nuclear regulation, and the Institute of Nuclear Power Operators, Rees describes how CEOs were required to attend an annual meeting at which the performance rankings of all members were disclosed. Those who consistently fell into the bottom group experienced considerable pressure from their fellow CEOs to improve their performance. Since there existed a “community of shared fate” and all CEOs were aware that they were “only as strong as their weakest link”, there was a considerable incentive to prevent free riding by this means (Rees 1994). Similarly in relation to Responsible Care, the various leadership groups designed to facilitate sharing of knowledge and experience, serve not only to bring members of different companies together for this purpose, but also to exert peer group pressure on poor performers (Rees 1997). Research in other areas also confirms “the importance of an individual’s reputation and of informal sanctioning as a means of private governance” (Furger 2000: 7).

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has developed a publicly accessible database called Scorecard, which is based on TRI data and provides information on pollutants and rankings of individual enterprises. There is no doubt that, notwithstanding methodological criticisms, such databases have succeeded in pressuring large chemical companies and others to address and in some cases, substantially improve, their environmental performance. The US General Accounting Office estimates that “over half of all TRI reporting facilities have made one or more operational changes as a consequence of the inventory program” (US General Accounting Office 1991) and EPA credits a 40% reduction in toxic chemical releases to the TRI (Outen 2000).

A third shift has been to structure policy in such a way that the market will provide the appropriate incentives and surrogate enforcement mechanisms rather than government regulatory agencies. As we have seen, most economic instruments seek to send appropriate market signals by taxes, charges, subsidies or shifting property rights, rather than prescribing particular means to obtain particular outcomes and enforcing this through policing and fines. While we have pointed out that such mechanisms are not self-enforcing, nevertheless they rely far less upon conventional regulatory monitoring and enforcement than on command and control. For example the entire USA acid rain program relies upon only a very small regulatory presence.

Another example of this shift towards reliance upon the market involves informational regulation. As we have seen, it is not only environmental groups and the general public which reacts to information about environmental performance, but also financial markets. There is evidence that markets respond to information such as TRI figures, by rewarding better environmental performers and punishing the worst, in terms of stock values (Hamilton 1995; Khanna et al 1998; and Konar and Cohen 1997). The precise motivation is not well understood, but it may well be that good environmental management is viewed as a useful indicator of good management generally, and that companies with a good environmental record, run a lesser risk of incurring substantial environmental liabilities, such as under Superfund legislation.

A fourth trend, most evident in regulatory flexibility initiatives and proposals for two track regulation, is to reward and facilitate large enterprises for going beyond compliance, by providing them with considerable autonomy and flexibility and other incentives but subject to certain safeguards. Rather than the state policing and enforcing directly, the latter involve attempts to “lock in” continuous improvement and cultural change by requiring ‘green track’ firms to implement an environmental management system, the use of third party independent auditors rather than government regulators to monitor that system and transparency and community dialogue requirements which facilitate community and environmental groups also playing a role both in critiquing and monitoring firm performance. Once again, there is evidence of a regulatory reconfiguration and a “de-centering” of the regulatory state.

Fifth, there is a broader trend towards harnessing a range of second and third parties as surrogate compliance agents. The role of second parties, such as industry associations and their involvement in co-regulation and industry self-management, is examined in our case studies of ozone depletion and the mining sector. The potential role of third parties, from financial institutions to environmental and other pressure groups, is illustrated by some of the examples we have given in the preceding paragraphs. However, the participation of third parties, particularly commercial third parties, in the regulatory process is unlikely to arise spontaneously, except in a very limited range of circumstances where public and private interests substantially coincide (Gunningham and Rees 1997). There remains, therefore, a significant role for government in facilitating, catalysing and commandeering the participation of second and third parties to the cause of environmental improvement.
Our broader point, which we have made in our previous writing, is that by expanding the regulatory “tool box” to encompass additional players, some of the most serious shortcomings of traditional approaches to compliance can and are being overcome (Gunningham and Grabosky 1998) Third parties are sometimes more potent than government regulators (the threat of a bank to foreclose a loan to a firm with low levels of liquidity is likely to have a far greater impact than any existing government instrument). They are also often perceived as more legitimate (farmers are far more accepting of commercial imperatives to reduce chemical use than they are of any government mandated requirements). In any event, government resources are necessarily limited, particularly in an era of fiscal constraint. Accordingly, it makes sense for government to reserve its resources for situations where there is no viable alternative but direct regulation. Indeed, the large majority of the next generation strategies examined above, facilitate this objective.

**Regulatory Reform: The Never Ending Journey**

While each of the perspectives described in previous sections provides insights concerning how best to approach the task of regulatory reconfiguration, none provides unproblematic or comprehensive answers as to what next generation environmental regulation should involve. Nevertheless, both the commonalities and the differences between these perspectives provide insights as to how best to approach the journey ahead:

- returning to the policies of the past, is not an option. Traditional regulation is not suited to meet many contemporary policy needs (although as we emphasise below, it still has a role to play). In effect, the increased complexity, dynamism, diversity, and interdependence of contemporary society makes old policy technologies and patterns of governance obsolete;

- regulated enterprises have a diversity of motivations and it cannot be assumed (as in some versions of command and control regulation) that deterrence is the principal weapon available to regulators and policy makers. Other motivational drivers are equally important. These include the effects of negative publicity, informal sanctions and shaming, incentives provided by various third parties, the significance for private enterprise of maintaining legitimacy, and the necessity to maintain co-operation and trust;

- each of the frameworks we have examined has something valuable to offer and none of them is “right” or “wrong” in the abstract. Rather, they make differing contributions depending upon the nature and context of the environmental policy issue to be addressed. We provide many examples of why different policies work in different circumstances Indeed, the dichotomy between small and medium sized enterprises and large companies, which formed the basis for the structure of the report, is one illustration of this;

- none of the policy instruments or perspectives we have examined work well in relation to all sectors, contexts or enterprise types. Each has weaknesses as well as strengths, and none can be applied as an effective stand alone approach across the environmental spectrum. This suggests the value of designing complementary combinations of instruments, compensating for the weaknesses of each, with the strengths of others, whilst avoiding combinations of instruments deemed to be counterproductive or at least duplicative;

- from this perspective, no particular instrument or approach is privileged. Rather, the goal is to accomplish substantive compliance with regulatory goals by any viable means using whatever regulatory or quasi-regulatory tools might be available, including any or all of the next generation instruments described in preceding chapters. As on commentator points out: “the objective is to steer corporate conduct towards public policy objectives in the most effective and efficient way, without interfering too greatly with corporate autonomy and profit, rather than fruitless expenditure of government and business resources on traditional styles of regulation that ignore the effects of indigenous regulatory orderings”;

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• much of our knowledge about policy instruments and in particular about what works and when,
is tentative, contingent and uncertain. This suggests the virtue of adaptive learning, and for
treating policies as experiments from which we can learn and which in turn can help shape the
next generation of instruments. From this perspective, it is important to ask: “how may
mechanisms that promote policy-learning …be strengthened? To what extent do policy-making
institutions provide mechanisms for learning from experience and altering behavior based on
that experience?”;

• in particular, adaptive learning is heavily dependent on the depth and accuracy of an agency’s
statistical database and other information sources. Only with adequate data collection and
interpretation, can one know how effective or otherwise a particular regulatory strategy has
been. There will be a need to establish databases which provide more accurate profiles of
individual enterprises, hazards and industries. Environmental Information Systems have the
potential to play a key role here; and

• it is only the state which can impose criminal sanctions and the full weight of the law, and only
the state which, under statute, may have power of entry into private property to inspect, take
samples and gather evidence of illegality more generally. While there may be some
circumstances where far more can be achieved by various other forms of state and non-state
action, this is certainly not the case across the board. As the USA EPA has recognised: “in
some cases, nationwide laws and regulations will continue to be the best way to reduce risk.
But in others, tailored strategies that involve market based approaches, partnerships, or
performance incentives may offer better results at lower costs”. Many less interventionist
strategies are far more likely to succeed if they are underpinned by direct regulation.

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1 This paper is drawn from material shortly to be published in Gunningham N and Sinclair D Leaders and Laggards: Next Generation Environmental Regulation, Greenleaf Press, UK, 2002. The author gratefully acknowledges the contribution of Darren Sinclair who substantially conducted the case studies used in the book and referred to in this paper.