

Innovating Environmental Compliance Assurance

Edited by
Martin de Bree & Henk Ruessink



Human Environment and Transport
Inspectorate
*Ministry of Infrastructure and the
Environment*



**INNOVATING
ENVIRONMENTAL
COMPLIANCE
ASSURANCE**

INNOVATING ENVIRONMENTAL COMPLIANCE ASSURANCE

Novel insights and approaches from social sciences

Edited by

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More and more government agencies are responding to the challenges of regulatory compliance through a suite of approaches intended to increase legal conformity and thus ensure that health and environmental benefits envisioned in regulations and permits are actually achieved. New technologies, data systems, and social innovations could offer unprecedented opportunities to design better rules and permits that drive compliance with environmental laws, thereby increasing environmental and human health benefits.

Through a series of conferences the participating organizations examine methods of improving environmental performance through the use of next generation tools including advanced monitoring, remote sensing, information analysis and disclosure, management systems and behavioral motivations and apply lessons learned to the practice of environmental compliance. These initiatives are a cooperative effort of the International Network for Environmental Compliance and Enforcement, the U.S. Environmental Protection Agency, the Netherlands Human Environment and Transport Inspectorate, The George Washington University Law School, Erasmus University, the Environmental Law Institute, and others. Information about the series is available at <http://inece.org/topics/next-gen-compliance/>.

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These proceedings include papers prepared by speakers and authors participating in Part 2 of the series of conference be held in Rotterdam, Netherlands on April 21 and 22, 2015.

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INTRODUCTION

Henk Ruessink and Martin de Bree

Regulatory approaches to environmental challenges need effective compliance mechanisms in order to be successful. Laws and regulations, however smartly and eloquently they may be drafted, will not bring results if the regulatees fail to comply with them. Such failure, which is negative for the environmental outcome, may have several reasons.

For instance, the regulatee, despite a willingness to comply, may be unaware of a particular regulation through insufficient communication from the side of the regulator. Also it could be that the regulation is complex and/or ill-written and hence hard to comprehend by a regulated entity. Furthermore, if the technical or organizational measures to be implemented to achieve compliance are substantial and expensive, compliance with the regulation may be hampered.

On the other hand, some regulatees would gamble a bit and try to save some time, money and effort by complying late, incompletely, or not at all. They will generally move towards compliance once authorities have found out about their behavior and have taken appropriate persuasive steps.

At the extreme end of the compliance spectrum, one will often find a hard-core group of regulatees that will do everything but comply. Non-compliance and ignorance of the rule of law seems to be the norm in that group, sometimes even to a degree that one may speak of a criminal attitude.

In all such situations of detected non-compliance, the competent authorities must prepare and put in place appropriate interventions in order to restore, promote and assure compliance with the pertinent regulations. In this perspective, interventions can be seen as a response of the authority to stimulate compliance with regulations. It goes without saying that for an effective result, these responses must be specific, proportional, clear and professional.

The ultimate goal of any intervention is to bring back a situation of non-compliance to one of compliance and to stimulate that infringements are prevented in the future. The approaches chosen to achieve this are sometimes of formal or legal nature (legal orders, fines, sanctions), but may also be of another character (communication, information exchange). Whatever intervention is selected for the specific situation, it is crucial to make use of the latest insights and possibilities, in order to ensure it is up-to-date and fit-for-purpose.

Consequently, without devaluating or ignoring any of the traditional command-and-control mechanisms towards compliance, and admitting that such approaches are still needed in many cases, also more innovative ways for achieving and assuring compliance should be explored and implemented where feasible. Similarly, a search for new approaches is relevant for monitoring and detection of (non-)compliance.

Methods and approaches for interventions that were considered to be adequate yesterday, are potentially less so today, and likely to be inadequate tomorrow. This is an obvious consequence of the intrinsic dynamics of societies, the development and application of science and technology being one. Regulatory authorities will be confronted with such developments since regulatees will explore technological innovations to their benefit, not only within the margins of profitable legal operations, but unfortunately also in terms of scope for illicit activities. For example, with the strong growth in E-commerce, some entrepreneurs use the internet for their trade in illegal, environmentally harmful products. Examples of this have been encountered for PMPM [pesticides, protected species...]. But also in the area of emission trading (ETS), there have been cases of substantial fraudulent activity. Regulatory authorities have to be conscious about such developments, and must design approaches that help them to intervene effectively.

At the same time, the competent authorities also can and should take advantage of the opportunities which are offered by scientific and technological developments to improve the quality of their work. The vast progress of ICT leads to unprecedented possibilities to disseminate and collect information, and to be in touch with the regulated community. Also, the daily work of inspectors in the field clearly benefits from technology. For example, during inspections information can be retrieved from and fed into information systems online and on the spot. Combined with sophisticated remote and nearby observation and detection technology, authorities (and regulatees) are nowadays in a position to monitor and detect environmental impact, sometimes in real time.¹ E-reporting is becoming more and more the standard by which regulated entities report their emissions to authorities and other stakeholders. Another example can be found in the application of computer-based sophisticated decision support tools in defining the most effective type of intervention for non-compliance situations, while taking into account the specific circumstances of such cases.²

In addition to these important innovations in the area of technical hardware and software, also social and behavioral sciences are offering new insights, possibilities and methods that may assist in drafting improved approaches towards environmental compliance. Drivers, mechanisms and incentives that stimulate compliance of organizations and individuals are better understood and can be used to develop more effective governance schemes and arrangements.

Whereas in traditional settings it is the regulator that more or less unilaterally sets and enforces the rules that the regulatees, willingly or unwillingly, have to obey, more balanced arrangements are also developing. Businesses more and more take another attitude to compliance by recognizing the intrinsic value of operating in conformity with the rules in a pro-active sense. Their incentives for improved voluntary compliance vary, but are mostly

¹ Special Report on Next Generation Compliance, INECE, 2015: <http://inece.org/resource/next-gen-report/>

² Choosing Appropriate Interventions, Duncan Giddens;
http://www.inece.org/nextgen/16_AppropriateInterventions.pdf

based on aspects like risk management, financial liability, corporate social responsibility, ethical standards and public profile. Companies that operate in conflict with accepted norms and standards are currently more often confronted with stakeholders that are not satisfied with such performance. Again, the rapid development of modern technology and communication, like social media, is an important factor. It brings bad environmental performance into the limelight much more easily and quickly, and for a bigger audience than before.

Complementary to this, a company's competitive position may benefit from a pro-active approach to rule conformity. In the first place, such entrepreneurs may be regarded as more responsible and attractive employers for existing and future staff, and for communities where they operate. Also financial actors like investors and insurance companies see advantages in doing business with companies that give proof of a responsible attitude towards the obligation to comply. Thirdly, as the Porter hypothesis indicates, (compliance with) well-designed stricter regulation leads to innovations, which ultimately will result in lower compliance costs and competitive economic advantages for the entrepreneurs in question.³

An interactive learning process in which these societal developments and understandings from social and behavioral research are taken into account can be of great help in drafting innovating visions on modern approaches and arrangements for effective environmental policies and their implementation. However, this will only work if the expertise and experiences of professionals in the areas of compliance monitoring and compliance assurance are actively incorporated in the design, introduction and evaluation of the new environmental governance settings.

For that reason, INECE and its partners took the initiative for a series of activities to bring together international practitioners of environmental compliance and enforcement and experts in relevant disciplines from academia. The goal of this Next Generation Compliance and Enforcement events was to harvest an international collection of novel approaches to implementation challenges of environmental policies and regulations.

Thus far the following projects have been accomplished:

An INECE Special Report on Next Generation Compliance, edited in 2015 by Gunnar Baldwin, Kenneth Markowitz, Meredith Koparova, Jo Gerardu and Durwood Zaelke

The 2015 J.B. and Maurice C. Shapiro Environmental Law Symposium on the theme of Advanced Monitoring, Remote Sensing, and Data Gathering, Analysis and Disclosure in Compliance and Enforcement was held at George Washington University School of Law in Washington, D.C., on 26-27 March 2015.

An international conference held on 21-22 April 2015 at the Erasmus University in Rotterdam, Netherlands which examined behavioral and social aspects of next generation compliance.

³ <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-11-01.pdf>

The Asian Environmental Compliance and Enforcement Network (AECEN) has conducted a regional conference on “Next Generation Compliance in Asia” in Bangkok, Thailand, on 21 – 23 September 2015.

This publication is a collection of papers of the Rotterdam Next Gen Conference. The main focus of this conference was on novel insights and approaches from social sciences.

The conference was sponsored by the Human Environment and Transport Inspectorate, the Netherlands and Rotterdam School of Management, Erasmus University Rotterdam and organized in collaboration with George Washington University Law School Environment and Energy Law Program, US Environmental Protection Agency, VIDE, the International Network for Environmental Compliance and Enforcement INECE. The conference was held at the Erasmus University Rotterdam. The conference program is attached as Appendix 1.

Acknowledgements

We owe thanks to all the people involved in organizing the conference. Special thanks go to Campbell Gemmel who chaired the event with great professionalism, in-depth knowledge and overview. The wise and enlightening contributions of Annetje Ottow, Lee Paddock and Michael Faure as keynote speakers, are much appreciated. We also appreciate the efforts of Chris Dijkens, Niek Hoogervorst, Karin van Wingerde, Sharon Oded and Grant Pink for moderating the parallel workshops. Thanks as well to Ko de Ridder for the kind collaboration with VIDE. We are very grateful to Jo Gerardu for helping us with the production of this book and to Ben Wempe for his advices during the preparation of the conference.

Chapter 1: REVIEWING THE VALUE OF MANDATORY CERTIFICATION AND TESTING ARRANGEMENTS FOR SAFETY AND HEALTH

Gerard Zwetsloot¹ and Linda Drupsteen²

ABSTRACT

For a series of activities, there are in the Netherlands specific requirements for mandatory occupational safety and health (OSH) certification of people, products or services.

To reduce problems with the present arrangements - for the involved ministry as well as for the stakeholders - exploratory research was carried out to clarify the added values of these mandatory arrangements, and to identify options to make the system leaner and more flexible without compromising the level of protection. The analyses are mainly based on a series of interviews of representatives of the various stakeholders.

Most stakeholders value the mandatory status of the regimes; this is especially the case for the governing foundations that represent a variety of stakeholders. The stakeholders do not see many benefits in the option to make the arrangement voluntary. The option of a central register as an alternative for mandatory certification raises most questions. Stakeholders find it difficult to express conclusions as long as it is unclear how such a register would be organized and managed. A few examples were identified to simplify the current arrangement by using related guiding documents. Such constructions have the potential to reduce unnecessary detailed mandatory requirements, but ensuring the level of OSH.

Finally, four success factors for managing change in the certification regime were identified: strengthening participation of stakeholders; better communication; harmonization and greater clarity; and maintenance of high but practical OSH standards.

Keywords: Mandatory certification, Voluntary certification, Central Register, Compliance, Occupational Safety and Health

INTRODUCTION

The legislation on Safety and health at Work in the European Union is based on the Framework Directive 89/391; in the Netherlands this is translated into the Dutch Working conditions Act. The employers have to take care of occupational safety and health, assess and

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control the risks, make sure that their employees are knowledgably about the relevant risks, etc.

For a series of activities, there are complementary requirements for mandatory certification; these concern the competencies of people in high risk jobs (e.g. people working with explosives), the quality and reliability of specific means or tools (e.g. tower cranes), the management of risk control in specific areas (e.g. asbestos removal), or the quality of occupational health and safety services.

In the period 2009-2012 the Ministry of Social Affairs and Employment renewed the nature of these obligations, with three purposes: (1) to get more guarantees that the certification systems work adequately, (2) to make more use of private (market) initiatives and structures around certification and testing, and (3) to be able to reduce their efforts and capacities in this area, limiting their activities to ‘having the directors role’ for these certification and testing arrangements (leaving control and correction to the market).

The newly implemented structure, however, leads to several unexpected effects. The Ministry is depending significantly on actors they have no control over; some of these agents turn out to miss some of the required competences. The arrangements have become quite complex and there is a threat of more bureaucracy. The relationship of the Ministry with the Certification and Testing Bodies, which is mainly of an informal nature, has worsened, while the expected improvements in practices are not (yet?) noticed. As a result there is a need for reviewing the (recent) arrangements and especially for simplifying and smoothening the mandatory arrangements, or replacing them by arrangements with a higher degree of self-regulation.

Against this background, the Dutch Organization for Applied Scientific Research (TNO) carries out an exploratory research project to assess the current value of mandatory certification and to identify possible alternatives that may reduce the current complexity. A previous assessment of the certification regimes was performed in 2011, by Zwetsloot, Zwanikken and Hale, and described in two research papers (Zwetsloot et al, 2011a; Zwetsloot et al 2011b). The main aims of the previous assessments were to create a better understanding of the certification and testing regimes and problems for risk control that could rise within these mandatory regimes (Zwetsloot et al 2011a), and to study the influence of market mechanisms on the performance of the certification regimes (Zwetsloot et al. 2011b). Their studies showed serious limitations in the working of testing and audit processes, which is a key step in certification and testing regimes (2011a) and the importance and pitfalls of the ‘self-correcting or learning capabilities’ of the certification and testing arrangements. They also demonstrated the complexity of the certification regimes and some differences between mandatory and voluntary certification: “*The markets created through mandatory arrangements are almost by definition somewhat artificial.....it can happen that the economic value of ‘having the certificate’ is greater than that of better OSH performance..... If the value of the OSH performance that should be associated with having the certificates is not recognized by the customers of the certificate holders, other market interests may dominate (Zwetsloot et al 2011a, p1012)*”.

The current project reviews the renewed certification arrangements, by performing interviews with various stakeholders. This project builds on the findings from the assessment in 2011, since this study specifically explores the added value of mandatory certification and the alternatives for mandatory certification and their potential consequences.

This paper presents the findings from the interviews and discusses directions for future actions in practice and for research. Specifically this paper describes findings in relation to the following questions:

What are the advantages and disadvantages of mandatory certification?

What are options for simplification of the current certification regime?

What are the main issues in processes of change of the current regime?

BACKGROUND OF THE CERTIFICATION AND TESTING REGIME

Policies for mandatory OSH certification are being used in the Netherlands for over a decade (Heijink and Warmerdam, 2004; Zwetsloot et al 2011a). Besides mandatory certification it is also a policy option to make use of private certification or to encourage it (EZ, 2003), which in this study is considered as one of the possible alternatives. As Zwetsloot et al explained (2011a) “The general aims of the government in this respect are to stimulate compliance and to avoid unacceptable risk, while reducing the ‘legislative burden’ for the business community”. The aim of reducing the legislative burden has even become more important in the past few years. The Dutch government, and many other governments, continue following a strategy towards self-regulation of the market, and therefore of less direction and control from the government. Therefore, it is clear why the Ministry of Social Affairs and Employment is interested in an evaluation of the current certification regimes and the possibilities for simplification. Although the Ministry of Social Affairs and Employment is the main stakeholder that raised questions about the current certification regime, this study mainly explores the viewpoints of other stakeholders in the arrangement. This paper mainly builds on interviews with the Dutch Accreditation council, Governing Foundations³ of several specific fields and the Dutch Labor Inspection. The following section explains the main roles of these stakeholders within the Dutch certification regime, starting with the certification bodies. The regime itself, and thus the involvement and functioning of the stakeholders, is a responsibility of the Ministry of Social affairs.

Certification and Testing bodies or conformity assessment bodies assess whether products, services or competencies from suppliers meet the specified requirements (RvA, 2015). In the event of a positive assessment, the supplier is issued with a statement of conformity, in the form of a certificate or report. The certification bodies are the stakeholders that hand out

³ These are foundations which govern specific schemes for certification for e.g. asbestos removal and heavy lifting; A variety of key stakeholders is involved in each of these foundations.

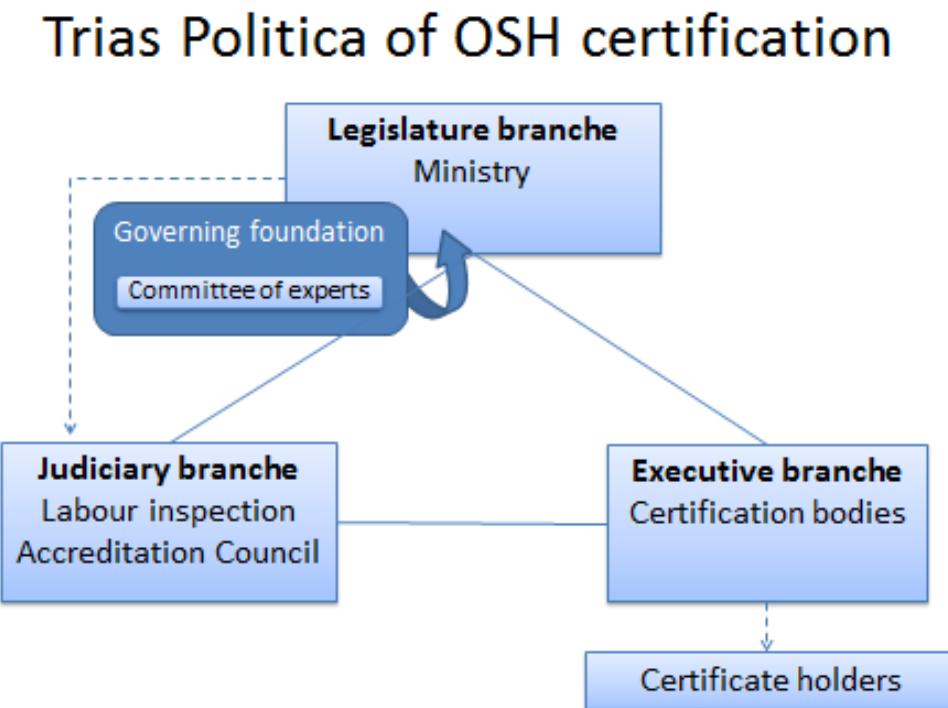
certificates to users, clients. If necessary they are also the stakeholder to reject the certificate or to suspend certificate holders.

As stated on the website of the Dutch Accreditation council “It is important that the certification bodies are experts in their field, are impartial and independent, so that the certificates they issue are useful and reliable” (RvA, 2015). In the present arrangement in the Netherlands the Labor inspectorate and the accreditation council both have tasks to evaluate the certification bodies to make sure they are qualified. The labor inspectorate inspects also the workplaces of the certificate holders (the clients of the certifying bodies). The accreditation council’s primary task is to accredit and renew the accreditations of certification bodies (i.e. to evaluate whether they comply with the international accreditation standards e.g. ISO 2011 and 2012), but in the existing arrangement for mandatory certification in OSH they have the task to evaluate compliance with a number of legal requirements and a selection of requirements from the accreditation standards. Whereas the certification bodies check certificate holders, the accreditation council checks the certification bodies.

The certification bodies and the accreditation council use sets of requirements for their assessments. As Zwetsloot et al (2011a) stated: “The basis for any certification arrangement (as well as for legislation) is a set of requirements (rules, performance criteria, procedures) that the product, individual or organization has to comply with”. The accreditation council uses such a set of requirements to assess the certification bodies, and the certifying bodies use a set to assess certificate holders. The requirements for the potential certificate holders are developed by the governing foundations for the respective sectors. The governing foundations are private foundations wherein - in principle - all stakeholders within a sector participate voluntarily. If certification bodies or certificate holders have any questions or suggestions for changes in the certification regime, the governing foundation is their point of contact. Each governing foundation comprises a Central Committee of Experts: representing, where possible, all stakeholders with a significant role to play as designers, makers, users and clients of the certifiable element. The quality of their decision-making is vital for the quality of the set of requirements and for the CTR, though in case of mandatory certification, the government checks the requirements before they get a mandatory status” (Zwetsloot, Hale and Zwanikken 2011). When changes are necessary or desirable the governing foundations propose them to the ministry for approval. The Ministry in their turn ensures that the labor inspectorate evaluates their impact on OSH and the accreditation council evaluates the objectivity and measurability of the requirements.

The certification arrangement can be understood as a form of ‘*trias politica*’ wherein the legislature, judiciary and executive powers are to a great extend separated. The Ministry and the governing foundation jointly form the legislature powers, the accreditation council and the labor inspection form the judiciary or ‘controlling’ agencies, while the Certification and Testing bodies form the executive power in the certification arrangements. The main stakeholders in the Dutch certification regime and their relationships are illustrated in figure 1.

Figure 1: overview of stakeholders in the Dutch certification regime according to the Trias Politica principle



METHODS

This study is an exploratory study as part of an assignment by the Dutch Ministry of Social Affairs and Employment. It explores the viewpoints of stakeholders in the current mandatory OSH certification regime, and specifically their ideas and opinions about future developments of the regime and changes that are likely to take place in the (near) future. To do so, eleven semi-structured interviews were held with representatives of the governing foundations, the Labor inspection, the Dutch accreditation council and the Dutch Ministry of Social Affairs and Employment. The reports of the interviews were member checked by the interviewees, and analyzed to answer the research questions.

RESULTS

The following sections present the findings from the interviews, structured by the main research questions. For each research question, the findings from the interviews are listed separately for the governing foundations and for the controlling stakeholders: the accreditation council and the labor inspectorate. The first section elaborates on the advantages and disadvantages of mandatory versus voluntary certification, whereas the second subsection explores several other alternatives for mandatory certification.

The value of the mandatory or voluntary status of OSH certification

Although the interviews considered both advantages and disadvantages of the mandatory status of certification, the results show that the people from the governing foundations experience mainly advantages of the legal status. The main argument for mandatory certification according to the foundations is that it provides a warranty for the quality and status of services and products. If a certificate would lose its mandatory value, they expect it to be less valued and therefore guaranteeing certain levels of quality would be more difficult. It would be likely that part of the target group would then choose to work without the certificate, as not everybody is convinced that the benefits of the certificate outweigh the costs of the certification process. Most interviewees fear that in the long run the quality would decrease if the certificates are no longer embedded in a regulatory framework, especially where there is a strong competition, or when the interests of stakeholders are conflicting.

There are often discussions among stakeholders about the requirements and whether they should be adapted. For the governing foundations it is important that they can fall back on the legal status in such discussions. In addition, they feel that the legal status of the certificate is important for the societal added value, because people should trust the quality of a certified product, company, or person. In the interviews with the representatives of the governing foundations no disadvantages were mentioned of the current mandatory status of those certification regimes. Thought there is certainly criticism about the functioning of the existing arrangements those interviewees prefer to keep the mandatory status.

The interviews with the controlling stakeholders (the Dutch Accreditation Council and the Labor Inspectorate) present a somewhat different viewpoint. While the interviewees from the governing foundations were generally focused on improving the existing arrangement they were involved in, the representatives of the accreditation council and labor inspection, overseeing several arrangements, had a broader vision including opinions on alternative arrangements. The representatives of the accreditation council regarded mandatory and voluntary certification as not principally different: voluntary certification is often also mandatory, not because of its legal status, but as a prerequisite for being active in the market, due to requirements from customers. The interviewees of these controlling agencies do underline that mandatory certification arrangements give more assurances, as a result of the supervision of the labor inspection on the certifying bodies, and also by stronger feedback mechanisms between observations by certificate holders by the certification bodies and the labor inspectorate. These feedback mechanisms contribute to the self-correcting capabilities of the certification arrangements.

All stakeholders fear negative forms of competition, i.e. competition on the price of a certificate and on the price of products or services from certificate holders, if the mandatory status of certification is abolished. They also acknowledge that voluntary certification can be used to give the certificate holders a competitive advantage, but are not sure this will be feasible in their sectors. The controlling stakeholders emphasize that mandatory certificates

can also generate a competitive advantage: the mandatory status forms a hurdle for moonlighters to become active in their sector. It is remarkable that a certificate, whether mandatory or not, can be regarded as mainly creating added value and generating quality, or as dominantly a cost factor. The main advantage of certification (either mandatory or voluntary) according to the interviewees from controlling stakeholders is that it provides ‘justified confidence’ that a person, product or company meets the relevant requirements and is fit for its purpose. This aspect is relevant for all stakeholders within the certification regime, including clients hiring a certificate holder. The latter group, the clients, is often not able to assess the quality of the product, person or company themselves and therefore have to rely on the certificate.

The interviews with the accreditation council and the inspectorate also clarified some advantages of societal supervision and enforcement. The mandatory certification regime clearly reduces the workload for the inspectorate. When a company, product or person is already certified, this means they comply with certain requirements. For the inspectorate this means that they do not have to assess those aspects, and can focus on other aspects that are not accounted for in the certification regime, such as safe behavior. This also implies that if the certificate would no longer exist, or lose its mandatory status, the workload of the inspectorate would increase.

Are central registers an alternative for the current certification regime?

For the Ministry of Social Affairs and Employment it is important that alternatives for the current mandatory certification regimes are explored. In the interviews the stakeholders were asked for their suggestions. Specifically it was the aim to find possibilities to abolish the legal status, and to introduce mandatory central registers for those that are now certification holders as an alternative for a certification regime.

An example of a successful Dutch professional register is that of healthcare professionals. On behalf of the Ministry of Health, Welfare and Sport, they maintain a register of over 350,000 healthcare professionals, such as doctors, physiotherapists and nurses. To be added to the mandatory register caretakers must meet a number of quality requirements. As a result, this register provides clarity and certainty regarding the care provider’s qualifications and entitlement to practice. In this example the register is strongly supported by the professional groups involved; the professional groups have an important say in the requirements to be included in the register. In addition there is a clear control structure and set of professional disciplinary rules with severe potential consequences if the criteria are not met (such as suspension and exoneration from the profession).

In the past the certification and testing regimes, e.g. of vessels under pressure, were often governmental monopolies; in these days the governmental agency also managed a central register wherein all the items that required a certificate, were registered, including the status of their certificate. The private certification and testing bodies also stem from the practice of

e.g. testing ships, and including those that met the requirement in a register. That is why Certification and Testing Bodies are also called ‘registrars’. However, since the governmental monopolies were replaced by semi-public activities of private certification and testing bodies, such central registers are exceptional.

In the case of some mandatory arrangements in OSH in the Netherlands, such central registers exist also nowadays, e.g. for the certified fire work professionals and the certified safety experts. However, these central registers are now exceptional, and for the safety experts there is also an alternative register with a broader set of safety experts in the Netherlands.

For the interviewees it is presently unclear what the implications are if the current regime would be replaced by a register. What would be the criteria to be accepted in the register? Who would set these criteria and keep them up to date? Would periodic tests be required? Is there a possibility of sanctions in case of unprofessional behavior? Would it also be possible to be eliminated from the register? Who would do this? The central issue seems to be that it is unclear who would have the director’s role regarding the register and who ensures that a high OSH standard is maintained.

Currently, there are several control loops, both for the criteria that should be met to receive a certificate (the governing foundation defines them, the accreditation council and inspectorate have to approve them), and for issuing the certificates (certification bodies issue them, but they are periodically evaluated by the accreditation council, supervised by the labor inspection, while the labor inspection also can communicate serious non-compliances at workplace level to the certification bodies.). The interviewees from the governing foundations consider especially guaranteeing the quality of personal expertise through a register to be quite difficult. A register should only accept the persons with a certain level of skills and expertise, but without the legal status and the associated control loops, proposals to lower the criteria will certainly enter the discussion. That is illustrated by the present situation with two registers for safety experts.

The controlling stakeholders also expect that the certification bodies are reluctant to a central registration of certificates. If information on the expiration date of certificates will be public, this allows certification bodies to check on the certificates issued by other bodies, and to compete for the renewal of the certificate. That is not in the interest of the leading certification bodies in the respective markets.

Options to simplify the certification regimes

Besides the register, other options for simplification of the regime exist. The interviews with governing foundations showed two examples from current practice that may help to create more flexibility within the current regime.

The first example comes from the governing foundation for asbestos-related certification. They make use of specific guidelines that provide more detailed information for specific tasks and risks. The format of the documents is agreed on by the Ministry, and within this agreed

form, the documents describe the currently existing techniques, but do not have a legal status. By writing these documents, all stakeholders share the same information and there is common understanding about the tasks or risks that are described. Because the documents are additional to the regime and have no legal status, their contents can be easier and faster adjusted. Within the regime reference is made to the documents, but not to its details.

A similar example is given by the governing foundation for equipment under pressure. Within this sector the stakeholders jointly developed a set of practical guidelines on how to handle pressured vessels. These guidelines take into account the best available techniques and approaches.

Although both examples do not provide an alternative for the current certification regime, they show that the regime can be simplified. These examples imply that the level of detail within the certification requirements may be reduced if additional guidelines are developed. Such guidelines are easier to update.

Success factors for managing change in the certification regime

The main aim of this study was to explore what options there are to improve the clarity and flexibility of the current mandatory OSH certification regime. Regardless of what adaptation is chosen - whether it is a replacement by a register or voluntary regime, an adaptation of the level of detail or something else - several issues should be taken into account for the implementation. This section lists some issues that were raised in the interviews. These issues that are divided into four categories: strengthening participation of stakeholders; better communication; harmonization and greater clarity; and maintenance of high but practical OSH standards.

Strengthening the participation of stakeholders

The first category, strengthening participation of stakeholders, refers to the desire of stakeholders, especially those organized in the governing foundations, for more active involvement in the development of a new regime. In the past they were confronted with new arrangements, and had to make a lot of efforts to find their new roles. For future changes in the certification arrangements they would like to be more proactively involved, earlier in the process of development. Several interviewees from the foundations emphasized that the arrangements have to be practical, and that they are the key to practical knowledge and acceptance by the stakeholders they organize. Another issue is that while worker representatives have an important role to play in the development of OSH policies both at the national and company level, the employees are often not well represented in the central committees of experts, and thus in the development of requirements and in discussions about the regime. Greater involvement of worker representatives could strengthen the assurance of the added value for OSH.

Better communication

Tightly related to the issue of participation is better communication. This was mainly mentioned by those ‘at the end of the policy pipeline’ the governing foundations. Some of the interviewees feel that they are informed too late and too little when change of the arrangements is considered. They would like to receive more information on potential future developments, and especially on the consequences for the governing foundations and the stakeholders they represent. They also hope the Ministry of Social Affairs will listen to the needs and suggestions from the practitioners, to avoid arrangements that are too theoretical or require too much paper work.

Harmonization and clarity

Different terminologies are used in the existing legislation in the various work fields, and sometimes even within a specific area. The involvement of stakeholders, the types of documents referred to, the terms of validity and renewal may differ from certificate to certificate. Moreover the processes for changing the requirements or the time needed for the evaluation of proposals and certification bodies are not standardized.

All in all, most interviewees acknowledge a lack of harmonization between the specific arrangements. This may easily lead to confusion. Although 100 % standardization may be difficult achieve, greater harmonization of the various work fields would certainly be possible. With respect to the requirements for certification this will not be easy to achieve, since the responsibility for each work field is decentralized (individual governing foundations) and thus difficult to harmonize.

More specific than the cry for harmonization in terminology is the need for clear requirements. In some work fields there are now vague requirements that can be interpreted in several ways, and thus have limited value for sustaining a certain quality standard. However, requirements that are too specific are also an issue. If requirements are too detailed this limits the possibility to adjust to new developments. This is for instance and issue with technical requirements, if they rule out the possibility to work with newer and better technology. Too detailed requirements may also stimulate the proliferation of specific standards where more generic standards would be preferable.

Maintaining high but practical OSH standards

Ensuring high OSH quality - ties together the three other categories. Stronger participation, better communication and more harmonization and clarity are expected to contribute to an improved regime. The aim of the certification regimes is to ensure OSH related competences, products and services. However, in practice the attention seems sometimes to shift from this aim (ensuring OSH) to compliance and testability. When revising the certification regime, the

practical relevance of the requirements and processes should be kept in mind by all stakeholders.

DISCUSSION AND CONCLUSIONS

The stakeholders involved in the mandatory certification arrangements prefer to maintain the legal status of these arrangements, even though there are problems with the functioning with the existing arrangements.

The stakeholders are in principle not against simplification or greater flexibility in the arrangements; all stakeholders acknowledge that the problems in the functioning of the existing arrangements require such a development. For the ministry of Social Affairs and Employment this means they strive to greater self-regulation and perhaps replacing the mandatory certification arrangement with more voluntary arrangements. Most other stakeholders, however, want to maintain the legal status of the arrangement, and are emphasizing the importance of strengthening the participation of stakeholders, better communication, more harmonization and clarity, while maintaining high OSH standards, and ensuring the practical value.

Given the great variety of stakeholders and interests involved, and the fact that for the OSH quality often ‘the quality as well as the devil is in the detail’ there is no simple generic solution to improve the mandatory certification and testing arrangements.

The various work fields with the associated stakeholder groups, often in sectors where self-regulation capacities are not very well developed, will require specific attention and tailor made processes and solutions, also to gain greater acceptance in the respective communities of practice. These processes will require dedicated efforts of all stakeholders involved. It will be a challenge to simultaneously achieve more harmonization and achieve the political goal of more self-regulation.

A limitation of the research is that we interviewed only the existing stakeholders. All interviewees are part of the current regime and were involved in its bringing about. To identify useful and practical alternatives for the mandatory certification arrangements it seems useful to consider additional interviews with representatives of certification and registration arrangement outside the safety and health area.

The main aim of the certification and testing arrangements is to sustain and improve high but practical standards in OSH, through assuring competences of people and quality of services and products. It is important to keep in mind that mandatory and voluntary certification provides a means, and is not a goal in itself.

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Chapter 2: ASSESSING CLIMATE CHANGE MRV INITIATIVES IN LATIN AMERICA:

BRIDGING THEORY AND PRACTICE

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ABSTRACT

Processes concerning Measurement, Reporting and Verification (MRV) of greenhouse gas (GHG) mitigation are being implemented in different manners across Latin America. This paper aims at canvassing how countries are implementing different mitigation actions and climate change regulations in practice. In order to build capacity for MRV of nationally appropriate mitigation actions (NAMAs), the following aspects are regarded as critical: connection between CC MRV and monitoring in the regulatory setting; verification processes that reflect absolute measures (tonnes of carbon) of progress toward a global climate mitigation goal and civil society engagement, in particular, voluntary CC projects and compliance monitoring in the regulatory mandatory setting. In the analysis two different strategies are critically examined: Coffee NAMA (Costa Rica) and Cable Car Medellin (Colombia).

Keywords: Measurement, Reporting and Verification (MRV); nationally appropriate mitigation actions (NAMAs); climate change legislation; best practices; Latin America; Colombia; Costa Rica

INTRODUCTION

As a result of COP 19, held in Warsaw in November 2013, parties to the United Nations Framework Convention on Climate Change (UNFCCC) adopted Decision 14/CP.19 (MRV Decision) that presents the guidelines for the drafting of Measurement, Reporting and Verification (MRV) of proposed levels agreed on ‘in a manner that facilitates the clarity, transparency and understanding of the intended contributions, without prejudice to the legal

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nature of the contributions'. In all the MRV processes, the reference levels must be consistent with the national inventories.

Accordingly, States have adopted measures to implement national long-term policies and strategies for sustainable development, reducing greenhouse gases (GHG) emissions while promoting initiatives for green growth. Low-Emission Development Strategies in most pollutant sectors, like energy, transport, industry or agricultural and multi-sectorial are, thus, crucial.

The MRV of these actions is vital to generate transparency, build trust on their effectiveness and facilitate decision-making. In this regard, the Clean Development Mechanism (CDM) baseline and monitoring methodology of the UNFCCC define how the monitoring has to be performed. Many developing countries have started curbing emissions by developing and implementing Nationally Appropriate Mitigation Actions (NAMAs), informing the UNFCCC Secretariat about their mitigation actions through pledges. In turn, NAMAs must be in line with the MRV. Various initiatives try to ensure coordination amongst different authorities that are in charge of CC actions contributing to draft best practices, such as the 'Partnership on Mitigation and Measurement, Reporting and Verification' (PMRV) and the 'Partnership for Market Readiness' (PMR) (Mitigation Partnership 2013).

Latin America comprises mainly developing countries and accounts, as a whole, for approximately 9.9 percent of the global GHG emissions (IPCC 2014). Latin American countries are faced with the challenge of reducing CO₂ emissions while achieving growth. Against this background, they are increasing their participation at the UN climate change negotiation remarkably; taking a low carbon pathway to economic development beginning to offer solutions to cut GHG emissions and coping with climate change. Despite the progress, there are difficulties in implementing these measures in the face of competing priorities which can result in legal frameworks being undermined or ignored.

At national level, Latin American countries are taking different measures to confront climate change, Costa Rica has declared that it is becoming carbon-neutral by 2020, Mexico has committed to pass a comprehensive legal framework that targets to reducing emissions by 2020 and 50 percent by 2050. There are other pledges made by Brazil and Peru and emissions are being further reduced. According to the Lima Call for Climate Action in preparation for Paris COP-21 (Bodansky and Day O'Connor 2014), all States will communicate their contributions to emissions mitigation for implementation in 2020 over the next six months. This latest climate accord represents a game changer since all nations will contribute to curbing greenhouse gas emissions. The implementation of these measures remains an open question.

This paper aims at canvassing how countries are implementing different mitigation actions and climate change regulations in practice. In the analysis, two different countries' strategies are critically examined: Costa Rica and Colombia. Thus, the main objective is to determine how the norms and policies as possible theoretical paths are then being applied in practice, in

order to assess possible inconsistencies/lacks as well as positive outcomes in the implementation.

METHODOLOGY

Primarily the institutional legal analysis tools were used in conducting this research to look into the legal framework. Increasingly, at the national level, new environmental policies are being introduced including, for instance, a National Environmental Action Plan or a National Plan for Sustainable Development. Such policies are often supported by legislation (FAO 2005). In order to assess the different measures implemented comparative institutional analysis is required to determine how different institutional processes will affect the achievement of the expected outcomes (Engels 2005). Moreover, since all institutional processes are imperfect, we have to look at the economic and political landscape (Likens 2010).

In the assessment of the implementation of the climate change provisions regarding NAMAs, different factors were taken into account such as:

- Economic and legal incentives.
- Timeframe for the implementation.
- Public authorities involved.
- Engagement of private sector/actors.
- Participation of stakeholders.
- Transparency in the processes.

During the research consideration was also given to the use of environmental indicators in policy making (Cimorelli & Stahl 2005). With the aim to guarantee a better implementation, governments are following various environmental indicators (Engels 2005). By looking at the indicators I will try to explain the progress made insofar to get to the heart of the complexity since they hold the key to understanding climate change mitigation actions. I am using the data available at UNFCCC Secretariat to cut through the controversy that surrounds implementation. In the study, I attempt also to devote attention to the cost-benefit analysis in implementing the legislation, i.e. weighing costs against any potential environmental benefits of a regulation. I look, in particular, into measurement (or estimation); reporting (both at national and international levels) and verification (including both national and international oversight).

BACKGROUND INFORMATION

Robust, transparent, consistent and accurate monitoring and reporting of GHG emissions are crucial for the effective operation of emissions reduction. They constitute key mechanisms for reducing greenhouse gas emissions cost-effectively.

How do MRV processes work with regard to NAMAS? In general, measurement of emissions consists in an estimation of emissions at national, regional and sectorial levels. The MRV processes of NAMAs aim, in particular, at assessing the impacts of mitigation policies and actions. In addition, IPCC Guidelines provide that national monitoring systems need to be transparent, consistent and, as far as possible, accurate to reduce uncertainties.

NAMAs as voluntary interventions when implemented by a developing country government need to be in line with national and/or local development priorities. NAMAs require support from domestic and/or international sources to effectively reduce GHG emissions either directly or indirectly. In addition, they must be measurable, reportable and verifiable ('MRVable') to ensure transparency of the NAMA outcomes.

In general, Latin America is a heterogeneous region, although countries share some general characteristics, e.g. need for infrastructure and social inequalities, the weakness of the rule of law (UNEP 2010). Therefore, processes concerning MRV of GHG mitigation are implemented in different manners across Latin America. Various initiatives such as the previously mentioned PMRV and the PMR are contributing activities in order to share best practices and build capacity for MRV of NAMAs in Latin America and the Caribbean, including the most pollutant sectors, such as transport.

Latin America is one of the leading regions in terms of NAMAs implementation. NAMAs show a broader regional spread than CDM, likely because of NAMAs close ties with sustainable development and the flexibility in the design of the actions. To illustrate, in the framework NAMA Facility call in 2013 the following projects were put forward: Chile (Self-supply Renewable Energy); Costa Rica (Low Carbon Coffee NAMA); Mexico (NAMA for Sustainable New Housing) and Colombia (Transit-oriented Development).

In a brief overview of MRV processes of NAMAs in Latin America and the Caribbean the following aspects are regarded as critical:

- The connection between CC MRV and monitoring in the regulatory setting.
- Verification processes in terms of reflecting absolute measures (tonnes of carbon) of progress toward a global climate mitigation goal.
- Civil society engagement, in particular, voluntary CC projects and compliance monitoring in the regulatory mandatory setting.
- Coordination amongst different authorities that are in charge of CC and different regions at national level.

In order to evaluate the implementation of the different countries' strategies two different NAMA cases (one implemented in the coffee sector in Costa Rica and the other one performed in the transport sector in Colombia) were selected and analysed.

RESULTS: CASE-STUDIES

In Central America, Costa Rica is a leading country in terms of MRV processes. In order to curb GHG emissions, Costa Rica is promoting the use of market instruments since the 2000s. The case-study selected is ‘Coffee NAMA’ that aims at involving private coffee producers in reducing GHG emissions and achieving significant environmental and socio-economic co-benefits such as improved waste-water management, decreased energy demand of external sources at mills (using coffee biomass), increased soil and biodiversity conservation, among others.

In turn, Colombia has probably one of most advanced MRV systems in South America having put in place different NAMA projects. The case-study selected is a project implemented in the ‘small scale transport’: Cable Cars, Metro, Medellín registered in April 2010. In this case, the estimated emission reduction potential amounts to 17,290 ton CO₂e/year.

In each case, the focus is placed on main advantages and obstacles in the enforcement and implementation of climate change regulations. Particularly, the specific goal is to determine up to what extent ‘collaborative compliance’ is feasible; whereby ‘collaborative compliance’ I mean the joint commitment of communities, business owners and other industry backers to comply with climate change provisions.

Costa Rica

At the outset, it should be noted that Costa Rica is one of few developing countries that has carried out voluntary mitigation actions ahead of international climate agreements. The country has ambitious climate objectives, aiming to become ‘carbon neutral’ by 2021 and it is regarded as an environmental champion in the Latin American context. Indeed, Costa Rica is eagerly promoting the use of market instruments to enhance compliance with environmental legislation. Particularly it has enacted a 3.5% carbon tax already in the 2000s which partially funds a national program of payment for ecosystem services, including carbon and water. In addition, Costa Rica has developed a forest carbon market in which over 9,000 private and communal landowners participate.

Internally, consultations are carried out with Ministries of Foreign Affairs, Health, Housing and the Ministry of Environment and Energy (MINAE) with the active participation of ICE, and private sector associations including energy (renewable energy and energy efficiency), transport, waste management and housing. In order to achieve carbon-neutrality in 2021, the Costa Rican government is leading a national mitigation process providing the political framework for elaborating and implementing of NAMAs in different sectors. In addition, Costa Rica has participated in the Clean Development mechanism with more than 8 projects.

A Working Group was established to supervise the preparation of the MRV system proposal for Costa Rica. In addition, two national level workshops were held to design the MRV (including relevant stakeholders, e.g. local communities and indigenous peoples). An expert workshop was held to review the MRV methodology proposed in the RPP, in order to assess

different ways to reduce uncertainty, to attain full compliance with the Forest Carbon Partnership Facility (FCPF) requirements and to share lessons learned with other FCPF countries. Finally, another expert workshop was also conducted to set general guidelines for the design of the national forest inventory to monitor CO₂ emissions and absorptions from carbon stock changes in above and below ground biomass, litter, dead wood and soil carbon.

The last inventory year registered by Costa Rica with the UNFCCC-Secretariat is 2005 for Greenhouse Gas Inventory Data, according to the information submitted emissions amount to 8,606,727. The total reduction potential in growing and milling alone is approximately 30,000 Ton CO₂ e/year, meanwhile carbon sink potential is approximately 90,000 Ton CO₂ e/year (120,000 Ton CO₂ e/year 3, near 25% of the emissions total national GHG emissions of coffee growing section in the GHG Inventory until 2024 at full implementation). The expected aggregate GHG emission reductions over 20 years will be 1,850,000 Ton CO₂e.

Case-study: Coffee NAMA - 'Low Carbon Coffee'

In Costa Rica, the coffee industry is responsible for most of the Nitrous oxide (N₂O) emissions in the agricultural sector. This is partly due to the fact that inefficient nitrogenised fertilization plans are still used by producers, failing to apply the proper doses and to follow appropriate times for fertilization. This results in environmental pollution and an increase in production costs. The NAMA Low Carbon Coffee Costa Rica is consistent with the National Strategy for Climate Change (ENCC) and with the agriculture sector strategy.

Coffee NAMA tries to engage private coffee producers in reducing GHG emissions. It also aims at achieving significant environmental and socio-economic co-benefits such as improved waste-water management, decreased energy demand of external sources at mills (using coffee biomass) and increased soil and biodiversity conservation. This was the first NAMA in coffee sector and one of the few NAMAs in agriculture. The project attempts to fostering a solid institutional, organizational and collaborative setting (Zamora 2013). The Costa Rican government's initial aim is to implement the Coffee NAMA in a participatory process between 2014 and 2023. Coffee NAMA comprises the two most important GHG sources in national coffee sector: the coffee farms and the mills.

The area destined to coffee production covers over 90 000 hectares (222 300 acres), extending from 600 to 1 600 meters (1 968 to 5 248 feet) above sea level. The coffee sector includes 50 671 producers, 172 coffee processing plants, 57 exporters and 37 coffee roasters. The coffee sector employs eight percent of Costa Rica's work force. The importance of coffee at the national level is also reflected in its contribution of nine percent of the country's GHG emissions and 25 percent of the emissions generated in the agricultural sector. The agricultural sector accounts for 37 percent of total GHG emissions in the country. From a socio-cultural perspective, coffee production is at the heart of country's identity (Zamora 2013).

The project is part of a more comprehensive plan implemented by the Ministry of Agriculture in cooperation with the coffee sector of Costa Rica that comprises policy reforms promoting low carbon coffee production. As for the political-institutional framework, there are several instruments that are applicable: the National Development Plan (PND), a National Strategy on Climate Change (ENCC), a Carbon-Neutral Country Program (Programa País Carbono Neutralidad), and a specific framework ‘State Policy for Climate Change in Agriculture and Food’. In 2011, the State Policy for the Agriculture and Livestock Sector and Costa Rican Rural Development 2010-2021, issued by the Ministry of Agriculture and Livestock established as one of its four pillars the Climate Change and Agro-environmental Management. Besides, the agricultural sector is defined as priority in the Climate Change Action Plan (2012). Further to this, the Costa Rican government has approved a budget of around 40 million USD for the coffee sector that includes a share to be used for mitigation actions. Overall, the Costa Rican government is developing a National Carbon Market, comprising advances in mechanisms for carbon neutral operations certification and Costa Rican carbon credits production.

The project management unit is the Coffee NAMA Steering Committee (Mesa Café) which connects strategies with concrete implementing actions. The system includes a mechanism of payment for environmental services in agroforestry systems (Coffee PSA-SAF), as well as a recognition system for environmental agricultural services, previously established, which could leverage incentives for implementing Coffee NAMA. In addition, ‘the Carbon Neutral Country Program will determine the reference level for MRV, participation criteria for interested organizations and monetary transfers based on reduction plans and compensation options’ (UNFCCC 2013).

Reduction target would be 13.5 per cent reduction in relation to the base line at the end of the ten year period. A decline in the use of fertilizers could potentially translate into an annual reduction of 1 726.45 MT of CO₂ on the total area under coffee cultivation over the course of the ten years estimated for adoption of the measure.

The main barriers to the implementation of these mitigation actions are:

- a) Policy barriers: low incentives to capital investment and process innovation;
- b) Technology and capacity barriers: weak access to GHG – efficient fertilizing technology, weak or costly equipment for GHG - monitoring, risk aversity of growers and millers, knowledge gaps of extension professionals;
- c) Financial barriers: low and late return of investment of GHG -efficient fertilizing and milling technologies, severe cash-flow problems of coffee growers and millers;
- d) Market barriers: insufficient access to market incentives for adopting climate adaptation measures (like shade growing), weak market incentives for GHG -efficient fertilizers, and high and uncertain transaction and MRV costs (MINAE 2013).

In terms of specific measures to curb the emissions, the Coffee NAMA and the NAMA support project include four measures for reducing GHG in the sector: 1. Reduction in the use of nitrogenised fertilizers and N₂O emissions; 2. Avoidance of methane through improved treatment and reuse of wastewater in mills; 3. Improved use and management of biomass as energy source instead of wood and 4. Carbon capture through spread of agro-forestry systems (UNFCCC 2013).

As per the measurement of the emissions, report and verification, putting into practice these measures entails institution and capacity building, evidence building and knowledge sharing. It is foreseen that this support project will provide incentives for investments in GHG-efficient technologies and for collaborating with low-carbon coffee producers, support the dissemination of new practices, and MRV of NAMA activities (UNFCCC 2013). These measures include technical advice to administration, extension services and coffee producer's practices transformation, through partnerships with the international coffee and fertilizer industry, and through financial support instruments like grants, concessional loans or guarantees for coffee farmers and mills.

This NAMA project is also promoting more intensive cooperation between the leading institutions like, the Ministry of Agriculture and Livestock, the Ministry of Environment and the Coffee Institute of Costa Rica (ICAFE), and the private sector to attain the ultimate goal of converting coffee production in a more climate-friendly activity. This should be achieved by executing policy changes as proposed in the NAMA Project related to national strategies with a focus on a combination of regulations and incentives that provide preferential advice and microfinance for innovative farmers and mills. The particular organisation of the sector will contribute to the implementation of measures and new technologies and the proposed data collection for MRV since most farmers are organized into cooperatives and associations. Coffee NAMA, considered as a type of 'Product NAMA' is regarded as a 'very good laboratory to transfer MRV experiences to other sectors' (UNFCCC 2013).

It is expected that all these measures will help the entrepreneurial position and the competitiveness of producers and processers in the coffee sector. The NAMA project also addresses the knowledge gaps of extension personnel on climate mitigation and adaptation opportunities, improving access on other additional government incentives (e.g. FONAFIFO Payments for Environmental Services - (PES). Consequently, it has the potential to significantly develop capacities of farmers and millers for investing in better technologies. Another equally relevant tool are the incentives for fertilization with low nitrous oxide emissions that are to be developed bringing in innovations in the fertilizer industry that might have much broader impacts in the agriculture sector in the medium- and long term (indirect effect).

The main targets set are as follows:

1. Reductions in nitrous oxide emissions, by adoption of efficient practices of fertilizer application.

2. Reductions in methane emissions by improved water management in anaerobic treatment systems and by introducing technologies for wastewater treatment.
3. Reductions in methane and CO₂ emissions through aerobic treatment and energetic use of pulp.
4. Reduction in CO₂ emissions coming for electrical energy savings by improving the coffee drying process.
5. Increased fixation of carbon by the spread of coffee agroforestry systems (intensified shading).

The reduction potential in growing and milling is approximately 30,000 Ton CO₂/year, meanwhile carbon sink potential is approximately 90,000 Ton CO₂/year. Both result in a total mitigation potential of 120,000 Ton CO₂/year. The expected aggregate GHG emission reductions over 20 years will be 1,850,000 Ton CO₂e in conservative estimates. As discussed below the final quantification of GHG mitigation potential will be made available through the application of the MRV system.

Donor support is another element that deserves attention in the implementation of the Coffee NAMA. The following sectors were included as priority in this regard: institution building, capacity building, evidence building, knowledge-sharing and capital investments. The support project could directly or indirectly influence about 250,000 ton CO₂ of this mitigation potential. In fact, international cooperation has made possible the drafting of the NAMA project. The BMU/ GIZ Project ‘Implementing National Strategy for Climate Change/Niedrigemissionsland Costa Rica’ supported the whole preparation process of the NAMA-Café, including the development and presentation of the NAMA concept note, suggestion of MRV methods and NAMA contents. In addition, the Low Emissions Capacity Building Programme is implemented in Costa Rica specifically in Livestock and Transport, funded with resources from the European Union, Germany and Spain. The Multilateral Investment Fund (FOMIN) of the IADB currently finances a small pilot project implemented by Fundecooperación for the development and testing of GHG-efficient farming practices and MRV methods for coffee sector. A World Bank/PMR – Partnership for Market Readiness Project supports the setup of a national compensation market. The PMR seeks to elaborate and implement important financing mechanisms that might leverage future investments also in the coffee sector. Finally, a program financed by the national budget (Fideicomiso Café) invests in the coffee sector to tackle climate-change related plant diseases (UNFCCC 2013).

The project’s main expected outcomes can be summarised as follows:

Efficient use of water and energy in coffee processing

As regards coffee processing, a series of measures are proposed to improve efficiency of water usage and energy throughout processing. These measures include reducing water consumption in coffee processing and establishing systems for energy generation through the

use of by-products and biomass. As for the implementing measures, one of the most innovative and relevant measures is the change in the use of anaerobic lagoons for the treatment of waste-water and using instead waste-water to irrigate pastures. As an expected outcome, it is estimated that the change from lagoons to irrigation fields in 46 processing plants would have the potential to lead to a reduction of 6,084.83 MT of CO₂ emissions.

Agro-forestry Systems (AFS) Program

The AFS coffee program aims to intercropping of 70 timber trees, legumes or species in danger of extinction per hectare (2.47 acres) of coffee. With the inclusion of these various species of trees on the plantations, these systems have the potential to sequester up to 34 MT of carbon per hectare and generate additional to 30,000 hectares (74,100 acres) of coffee that can be comprised into the AFS scheme.

Market-based mechanisms

In order to extend the coffee agro-forestry systems throughout the national territory, the government established a payment for environmental services program that is reinforced by the NAMA. The National Forestry Financing Fund (Fondo Nacional de Financiamiento Forestal) with more than 20 years' experience is in charge of implementing this measure.

Socio-economic co-benefits

Such as cost savings, income diversification and capital building on farmers level, higher yields and earnings through increased soil fertility and less vulnerable soils, ecological competitiveness on regional/international markets through a certified carbon-neutral coffee trademark; maintenance of the level of employment: up to 150,000 jobs during harvest.

Other indicators of implementation

Capacity building and incentive mechanisms will improve production changes in the national coffee sector, regarding its climate impacts. This will enable Costa Rica a stronger position in carbon-neutral agriculture products.

At all, 52,787 coffee producers, 184 coffee mills (organized in cooperatives or private companies) are maintaining the coffee sector as an important export sector: actually about 9.2% of national exports. NAMA Coffee will impact the standard of living of more than 400,000 people; and possibly improving its international image through climate change actions.

Ecological Co-benefits

Such as reduction of eutrophication through improved wastewater management and reduced fertilizer use, more sustainable energy consumption in milling activities, increased soil conservation and biodiversity, improved adaptation capacity of the coffee farms to climate change through spread of agro-forestry systems etc.

Institutional Co-benefits

The NAMA support project will improve the capacities of relevant Costa Rican stakeholders to design, finance, implement and monitor NAMAs (in the coffee sector in specific and in general), and it will improve the political framework for inducing environmentally and climate-friendly economic practices. In addition to the direct benefits on the institutional and political level, the support project will contribute to low emission institutional development.



Coffee farm in Costa Rica – Author's copyright

MRV processes

The main idea for the implementation of the specific NAMA was to bring in the coffee industry, as a major financial partner, addressing its concerns regarding future stock of premium coffee. Positive externalities will include more sustainable energy consumption in milling, increased soil conservation and biodiversity, improve adaptation of coffee production to climate change, cost savings and income diversification of farmers through agro-forestry systems. Access to markets for low-carbon coffee shall be improved, attracting financial incentives for low-emission production.

A support project was proposed to improve the capacities to implement and monitor the political framework for environmentally and climate-friendly economic practices. The MRV methods will assess the real mitigation achievement which is estimated to contribute to around 250.000 Tons CO₂ mitigation, by direct implementation of mitigation infrastructure and practices. The MRV processes include:

- New efficient practices of fertilizer use and low-emission fertilizers are implemented in coffee sector (indicator: 50% of total number of total producers).
- Agroforestry systems (PSA) are promoted to coffee farmers. (Indicator: 7.500 coffee ha with shadow trees).
- Implementation of new low carbon technologies reducing GHG emissions by coffee processors, e.g. energy efficiency, biomass aerobic treatment of residues (pulp) and wastewater. (indicator: 25% of total number of total number of mills or 75% of total number of great mills).

Overall, the support of a collective and collaborative GHG monitoring system in the coffee sector will allow altering the perspective in the Costa Rican agriculture sector and also in other countries in the region and on an international level relating the production of low carbon coffee. It will also enable a stronger position in marketing of low carbon or carbon-neutral agriculture products and thus influence private contributions to less GHG-intensive coffee and agriculture production methods.

Colombia

With more than 45 million inhabitants, Colombia is the Latin American country with the third-largest population after Brazil and Mexico. Five cities in the country have more than one million inhabitants. Medellin is the second-largest city with a population of approximately 3.5 million. With regard to the economy, Colombia shows almost a decade of strong economic performance. Nevertheless, further economic expansion is impeded by insufficient infrastructures, unemployment and rising inequalities among the population (Myclimate 2012).

Colombia is confronted with major environmental challenges such as air pollution, especially in large cities, originated mainly by emissions from buses and other fossil fuel-powered means of transport. The country is one of the larger producers and exported of coal production, being also relevant in the energy mix and internal consumption. Carbon offset projects shall alleviate the problem.

The Environment Ministry coordinates the MRV System within the Colombian Low Carbon Development Strategy (CLCDS). The CC agenda is developed through the National Development Plan 2010-2014 (NDP). In turn, the National Climate Change System was created to enable multi-level working groups in different CC issues to articulate channels to deliver their inputs to decision-making levels in the government, throughout its different sectors (Mitigation Partnership 2012). The Government has set out three pillars for the

Climate Change's agenda: 1. National Adaptation Plan: It is mandatory and considered a priority under the National Development Plan (NDP) 2010-2014. 2. Low Carbon Development Strategy: to estimate the marginal abatement cost of the key emitting sectors, beginning with industrial processes 3. REDD Strategy: Partnership for Market Readiness.

The CLCDS represents a different strategy when compared with other national low carbon strategies and plans formulated by other countries. Different governmental authorities take place in the implementation such as National Ministry of Environment and Energy (MINAE), Ministry of Agriculture and Livestock (MAG), National Forestry Office (ONF), and National Banking System. It has been a participatory ('Executive Committee' that will be confirmed by a representative and alternate for: indigenous peoples, civil society) and has taken into account the most reliable sectorial information available in Colombia. In this regard, the development of networks of organized groups such as UNAFOR (small agroforestry producers) and indigenous socio political organizations have been facilitated, the 24 indigenous groups have been organized into 4 regional territorial groups.

The technical team has also been using a multi-criteria analysis methodology to assess the quality of some of the economic, social and environmental co-benefits of different mitigation measures previously identified, based on the assessment of sectorial experts. Together with the results of the cost abatement curves, Colombia prioritizes mitigation measures because, as a developing country, it is interested in selecting mitigation actions that help achieve national development goals such as poverty reduction. The University of Los Andes has validated the main analyses and results of modelling and forecasting future reference scenarios of GHG emissions and of cost abatement curves.

Case-study: Cable Cars in Medellin - Sustainable Urban Development

Reducing CO₂ and offering, at the same time, an alternative to fossil fuel powered means of transport (buses, taxis, cars and motor bikes) is one of the main priorities for large cities in Latin America. Cable cars are becoming a popular way of achieving that objective. Cities like Rio de Janeiro are implementing similar projects (Cities today 2013).

An interesting case study is the 'small scale transport' with its approved methodology: Cable Cars, Metro, Medellín, registered in April 2010. The estimated emission reduction potential amounts to 17,290 ton CO₂e/year. Implementing Strategic Public Transportation Systems (SPTS) and expanding Bus Rapid Transit (BRT) systems in major cities.

The case of Medellin illustrates how technology converges in order to reduce the emissions and protect the environment. The carbon offset project 'Cable Cars Metro Medellin' was launched to promote the construction and operation of six cable car lines and their use as a means of mass transport in hilly areas of the city. These lines are connected to the local metro system. The main goal is to reduce greenhouse gas emissions and complement and partly substitute the existing public transport in an innovative and environmentally friendly way, improving the air quality in the city.

Another equally interesting feature of the project is its contribution to local development. The new cable car lines have been constructed in the hilly suburbs where the poor areas are located. As a result, people living in these places have now much easier and faster access to the city centre. Furthermore, the project has contributed to increasing safety in Medellin as well (Myclimate 2012).

Since April 2012, three out of the planned six lines have been in operation, the remaining lines were scheduled for 2014. Cable car services are operated by ‘Empresa de Transporte Masivo del Valle de Aburrá Ltda’ (ETMVA). Each cable car line comprises 90-120 mono-cabins with a seating capacity of eight persons and a maximum capacity of ten persons. Before the construction of the cable cars, EMTVA operated a metro train system with the two lines A and B, which crossed the city centre. The additional six cable car lines complement the existing lines and connect the poorer areas located in the hilly region around Medellin with the city centre, since the topography is uneven, the vertical rise of the lines amounts to approximately 300-400 metres. The new cable car lines J, K and L cover between 2.1 and 4.5 kilometres. Per hour, 3,000 passengers can be transported in each direction and on each line.

Amongst the main benefits of the project, the following can be underlined (Myclimate 2012):

- The project is helping to reduce CO₂ while contributing to sustainable development in the region.
- The use of the cable cars leads to reduced usage of buses and other fossil-fuel powered means of transport, which results in fewer emissions.
- People living in poor suburban areas are now connected to the city centre.
- The travel time has decreased as the cable cars are not affected by traffic congestions.
- The integrated fare charged for the cable car is more economical and convenient than the separate tickets for the different modes of transport.
- The reduced number of accidents compared with different modes of transport increases security.
- It is expected that the local air quality will improve and thus respiratory diseases will be reduced.
- The project improves local living conditions by creating new facilities such as recreation facilities and green spaces along the lines.

Before the project started, the initiative faced huge barriers: the cable cars in Medellin were the first of their kind in the world and hence it was a risk to invest in a project of such a size (Myclimate 2012). Furthermore, construction took much longer than expected, which made the project less attractive for investors. Additionally, cost overruns occurred during the implementation. Nevertheless, the problem was solved in part thanks to carbon financing, and construction finally started in 2003. In 2004, the first line went into operation.

A significant achievement was the registration of the project under the CDM of the UNFCCC (UNFCCC 2010). The Centro Nacional de Producción mas Limpia (CNPML) – took the initiative in developing a specific CDM methodology for cable cars and brought about CDM

registration for the project under the UNFCCC (UNFCCC 2010). In turn, verification myclimate performed a due diligence review for the project and contributed to activities by purchasing and marketing all carbon credits generated by the project. As a result, the carbon offset project was validated by TÜV Süd and registered under the UN Clean Development Mechanism (CDM) in April 2010. In 2012, the first Certified Emission Reductions were issued after the first Monitoring Report is verified by the external Colombian auditor ICONTEC.

As for the monitoring methodology, the Planning Department of ETMVA is in charge of managing all data in relation to the CDM project, including responsibility for data collection, quality assurance, reports and data storage. Some data is collected on the spot with the aid of measuring equipment. In order to measure the electricity consumption of the cable cars, the Operations Supervisor generates a Daily Operations Report, containing the electricity consumption for the whole system and for every station. In order to determine the passenger numbers, an electronic ticketing system with turnstiles was implemented. In addition, representative surveys and studies are conducted by a CNPML team, providing further monitoring figures that contributes to calculate the annually achieved greenhouse gas emission reductions. On the basis of these surveys and studies, data like average trip distances, the share of modes of transport used and occupation rates can be statistically investigated for the project and the baseline situation. One of the computer rooms along the cable car gives the amount of CO₂ that is saved by the metro have any methodology for such transport projects. However, as explained above, this exceptional CDM project also contributes to sustainable development in the host country.

MRV processes

Measurement methods and procedures applied (UNFCCC 2010):

Data on passenger numbers generated from Card Users and Single Trip Tickets registered at turnpikes and an expansion factor in case not all passengers go through the turnpikes. The flow data of the passenger system is generated when the passengers cross the turnstiles located in the stations. The turnstiles register the total number of passengers passing turnstiles. The expansion factor is based on a standard measurement week relating passengers' total turnstile with passengers entering stations on the same line without turnstile.

The measurement made for the expansion factor is based on a full standard week counting of passengers realized once in the crediting period for each line.

The approach used is to count all passengers using the cable car without turnstile during a standard week and relating the passengers passing turnstile (downhill passengers in general) to the passengers not passing turnstile (uphill passengers) for this standard week.

There are aggregated monthly QA/QC procedures to be applied (UNFCCC 2010). Passenger numbers based on automated ticketing controls at stations plus the expansion factor. The sampling size of the survey must be checked for a 90% confidence interval and a 10% relative

precision level in accordance with the ‘Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities’. The margin of error must be at minimum 10% in accordance with the Standard.

As for the monitoring process, the monitoring plan has two aims: to ensure the environmental integrity of the project activity and to ensure that the data monitoring requirements are closely aligned with the current practice of the project operator (UNFCCC 2010).

The monitoring methodology has ex-ante determined emission factors per PKM for all modes of transport. The total baseline emissions are derived by applying to these emission factors the activity level (PKM per mode transported) of the project. A special unit is in charge of managing all data in relation to the CDM project including responsibility for data collection, quality assurance, reports and data storage, under direct supervision of the CEO of ETMVA.

Alongside the contribution to the reduction of emissions, the new cable car system has also brought improvements to the passengers like the integrated ticket. Passengers are able to use one ticket for the entire duration of their journey in one direction, which includes the change of means of transport (e.g. from the cable car to the metro). This change has allowed fast, affordable and safe transport. Furthermore, the public also benefits from other projects that include, for instance, the construction of the public library upon a hill (accessible by cable car) as well as the installation of two computer rooms in cable car stations, allowing people to learn how to deal with new technologies. Furthermore, sport facilities were constructed along the cable car lines. To a large extent, the project benefits the low income population in the suburbs (Myclimate 2012).

Table 1 Project specifications

PROJECT	Coffee NAMA	Cable Cars in Medellin
GOAL	Contribute to greenhouse gas emission mitigation in the agricultural sector through appropriate measures in the coffee subsector.	Project type Energy Efficiency (CDM) aimed at transforming the city by focusing on urban development around transit stations, with low-income measures, increasing the living standards of neighbourhoods.
MEASURES	<ul style="list-style-type: none"> - Reduction in and efficient use of nitrogenated fertilizers - Efficient use and treatment of water and energy in coffee processing - Program to promote Agro-forestry Systems (AFS) 	<ul style="list-style-type: none"> - Reduction of air pollution and traffic congestion - Creation of 'transit-oriented development' - Enhancing the benefits of major national investments in public transit
SCOPE	93,000 hectares (229 710	Urban transportation in

	acres) of coffee in Costa Rican territory Medellin		
INVESTMENT	USD 30 000 000		USD 20 000 000
TARGETS	250,000 t CO2		121,029 t CO2 (in the first seven years)
RESPONSIBLE INSTITUTIONS	MAG, MINAE, Fundecoopéración	Icafe, Ministries of Transportation, Environment & Sustainable Development - City of Medellin	ETMVA
TECHNICAL SUPPORT	CATIE, UNA, IICA, GIZ		Myclimate, CNPML, TÜV Süd

Source: Author's own elaboration, data from MINAE (Costa Rica) and UNFCCC- Clean Development Mechanism (Colombia)

DISCUSSION

Having an adequate framework for environmental policy making in climate change issues has become crucial. Collaboration and coordination amongst different authorities that are in charge of CC and different regions at national level can contribute to the effective implementation of the NAMAs. Standard governance principles and values (such as transparency, accountability) add credibility to governmental and inter-governmental processes. Finally, where the nature and logic of the measure permit there must be public participation during the implementation of the project (Gaventa and Valderrama 1999).

Overall, the following aspects can be considered for the adoption of 'best-practices':

- Involving crucial economic activities in the processes, e.g. mining or transport, like in the case of Colombia.
- Access to information and transparency in the processes, as can be observed in Costa Rica.
- Statistics are crucial, but sometimes they are not sufficiently accurate.
- Use of market-based instruments and participation in CDM.
- Engaging with civil society initiatives.
- Consultation process with private sector and NGO's.
- Coordination of efforts at regional and national level.

The participation of most pollutant sectors (like transport) and the engagement of the main operators are part of the solution to curb GHG emissions as well as reinforcing the interrelation with other industrial processes with the aim of improving air quality. The effective reduction of the emissions is linked to a decrease of demand for fossil fuels, thus reducing air contamination and mitigate impacts on climate change (Sanahuja 2011).

The use of economic incentives has shown how important is to encourage citizens and businesses to make decisions based on the true long-term economic value of nature and the services provided. Positive externalities social benefits such as increase in wealth and safety of strategic sectors among the population.

In light of the cases analysed, it is necessary that parties endorse the regular exchange of information. It must accordingly be ascertained the exact contribution to the emissions reduction. Indeed, in order for developing states to be capable of being committed to the reduction of the emissions certain matters falling within the MRV.

Whilst the NAMAs could potentially reduce GHG emissions, the MRV to be applicable in the case should be established in advance. Thus, it is to be noted at the outset the importance of adopting MRVable measures. This is relatively easy when the same project is registered under the CDM actions with the intervention of the UNFCCC In fact, the measurement of effective emissions mitigation lies in the successful implementation of NAMAS in urban areas (EUROCLIMA 2014).

Thus, in order to determine whether specific projects can be implemented, it is necessary first to determine how MRV processes will be conducted. In that regard, adopting specific measures may require international cooperation to obtain the necessary funding. Nature, scope and broad logic of the measures shall be defined beforehand, allowing for discussion among the governmental departments involved and with public participation when possible. It should, moreover, be pointed out the need to develop a framework for enhancing cooperation. It must therefore be examined whether the measures designed are appropriate. It is also undisputed that, so far as concerns the reduction that strong institutional structure, high degree of organization and collaboration of public and private stakeholders and the civil society enable the implementation of projects.

Coffee NAMA has helped the successful transformation on Costa Rican way to a low carbon country. The positive experience of the Costa Rican Coffee sector could serve as a ‘NAMA laboratory’ for other sectors and other Latin American coffee-growing countries or nations with an important agricultural sector like Argentina. As an example it could be applicable to the soybean production sector in Argentina, the Secretariat for Environment and Sustainable Development is in charge of GHG Inventories, Public Policies and MRV. Space precludes further discussion of these possibilities in this paper. However, as a criticism concerning Coffee NAMA, there is no clear strategy in terms of measurement standards or definition of precise goals in terms of GHG indicators. Nevertheless, Coffee NAMA has ‘a high potential for up-scaling processes based on international joint ventures and public-private partnerships’ (UNFCCC 2013).

With regard to Cable Cars in Medellin, since the project has been registered under the CDM, there was a clear and coherent path in terms of MRV. In the context of transport sector, new technology can easily be implemented and deployed to cutting the emissions. It is apparent from the execution of the project that it has also generated other positive externalities that

mainly consist in improving living conditions of disadvantaged sectors of the city. Consequently, it must be concluded that the project has contributed to sustainable development goals.

CONCLUSIONS

Monitoring efforts on air pollution are critical in directing and meeting national and international targets and commitments. Many LACs lack an appropriate legal framework on air quality and climate change. Therefore, in implementing the UNFCCC provisions, it is vital sectors for the implementation of low carbon projects. Maintenance of accurate inventories of CO₂ emissions and air quality information becomes crucial for MRV.

Coffee NAMA and Medellin Cable Cars cases could be described as ‘islands of effectiveness’ in terms of compliance with CC regulations. The key to success is a well-structured scheme that offers a win-win situation for both the government and the public sector, striking a balance between public and private interests. These projects also are also innovative in terms of engaging with leading actors of the civil society creating positive externalities for them. Thus, projects must also include local participation and be in line with sustainable development goals.

The impact of both projects goes beyond the initial objectives set, since they could serve as models for other cases in Latin America. To illustrate, the case study from Medellin is quite similar to the project carried out in Rio de Janeiro. As for Coffee NAMA it could serve as the blueprint for other projects implemented in the agricultural sector.

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Chapter 3: IMPROVING INDUSTRIAL SAFETY PERFORMANCE

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ABSTRACT

Industry and regulatory agencies may assist each other in improving a company's safety performance. The responsibility for safety lies primarily with the individual companies, but there is also a role for regulatory agencies. Three elements determine the safety performance of a company: the technical integrity of its installations, its safety management system, and its safety culture. Interaction between regulatory agency and company is different for each of the three elements. Also, in addition to the legal perspective, voluntary initiatives may be important. Technical integrity and the safety management system are regulated through the environmental license and the requirements of the Seveso Directive concerning industrial hazards, whereas supervision on both elements is carried out through inspections. As for safety culture, it is also a relevant inspection issue, although there is no legal basis for including it as an inspection topic. Regulatory agencies should keep stimulating attention for safety culture, and in order to do so, the Rotterdam Rijnmond Environmental Protection Agency (DCMR) started a safety culture program in 2012. Following a safety culture assessment by TNO at 14 companies and a pilot project of its own in 2013 at three companies, safety culture was formally included in the 2014 work program, and this was continued in 2015. To date, most companies react positively to the assessment. In addition to all this, voluntary activities are primarily concerned with receiving more comprehensive information from the company, e.g. through the results of Self Assessment Questionnaires.

Keywords: safety performance, compliance, safety culture, company responsibility.

INTRODUCTION

The Rotterdam-Rijnmond region is not only the most densely populated area in the Netherlands, with more than 1 million people living within an area of less than 800 km², it is also heavily industrialized. Many chemical and petrochemical plants, power plants, and storage and transshipment companies are located in this area. Among these there are a substantial number of Seveso sites, some 100, and many other companies that deal with hazardous materials, making safety an important issue in the Rotterdam-Rijnmond region. On behalf of the province of South-Holland and 15 municipalities, DCMR Environmental Protection Agency acts as competent authority for environmental regulation in this region.

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Key responsibilities include environmental licensing of high-risk companies and the associated supervision and enforcement.

In 2012, Odfjell Terminals Rotterdam, a large storage company, decided to temporarily shut down its facilities after a period of increasing pressure by the supervisory authorities. Reason for this was a long-lasting poor safety situation and a bad safety culture, although the company had a certified environmental management system. This incident and similar events at companies in other parts of the country led to increased attention for supervision and enforcement at high-risk companies. The province of South-Holland tightened its associated policy, and DCMR initiated a program to improve the operational activities which are related with that policy. One of the issues within this program is the way in which industry, regulatory agencies and certifying bodies may assist each other in improving a company's safety performance (Twisk, 2013). Although the responsibility for a high level of safety lies primarily with the individual companies, there is also a role for regulatory bodies. The key focus of this paper is the question how to achieve safety improvement in industry from a governmental perspective. It starts with describing the three elements which determine the safety performance of a company (section 2). Interaction between regulatory agency and company for these three elements is addressed in section 3. Next, section 4 summarises the safety culture program of DCMR. Concluding remarks are given in section 5.

ELEMENTS FOR GOOD SAFETY PERFORMANCE

Three elements determine the safety performance of a company: the technical integrity of its installations, its safety management system, and its safety culture. These three elements are depicted in Figure 1.

Figure 1 Safety performance model



The first requirement for good safety performance is that the technical installations are designed properly, inspected regularly and maintained well. This will assure their technical integrity. The way in which a company operates these installations is documented in the company's management system, and for safety this is the safety management system. A key part of the safety management system is the structured identification and evaluation of risks and the subsequent definition of control measures. More recently, it has become clear that attitude and behaviour are also essential aspects for controlling major-accident risks, whereas the core values of a company and its way of communicating are important as well. Altogether, these constitute the third element of the model: safety culture. Big differences exist between companies, particularly as far as safety culture is concerned, which therefore justifies safety culture to be a separate element of the safety performance model.

A company which succeeds in achieving a high score for each of the three elements will be able to show excellent safety performance.

INTERACTION BETWEEN REGULATORY AGENCY AND COMPANY

Interaction between regulatory agency and company is different for each of the three elements of the safety performance model. Also, there has been a development over time in this respect. To begin with, regulation and supervision have focused on the technical integrity of installations, in the 60s, 70s and 80s of the previous century. An additional focus on human error and management systems emerged in the 80s and continued in the 90s. A prominent example of this is the second European Union Seveso Directive of 1996, which contained specified requirements for the safety management system of companies that have to comply with this directive. More recently, in the current century, safety culture emerged as a third issue of interest.

In the next three sections, the elements of the safety performance model will be discussed from two perspectives: that of the regulatory agency, which is in principle a legal one, and that of the company, which is in principle one of compliance. In addition, there may be voluntary initiatives that go beyond the realm of the legal relationship but are equally or sometimes maybe even more important in achieving high levels of industrial safety.

Technical integrity

Environmental regulation prescribes that a company which runs installations with large quantities of hazardous materials must have an environmental license. This is basically a license to operate. The primary focus of the environmental license is on technical requirements. The company needs to follow design standards and to install technical measures in order to control its risks. Furthermore, it has to apply Best Available Techniques (BAT), many of which are described in BAT Reference documents (BREFs). The company must be able to demonstrate compliance with all this in order to acquire the environmental license.

While in operation, supervision is carried out by the regulatory agency in order to check whether the company satisfies the technical requirements of the environmental license.

Whereas companies document large amounts of data on design, inspection and maintenance in their internal systems, supervision is by definition limited to checking small samples, and as a consequence, enforcement is limited to violations within these small samples. Improvement of this situation, i.e. a broader demonstration of compliance, could be realised through a more comprehensive reporting system. This could be done in a variety of ways, such as an on-line system, a yearly report, or a Self-Assessment Questionnaire. More comprehensive reporting by a company must not imply, however, that the regulatory agency takes over the company's responsibility.

Safety management system

A safety management system is a collection of procedures on tasks and responsibilities that aim at systematically controlling major-accident risks. Seveso companies are required to have a safety management system in place. Supervision is carried out through inspections that check whether the system is sufficiently good and functions adequately.

Certification of the safety management system could be of additional value for the company as well as for supervision. Although many companies do have an ISO 14001 certificate in which elements of the safety management system have been assessed, this does not imply that it has been assessed according to the requirements of the Seveso Directive. That demands a dedicated standard and preferably an associated certification scheme. Currently, a draft version of such a standard is available for the requirements of the Seveso-III Directive, and the development of a certification scheme is being investigated. In addition to the option of a certified safety management system, a company could use a Self Assessment Questionnaire (SAQ) in order to find out how well-developed its system is. Such an SAQ exists, and the results of applying it could also be used to communicate with the regulatory agency in a uniform manner.

Safety culture

Safety culture is concerned with attitude, behaviour, values, perceptions and habits in relation to dealing with safety risks. It provides an indication of how safety is dealt with in practice. There are no legal requirements for having a good safety culture, and there exists no standard for it, so any activity has to occur on a voluntary basis. When Seveso inspections show poor safety performance, the regulatory agency could suggest the company that a safety culture measurement be carried out. Likewise, a company could use a Self Assessment Questionnaire to evaluate its safety culture. As with the safety management system, such a questionnaire exists, and again the results of applying it could be used to communicate with the regulatory agency.

SAFETY CULTURE PROGRAM OF DCMR

DCMR Environmental Protection Agency started its safety culture program in 2012. As a first step, TNO was commissioned to examine safety culture quality at 14 companies, divided over four industrial sectors: refineries, chemical industry, tank terminals, and storage and transhipment companies. The project was carried out through performing a quick scan, developed by TNO to measure a company's safety culture, and specific attention was given to those dimensions of safety culture that are related with characteristics of the Seveso safety management system. The results show the strengths and weaknesses of the safety culture for the individual companies, so that each company could use these for further improvement (Zwetsloot and Bezemer, 2012). It also turned out to be possible to differentiate between the four industrial sectors. A number of follow-up activities were defined:

- For the two companies with a below-average score, it was decided to increase the intensity of supervision.
- DCMR will incorporate safety culture as a topic within Seveso inspections.
- DCMR will organize regional workshops in which the results of the TNO study are presented and discussed, and will also discuss with regional as well as national industry associations how companies can be stimulated to adopt a structured approach to improve their safety culture.

In 2013, DCMR defined a pilot project on how to address safety culture within Seveso inspections. Safety culture was added as a specific part to inspections at three Seveso companies. Experiences were positive and the companies showed interest in the subject. Thus, safety culture was formally included in the 2014 work program, and this was continued in 2015. This program consists of three elements: selection of companies, safety culture assessment, and communication with industry associations.

Selection of companies

All Seveso inspectors of the various regulatory agencies provided scores for a number of aspects of "their" companies, including for safety culture. The result of this was a national ranking of Seveso companies. The inspectors' scores were based on their general knowledge of the companies. DCMR used this ranking as one of the ingredients for selecting 12 companies for the 2014 safety culture program, together with its internal risk-based ranking and the safety management system scores of its Seveso companies. For 2015, more importance was given to the national ranking, since its quality is increasing over time.

Safety culture assessment

In 2014, safety culture assessment was carried out at 12 Seveso companies as part of the regular Seveso inspection. These companies were characterised by a low score on safety culture and were considered to be amenable to suggestions for improving their safety culture. The assessments were done by a safety expert, not by the Seveso inspectors. The latter have general knowledge about safety culture, as opposed to more detailed expertise. Also, the

inspectors are particularly focused on enforcement whereas the focus of assessing safety culture is on stimulating it.

At each company, the approach for assessing safety culture consisted of the following steps:

- Earlier reports on Seveso inspections are consulted in order to select those safety management system elements that are possibly influenced by the company's safety culture. Next, safety culture-related points of attention are identified for these safety management system elements.
- The various points of attention are used by the DCMR expert to get an impression of the company's safety culture through carrying out interviews at different organisational levels.
- The company's activities in the area of safety culture are discussed with company management.
- The DCMR expert makes an assessment of the company's safety culture which is then communicated with company representatives – the company is challenged to take up those issues that require improvement. Purpose of this is to stimulate the company to initiate a safety culture program or to intensify an already existing program.
- The findings are also communicated with the Seveso inspector.

Most companies reacted positively to the assessment: only three companies were negative about it. Companies recognised the findings and were in general inclined to address these in order to improve their safety culture. It turned out to be more difficult to determine a direct relationship with the safety management system and to demonstrate to which degree safety culture influences the safety management system positively or negatively.

Communication with industry associations

Regional as well as national industry associations have been approached in order to achieve their cooperation in stimulating safety culture at their member companies. The national associations are somewhat reserved about government initiatives on safety culture – in their view, safety culture assessment cannot be part of inspections since there is no legislation on this. Nevertheless, they are interested in the results of the assessments which DCMR carries out and are willing to discuss these.

Cooperation with Deltalinqs, the regional industry association, turns out to be more successful. Two meetings for storage and transhipment companies have been organized jointly, and future meetings are being considered.

CONCLUSION

The key focus of this paper was the question how to achieve safety improvement in industry from a governmental perspective. Good safety performance requires high scores for three elements: the technical integrity of installations, the safety management system, and safety

culture. The regulatory agency as well as companies have a role in this. For all three elements, voluntary initiatives may be important in achieving high levels of industrial safety, and these are primarily concerned with receiving more comprehensive information from the company, e.g. through the results of Self Assessment Questionnaires. As soon as there is agreement between a company and a regulatory agency to deliver such information, commitment must take the place of voluntariness, whereas the regulatory agency should keep communicating what it expects from companies in order to realise their own responsibility for safety.

Concentrating more specifically on safety culture, it is also a relevant inspection issue for regulatory agencies, even though there is no legal basis for including it as an inspection topic. They should keep stimulating attention for safety culture, through safety culture assessment at individual companies which are selected by applying a risk-based approach and through continued communication with industry associations.

Finally, certification of the safety management system could be of additional value, but this requires that two important requirements are fulfilled: the certification process should satisfy high quality standards and there should be a comprehensive exchange of information from the company and/or the certifying body to the regulatory agency.

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Chapter 4: MORAL SUASION MESSAGE, COMPLIANCE THROUGH FAIRNESS

Can better compliance behaviour be obtained with a moral suasion message from the public supervisory body?

Han de Haas¹

ABSTRACT

Can deployment of a moral suasion message by the public supervisory body make a positive contribution to improving a company's compliance? A moral suasion message means that the supervisory body appeals to the company's morals. The moral suasion message is deployed to influence the behaviour and or actions of the company and/or engender change aimed at improved compliance.

Three major conditions determine whether improvement of compliance can be expected if the supervisory body deploys a moral suasion message:

Should the message be personal and preferably focus on the company's upper management (tone at the top)?

Should the message focus on the management's intentions?

Should the message be constructive and contain a rationale?

An overall precondition that has to be taken into account is that the sender of the moral message - the regulator - should have integrity and apply a code of proper governance; Decency Guide.

The message can be deployed at different times i.e. prior to an inspection (pro-active moral message), following an inspection (supportive and reactive moral message). The result of the inspection then probably determines the tone and content of the moral message.

It is also the question whether a moral suasion message should take the company's moral development and in particular that of the management into account? How does the company's level of Cognitive Moral Development (Kohlberg, 1976) influence the content of the moral suasion message?

Keywords: moral suasion message, moral development, compliance, supervision.

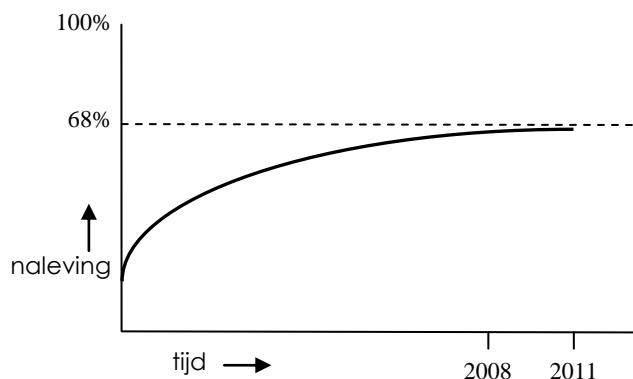
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INTRODUCTION

The Province of Noord-Brabant, the Provincial Executive, is of the opinion that the percentage of spontaneous compliance can and should rise. In the framework policy document drawn up to that end ‘Handhavingskoers 2013-2016’ [Enforcement Course 2013-2016] (21 August 2012) includes measures aimed at making the provincial government’s official activities more effective.

In recent years (at least since 2008), the Province of Noord-Brabant has determined that spontaneous compliance by companies for whom the Provincial Government is the competent authority has stabilised at an average of approx. 68% i.e. no infringements were discovered during 68% of initial checks. This impression also applies if a differentiation is made into target groups or legislative domains.

Figure 1 Percentage of spontaneous compliance in time²



[in graph: Compliance / Time]

The Province of Noord-Brabant has determined that when equal amounts of manpower are allocated to enforcement, measures and tools – on average – provide no additional benefit. There is a need to improve the supervision of companies using a new approach that increases spontaneous compliance to laws and regulations.

The Province of Noord-Brabant’s problem that the plafond for ordinary supervision has been achieved will, in all expectation, also apply to other competent authorities.

Reaching a ‘compliance plafond’ through ‘standard supervision’ is a problem for the competent authorities. Maintaining ‘standard supervision’ demands considerable efforts (time, money) without further improvement being achieved.

² Province of Noord-Brabant, The Framework Policy Document Enforcement Cours 2013-2016

In the Netherlands the framework of the interdepartmental cooperation programme Handhaving en Gedrag [Enforcement and Behaviour] Huisman and Beukelman (2007) conducted a study into “Influences on compliance by companies, insights from scientific research”. Huisman and Beukelman arrived at the conclusion that dominant opinion in a sector or at a company can be influenced by, in the event of an infringement, issuing a signal of moral condemnation. This means that the company is not only addressed as an organisation (standard compliance addressed) but that specifically addresses the responsible manager/management. The precondition that has to be met according to Huisman and Beukelman is that the regulation’s moral message also has to be supported by a (vigorous) enforcement activity. Huisman and Beukelman recommend experimenting with enforcement modalities aimed at transferring moral messages.

This article is about the use of moral suasion messages to augment ‘standard supervision’. The central question being whether the supervisory body’s moral suasion messages can contribute to a company or organisation changing its behaviour and improving its compliance to regulations? Also; which preconditions are expected to be taken into account?

First of all in the following paragraph the term moral suasion message is defined.

DEFINITION OF THE MORAL SUASION MESSAGE

The literature describes the moral message and moral suasion of a person in different ways. The following cites a number of studies to indicate the diversity of definitions of the term moral message and moral suasion.

In an article on economic policy, Romans (1966) defined the term moral suasion as an attempt by the government to enforce an economically desirable activity towards regulations that are, as yet, not valid.

An entirely different element of moral suasion was added by Adeleke (1998) on the basis of historical research into African-Americans and moral suasion (Afro-americans and moral suasion: the debate in the 1830’s). Adeleke lists the absence of violence or coercion as a crucial characteristic of moral suasion.

In his study, Ariel (2012) describes moral suasion as transferring an encouraging message of the normative values. In Ariel’s case this concerns research into company compliance to tax regulations. The moral message primarily focuses on the social importance of paying taxes and how tax-generated funds benefit society.

Parker (2006) studied a much stricter approach implemented by the Australian Competition and Consumer Commission (ACCC). The latter positioned cartel creation as morally reprehensible behaviour. It stated it would publicise the names of companies who broke the rules, convincing companies of the responsibility they bear for adhering to the rules and encouraging them to rehabilitate themselves.

The above sources demonstrate that there is no unequivocal definition of the moral message and moral suasion. The spectrum of definitions runs from public moral condemnation (naming and shaming) to addressing intrinsic motivation and issuing an encouraging message based on social action. Furthermore, the element of refraining from violence or coercion is interesting. Particularly when it comes to this study on supervision and enforcement. The phrasing of the moral message is of great importance if such a message is to morally persuade i.e. influence and/or change behaviour. Connecting to moral values can make the moral message a moral message that convinces.

The literature studied for this article led to the following definition of the terms moral message and moral suasion:

A moral message from the public supervisory body is a message from the supervisory body whereby the latter expresses itself concerning the ethical actions or behaviour of a company or the ethical action or behaviour that may be expected.

Moral suasion can be described as a moral message whereby the message appeals to morality to influence and/or change behaviour.

A moral suasion message from the public supervisory body is a moral message to a company whereby, without using coercion or violence (repressive tools), an appeal is made to the company's (general or specific) morals with the aim of influencing or changing the company's behaviour towards compliance with the regulations the inspecting organisation supervises.

CAN THE MORAL MESSAGE INFLUENCE MORAL DECISION MAKING AT A COMPANY?

To ascertain how a moral message is received, it is important to know how moral decision making comes about, in particular that at a company or organisation. Jones (1991) indicated concerning moral decision making in general, that there is a connection between being morally aware and moral decision making: 'For the moral decision-making process to begin, a person must recognize the moral issues'.

Rest (1986) developed a model that describes how an individual arrives at an ethical decision and then acts in four steps. These are:

- Moral awareness; interpretation of the situation; the possible actions and the effect on both oneself and the other;
- Moral judgment; assessing which action is morally right;
- Moral motivation or intention; prioritising the morally right action and not carrying out the other actions;
- Moral action or behaviour; demonstrating the skill to act or behave morally.

Rest's model assumes that ethical decisions are made rationally and is aligned with Kohlberg's Cognitive Moral Development model (CMD) (1976). CMD distinguishes three levels of moral development for an individual: the pre-conventional, conventional and post-conventional level. Each of these levels is subdivided into two phases. CMD elaborates on the second step in Rest's model, moral judgement.

An individual's moral development determines which assessment will be made. The CMD model assumes that an individual's morality develops. Primarily Kohlberg's model was used to illustrate this for the moral development of a child. The moral development of adults can also be determined. In this framework of a moral message to a company it is the manager's moral development that is important. The following chapter will further substantiate why the moral message should target the manager. An important point of CMD theory is that once a phase of moral development has been reached, ethical decisions are made in accordance to that phase. An individual cannot regress to a prior phase.

An individual's assessment during the pre-conventional stage -*stages focuses on punishment and obedience (Phase 1) and/or reciprocity (Phase 2)*- and differs from that of an individual in the conventional or post-conventional stage -*relation social environment (Phase 3 and 4) and consciousness of own responsibility (Phase 5 and 6)*. In relation to a company and issuing a moral message it is important to have insight into the CMD phase of the company manager responsible. If a supervisory body's moral message is not aligned with the manager's CMD phase it won't hit home and no or an incorrect moral assessment will be made.

The supervisory body can possibly play a role re-setting the company's moral compass. Research by Denkers (2013) into personal standards, personal convictions concerning compliance to rules revealed that managers and staff's individual motives have a strong correlation with the tendency to comply. Managers and staff who think they are capable of complying with the rules generally intend to do so.

The supervisory body's moral message can help create or, if necessary, re-calibrate moral awareness; the first step in Rest's model. Applying feedback to an ethical decision proves to help train ethical action (Lichtenstein and Fischhoff, 1980). The supervisory body providing a moral message bears a certain similarity to the method of providing feedback. The supervisory body should thereby recognise that there can be multiple reasons for a company to unintentionally act unethically. The moral message's utilisation can possibly be such that it contributes (re-)calibrating the company's moral compass.

CAN THE UTILISATION OF A MORAL MESSAGE IMPROVE A COMPANY'S COMPLIANCE TO THE RULES?

Which conditions must the message meet if the utilisation of the moral message is to be effective? Which aspects is a company sensitive to? Can compliance behaviour be improved using the right message tone and content?

First off, it must be studied who can be given the persuasive message. Subsequently, the timing of its use will be discussed after which its content will be dealt with.

Who should the moral message address?

Who at the company can the moral message best be aimed at? Which people at a company are at the controls of ethical decision making? Is this the company's manager or are there others?

Mayer (2009) studied social learning theory and social exchange theory as to whether ethical behaviour is passed down or up at companies. In other words, does ethical leadership cascade down an organisation? The definition of ethical leadership employed at this juncture is that of Brown (2005), 'the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication reinforcement, and decision-making' (p. 120). On the basis of a survey conducted among 195 managers and 904 staff, ethical leadership proved to flow top down. From upper management to middle management and from there to staff. Social learning theory shows that the superior is very important as a role model. The superior's behaviour is imitated by the staff because the former has the power to reward and punish the member of staff's behaviour. A related, slightly cynical observation by anthropologist Jackall (1988) is: 'What is right in the corporation is what the guy above you wants from you. That's what morality is in the corporation'. This quote comes from a general director at a major corporation in the USA.

The test Mayer subjects social exchange theory to reveals that ethical leaders who are reliable and honest elicit a response from staff that makes them carry the work out the way their superior demands. There is widespread support for the superior's actions. This result is in line with Brown's research (2005).

Mayer also points out that upper management are responsible for model behaviour within the organisation. The middle managers look at what the upper management is doing. However, Mayer also indicates that it is the middle managers who have the most direct influence on the staff's ethical behaviour.

Upper management is therefore to a great extent responsible for the ethical decision making and the ethical climate, the informal ethical rules and values such as justice and mutual respect (Treviño, 2006). In this framework, it is assumed that ethical decision making and a good ethical climate contribute positively to the company's compliance behaviour.

Schmincke (2005) studied the effect of the manager's moral development in relation to the organisation's ethical climate and the staff's attitude towards ethical issues. The results indicated that there is a relationship between the manager's moral development and the organisation's ethical climate. This is, among other things, caused by the extent to which the manager uses his or her CMD i.e. the capacity to reason ethically. The manager's influence is strongest if their moral development is in accordance with moral behaviour and is based on moral reasoning. This finding is in line with Jordan's research (2013). She found a relationship between the manager's level of CMD and the manner in which staff experience ethical leadership. If the manager's CMD is more highly developed than that of the staff, he or she can distinguish themselves in the field of ethical leadership. He or she can then act as an ethical role model.

Furthermore, Schmincke (2005) demonstrated that if congruence exists between the moral development of the manager and that of the staff, a positive attitude towards work and a sense of commitment to the organisation develops.

The question remains however, who is the best person at the company the supervisory body can address the moral message to? Who are the determinative people when it comes to moral decision making? An array of studies have revealed that a company's upper management holds the key to the enterprise's ethical climate. The importance of the 'tone at the top' seems founded on research. The ethical leadership the staff experience leads to their improved ethical activity. And this also applies to middle managers, they watch the upper management lead ethically. Targeting the moral message at upper management is therefore expected to have the most significant impact on moral decision making.

However, middle management should not be forgotten as it has direct contact with staff. Creating congruence between the manager and the staff's moral development is expected to positively influence the company's ethical climate. And the ethical climate contributes to compliance with rules. It is therefore important for the supervisory body's moral message to also be absorbed by middle management.

When can the moral message be utilised?

The question of which substantive elements the moral suasion message can consist of is important as is the timing of its implementation. The timing of the moral message also determines its content.

Figure 2 indicates the timings for the moral message's implementation by the supervisory body. The assumption being that the moral message contributes to increasing the company's moral awareness. And, by reinforcing moral awareness, improved compliance with regulations can develop.

Figure 2 Timing of the moral message

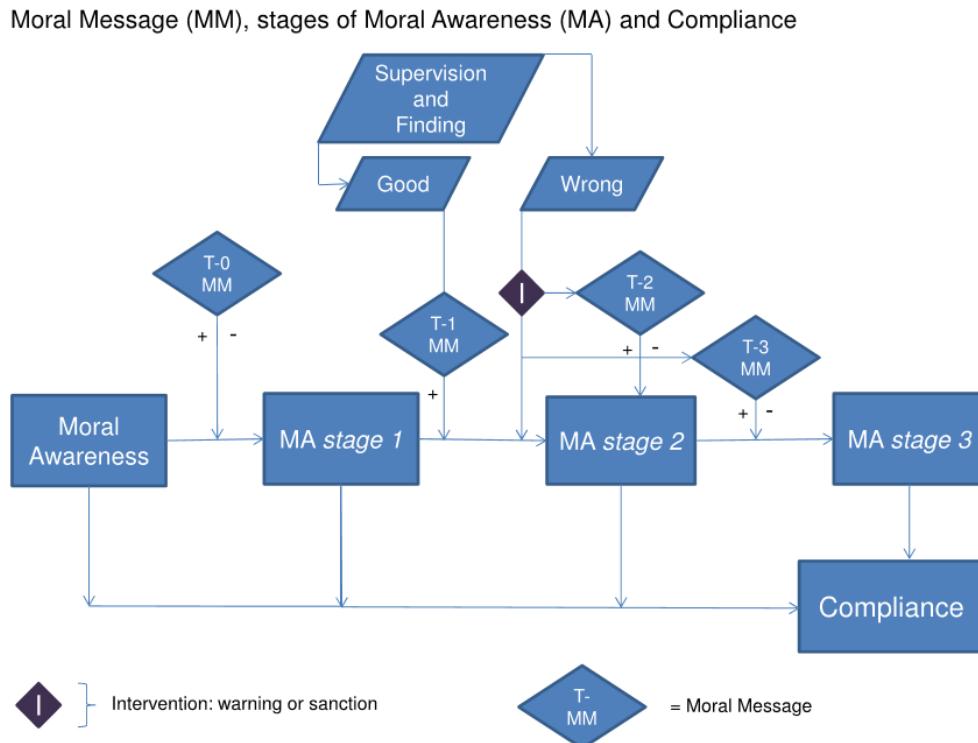


Figure 2. indicates 4 moral message timings, T-MM. The first, T-0 is a pro-active message, a moral message preceding or entirely unrelated to a supervisory inspection. The message appeals for an increase in moral awareness. T-1 concerns a moral message occasioned by a supervisory inspection that ascertained that the applicable laws and regulations are being complied with. T-2 and T-3 are after one or multiple findings have been made that require intervention i.e. the rules have not or not entirely been complied with. T-2 and T-3 are reactive messages. T-2 is during the supervisory inspection. This concerns a verbal moral message from the supervisory body to the company occasioned by the circumstances of the supervisory inspection. T-3 is timed for after the supervisory inspection when a separate, explicitly moral message is provided.

The moral message can, at various points in time, have a stimulatory (+) or deterrent (-) message. This does not apply to the message T-1 when the result of the supervisory inspection reveals the company complies with the rules. This message will be supportive and will confirm the company's good behaviour and actions. It is a supportive message utilised to further reinforce the company's high moral awareness.

To a great extent, the timing of the moral message determines its content. The following will study the tone of the message, be it warning or stimulating. Furthermore, the content of the moral message will be examined.

What is the right tone and content for the moral message?

Research into providing feedback provides insight into the right tone and content for the moral suasion message. Feedback is defined as information concerning the observed performance in relation to the standards laid down concerning performance and the results achieved (Aguinis, 2009). This definition is very close to that of supervision. Supervision is the collection of information concerning the question whether an action or item meets the requirements set for it, then coming to an assessment and, if need be, intervening as a result thereof (Velders and Brunia, 2014).

Feedback concerns an assessment about actions during human interaction. The latter makes the assessment sensitive. Human resource management research has closely examined the provision of feedback.

London (1995) defined the forms of feedback for the various forms of relationships. London arrived at three dominant forms of mutual relations for the subdivision of the relationships: a) control, b) reward or c) connection. For the supervisory relationship to be discussed here, the relationship can be lodged with control and connection. London refers to the supervisory body–subordinate relationship in the control dominated relations. London however is referring to the situation of control at a company or organisation, not that of the public supervisory body versus a company. This explains why the connection dominated relationship is also examined. There, London refers to the partner relationship. After all, to a certain extent the relationship between the company and the public supervisory body can be designated a partner relationship. In the field of the environmental law there are multiple levels of relationships between the company and the government. This concerns, for example, permit issuing and supervision. And these relationships provide a measure of connection. However, the connection between the company and the government is broader. Just think of the role a government plays that wishes to stimulate economic activities in its jurisdiction; companies contribute to this and are stimulated to do so using the connection relationship. Even within supervision there is, in principle, a measure of connection. Procedural justice exists if regulations have been drawn up in the correct manner (Tyler, 2006) and both the supervising government and the company will focus on adherence to the rules. London mentions the following goals for the feedback provider in the feedback relationship connection: agreement/persuasion, creating trust, creating a win-win situation. These objectives are to a great extent the same as those used by the public supervisory body. The public supervisory body's work and objectives consist of more than immediate checks.

The feedback methods London indicates for the control relationship are informing and instructing. For the connection relationship the feedback methods are discussion and achieving consensus.

The following will discuss the feedback's content and then provide insight into giving feedback in a public supervisory relationship. All part of working towards the content of the moral message. The negative feedback, the feedback that focuses on shortcomings will be dealt with first. Subsequently, constructive feedback will be discussed. Hypotheses will be formulated with regard to the utilisation of the moral message for both forms of feedback.

Negative feedback

Feedback that focuses on the shortcoming is based on the idea that the member of staff has an aspect pointed out to them that they could improve. The assumption being that this instruction will motivate the staffer to do away with the shortcoming and improve performance. Even though this seems logical, many studies have demonstrated that this form of negative feedback (pointing out shortcomings) does not improve staff performance (Aguinis, 2012). In fact, the member of staff's performance often deteriorates and their job satisfaction decreases. Negative feedback is generally perceived as incomplete information by the recipient and, as a result, is not accepted. Providing negative feedback also affects the feedback provider in a manner that requires recognition. If the focus is on shortcomings, the feedback provider builds up negative ideas and attitudes towards the member of staff assessed. This means there is a high risk of entering a downward spiral concerning the member of staff's performance by providing negative feedback. Various studies do not recommend providing negative feedback (Aguinis, 2012).

If negative feedback is related to the moral message then it concerns pointing out a shortcoming. The latter is earmarked as an unethical action or not acting in accordance to the standards set and the moral values applicable. Moral messages based on negative feedback are condemnatory moral messages.

Pro-active moral messages (T-0) concern possibly not acting in accordance to the standards set, but no actual observations of such infringement have been made. Because there are no actual observations, this doesn't concern feedback, strictly speaking. However, if the content of the negative feedback is incorporated into the moral message by pointing out possible shortcomings and the resulting non-compliance with (formal or universal) moral values, the negative feedback course can be taken. The possible shortcoming and the non-compliance to moral values can preventatively be moralised on the basis of the structure of the negative feedback. The pro-active moral message then becomes a deterrent. Deterrent messages are used to threaten investigation and prosecution as a result of rule infringement. If a pro-active moral message is drawn up as a deterrent message, the moral message threatens that the infringement of the rule may possibly be discovered and that this will result in the company's moral failings being found out. This being discovered can lead to the investigation and prosecution of the infringement. The possible form of sanction can be detailed by, for instance, stating that a particular fine will be levied. Furthermore, as far as the moral values are concerned, it will become common knowledge that the company does not adhere to these. The results of this may possibly become public knowledge as a result of government transparency requirements (Aarhus Convention). If this publicising is done actively by the supervisory

body to make the deterrent even stronger, this is referred to as naming and shaming. Deterrent messages focused on possibly imposing sanctions have a doubtful, brief effect (Tyler, 2006). When it comes to the results of deterrent messages it is at least slightly unclear whether a moralised deterrent message from a supervisory body will lead to improved compliance.

Reactive moral messages (timings T-2 and T-3) are based on actual observations. In the situations concerned, findings demand intervention. The company is not complying with the applicable rules. Pointing out that it should is the normal, standard supervisory task: observe, investigate, intervene. Companies do not view this substantiation of the supervisory task as negative feedback. This supervisory task carried out on the basis of facts can be characterised as a more or less amoral implementation of the supervisory task.

The situation changes if a condemnatory message is linked to the actual observation (T-2 or T-3). The condemnatory moral message points out moral values and the fact these have been deviated from to the company. As an example, moral values can concern a Socially Responsible Entrepreneurship declaration. Deviation from said declaration by breaking the rules makes the situation more ‘personal’ as the obligations were entered into by the company itself. The condemnatory addressing of the company by the supervisory body with regard to these obligations or moral values is very close to being negative feedback. The underlying moral values are central to it, not actual behaviours or actions.

In this framework, Mulder’s study (2014) is also relevant. Her work focused on the factors that determine the effect of sanctions on future compliance behaviour. The influence of the relationship between the entrepreneur and the supervisory body was examined in particular. She distinguishes 4 forms of trusting relationships in supervision, from: non-trusting relationship (a forced ‘relationship’ e.g. the customs authorities) to a strong trusting relationship anchored in agreements e.g. covenants. An internet survey conducted among entrepreneurs who actually infringe the rules posed posterior questions as to whether the supervisory body moralises or not as the case may be.³ The moralising questions concerned the moral importance and assessment of non-compliance to the rules and the future-oriented moralising concerning what should be done right in the future. Mulder’s study revealed that a moralising message has a negative effect on entrepreneurs who have a strong trusting relationship with their supervisory body i.e. the respondents were less motivated to comply with the rules. A possible explanation provided by Mulder is that entrepreneurs with a strong trusting relationship are already aware of their infringement and intend to do the right thing. If these entrepreneurs are approached in a moralising manner after non-compliance, the supervisory body may cast doubt on the company’s good intentions and morality. This is perceived as unfair treatment and can therefore come across as insulting. Unfair treatment damages trust and the trusting relationship thereby undermining cooperative intentions (Tyler, 2000).

³ It should be noted however that the study’s results were based on those of the internet survey which had a low response level of just 7% which does not lend credence to the representativeness of the respondents.

When the supervisory body points out the failure to comply with moral values and which improvements must be implemented this can be perceived as incomplete information by the company. The latter will, it is expected, be of the opinion that more background needs to be studied before a moralising assessment is provided by the supervisory body. The supervisory body's condemnatory moral message indicates that the company's good intentions are being doubted. Like negative feedback during staff performance interviews, it may be the case that the condemnatory message is not accepted.

Constructive feedback

According to Baron (1988), constructive feedback is feedback that, alongside a specific description of the desired behaviour, provides feedback meticulously. Instead of focusing on the shortcoming, the feedback recipient is dealt with in a fair, attentive manner. London (1995) provides examples of forms of constructive feedback for the mutual relations he defined. The control and the connection relationship will be detailed below tailored to a public supervisory body.

According to London, for the control relationship this should be about enabling the recipient to do the right thing so that both the message provider and recipient benefit. Furthermore, within this relationship it is important to interact respectfully and to apply the golden rule: '*Do unto others as you would have them do unto you*'.

For the relationship company - public supervisory body this experience from human resource management can be translated into providing an explanation why compliance with the rules laid down is important. Mulder's research (2014) revealed that explaining the rationale behind a rule in the event of a sanction or warning has a strong positive influence on the experienced justness of the rule, moral awareness and the future compliance of rules by entrepreneurs.

The company's compliance behaviour determines the supervisory body's response. The timings mentioned above T-2 and T-3 offer opportunities to, alongside stating the deviation from the standard set, also discussing compliance with the rules. The tone and setting of this contact are important. Various studies have demonstrated that the right, business-like, respectful approach can result in improved compliance (Murphy 2009; Tyler, 2006). To what extent stating the moral values increases moral awareness and improves compliance has not been studied.

On the basis of the connection relationship it is, according to London, important for the feedback provider's intentions to be open, bi-lateral and preferably face to face. This will lead to an emotional response from the feedback's recipient: trust, honest treatment, sense of communalit

Aguinis (2012) recommends an approach to constructive feedback based on a member of staff's strengths. He provides 9 recommendations. Bennink (2007) indicates 13 steps for constructive feedback. By grouping these recommendations, the following points of attention prove important: a) focus the feedback on the specific behaviour (avoid criticising the

person), b) focus on the factual description of the behaviour (avoid interpretations), c) formulate feedback in an inviting manner and as a learning opportunity, d) focus on searching for alternative behaviours (provide advice or a solution), e) use a combination of confirmatory and corrective feedback (sandwich method; positive/negative/positive), f) link feedback to major consequences at various levels of the organisation, g) carefully dose the quantity of information to meet demand, h) ask about and be open to a response to the feedback and check whether it was understood.

The translation of the connection relationship for the public supervisory body means that it is desirable for the supervisory body to provide a rationale (Mulder, 2014). This entails the supervisory body explaining to the company why compliance to the rule is important. This can, alongside a more technical explanation, also align itself with universal moral values. Particularly if those values are responsibility, care and citizenship.

Furthermore, open, bi-lateral discussion with the company is important. This discussion should preferably also be personal. A constructive moral message can be linked to it based on Aguinis and Bennink's recommendations. This then concerns a moral message which – *in analogy* – incorporates or takes into account the following elements: a) a focus on the factually determined infringement of the standards (do not condemn the company), b) a focus on the factual description of the infringement of the standards (avoid interpretations), c) an invitation to restore compliance, d) a focus on looking for an alternative method of organisation or behaviour (provide advice or solution), e) use a combination of issues the company organised well then go on to mention those whose compliance requires improvement (sandwich method: positive/negative/positive), f) ensure the moral message has major consequences for the company and its social environment and h) be open to the response to the moral message and, if necessary, discuss in more detail. Research is required to determine whether these elements create a moral suasion message and whether this can align itself with moral development.

For the T-2 and T-3 timings, a constructive moral message can be drawn up in accordance with the above list if a non-standard finding is made. In situation T-2, the supervisory body can transfer the moral message personally during the supervisory inspection. A pro-active, constructive moral message is appropriate for timing T-0: future-oriented moralising. The aspects to do with deviation from the standard i.e. restoration of compliance should not be referred to, but the other aspects should.

WHICH REQUIREMENTS SHOULD THE INSPECTION ORGANISATION MEET THAT USES THE MORAL MESSAGE?

The above studied whether and how a moral message can be used to influence moral awareness and moral decision making. By giving the moral message a positive, constructive ‘payload’ it is possible that the message will increase the company’s ethical awareness and

that of upper management in particular. A specific condition has not been discussed yet. This concerns the requirements the provider of the moral message must meet.

This paragraph deals with the question which conditions the public supervisory body must meet if it wishes to be able to address the management and board of an organisation in a moral manner with any measure of authority. It seems logical that if you are going to point out to another that moral actions or behaviour are desired you yourself must adhere to high moral standards to be taken seriously. This means that the supervisory body, the provider of the moral message, has to meet high moral requirements.

Special requirements are set for the government and the public supervisory body in particular. These apply to its execution of tasks in general and, as indicated above, more so if a moral message is utilised. In the Netherlands, the National Ombudsman has formulated guidelines for the government's execution of tasks on the basis of the idea that a citizen or company is the government's client. From a client perspective, the government has a monopoly on power. Clients should be served in a decent manner. The National Ombudsman's 2005 annual report included a first draft of the decency requirements. In 2014, the National Ombudsman issued another Decency Guide. Its core values are:

- Open and clear
- Respectful
- Committed and solution oriented
- Honest and trustworthy

The core value *Honest and trustworthy* has a different description in relation to the utilisation of moral messages by the government. This core value consists of 7 elements:

Integrity: the government should act with integrity and use its authority only for its intended purpose;

Reliability: the government should act within the legal framework as well as honestly and sincerely, should do what it says it will do and should adhere to pronouncements by the judiciary;

Impartiality: the government should act within legal boundaries as well as honestly and sincerely, should do what it says it will do and should adhere to pronouncements by the judiciary;

Reasonableness: the government should weigh the various interests before arriving at a decision. The result of which may not be unreasonable;

Good preparation: the government should collect all the information important to making a properly-considered decision;

Good organisation: *the government should ensure that its organisation and administration benefit services to citizens. It should be meticulous and avoid sloppiness. Any possible mistakes should be remedied as soon as possible;*

Professionalism: *The government should ensure that its staff work according to their professional standards. Citizens may expect them to have exceptional expertise.*

These decency requirements are conditions that apply to the government in general and the inspection organisation and individual supervisory bodies in particular. A particularly critical aspect with regard to the use of a moral message is the element integrity. If an inspection organisation and/or a supervisory body wishes to implement a moral message this should be done with integrity. Kaptein (2008) operationalised the term integrity for managing a company. The diamond's facets only glitter if the former is whole.

Kaptein describes integrity as also being a moral term. Integrity is consistently acting in accordance with the moral values and standards applicable to the position. To this end, it is necessary for the public supervisory body to know which morals apply. However, integrity does not solely consist of acting in accordance with what is moral, but also, even primarily, in accordance with what is ethical. Ethics are a reflection of morals. Ethics act as an imaginary judge who determines what is good and what is bad, what is responsible and irresponsible, acceptable and unacceptable. Integrity demands that the supervisory body acts in accordance to moral values and standards that are ethical.

If the supervisory government utilises the moral suasion message to point out compliance behaviour and moral values to the company then this should be done in a decent way, but more importantly it should be done with integrity.

CONCLUSIONS

Can the utilisation of a moral suasion message by the supervisory body contribute to improving a company's compliance? On the basis of a literature review the impression emerges that at the very least further preconditions should be created for the application of this strategy. The input requirements must be met if the output, improvement of compliance behaviour, is to be achieved.

If the inspection organisation and supervisory body wish to utilise the moral suasion message as a strategy they must meet the requirements of the National Ombudsman's Decency Guide. The core values honest and reliable are particularly crucial. The inspection organisation and the individual supervisory bodies should be able to explain clearly and unequivocally, honestly and sincerely, but also in a properly-considered manner and meticulously why the moral suasion message is being implemented. This should, if necessary, include the explanation that the moral message serves the public interest.

The literature review revealed that it is best to approach upper management as the recipients of the moral suasion message. The moral message's intent is probably further strengthened if it is also passed on to middle management. After all, middle managers have direct contact with staff and can, on the basis of that position, make an important contribution to reinforcing the company's ethical climate.

The timing of the moral suasion message in the supervisory process and the observation acquired to a great extent determine the message's content. If the moral message is issued preceding a supervisory inspection (a so-called pro-active moral suasion message) there are no findings to respond to. Future-oriented moralising can consist of deterrent or stimulating content. The literature review demonstrated that a deterrent, pro-active moral message possibly has a short-term effect on improving compliance, but that this – in the long term – damages the relationship between the supervisory body and the company.

Even if findings evidencing non-compliance to the values have been made, a moral message consisting of condemnation of the moral actions can lead to a negative attitude. Ethical awareness is not expected to be improved as the company will not accept the moral suasion message. A condemnatory message will probably not result in improved compliance behaviour and the company's morally-responsible actions will also not improve.

Moral suasion messages that have a constructive, positive content can possibly contribute to improving compliance behaviour. This can be a pro-active, constructive, future-oriented moral message. And this can be a moral message occasioned by a supervisory inspection. The findings to a great extent determine the content of that message. However, if the moral suasion message is correct and business like, and is provided as part of open discussion this can improve the company's compliance behaviour and ethical awareness. It is also important for the message to incorporate the following elements as much as possible: factual description of the deviation from the standard, a rationale why the deviation cannot be permitted, naming issues a company has arranged well, an invitation to restore compliance thereby pointing out an alternative organisation and/or course of action and/or behaviours, the importance of compliance in relation to the company's interests (moral values) and the social environment.

This means that moral messages can never be a standard message if a deviation from the standard has been observed. Not even a standard message with a positive, constructive content. The literature review revealed that a moral suasion message with the improvement of compliance behaviour as its possible output must consist of a personal, intention-oriented message, targeting the company's upper management. The message must furthermore be aligned with the management's moral development. How this might be operationalised demands further research.

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Chapter 5: TRUST BASED SUPERVISION

Rob van Dorp and Han Pret

ABSTRACT

Companies and organizations that show the desire to ‘do things properly’ in terms of full compliance with statutory regulations and permit requirements are given the opportunity to become a covenant partner of the Inspectorate of Environment and Transport (ILT) of the Ministry of Infrastructure and Environment in the Netherlands. These organizations should be willing to accept and act upon their own responsibility, have the necessary skills and competences to achieve compliance, and are prepared to demonstrate full transparency.

A “covenant” is a formal, binding agreement under civil law between the organization and the Inspectorate of Environment and Transport. It sets out how the organization is to ensure ongoing compliance with all statutory regulations, and the manner in which information about compliance and any incidents is to be exchanged with the ILT. The covenant will strengthen the commitment of both the organization and the Inspectorate to assure compliance. That relationship is based on mutual trust.

Before entering in this partnership the ability of the organization to ensure its own compliance is assessed by the ILT¹.

Even among covenant partners, it is likely that 100% compliance cannot be achieved at all times. There can be unforeseen circumstances which lead to some (temporary) failings. In such cases, the ILT will normally not enforce the law but expects the organization to take immediate and appropriate measures to preclude any recurrence².

Experience and research shows that covenant partners frequently achieve better all-round performance. In the paper examples will be presented. The compliance level is higher, there is a better overall understanding of the business processes, and there are fewer incidents. The agreements contained in the covenant can also help to improve operational performance of the company³.

Keywords: Trust, supervision, covenant, compliance assurance, compliance

INTRODUCTION

To ensure compliance regulatory offices perform inspections. Due to the limited capacity of most offices, these inspection are risk based. As a result of this risk based approach

¹ Covenant brochure ILT 2014.

² ILT interventiekader 2015 – 2019.

³ I&O Research, Handhavingsconvenanten als nalevingsinstrument, lessen uit de praktijk, 2013

inspections are targeted at companies that have a high rate of non-compliance. Companies that have a mediocre rate of compliance or are generally compliant, are ignored.

This is a shame, mediocre companies might be more able, or more easily persuaded to comply compared to companies with a high rate of compliance. Companies that are generally compliant might serve as an example for other companies if you tell those other companies about them anonymously.

There might also be a risk that the companies that are no longer visited might change their performance for the worse without the regulatory office noticing. So the question might be asked if it is wise to reserve most of your capacity for companies that perform badly. Shouldn't you stimulate the companies who have a high potential to improve their compliance?

The “Inspectie Leefomgeving en Transport (ILT)” of the Netherlands experimented with the concept of trust based supervision. Companies and organizations that show the desire to ‘do things properly’ in terms of full compliance with statutory regulations and/or permit requirements are given the opportunity to become a covenant partner of the Inspectorate (ILT). These organizations should be willing to accept and act upon their own responsibility, have the necessary skills and competences to achieve compliance, and are prepared to demonstrate full transparency.

Instead of ILT enforcing the law on these companies and fining the offender, the companies will manage their own compliance and report the results to the ILT. The companies will analyze any non-compliance and improve the compliance management system if needed to avoid future non-compliances.⁴

This paper will describe the process leading to a covenant and the results and lessons learned during the first year experimenting with this arrangement.

PROCESS LEADING TO A COVENANT

Getting a covenant is not easy. The company has to show it has a robust system that ensures its compliance. To get to a covenant several steps are taken⁵:

Initiation

Not all companies are eligible for a covenant. The level of compliance of a company is monitored by the ILT. If a company has a low level of non-compliance, or shows a high willingness to comply, the ILT ask the company if it is willing to work towards a covenant. The initiative may also be taken by the company itself.

⁴ ILT meerjarenwerkplan 2015- 2019.

⁵ ILT Toetsingstraject compliantieniveau Inspectieplan convenanten WBB 2014.

Self assessment

The first step towards a covenant is the selfassessment⁶ by the company.

During the self assessment the organization determines whether it is eligible to become a covenant partner, and whether doing so will be to its advantage. This entails a full evaluation of the business systems, operational processes and controls to ascertain that they are of the level and quality necessary to ensure that their organization can achieve full compliance with statutory regulations at all times. The system has to entail the responsibilities of the management and personnel responsible for compliance, the (compliance) awareness of the personnel, education, tools and means needed for compliance, a system that detects and analyses non compliance and ensures that appropriate measures to ensure compliance are taken and finally a monitoring and reporting system that reports the level of compliance to management.

For this self assessment forms, specific for the activities of the company, are provided bij the ILT. The outcome of this assessments determines whether or not the company and the ILT will work together towards a covenant.

Internal audit and audit by the ILT

Next, the organization will conduct a full internal audit to demonstrate that its management systems are capable of ensuring full and ongoing compliance with the relevant legislation. The results of the audit are submitted to the ILT, which will determine whether the management measures are indeed capable of ensuring full and ongoing compliance.

Next, the ILT will conduct its own audit at the organization, examining the high-risk processes in which the risk of non-compliance is greatest, and/or those in which non-compliance will have a significant impact on the environment or society at large.

The ILT audit entails an examination of systems and documents, interviews with key personnel (senior and executive management; supervisors and workflow operatives) and ‘Reality checks’ of up to three high-risk processes.

It is possible that the audit will reveal some minor shortcomings within an organization which is otherwise eligible to become a covenant partner. In such cases, the organization will be allowed a reasonable period to optimize its systems or processes, and to implement improvements in order to resolve the shortcomings. The ILT will then assess whether the measures are adequate.

Signing of a covenant

⁶ ILT self assessment borging van naleving regelgeving 2014.

Once the ILT is satisfied that the organization meets all requirements, the covenant is signed and takes immediate effect.

A “covenant” is a formal, binding agreement under civil law between the organization and the Inspectorate of Environment and Transport. It sets out how the organization is to ensure ongoing compliance with all statutory regulations, and the manner in which information about compliance and any incidents is to be exchanged with the ILT. It also describes the responsibilities for the ILT. The ILT will not impose penalties and the company will get its own liaison (accountholder). Of course the Public Prosecutor has his own responsibility to decide about prosecution.

Thus the covenant will strengthen the commitment of both the organization and the Inspectorate to assure compliance. That relationship is based on mutual trust⁷.

A covenant can be terminated by either party at any time. If a party finds that the covenant does not bring the expected benefits, or that the ILT has failed to keep the agreements made, the company and ILT discuss the matter with a view to resolving the situation in a mutually acceptable manner. If this is not possible, the covenant will be terminated with no further consequences. Similarly, the ILT is entitled to terminate the covenant if a company fails to keep the agreements. The standard supervision regime will then apply with immediate effect.

Covenant partners are listed by name in the ILT Annual Report and on its website. This enhances their corporate image, setting them apart from the not so compliant focused competitors.⁸

Supervision on companies with a covenant

Even among covenant partners, it is possible that 100% compliance cannot be achieved at all times. There can be unforeseen circumstances which lead to some (temporary) failings⁹. In such cases, the ILT considers it essential that the organization provides complete transparency. Under the terms of the covenant, they are required to report their compliance and any incident or ‘near miss’, and to take immediate and appropriate measures to preclude any recurrence.

Companies with a covenant will be inspected, however the frequency will be much less than companies without a covenant. However, if during an inspection non compliances are detected the ILT will not automatically impose penalties. Rather, the ILT and the company shall examine whether the situation has been caused by a genuine mishap or misunderstanding. Once again, the covenant partner is expected to provide full transparency and all necessary information. Agreements will then be made to preclude any recurrence. If,

⁷ILT Meerjarenwerkplan 2015- 2019.

⁸ www.ilent.nl.

⁹ Rijksacademie voor Financiën, Economie en bedrijfsvoering, congres verslag 19012012, ‘Vertrouwen geven en in control zijn; en nu doen!’

however, the situation has been caused by deliberate omission or commission on your part, the covenant will be terminated immediately and sanctions may well be imposed.

The organization and the ILT will continue to exchange information in accordance with the agreements set out in the covenant. During the covenant, there will be regular, scheduled meetings between the ILT and the covenant partner.

EXPERIENCES IN THE TRANSPORT SECTOR

At the end of 2013 ILT had signed a covenant with 54 companies. Covenants were signed with companies from the shipping, transport, aviation and hazardous material sectors. To learn from the experiences of these covenants a study was done in 2013 by I&O research¹⁰.

The effects of the covenant approach

I&O research was asked to research the effects of a covenant on the compliance of a company. Another goal of the research was to determine if there are any obstacles for a company to sign a covenant.

To answer the questions I&O research first performed an extensive literature study into the use of a trust based approach to supervision. Next they interviewed personnel of ILT and selected companies to prepare for an extensive questionnaire.

This list of questions was sent to companies with a covenant.

I&O research also wanted to talk to companies who did not have a covenant or were offered but refused the covenant. Unfortunately these companies were not willing to participate in the research. 38 of the 54 companies with a covenant participated in the research and filled in the questionnaire.

Experience with the process

Based on the interviews 2/3 of the companies indicated the process from initiation to signing a covenant took less than a year. 9 out of 10 companies indicated the process went smoothly. According to the companies this was due to the company and ILT having expressed their expectations to what a covenant should bring and having a common goal. If there was not a common goal or the expectations deviated, the process did not go as smoothly. One company indicated it did not expect that it had to open the books regarding compliance. Fortunately only 1 out of 10 companies indicated a non-smooth process.

The companies all indicated that the first year was used to further clarify which information should be exchanged between the ILT and the Company.

¹⁰ I&O Research, Handhavingsconvenanten als nalevingsinstrument, lessen uit de praktij, 2013

ILT and the companies all indicated an improved relationship between the company and the ILT.

Effects on the companies

Based on the interviews clear effects of the companies were indicated. A number of companies indicated that the administrative burden slightly increased because of the information that should be provided tot the ILT. However this information was usefull for the management of the Company as well. Now they had the opportunity to manage there compliance, since they have the numbers available.

Because of the focus on the regulation within the company, a number of processes were improved. This led to fewer incidents, a company in control, and even savings on fuel. The awareness on compliance increased at all level of the companies. In one company drivers of trucks competed on who had the least incidents of non-compliance.

The companies indicated that having a covenant increased their reputation as a responsible company. It also improved the relation with the ILT. Although these companies are already considered companies with a high compliance rate, most companies indicated there compliance increased even more.

This result on compliance was confirmed by the compliance report of one of the companies. According to his own measurements its compliance rate increased from 86% to 95% the first year, 97% the second year and 98% the third year. An improved compliance rate is also reported by the other companies¹¹.

CONCLUSIONS AND DISCUSSION

Based on the I&O research and the first year of experienced, it looks like the covenant approach is succesfull. At least in the short term. The companies improve on compliance, are managing the compliance and are more “in control”. Of course only companies who are already considered in adequate compliance are offered a covenant. So there probably is already some “intrinsic motivation” present to comply to the law. Wether these levels of compliance will remain is subject to further investigation. It will take effort of both the ILT and the company to sustain the level of compliance.

Only a small portion of the total population of (transport) companies have a covenant at the moment. It will be interesting to see if having a covenant and a better image will lead to a better competitive position within the market. If it does, improving compliance instead of avoiding an inspection might be considered the goal for a company.

¹¹ www.vanderwal-transport.com.

Although not specifically mentioned during the investigation, using a covenant might introduce a covenant trap. To refuse an offered covenant is difficult. Companies indicated it was difficult to say no, it is offered by an authority, and an explanation why you would not want a covenant might be self-incriminating. Once a covenant is signed it is difficult to get out for the same reasons and loss of image.

An open question still is what the ILT will do if a company with a covenant complies with the transport rules but at the same time does not comply with other rules. For instance what a company is severely enforced by the National Food and Product Inspectorate (NVWA) due to violations on animal welfare?

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Chapter 6: THE VALUE OF PROCESS SAFETY CULTURE FOR INSPECTION IN MAJOR HAZARDS INDUSTRIES

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ABSTRACT

Safety culture is increasingly recognised as the third important determinant of safety, complementary to technology and safety organisation. There are no legal requirements with respect to safety culture, except for nuclear power plants. Safety culture is and remains therefore a responsibility of the major hazards industry itself and it was recognised that safety cultures were relatively poorly developed.

The purpose of this research was to assess safety culture in fourteen major hazard companies in four industrial sectors: refineries, (petro) chemical industry, bulk storage and chemical warehousing. This leads to safety culture scores, based on fourteen dimensions such as safety communication, contractor management and learning from incidents.

(Petro) chemical companies and refineries had good or acceptable scores. If a score of 3 (a calculative safety culture) is regarded as the minimum acceptable score for a major hazard industry, several companies in bulk storage and chemical warehousing scored at or below the acceptable minimum. The process safety culture assessment also identified strengths and weaknesses regarding the fourteen dimensions of process safety culture, and these varied for the different industrial sectors.

The outcomes enabled the inspectorate to focus on topics related to weak dimensions. Since the end of 2014 a new national project is being carried out to develop a simplified process safety culture assessment tool for inspectors. This modified method should reasonably correctly identify companies that have a ‘strong’ and a ‘weak’ safety culture. The aim is to nationally include safety culture in risk-based inspection strategies.

Keywords: process safety culture, benchmarking, major hazards, inspection

Note: The research described in this paper has been presented under the title *Benchmarking safety culture in major hazards industries in the Rotterdam area (The Netherlands)* at the American Institute of Chemical Engineers 2014 Spring Meeting, 10th Global Congress on Process Safety, New Orleans LA, on March 30 – April 2, 2014.

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INTRODUCTION

Ever since the Chernobyl disaster [2] and the Piper Alpha disaster in 1998 in the North Sea [3], safety culture is on the agenda. In the analyses of the disasters a poor safety culture was regarded as an important causal factor that referred to intangible and often ambiguous issues like information difficulties, violations, failure to recognise emerging danger, role ambiguity, management complacency, poor communication, low prioritisation of safety, etc. [4]. Such factors are regarded as ‘latent conditions’ for incident causation [5].

Nowadays, safety culture is widely recognised as important for accident prevention. There are many definitions of safety culture. Guldenmund [6] discusses 18 different definitions of safety culture and the related concept of safety climate. The concept of safety culture is usually used as a generic term, which does not differentiate between process safety and personal safety. However for an assessment of process safety culture, such a distinction is very relevant, and is a consequence of the lessons learned from the BP Texas explosion [7].

In this research we focused on ‘process safety culture’ which we defined as the attitudes, values, explicit or implicit assumptions, perceptions and habits of the members of an organisation relevant for dealing with process safety risks (elaborated in [8]). Safety culture is an aspect of the organisational culture, and can also be understood as the ‘unwritten rules’ [9] in the organisation, which are reproduced and enforced through socialisation processes. It is important to note that values, implicit assumptions and habits do not only refer to conscious behaviour but also to unconscious behaviour of the members of the organisation. Safety culture is a multi-layered concept. There is often a focus on the expressions of safety culture. In practical terms that implies a focus on activities, behaviour, policies, and procedures that are relevant for safety.

Major hazard industries have to comply with rather detailed legislation with respect to the safety organisation and technology. In the European Union this concerns the so called ‘Post Seveso (III)’ legislation. There are, however, no legal requirements with respect to safety culture, except for nuclear power plants. Safety culture is and remains therefore primarily the responsibility of the companies involved.

In the Netherlands several incidents in companies dealing with large quantities of chemicals got a lot of media and political attention. It was broadly recognised that in these cases, the organisational safety cultures were poorly developed. Though most of these incidents took place in the sectors of chemical logistics and trade and bulk storage, the chemical industry as a whole was confronted with criticism in the mass media, while the authorities were criticised for being too flexible and industry friendly. This urged the authorities to be stricter in enforcing the legislation for major hazard industries in general, and to take new initiatives to guarantee chemical safety.

Against this background, in 2012 the regional environmental inspectorate DCMR asked TNO to assess the safety culture in 14 major hazard companies in four related sectors. The aim was that this would at a later stage support the development of a risk-based inspection approach. The focus in this investigation was on those characteristics of safety culture that are relevant for environmental safety and the management of major hazards. The two main research objectives were: (1) to gain insight into the (process) safety culture of 14 companies in four industrial sectors: refineries, (petro) chemical industry, bulk storage (tank parks), and chemical warehousing and logistics, and (2) to allow benchmarking of process safety culture between those sectors and between companies. A secondary objective was to provide the participating companies with useful insights into the strengths and weaknesses of their (process) safety culture.

METHODS

The Selection of Companies

The research was conducted in 14 major hazard companies, selected by the environmental inspectorate out of the more than one hundred companies or plants that fall under the regime of the Post Seveso Directive in the Rotterdam area. The selection included four (petro) chemical plants, two refineries, four bulk storage and four chemical warehousing and logistics companies. The inspectorate selected organisations with a good as well as a not so good safety reputation. The researchers were not informed about their reputations. All companies approached by the environmental inspectorate agreed to co-operate. For two organisations with several major hazard plants or units, it was agreed between the organisations and the inspectorate to select the chemical plant or storage unit which was, according to the company, their unit with the most advanced safety culture. This implies that the selection was somewhat to the positive compared to the total population of major hazard industries in the area. This was accepted, because for the companies involved the benefit was that they would obtain an independent check by objective outsiders, whether these units rightly had an exemplary role within their organisations.

The Dimensions of Process Safety Culture Assessed

The TNO Quick Scan Process Safety Culture measures 14 dimensions of process safety culture; 9 dimensions are taken from the Hearts & Minds methodology (which comprises 18 dimensions [10], see Table 1) as that methodology, originally developed for Shell, is broadly used by the Dutch chemical industry. However, the Hearts & Minds methodology was developed before the BP Texas disaster [7] and is more focused on safety culture in general than on process safety culture specifically. Five complementary dimensions were therefore included, because the scientific literature and industrial experience demonstrate that they are very relevant for process safety (see Table 1).

Table 1 Fourteen Dimensions of Process Safety Culture Measured in the Research

Nine dimensions from the Hearts & Minds methodology [10] used in this research	Five complementary dimensions used in this research
<ul style="list-style-type: none"> • Leadership and commitment • Opinion of management about the causes of incidents • Profit versus safety • Safety communication • Participation and commitment of employees • Contractor management • Procedures and rule management • Incident reporting and analysis • Execution and follow-up of audits 	<ul style="list-style-type: none"> • Personal versus process safety • Functioning and roles of supervisors • Maintenance management • Learning from incidents • Dealing with complexity

About the five complementary dimensions:

The process safety versus personal safety dimension was included because since the BP Texas disaster [7] it is broadly recognised that different scenarios are relevant, with consequences for safety management and culture.

The functioning and roles of supervisors was included because the supervisor plays a key role in safety communication, and in promoting safe behaviour on the shop floor. It is also well-known that supervisors are often overloaded with information and tasks, which may affect their safety role.

Maintenance management is crucial for the technical condition of installations, and a key determinant of process safety. Delay of preventive maintenance can be financially attractive, but easily undermines safety margins [11]. Especially the balance between planned preventive maintenance and trouble shooting is an important indicator of the importance attributed to process safety, and therefore a key issue for process safety culture.

The learning from incidents dimension was included because it is known to be a challenge in industrial practice. Research shows that there are many bottlenecks in the learning process [12] and it is certainly related to the organisational culture.

Complexity due to variation in a process or in process handling may lead to unexpected events, which can be critical for safety [13]. Safety culture and especially ‘organisational mindfulness [13] is important to recognise the meaning of unexpected events, in order to be able to deal with them adequately. Alertness for exceptional situations and recognising their meaning for safety is therefore a characteristic of a good (process) safety culture.

The assessment procedure

The actual assessment of process safety culture comprised three stages for each company. In the preparatory stage historic data were received from the local environmental safety authorities about safety incidents, including non-compliances and fines of the last years (maximum five years). The companies sent their current safety programs, their last management review of the process safety management system, and any additional information that was relevant according to the company. It was avoided to become overloaded with safety documentation about the existing process safety management system, as the assessment aimed to focus on culture and behaviour in daily practice. In this way, the research was fairly complementary to regular audits of the process safety management system.

The on-site part of the assessment was carried out in two days, involving two researchers. In total, for the fourteen assessments, a team of seven researchers carried out the assessments. They were experienced safety and psychosocial experts having a broad experience with safety culture. They were trained in advance to be prepared to adequately deal with socially desirable responses of the interviewees, and to make sure they would get insight into the real safety practices. The data about historic incidents were very valuable in this respect, as were observations from the walk-through, and the information from the management review and safety plans. These sources of information helped to discuss relevant culture issues. Indeed, checks and balances between different sources were essential for the reliability of the methodology. This involved four types of triangulation [14], i.e. between observations, documents, interviews and also between the members of the research team.

The assessment started with a walk-through (observations) followed by a series of interviews of about one hour each. The interviewees included the plant manager, the HSE manager, one or two middle managers and supervisors, operators from day and continuous shifts, personnel of contractors, the maintenance manager or maintenance personnel, and a member of the Works Council. In each interview all dimensions of safety culture relevant for the interviewee were addressed; this implies that with e.g. the plant manager and the HSE manager all 14 dimensions were addressed, while in other interviews only a selection of the dimensions was addressed. The researchers individually documented the findings per safety culture dimension addressed, directly after each interview, also documenting other remarkable findings.

At the end of the second day the results of observations and interviews were compiled and a close-out session was organised with management and other company representatives (often the interviewees). An inspector from the regional environmental safety inspectorate DCMR was also present. The research team presented the findings using a standardised power point format, containing the following items:

A score on the safety culture ladder (similar to that in the Hearts & Minds methodology), a scale from 1 (pathologic safety culture) till 5 (generative safety culture);

The relatively or absolutely strong and weak dimensions of process safety culture;

The consistency in the process safety culture: the variation in quality of safety culture among the 14 dimensions and the degree of consistency between the various interviews;

Often: useful observations about the functioning of the Hazard and Risk Control System in practice.

This triggered a dialogue between company management and representatives and the research team, wherein the research team was challenged to present evidence, especially for results which were not as good as company management had expected. In these cases management and representatives were challenged to take the findings of the research team seriously, and commit themselves to improving the absolute or relative weaknesses in the company's process safety culture. As a matter of fact, the way the dialogue with management and company representatives takes place during the close-out, is to a certain degree also reflecting the organisation's safety culture. The dialogue therefore was an opportunity for the researchers to get a deeper understanding of the company's safety leadership and culture, while for the company it was an opportunity to deepen their understanding of the observations and findings of the research team. The dialogues did, however, not lead to significant adaptations of the outcomes of the assessments.

Documentation and Reporting

The companies nor the environmental safety inspectorate received a written report about the findings per company, other than a pdf version of the close-out presentation. This was to avoid that confidential information would become publicly available after the research. Information from the governmental authorities, including projects contracted out, can in the Netherlands become publicly available if somebody makes a dedicated request to get that information. In this case it was assumed that some newspapers would make such requests.

The results of the fourteen process safety culture assessments were used to arrive at conclusions per sector and for benchmarking purposes. The results thereof were reported to the environmental safety inspectorate, and also used as a basis for presentations of the research to the regional industry association and its members.

RESULTS

Quantitatively Benchmarking

For each organisation, the process safety culture was rated, using a range from 1 – 5, similarly to the Hearts & Minds safety culture ladder [10]. A score of 3.0 (comparable to a calculative safety culture in the Hearts & Minds methodology) was regarded as the minimum acceptable score for a major hazard company. The results are presented in Table 2.

Table 2 Scores on the Process Safety Culture Ladder per Sector

Sector	Average culture score per company	Range
Refineries (N=2)	3.7	3.4 – 4.0
(Petro)Chemical (N=4)	3.9	3.5 – 4.0
Bulk storage (tank parks) (N = 4)	3.3	3.0 – 4.0
Chemical warehousing and logistics (N=4)	2.8	2.5 – 3.0

As Table 2 shows, the (petro) chemical companies and the refineries all had a good or acceptable safety culture. In the bulk storage sector the inter-company variation was substantial, but all cultures were assessed as acceptable, while in one case it was good². In the sector of chemical warehousing and logistics the average score was below standard, with two companies below and the other two at the minimally acceptable level.

In five of the 14 companies the score on each of the 14 dimensions as well as all interviews indicated a good safety culture. The average culture score of these five companies was 3.8. These companies can be regarded as frontrunners in the development of safety culture. Three companies achieved an average 3.8 score, while in these organisations there were remarkable inconsistencies between the various interviews, i.e. there seemed to be subcultures or ambiguities in the safety culture. Unfortunately, within the limited timeframe available for the Quick Scan, it was not possible to further investigate these inconsistencies. Therefore, the good scores of these three companies remain more uncertain than those of the other 5 companies with well-developed safety cultures. One company got a very consistent score of 3.0.

Three other companies also got an average score of 3.0, but in these cases the consistency among the dimensions and interviews was less. Finally, two companies had a score of no more than 2.5. In these companies there was a range of weakly developed dimensions of safety culture; there were complementary observations of some specific unsafe practices as well. Table 3 gives an overview of these findings per sector.

² This bulk storage unit served as the internal benchmark in the company as a whole, having a better-developed process safety culture than the other units of the same company.

Table 3 Consistency in Process Safety Scores

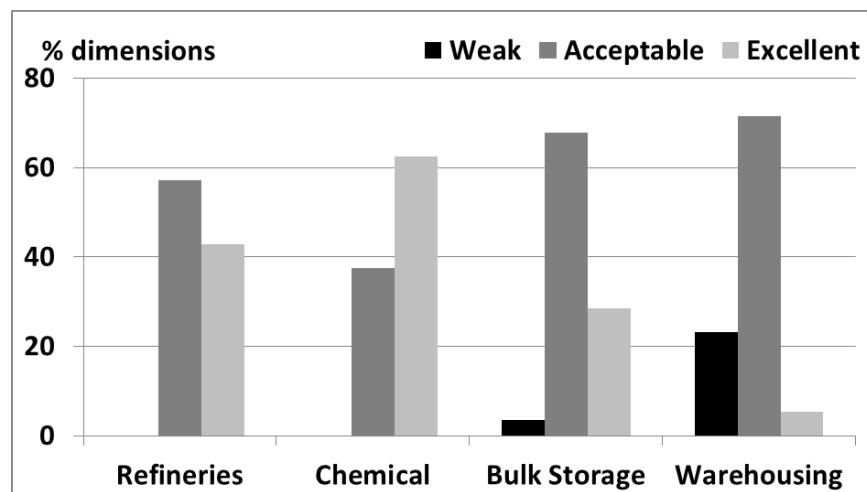
	Good or acceptable score on all 14 dimensions	Average score acceptable but with some weak dimensions	Many weaknesses, average is below standard
Refineries	2		
(Petro)chemical	4		
Bulk storage	3	1	
Warehousing and logistics		2	2

In a few companies there were observations of some specific unsafe practices. Again, we were not able to further investigate this, which means that for these cases the safety culture scores are associated with substantial uncertainties.

Qualitatively Benchmarking

The benchmark was also carried out qualitatively, i.e. assessing the strong and weak dimensions per sector. Obviously, in the sectors with a good process safety culture more dimensions were found to be strong, while in the organisations with weaker process safety culture, more dimensions were weak.

In the four (petro) chemical companies and the two refineries no weak dimensions were found at all: all dimensions where either good or excellent. However, for the bulk storage and the chemical warehousing several weak dimensions were identified, while excellently-developed dimensions in these sectors, especially in the chemical warehousing and logistics, were scarce.

Figure 1 Variations of qualitatively assessed process safety culture dimensions per sector

In each company and each sector opportunities were identified for improving the safety culture. As shown in figure 1, the refineries and the chemical companies could improve their relative weaknesses, while in the bulk storage and chemical warehousing and logistics sectors several absolute weaknesses needed improvement.

Three dimensions could be improved in all four sectors: execution and follow-up of audits, learning from incidents, and dealing with complexity.

Additionally, in the tank parks and the chemical warehousing and logistics the management vision on accident causation as well as the reporting and analyses of incidents were relatively or absolutely weak, and can certainly be improved.

In the chemical warehousing and logistics, three other dimensions also require dedicated efforts: safety leadership and commitment, safety communication, and participation and commitment of employees. These three dimensions were often excellently developed in the chemical industry and the refineries, implying great opportunities to learn from each other.

There were more opportunities to learn from each other on specific dimensions of process safety culture, especially across sectors. We identified some companies with inspiring safety leadership while in a few others safety leadership seemed to be absent. We noted examples of excellent safety communication, but also cases of poor safety communication. We saw major hazard industries with a well-developed focus on process safety, but also a few examples where safety was centred on personal or transport safety issues. In fact in a few warehousing and logistics companies the control of major hazards was almost limited to formal procedures and technical facilities. In the population of 14 organisations there were also significant differences regarding the dimensions ‘Procedures and rule management’, ‘Functioning and roles of supervisors’, ‘Maintenance management’, and ‘Learning from incidents’.

Finally in some cases relevant observations were made outside the fourteen cultural dimensions.

We noticed examples of process safety management systems that were excellently functioning with strong involvement of managers and workforce, but also a few examples where this was mostly paper work. There were a few organisations where scenario-thinking was not practiced (only in the paper work), while awareness about such scenarios is crucial for the prevention of major accidents. Finally we saw good examples of safety knowledge management, where relevant information was broadly shared and discussed, and a few examples where almost all knowledge was concentrated into the head of one person and information files on his personal computer hard disk.

DISCUSSION

Practical Relevance

Though since the BP Texas report [7] it is broadly acknowledged that process safety and personal safety should be clearly distinguished, such distinction is usually not yet made in the area of safety culture. In this project we focused explicitly on process safety culture. However, we are still far from a generally accepted definition of process safety culture.

The main strengths of the methodology used, the TNO Quick Scan Process Safety Culture, are that the method leads to an assessment of process safety culture which can be given in short notice, at relatively low costs. The method turned out to be useful for assessing the general state of the process safety culture, as well as for identifying its strong and, perhaps relatively, weak dimensions. The latter imply distinct areas for improvement. Indeed, from several companies we got the feedback that the benchmark provided valuable insights into specific issues in their safety culture, which was used by management in their plans to (further) improve their safety culture.

Limitations to the Assessment of Process Safety Culture

The process safety culture was measured through the 14 dimensions given in Table 1. The available budget allowed only for ‘quick scans’ as assessments of the process safety culture. In-depth analyses were not possible, though were desirable in cases where the process safety culture showed inconsistencies among the various dimensions. Therefore, the quantitative scores are more reliable for the companies with a well-balanced process safety culture; for the other companies the scores imply greater uncertainties. Also, it could be argued that the quantitative ‘score’ that represents the average of fourteen dimensions, is not sufficient to give a good picture of the safety culture for those companies with a less-balanced culture, as one number does not adequately reflect the strengths and weaknesses thereof.

Finally, one can discuss whether a quantitative score of the process safety culture should be based on the average of all dimensions, as was practiced in this research. During the presentation of results for the industry, some safety consultants criticised the scores for being too positive; they advocated a culture score based on the lowest score, as they regarded the weakest dimension as the critical dimension for process safety. As we felt that limitations in our ‘quick scan’ approach did not allow us to come up with a reliable score for each individual dimension that was not an option here.

The methodology has its limitations. For the organisation the ‘burden’ of the research is limited to the interviews during two days, and the final close-out session. In this period strengths and weaknesses of the process safety culture can be assessed. The method also implies clear limitations: though it is possible to assess whether each of the 14 dimensions is

(relatively or absolutely) strong or weak, it is not possible to give a representative score on each of the safety culture dimensions with sufficient reliability. We give therefore a quantitative score based on the average of the 14 dimensions. This is a score for the process safety culture as a totality. As there is not (yet) a generally accepted definition of process safety culture, the way we have defined and measured this concept remains open for discussion.

Challenges for Major Hazard Industries

For individual industries it is difficult to assess their own (process) safety culture. The members of the organisation are likely to share habits and perceptions with the other members of the organisation, implying potential blind spots for some relevant aspects of process safety culture. An assessment by an independent qualified outsider can therefore be very valuable for the industry. Of course, it is up to the industry then to evaluate and value the results thereof, for the further development of their safety culture and policy.

Assessing process safety culture is one, but improving that safety culture is something else. This will require safety leadership, a collective learning process, persistency over time, and consistency in management efforts and messages.

The research showed significant variations in process safety culture between the sectors that comprise the major hazard industries. There seem to be two implications. Firstly there are many opportunities for cross sectional learning. Secondly the chemical and petrochemical industries seem to have a specific interest and responsibility in this respect. An interest because major incidents in the bulk storage or chemical warehousing and logistics have a direct impact on the industry's reputation and 'license to operate'. A responsibility because the bulk storage sector and the chemical warehousing and logistics are business partners that deal with their raw materials and/or products. The chemical or petrochemical industries are usually the most powerful players in these business chains, implying that they have a responsibility to trigger safety improvements at their business partners.

Challenges for Inspectorates

Governmental inspections increasingly follow a risk-based approach. While process safety culture is likely to remain a matter of the industry, the authorities and the public at large increasingly regard it as a factor that is relevant for risk-based inspections as part of an effective enforcement strategy. The implication seems to be that the development of a good process safety culture is important for the major hazard industry in order to develop or sustain a good relationship with the authorities.

The research showed that it is possible for two independent qualified outsiders to assess a company's process safety culture through interviews, observations and some document evaluation. The method that was followed for this assessment could possibly be modified to enable the inspectorate to efficiently assess process safety culture in a company. If the

application of such a modified method leads to sufficiently unambiguous assessment results, this could be included in a broader risk-based inspection approach.

CONCLUSIONS

The first conclusion is that the process safety culture in major hazard industries should be stratified per sector. The chemical industries and refineries have well-developed process safety cultures, although there were certainly opportunities for further improvement. The sectors at the end of the chain, the bulk storage and chemical warehousing and logistics do not have such well-developed process safety cultures; in a few cases their cultures were below what was regarded by the researchers as the minimum for major hazard industries.

The process safety culture of 9 of the 14 companies was rather consistent, i.e. the variation in quality between the fourteen dimensions taken into account was minimal. All companies with a consistent process safety culture had a good or an acceptable safety culture level. In three companies the average score was acceptable, but with significant variations between the fourteen dimensions. This means that (1) the assessment of their process safety culture is associated with more uncertainties. It also implies that some of the dimensions of process safety culture in these companies were below what was generally regarded as acceptable. There were two companies with a process safety culture that was regarded as substandard; in these companies the majority of dimensions were below standard, but some dimensions were sufficient or good. Consistency of process safety culture among the fourteen dimensions apparently is a characteristic of a well-developed safety culture, while inconsistency is an indication of a less mature or even substandard safety culture.

We found significant differences in strong and weak aspects of process safety culture among the organisations. It was possible, however, to identify shared strong and weak dimensions per sector. Therefore, the methodology used in this research, the TNO Quick Scan Process Safety Culture, turned out to be useful for an assessment of process safety culture, both at company/plant level and at sector level.

A follow-up project is being carried out to investigate methods that inspectors can apply to assess the safety culture in companies that they visit. The work is based on the TNO Quick Scan Process Safety Culture. The aim is that inspectors can apply a modified method to identify with reasonable certainty those companies that have a ‘strong’ and a ‘weak’ safety culture. The variation of these evaluations between inspectors, the extra time needed, the possibility to reduce the number of dimensions (now 14), and the use of different information sources (triangulation) are being investigated. As a result of this follow-up project, the modified Quick Scan could be made part of a broader risk-based inspection approach.

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Chapter 7: SANCTION MAPPING: A TOOL FOR FINE-TUNING ENVIRONMENTAL REGULATORY INTERVENTION STRATEGIES.

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ABSTRACT

Sanctions are a central element of the intervention strategies used by regulators, whether applied systematically and consciously or not. As such regulators should: have a clear and full understanding of the various sanctions at their disposal, be able to apply sanctions with a high level of competence, and be confident in their ability to explain and justify the choice and use of sanctions either individually or collectively. This can be difficult to achieve and demonstrate in practice, however. This is because sanctions, like any intervention, often occur in a contested space involving regulators, regulated entities, and the community at large.

A solution to some of the problems associated with navigating and applying complex sanction sets could involve arranging and categorising the sanctions, establishing the triggers that activate them: in order to determine which sanction best suits which breach. In other words: to map them.

Sanction mapping (like interventions and sanctions themselves) will impact on those core entities involved in a regulatory system – regulators, regulated entities and the community at large. Therefore it is necessary to consider the costs and benefits of sanction mapping to each of these groups. This paper establishes the context and general relevant factors for sanction mapping and proffers sanction mapping as a tool for fine-tuning regulatory intervention strategies.

Keywords: community, intervention, posture, regulated, regulator, sanction mapping.

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INTRODUCTION

Sanctions are a central element of the intervention strategies used by regulators (van Wingarde, 2015) and communicate a regulator's approach to its regulatory duties both internally as well as externally to regulated entities and other stakeholders. Sanctions also directly impact the freedoms and interests of regulated entities and can be viewed by members of the community to determine the extent to which a government accords with principles of justice, fairness, probity and equity. Sanctions, therefore, occupy a prime position in the often contested space between regulators, regulated entities, and the community at large.

Sanctions in response to breaches of legislation tend to be: administrative, civil or criminal. They are designed and levied to have a number of possible effects: prohibitive, restorative or punitive. They also fall into a number of types. As legislated regulatory systems have changed from traditional law and order models, according to developments in the interactions between regulators, regulated entities and community standards, the options for the deployment of sanctions, in terms of number and complexity, has increased.

This increase in options has expanded the regulatory discretion of regulators. This has led, in some cases, to greater negotiation and trading of options within and between regulatory agencies, as well as with regulated entities and other interested parties. Alternately, or in addition, the increase in discretion without guidance can increase the possibility that sanctions might be applied inconsistently, arbitrarily or capriciously. These occurrences seem more likely when a responsible agency is new to the field of regulation and/or the legislative systems are innovative and intricate, as is often seen in the field of environmental regulation. At the same time, there is an increasing expectation for regulators to be transparent, accountable, proportionate, and consistent while demonstrating other principles of good law and good implementation of law.

Outline

This paper considers sanctions from the three perspectives of regulator, regulated and wider community, with particular emphasis on the regulator as the distributor of sanctions. The reason for this is that one of the main aims of the paper is to provide environmental regulatory agencies with practical suggestions to assist them in shaping and informing their regulatory intervention strategies. It is anticipated that these suggestions may translate into changes to policy, procedures and practices in terms of how sanctions and sanction mapping can be developed and used as a tool for fine-tuning the regulatory intervention strategies by environmental regulatory agencies.

The paper comprises four parts. The first part considers sanctions in respect to their role, purpose and various types, and touches upon their intersection with regulatory posture before moving to consider sanctions from the perspectives of the regulator, regulated, and

community. The second part briefly outlines and provides some context on key issues such as the rule of law, regulation, sanctions, and the role of regulators incorporating the regulatory posture of agencies. The third part introduces and outlines sanction mapping in terms of what it is, why regulators would do it, and what it might look like, as well as assess its benefits and costs. Part four, the conclusion, makes a number of observations as to the benefits and utility of sanction mapping and considers a further research agenda and recommendations associated with implementation within environmental regulatory agencies.

SANCTIONS

Role and purpose of sanctions

In general terms sanctions assist regulators to deter potential offenders, punish perpetrators, and restore order in such a way that they maintain the integrity of legislation and regulatory regimes. In his report, *Regulatory Justice: Making Sanctions Effective*, Macrory states:

'Regulatory sanctions are an essential feature of a regulatory enforcement toolkit and are central to achieving compliance by signalling the threat of punishment for [those] that have offended. Sanctions demonstrate the non-compliance will not be tolerated and that there will be a reprimand or consequence that will put the violator in a worse position than those entities that complied with their regulatory ... obligations on time' (2006, p. 7).

In this conception of sanctions it is clear that they are framed punitively: they exist predominantly to punish offenders. This may be an appropriate approach for traditional regulatory agencies (though there is growing doubt about that) and to the same extent it may suit regulatory bodies in emerging and relatively new fields of law, such as dedicated environmental protection agencies. However, hybrid environmental regulatory agencies (being those with multiple functions across policy, programmatic and regulatory sectors) are required to give effect to regulatory systems that are complex, multifaceted, sometimes contingent, and rely heavily in certain aspects on negotiated results (Pink and Marshall, in press). Within these hybrid agencies there can be a preference, predilection and sometimes a statutory requirement to use sanctions for the purposes, not of punishing offenders, but for achieving environmental rehabilitation and remediation (Bisschop, 2015).

Added to this is the fact that in many instances harm done to the environment can be remediated, repaired or offset and it is desirable that this occur. This is not comparable to more traditional fields of criminal law, such as crimes against the person or property, in which the sanctioning system is separated from either healing the person or returning stolen property to the owner (where either is possible, as clearly they wouldn't be in cases of murder or where stolen property has been destroyed). In traditional criminal law, the punitive impulse is separated from the restorative. However, in environmental law the restorative goal can underpin an entire regulatory regime. It is possible, therefore, that a punitive approach is not

appropriate for environmental regulation, since in certain circumstances it may not support the restorative approach, or, worse still, may even contradict it and act as an obstacle to its successful realisation.

Types of sanctions

The application of sanctions, as an operation, by regulatory agencies can involve a spectrum of approaches from ‘direct command control on the part of the State’ through to responses that involve ‘voluntary compliance on the part of companies and individuals’ (White, 2008, p. 211). Though different terminology is used, sanctions fall into three broad categories. Sanctions are either administrative, civil, or criminal in nature, and accordingly have different characteristics. Further, it is assumed that each sanction sends a ‘threat message’ that communicates a potential cost to violators should a breach occur (van Wingarde, 2015, p. 2).

Each of the three main types of sanction has the potential to contain a number of options, which can be viewed as regulatory tools (Bricknell, 2010, p. 18). Depending on jurisdiction the total combined number of options may be less than a dozen to several dozen. *Table 1* below provides an overview and sample of common sanction types.¹

Table 1 Overview of common sanction types and tools/remedies

Sanction Type/Tools	Description of Sanction/Remedy
<u>Administrative:</u>	Commonly used for minor or technical breaches, or breaches that are able to be attended to by the regulator exercising its statutory authority without referral to a court (whether in a civil or criminal capacity) (EPA, 2009, p. 36).
Caution/Warning	Informal warning, advice or support from the regulator to the regulated.
Vary/suspend/revoke permit	Can involve the regulator varying, suspending or revoking a regulated entities licence/permit (or equivalent environmental authorisation).
Administrative order	Injunctive or prohibitive order determined by a Minister or high-level office holder to prevent or cease harm.
<u>Civil:</u>	Commonly used for instances where the regulator is keen to have the court impose some form of monetary or other order (not permitted/accessible through either the administrative or criminal responses) (EPA, 2009, p. 36).

¹ Note this table is for demonstration purposes only. Important jurisdictional, definitional and issues associated with nomenclature will affect the ultimate construction of this table within individual environmental regulatory agencies. For a detailed example of administrative sanctions considered for use by Ireland’s Environmental Protection Agency see (EPA, 2009).

Enforceable Undertaking	Written undertaking, between the regulator endorsed by a Court.
Remediation Determination	Requires the person/entity to take action to repair or mitigate damage that may or will be, or that has been, caused by the contravention (for example, section 480D of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Australia)).
Civil Penalty Notice	A Civil Penalty Notice can either be sought as a negotiated civil penalty (between the regulator and the regulated entity), or as a civil penalty imposed by a court (for example, section 104A of the <i>Environment Protection Act, 1993</i> (South Australia). ²
<u>Criminal:</u>	Commonly used for more serious breaches of legislation and where there is a clear public expectation and interest in the breach or activity being seen and treated as criminal (EPA, 2009, p. 36).
Prosecution (conviction)	Court conviction, criminal record with the possibility of a custodial sentence.
Prosecution (and fine)	As above with a pecuniary fine attached.
Prosecution (and seizure)	The establishment of a crime makes the objects used in commission of that crime, as well as any profits or other benefits resulting from the crime, forfeit to the state.

Bricknell's 2010 report, *Environmental Crime in Australia*, highlights the relationship between sanctions and an agency's regulatory posture. Of sanctions the report stated:

'Environmental crimes are often difficult to recognise or detect, and it is apparent that as a result this area has experienced a belated approach to developing appropriate sanctions. While the report acknowledges calls for a move away from traditional penalties to that of alternative sanctions (e.g. restoration and rehabilitation orders) and the incorporation of the tenets of restorative justice, it also recognises that a reinvigorated approach to prevention might provide the real key to reducing environmental crime' (Bricknell, 2010, p. iii).

Sanctions and the rule of law

² The South Australian Environment Protection Agency has developed a policy for calculating civil penalties, see SAEPA 2014.

The rule of law, or rather the principles that underline the use of the law against individuals, corporate entities and natural persons, places constraints on the way that sanctions are levied in concrete terms.

The principle that no one is above the law is important to regulatory officers for two reasons. Firstly, it reminds regulators that they are subject to regulatory regimes themselves, thereby recommending the undertaking of regulatory activity in ways that are transparent, accountable, even-handed, honest and so on. However, raising the threat of sanction is unlikely to promote better sanctioning practices. The reality is, more often than not, that regulatory officers have to stray very, very far from proper practice to suffer any punishment.

What is perhaps more useful from this principle is the reminder that the law, including every regulatory regime, is separate from the officers that implement and administer it. Sanctioning is not a personal act. It is not a punishment by one person against another. It is a response of state power to an entity that has acted against the rules determined by that state power. In that sense, it is emotionally neutral and, in the absence of personal motivators, it's best viewed as a series of functions. In other words, regulatory delivery (OECD, 2014) is a system and, as such, benefits from systematic approaches at various stages, notably at the point where the state uses its powers (especially coercively) against the individual, a point at which there is greater scope for harm. In this context, sanction mapping becomes a critical tool.

Sanctions and regulatory posture

Posture has been described as 'the behavioural stance of an organisation' (APVMA, n.d., para. 1). As such, posture is shaped and driven by organisational values. These organisational values are evident in the individual interactions of regulatory staff and the collective behaviours of a regulatory agency. The Australian Pesticides and Veterinary Medicines Authority describe posture as 'the character we project when interacting with stakeholders and with each other – *it's what we do and how we do it*' (para.1). And more specifically that:

‘Regulators need to conduct their diverse responsibilities efficiently and effectively while using innovative leadership, nurturing professional and collaborative relationships, fostering public participation and being accountable to government and the broader community. Regulators need to inform the regulated community on how to comply; and also need to conduct enforcement activities with sufficient rigour to ensure lasting compliance. The balance between these diverse responsibilities and the manner in which they are delivered is the agency’s *regulatory posture*’ (n.d. para. 2).

On a similar point, The Environmental Protection Agency Review Group (TEPARG) in *A Review of the Environmental Protection Agency* (in Ireland), commented that ‘[i]t is essential that the legislative and other tools necessary to support rigorous enforcement of environmental licences are available to the Agency’ (TEPARG, 2011, p. 10).

The neutral, dispassionate approach to regulatory delivery, as promoted by principles of good law, comprises in some respects an ideal regulatory posture. Such a posture can be further

refined with the incorporation of principles variously described as intelligence-led, risk-segmented and outcome-based. The result is 'tit-for-tat' regulation (Sigler and Murphy, 1988), escalation of responses (Ayres and Braithwaite, 1992), emphasising the preventive over the reactive, and other better practice regulatory approaches.

The levying of sanctions, as what an agency does (rather than what it says) is one of the clearer indicators of that agency's regulatory posture. Where the application of sanctions differs from what is communicated by an agency, this can demonstrate where a posture is in conflict, contradictory or split.

Escalation and De-Escalation

Compliance and enforcement pyramids have been interpreted and applied by some ERAs in such a way that sanctions are rigidly applied in ascending order, with ERAs being most comfortable in escalating their responses in circumstances where they are dealing with entities that have been subjected to sanctions towards the base of the pyramid. As a result, the sanctions at the apex of the pyramid (in some instances referred to as 'incapacitation') are only considered appropriate for the most egregious offending and even then is very much seen as the option of 'last resort' (Robinson, 2003).

White and Heckenberg are of the view that:

'The institutional culture surrounding regulation, compliance and enforcement activities has a great bearing on how work to monitor, investigate and prosecute environmental crimes is carried out in practice. There appears to be regular 'pendulum swings' in which activity oscillates between hardening and greater use of a 'big stick' approach versus the relative relaxing of controls and the shift toward self regulation by industry' (2012, p. 10).

Posture and Stakeholders

Sanction systems provide the clearest information on how a posture is observed by the regulated community and by the community at large. Regulated entities' responses to receiving sanctions provides indicators of how serious the agency is considered to be, especially in terms of approaches to following through on its actions (whether administrative appeals, criminal prosecutions or civil cases), further non-compliance, gaming behaviour and other system manipulations. The way others within the regulated field react to the levying of sanctions on competitors indicates whether the regulatory posture is considered across this group as fair, a reasonable business cost or whether it is viewed as an arbitrary, inescapable, bureaucratic impost and a drain on productivity. Hammett and Epstein suggest that a number of factors that contribute to an agency's 'regulatory mind-set' can lead to criminal prosecutions being considered as an option of last resort (1993, p. 39). This is separable from the community at large, which can provide a benchmark of the regulatory posture against social norms and community standards. Sanctions can also be measured against the extent to

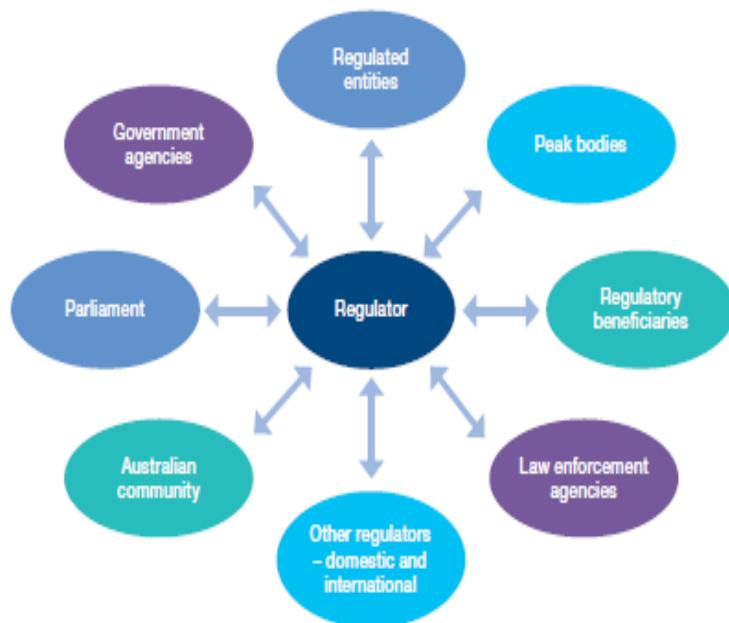
which the community in general feels that an agency protects it from potential harm and/or restores it once harm has been suffered.

Regulators, Regulated Entities and Communities

Considering the perspectives of the wide scope of stakeholders, including regulators, regulated entities and the community frames the sanctioning (and therefore the sanction mapping) process. It provides checks and balances against any one particular tendency and it acknowledges the various (sometimes even contradictory) roles that sanctions and regulatory regimes in general can play.

Diagram 1 shows that there are multiple and numerous permutations of the potential stakeholder relationships that a regulator can become involved in. The three entities (regulator, regulated entities, and community) featured in this paper are all present in *Diagram 1*.

Figure 1 Multiple regulator–stakeholder relationships



Source: ANAO, 2014, p. 16.

Bisschop states that responding to transnational environmental crime is ‘multi-stakeholder, multi-sector and multilevel and that it is often unclear how different governance actors and approaches interact’ (2015, p. 45). She adds that, ‘the state’ [the regulator] therefore is then just one actor who along with ‘corporation[s]’ [the regulated] and ‘civil society’ [the community] play a role’ in hybrid governance arrangements (p. 51) [emphasis added]. The next section considers sanctions from the perspectives of regulators, the regulated, and the community.

Regulator

Regulatory officers with training in and authority to use force and other coercive powers can have (and have, in the past, had) a binary approach towards sanctions: don't commit a breach, don't receive a sanction; commit a breach, receive a sanction. Sanctions are there to punish and bring back into compliance those who have failed to comply with legislation. This is based upon what is referred to as the more traditional 'command and control' style of regulation. As a traditional model of regulation, the 'command and control' approach can tend not to account for resource limitations, contextual factors and the overall regulatory scheme. Particularly, 'command and control' regulatory models are entirely reactive. Sanctioning in all forms is assumed to have a deterrent effect, making separately developed preventive measures of second order importance. Additionally, the punitive emphasis overrides restorative and remedial aims, which becomes an issue in fields such as environmental regulation where the main objects are to prevent harm and repair any harm caused (Bricknell, 2010, p. 18). 'Command and control' models can be directly compared against styles of regulation such as 'responsive regulation' (Ayres and Braithwaite, 1992; Braithwaite, 1993) and 'smart regulation' (Gunningham and Grabosky, 1998).

Due perhaps to the limitations of 'command and control' models of regulation, the latter regulatory styles are being increasingly used by environmental regulatory agencies. These adaptive and contingent approaches reflect and are consistent with a comparative analysis of the use of sanctions in the United States, Germany and Australia which provides evidence that there are tangible benefits 'in allowing regulators and the courts to pursue a pragmatic and flexible approach to environmental enforcement through utilisation of a sufficiently comprehensive range of sanctions' (EPA, 2009, p. 5). The 2009 report also recognised different sanction types and jurisdictional issues, specifically noting that:

'The merits of having access to a full 'suite' of sanctions allows the regulators to better match their response to the realities of enforcement, including the inevitable constraints which result from limited resources. ...In addition to providing a sufficiently broad range of measures, it is apparent that regulators should be encouraged to make optimal use of existing environmental sanctions, as well as regulatory tools available and other more general legislation' (p. 5).

This is supported by Sparrow who suggests that regulators should not dismiss or limit their options. Instead he makes the point that 'picking and choosing from a range of regulatory instruments needs care and attention, and a lot more discussion' (2012, p. 347).

The three c's that regulators can look for in sanction could be described as:

clarity in terms of what they want to achieve,

credibility in that they have applied them appropriately, and

certainty in that they are enforceable and recognised (and where necessary are supported by courts or independent arbiter in relation to administrative appeals).

Regulated

There have been numerous studies relating to sanctions and how they are received and perceived by regulated entities. The catalyst for many of these studies has been 'red tape reduction' which tends to focus on minimising the cost burden to industries that comes from complying the law, and in recent times 'green tape reduction' which extends upon the former but relates to land use and development as it intersects with environmental concerns and issues.

The studies of sanctions have spanned a number of industries, sectors, and commodities such as: Aged Homecare regulation (Braithwaite, Makkai and Braithwaite, 2007), Taxation regulation (Braithwaite and Braithwaite, 2001), and Occupational health and safety regulation (Gunningham and Johnstone, 1999). Studies with greater relevance for environmental regulation and protection have considered: the role of government in environmental protection (NZPC, 2014; APC, 2012).

The three c's that the regulated can look for in sanction could be described as:

calculation what are the pros and cons having a sanction applied,

cost in dollar and resource terms that are associated with being compliant, and

compliance referring to positive and negative impacts of sanctions³

Community

For the purposes of this paper, community is defined broadly to include interest groups and NGOs. It is important to note that the community is the major stakeholder of regulators. This is because laws, irrespective of type are there for the benefit, protection and maintenance of society. While they have different interests and focus this broad and eclectic group do tend to

³ While the negative impacts are clear increasingly regulated entities especially corporations are trading off of a good compliance record especially if associated with an industry/regulator endorsed system. Examples include schemes or initiatives such as green star, or five green ticks.

unite around issues relating to public standards and norms. Their interests frequently, but not exclusively, relate to local issues.⁴ From which the term ‘NIMBY’ (not in my back yard) is derived. In this sense it is the community and the concerns of the community which drive interest.

While the community are often at odds with developers and businesses (who tend to represent the regulated), both groups are desirous of an effective regulatory system. This is because:

... a poorly performing regulatory system is a significant drag on ... [the] economy and society [and] there is a risk that societies trust in the integrity of the ... regulatory system will be severely compromised... (Bailey and Kavanagh, 2014, p. 16).

Macrory suggests that third parties provided an important ‘challenge and accountability function’ as:

They act to ensure the regulators are carrying out their public duties with due care. If a regulator is not seen to be carrying out its public duties, then third parties can challenge the regulator and hold the regulator to account for its actions’(2010, p. 143).

It is also the case that academics and researchers, from time to time, will analyse and critique the use of sanctions by regulators and make comment on issues such as lack of use, overuse, and inconsistent use. This can happen proactively at the request of the government, an individual regulator (Hampton, 2005; Macrory 2006; EPAVIC, 2011), a research institute or similar (Van Wingerde, in press; Bisschop, 2015; Billiet and Rousseau, 2014), and/or reactively through review or audit (and usually on more of an interests/concerns basis, relating to either parts of the regulatory process or specific regulated commodities) (Bisschop, 2015, Rousseau and Blondiau, 2014; Wyatt, 2013; Baird, 2011; Lipman, 2010; Rousseau, 2007).

Gunningham, Kagan and Thornton (2004) suggest that the demands and expectations emerging from civil society⁵ result in social licence pressures. As a result, regulators are now routinely and proactively including the perspectives and thoughts of the general public into their activities, with direct reference being made in Terms of Reference and other such documents (see for example The Environmental Protection Agency Review Group, 2011, p. 114). The Environment Agency of England has also made ‘public interest factors’⁶ an identifiable factor of its *Sanction decision tree*, which is considered later in this paper.

White and Heckenberg (2014) suggest that there have been attempts to:

‘recast the state’s role by using non-government, and especially private sector, participation and resources in fostering regulatory compliance in relation to the goal of

⁴ See Ayling (2013) which highlights that third parties have significant potential to assist and be actively involved in crafting and implementing strategies, in respect to transnational environmental crime.

⁵ Civil Society here is broad and includes neighbors, environmental interest groups, non-government organisations, employees, and the media.

⁶ See section 4.1 ‘Public Interest Factors’ (EA, 2014a, p. 11).

'sustainable development'. Increasingly important to these discussions is the perceived and potential role of third-party interests, in particular non-government environmental organisations, in influencing policy and practice' (citing Braithwaite and Drahos, 2000; O'Brien, Goetz, Scholte and Williams, 2000; Gunningham and Grabosky, 1998) (p. 200).

The three c's that the community can look for in sanction could be described as:

context that laws operate in accord with community values,

comparison that sanctions are being applied in accord with notions of fairness, and

cohesion that community interests and perspectives are been considered in the application of sanctions.

SANCTIONS MAPPING

Definition

Sanction Mapping involves the identification, listing, and mapping of the sanctions (or remedies) that are available to the regulator.

Efficient, Effective and Responsive Regulation

Sanction mapping is a key component of being an effective, efficient and responsive regulator.

Part of being effective regulator is the proficient use of one's regulatory tools (Freiberg, 2010; Sparrow, 2008) so as to best serve the objects of legislation. Sanction mapping contributes to regulatory outcomes by ensuring that sanctions are deployed purposively. Where the goal is punitive, this is identified, as is where the goal is restorative, to return an entity to compliance or to ensure the integrity of the regulatory regime.

In terms of being an efficient regulator, regulators are answerable to a number of stakeholders for the resources they expend when conducting activities. The challenges associated with determining and applying appropriate law enforcement responses in the context of operating within a contested space, which the space between regulators and stakeholders often is, are complex and sometimes seemingly unnavigable. As Sparrow points out '[r]egulators, under unprecedented pressure, face a range of demands, often contradictory in nature' (2000, p. 17).

Great inefficiencies are associated with using tools that are outdated and/or not fit for purpose. On this, and referring to a recent report from the New Zealand Productivity Commission, Bailey and Kavanagh note that:

'Worryingly, almost two thirds of regulator chief executives surveyed by the commission reported that agencies often work with legislation that is outdated or not fit-for-purpose. As a result, regulators can be hamstrung, unable to respond to emerging problems or relying on 'workarounds' which can impose unnecessary costs on both the regulator and the regulated parties' (2014, p. 12).

In order to avoid workarounds, Sparrow suggests that:

'The essence of craftsmanship lies in picking the right tool for the job, knowing when to use them in combination, and having a system for recognising when the tools are inadequate so that new ones can be invented. The opportunity now confronting regulatory executives, given their diverse experiences with new methods and programs, is to learn how best to manage the increasingly complex regulatory craftshop' (2000, pp. xvi-xvii).

Finally in terms of being responsive, this is a combination of being effective, efficient and nimble in relation to how sanctions are used, as against the seriousness of each instance of non-compliance. Having been provided with a sufficiently broad range of environmental measures and sanctions, regulators are encouraged to make optimal use of them and are also encouraged to make use of a broader set of available tools and sanctions under related pieces of general legislation. The unexplained wealth, or proceeds of crime type legislation is one such example which has been used successfully in environmental cases (Rose, 2014).

Combining legislative instruments can prove of significant value given that 'changes to existing regulatory regimes are generally only made in response to a significant event or crisis. And then, it is done in haste' (Bailey and Kavanagh, 2014, p12), indicating there can be extant weaknesses in isolated regimes. Similarly, Gemmell and Scott (2013) note that 'it is also often the regulator's challenge to deal with inconsistencies and misalignments between instruments'.

Professionalism

A number of reports and reviews in recent years have highlighted the benefits in promoting continuous improvement in regulatory design practice (NZPC, 2014; APC, 2012; EPAVIC, 2011; EPA, 2009). Improving the regulatory skills of regulators has come under specific attention (IPAA, 2015; OECD, 2014; CCCP, 2011) and sanction mapping is one way to assist regulators to increase their skills, knowledge and experience in this area. Undertaking sanction mapping links regulators to the policy process, overcomes unconscious habit, and supports better decision-making.

Management

Management entails a regulator deploying resources, notably personnel and staff resources, in the right way for the right ends. The further the activities of an environmental regulatory agency move from the least severe to the most severe end of the regulatory spectrum

(Bricknell, 2010, p. 18), the less scope there is for improvising when deploying regulatory officers. The use of coercive powers and the application of an adversarial mindset requires specific skills, training, experience and preference. Equally, the officers recognised as proficient in the use of coercive powers are often not at all suited to negotiating, conciliatory roles. In circumstances like this, regulatory management and governance decision-makers must demonstrate their adaptability. In terms of regulatory resource deployment, it is not a question of relying on (individual) ‘agent flexibility but instead having the ability to have agency flexibility’ (Sparrow, 2000).

Sanction mapping is a tool that assists regulators in developing appropriate agency flexibility and responsiveness as well as guiding decision-makers through operational resource deployment. Sanction mapping combines with other governance tools to ensure the effective deployment of regulatory resources when those resources are constrained and it is increasingly difficult to justify wasting them. Used properly and managed appropriately, regulatory resource deployment guided by clear mapping can better ensure the objects of legislation while maintaining the integrity of the regulatory regime.

Sanction Mapping and Better Regulation

Sanction mapping has the ability to contribute towards and demonstrate a commitment to the five principles identified by the Better Regulation Task Force (BRTF) which are described as the basic tests of whether regulation is fit for purpose – and which have a clear link to sanctions:

‘Proportionality – Regulators should intervene only when necessary. Remedies should be appropriate to the risk posed, and costs identified and minimised. ...

Accountability – Regulators should be able to justify decisions and be subject to public scrutiny. ...

Consistency – Government rules and standards must be joined up and implemented fairly. ...

Transparency – Regulators should be open, and keep regulations simple and user-friendly.⁷ ...

Targeting – Regulation should be focused on the problem and minimise side effects’ (BRTF, 2005, pp. 51-52).

Equally, Macrory’s comprehensive empirical research on sanctions (which involved 524 regulatory bodies), is relevant here. The research culminated in the development of a set of ‘penalty principles’, that are inexorably linked to sanctions. The principles suggests that a sanction should:

⁷ Macrory goes further suggesting that in order to act transparently regulators need to go further and regularly provide reports on the use of their sanctioning powers against a set outcomes (2010, p. 15).

- ‘Aim to change the behaviour of the offender.
- Aim to eliminate any financial gain or benefit from non-compliance.
- Be responsive and consider what is appropriate for the particular offender and regulatory issue, which can include punishment and the public stigma that should be
- associated with a criminal conviction;
- Be proportionate to the nature of the offence and the harm caused.
- Aim to restore the harm caused by regulatory non-compliance, where appropriate.
- Aim to deter future non-compliance’ (Macrory, 2006, p. 6).

Adam Tomison, Director of the Australian Institute of Criminology, states that:

‘environmental crime is an area of criminal activity that has existed just below the research radar in Australia. There have been occasional waves of research attention, mostly examining existing and best-practice models of regulation and sanctioning...’ (Bricknell, 2010, p. iii).

WHAT MIGHT SANCTION MAPPING LOOK LIKE?

Sanction Mapping could be undertaken in a number of ways, including by:

- sanctioning body,
- legislation,
- offence,
- evidentiary requirements, or
- purpose/outcome.

It is unknown whether there is an optimal way to develop it, present it, and use it operationally. Ultimately it will depend upon a number of factors including: the regulator, the makeup of the legislation it administers, its regulatory posture, and perhaps most significantly its culture. Also, because sanctions are mapped one way this doesn't mean they can't be mapped other ways, allowing an appropriate level of flexibility in application.

The Inspectorate for Transport and Infrastructure in The Netherlands provides an example of a regulator proactively undertaking sanction mapping. In 2011 it considered and mapped sanctions (or what it referred to as ‘enforcement instruments’) across its eight regulatory domains (inland shipping, ocean shipping, air transport, road transport, bus taxi, rail transport, transport of dangerous substances, and worker protection) (Tollenaar, Winder and de Ridder (2011).⁸ In addition to providing an analysis of the application of the various ‘enforcement instruments’, this sanction mapping exercise produced additional benefits when the

⁸ Title translated is, ‘*Enforcement Transport: Instruments for the maintenance of Transport supervision domains and their use*’.

Inspectorate merged with the Environmental Inspectorate a year later in 2012. Not only did it provide a ready-made and tested model for the environmental inspectorate (side of the organisation) to use to map its ‘enforcement instruments’ under its numerous environmental regulatory domains. The combined result was that the new and merged inspectorate had, relatively quickly, mapped its entire regulatory responsibilities. This assisted in identifying which enforcement domains were connected (or overlapped) such that joint inspections produced synergies and efficiencies but it also facilitated skills transfer between staff and the forming of what would be the inspectorates new inspection and enforcement culture.

For the purposes of this paper two aspects are worth expanding upon. These are evidentiary requirements and outcomes. Firstly, in terms of evidentiary requirements, this is a reference to the standard of proof (sometimes referred to as burden of proof) which must be satisfied (sometimes referred to as proven) in order to establish a breach of legislation. There are two standards:

- for criminal matters – ‘beyond reasonable doubt’, and
- for civil matters – ‘the balance of probabilities’.

McGrath suggests however that in practice there may be little difference in proving some aspects of a civil case, when compared to the criminal standard. While not suggesting a third standard of proof, he does suggest that the Briginshaw Test⁹ in effect creates a form of sliding scale between the two burdens in circumstances where the gravity of the consequences in a civil matter are very high. In any event, and of relevance to regulators, McGrath suggests this debunks the notion that civil remedies are easier to obtain (2009, p. 22). Macrory makes a similar observation in respect to administrative penalties. Whilst acknowledging they have considerable advantages, in some circumstances, he does not believe that pursuing them:

‘... will lighten the demands on investigation of potential breach of the regulators. Investigation will continue to be done by criminal standards, and only later will the choice of sanctioning route be taken’ (2010, p. 30).

Secondly, in terms of outcomes the Environment Agency in England provides an example of an outcomes focus. Its *Enforcement and Sanctions-Guidance* states that it uses sanctions available to it in order to achieve environmental outcomes. Adding that the outcomes they seek can be divided into four general types:

- ‘to stop offending – aim to stop illegal activity from continuing/occurring;
- to restore and/or remediate – aim to put right environmental harm or damage;
- to bring under regulatory control – aim to bring in illegal activity into compliance with the law;
- punish and/or deter – to punish an offender and/audit future offending’ (Environment Agency, 2014a, p. 3).

⁹ This test came from a court case *Briginshaw v Briginshaw* (1938) 60 CLR 336.

In particular terms of what might sanction mapping look like, some options could include practical tools such as decision trees and flow charts that relate to both the ‘principles’ used and ‘processes’ followed. More specifically:

- in relation to *principles* – these have already been laid out in the work of Hampton (2005) and Macrory (2006) and whilst not all principles are evident in all instances, they have been generally accepted by regulators and tend to cluster or group them depending on need. This is evidenced by the fact that the majority of compliance and enforcement policies and or a sanction statements developed by regulators tend to include terms (and/or sentiments that capture and reflect) such as: *proportionality, consistency, transparency, targeting and accountability* (Environment Agency, 2014b, pp. 7-9). While other regulators expand this list to include terms such as *inclusive, authoritative and effective* (EPAVIC, 2014, p. 5).
- in relation to *processes* – without being prescriptive, key elements include:
 - identifying all legislation administered by the regulator that contain sanctions,
 - establishing the sanction types (administrative, civil, criminal) that are available within these various pieces of legislation (Macrory, 2010, p. 51),¹⁰
 - develop or modify an existing schematic for choosing interventions/sanctions (EPAVIC, 2014, p. 36; IMPEL, 2012, p. 15),
 - document the broad criteria/rationale for use of the various sanction types (administrative, civil, criminal) (Macrory, 2010, p. 63),¹¹
 - document the finer criteria/rationale for use of the various sanction tools/remedies (EPAVIC, 2014, pp. 22-33),
 - integrate such a process into the training of practitioners and managers,
 - monitor, report, and review this process as part of continual improvement practice (Macrory, 2010, pp. 137-138).

There are three practical examples where agencies have given effect to sanctions mapping. The first relates to development of a regulatory toolbox by the Victorian Environmental Protection Authority (EPAVIC), Australia. The second relates the Environment Agency (EA), England, producing a sanction decision tree.

The *regulatory toolbox* was developed in response to an independent review of the VICEPA’s regulatory approach and compliance and enforcement activities (EPAVIC, 2011, p. 2).

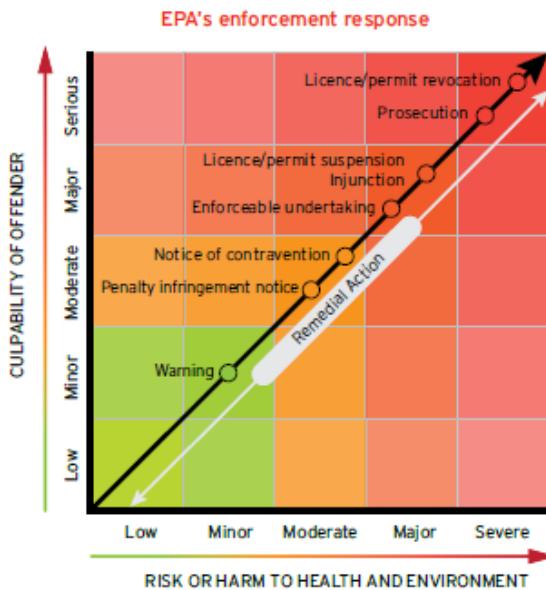
White and Heckenberg suggest that with the regulatory toolbox approach:

¹⁰ See ‘Table 1.2 Mapping of Regulator’s Enforcement tools’ for an example (Macrory, 2010, p. 51).

¹¹ The documentation does not fetter the flexibility needed by regulators, instead it provides a framework for deciding what top of sanction is suitable in various circumstances (Macrory, 2010, p. 63).

'there is no 'progression' over time up the pyramid. Rather, each case is dealt with on its own merits, and if the 'big stick' is appropriate given the nature of the risk, harm and offending, then it will be used. The toolbox approach allows for the tailoring of measures and sanctions that best fit the nature of the case before the regulators' (2014, p. 208).

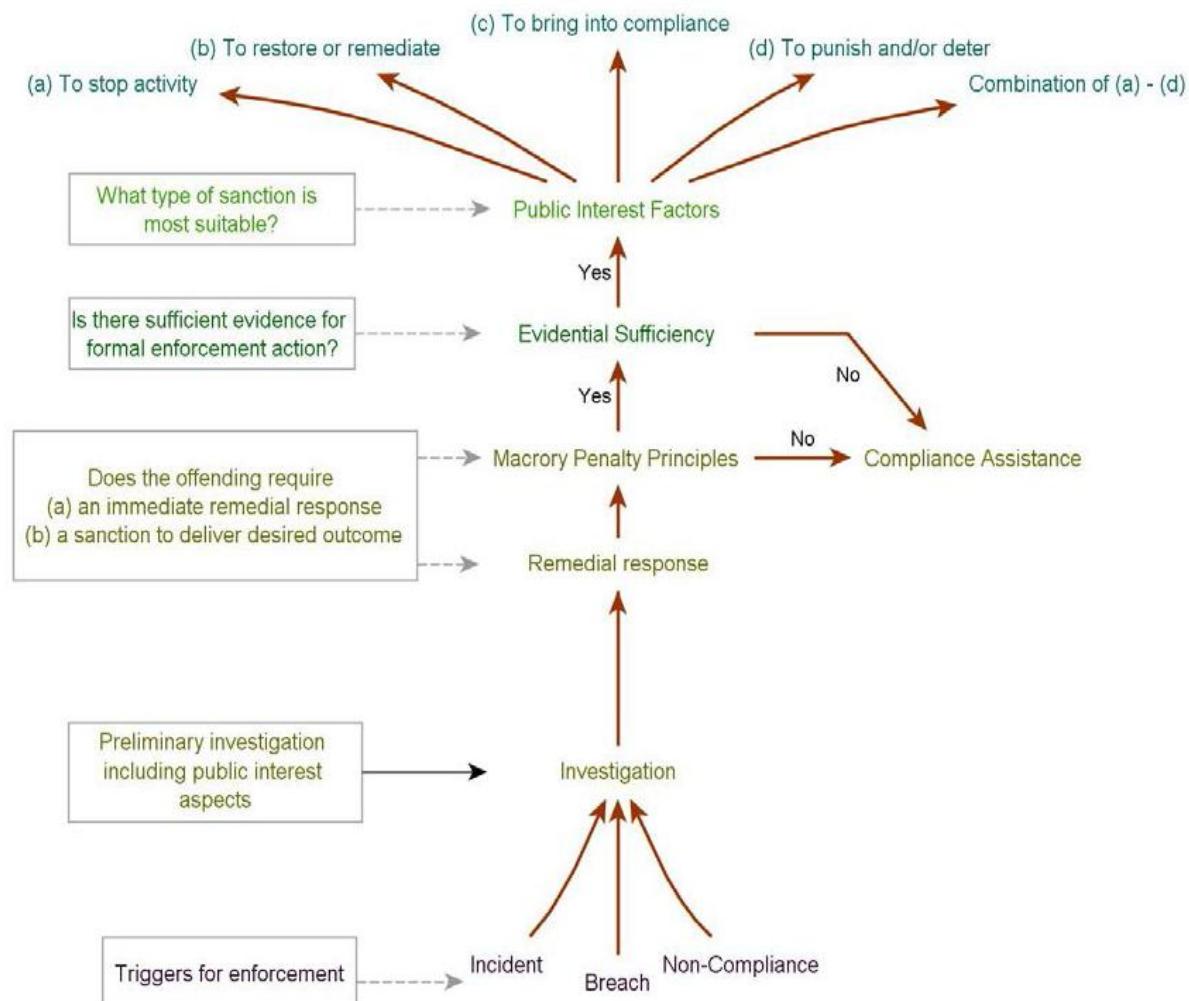
Figure 2 The Regulatory Toolbox



Source: EPAVIC (2014, p. 21).

The Sanction decision tree was developed and forms part of the Environment Agency *Enforcement and Sanctions – Guidance* (EA, 2014a). It provides guidance on enforcement and the use of civil and criminal sanctions.

Figure 3 Sanction decision tree



Source: Environment Agency (2014a, p. 11).

A nested example of a number of publications, worth considering, produced by the South Australian Environment Protection Authority include:

- EPA policy for calculation of civil penalties under the Environment Protection Act 1993 (SAEPA, 2014),
- Review of South Australian Environment Protection Authority regulatory practice – tools and approaches (SAEPA, 2013), and
- Compliance and enforcement regulatory options and tools (SAEPA, 2009).

This suite of documents shows the way that sanctions mapping is developed, customised and reviewed over a continuous improvement process.¹²

¹² Additional internal operating procedures have been developed using the approach of *stop*, *sanction*, and *treat*. This approach ensures that the authorised officer (i.e. inspector or investigator), when dealing with a contravention, considers each component part within their regulatory responsibility.

Fixed Elements

The fixed elements that comprise the higher level aspects of the sanction mapping include the broad vision for the agency, the principles informing sanctioning triggers and escalation points (which are at the heart of sanction mapping), the general descriptors of decision-making factors and the key governance mechanisms for case management including sanctioning. These broad boundaries will define how sanctions are applied to categories and classes of non-compliance and system breaches. They also leave a degree of scope to account for individual circumstances, including past histories of compliance, quantum of harm done, resource limitations within the agency, prosecution priorities and any other factors (environmental, social and economic).

Variable Elements

As mentioned above, the fixed elements can provide space for variable elements within the sanction map. Given the need for consistency and to avoid arbitrariness (or the appearance of arbitrariness), it's best that there are more fixed elements than variable ones. However, there may be instances where an agency wishes to target a particular sector, crime type, location, and do so in a novel, outcomes-based manner. In other words, prioritisation and innovation should comprise the majority of variable elements within a sanction map. Of course, the question of secrecy is separate to whether to undertake action with a particular emphasis. There can be a preventive benefit in communicating to the regulated community that a variance in sanctioning is being undertaken. Equally, communicating variance to the community at large, and especially to representative stakeholders, at least in general terms, goes a long way towards avoiding claims of capriciousness, arbitrariness or draconian behaviour.

WHAT ARE THE BENEFITS AND COSTS?

Table 2 below provides an overview of benefits and costs of sanctions across the policy cycle from the regulators, regulated and community's perspective.

Table 2 Considering Sanctions within The Policy Cycle

Stage	Design	Governance	Operation
Benefits: Regulators	Considers sanctions holistically	Appropriate governance with oversight can be	Sanctions can be applied strategically, ¹³

¹³ Strategically here referring to applying sanctions across an entire industry.

	reference to demonstrated desired outcomes	operationally, ¹⁴ and tactically. ¹⁵	
Costs: Regulators	Increases development and leading time for legislation	Can be seen as an additional task taking managers away from managing and operational staff away from practising	Could be perceived to fetter the discretion of operational staff.
Benefits: Regulated	Provides greater certainty regarding future government action	Provides greater certainty that decisions are moderated and contextual	Provides greater certainty that sanctions are delivered proportionally and appropriately
Costs: Regulated	Requires time for involvement in consultative processes	Requires time for involvement in consultative processes	Financial and opportunity costs attach to compliance and any sanctions received
Benefits: Community	Responses to breaches of the law reflect community values and expectations	Regulation is being managed consistently and fairly	Societal interests are protected against risks of harm on a case-by-case basis (and justice is seen to be done)
Costs: Community	Requires time for involvement in consultative processes	May require time for involvement in consultative processes	None

Overall, particularly for regulated entities and the community at large, the benefits substantially outweigh the costs. There are costs for regulators, particularly in initial phases (though the burden of this is reduced by the amount of existing sanction mapping material that can be drawn on). These costs, however, are necessary for regulators so as to meet expectations and requirements directed towards them regarding their approach, implementation and performance.

Costs should be noted and accommodated where possible, but they do not act to recommend against instituting, reviewing and improving sanction mapping.

¹⁴ Operationally here referring to applying sanctions across a sector, or in response to a cluster of interrelated matters.

¹⁵ Tactically here referring to an individual case, but within a defined framework and operating context.

CONCLUSION

Society, through government (the Parliament, the Executive, and the Judiciary),¹⁶ provide environmental regulatory agencies with sanctions and mandates to use them. However, the sanctions and mandates were given at a point in time and usually with particular attending circumstances with certain or desired outcomes in mind. The result is that regulation, its application, and therefore the use of sanctions whilst relatively fixed, from time to time go through periods of significant change. But even during periods of relative stability regulators are under constant scrutiny to use, explain, and in some instances justify their use of sanctions generally but also specifically in relation to certain cases or cases of a certain type.

This paper has confirmed, as Macrory suggested, that regulatory sanctions are indeed an essential feature of a regulators regulatory enforcement toolkit. Sanctions as a feature are central to achieving compliance, by signalling the threat of punishment for wrongdoers. The use of sanctions demonstrates that non-compliance will not be tolerated and that there are consequences that will put the wrongdoer in a worse position than those entities that complied. Overall this holds entities accountable, it has a role in establishing a ‘level playing field’¹⁷ (Mazur, 2011) for businesses, and it provides a certain amount of comfort to the broader community that regulators are on the job.

That said, regulation, and the use of sanctions, very much occurs in a contested space. Therefore while clearly not being able to please all the people all the time, it is important, and becoming increasingly so, that regulators be able to: have a clear and full understanding of the various sanctions at their disposal, be able to apply sanctions with a high level of competence, and be confident in their ability to explain and justify the choice and use of sanctions either individually or collectively.

The aim and hope, and modest offerings of this paper, has been to outline what the benefits of sanction mapping are for regulators, the regulated, and the community by making the connection between sanction mapping and tools that can be used to fine-tune regulatory intervention strategies.

It might seem obvious to say, but it is still worth noting that sanctions operate differently in relation to the community, regulated entities and regulatory agencies themselves.

The community tends to view sanctions in a broad sense. As a body, the general public may focus on a particular sanction in a particular circumstance (usually one involving serious harm and breach) but the issue is crime and attendant response tend to be generalised into an indicator of the entire legal system. Alternately, interest groups within the public arena will

¹⁶ This is representative of the Westminster Style of Government, as used for example in Australia, Canada, and England.

¹⁷ Noting however, in respect to a ‘level playing field’: Gemmell describes it as a ‘mythical beast’ (2015, p. 44), and Janssen suggests that even the notion of it may give rise to different cultural perspectives on universal or flexible rules and on the concept of fairness (2015, p. 63).

take sanctioning systems as total measures and gauge their effectiveness collectively in terms of regulating whatever it is the group may be interested in. This is similar to stakeholder groups within the community, who audit and assess regulatory regimes holistically, even in instances where specific regulatory failures have been what first drew stakeholder attention.

Regulated entities are much more specific in their concerns. If an individual has received a sanction then the concern relates to the individual's freedoms, privileges, duties, costs, business and all the other things that can be impacted by a sanction. This is no different for a body corporate, which will focus on reputation costs, obstacles to profit, insurance premium changes, loss of customers and limitations to opportunities permitted through licenses. Within a regulated sector overall, the effectiveness of particular sanctions is observed by sector members. They compare sanctions visited on them against sanctions visited on others within the sector and against their own views of fairness, justice and ethics.

What differentiates regulators, apart from the fact that they are the ones applying the sanctions, is the fact that they do so within both a particular and general context. Regulators need to make decisions relating to individual sanctions as well as to sanction regimes in general. The failure of an individual sanction, in terms of effect, outcome, due process, fairness, transparency or any of a number of other factors, undermines the integrity of the whole regulatory scheme. The failure of a regulatory scheme, in terms of proportion, objective, budget, focus and governance, renders each individual sanction ineffective and possibly meaningless. The two aspects, the general and the specific, are distinct, but they interact constantly and are thus inseparable.

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Chapter 8: DEVELOPING THE QUALITY OF IMPLEMENTATION OF SAFETY LEGISLATION IN THE NETHERLANDS

Claudia Lambermont, Koen M. de Kruif, Robert Mout¹

ABSTRACT

Industrial safety is an important issue in the larger Port of Rotterdam area, the Rijnmond. The DCMR environmental protection agency is responsible for permitting and inspection in this area. They take part in a national network that leads the improvement in the implementation of the Dutch safety legislation. This network is working on a new balance between control of safety systems (the Software), technical inspections (the Hardware) and improving safety culture in companies (the Mindware). Each of these three pillars require a different implementation approach. Environmental aspects and safety aspects are inspected in separate visits. Software and hardware are combined issues in the annual joint safety inspections. The traditional Seveso II inspection focus in the Netherlands is on the technical integrity and safety in industrial processes or storage and handling of dangerous products. In 2006 the national network introduced the Dutch new inspection method (NIM) to assess the compliance of safety legislation. Enforcement takes place in case of non-compliance within these topics and can only be based on Seveso-II compliance. The authorities use a national Seveso-II enforcement strategy to rank the severity of the non-compliance. The number of inspections is not the most important factor to reduce the number of incidents. The safety culture in a company appears to be much more important to cope with companies' risks. The challenge of implementation is to find a balance between different approaches, whereas the authorities and the high-risk companies both take responsibility and find new ways to improve the implementation of safety legislation.

Keywords: Seveso II, compliance, safety culture, hardware, software, mindware, industrial safety

INTRODUCTION

Industrial safety is an important issue in the Rijnmond, the larger Port of Rotterdam area. The Rijnmond has a large number of high-risk establishments in a densely populated urban environment. The responsibility for a high level of safety management lies primarily with the individual companies. The EU Seveso-regulation, Dutch national law since 1999, provided tools for introducing safety management requirements in the companies. Three public

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authorities are responsible for compliance with the Seveso-regulation: environmental inspectorates, labour inspections and fire brigades. All these authorities work together for an integrated approach in annual joint safety inspections in companies with high safety risks. The environmental authorities coordinate the planning of the safety inspections. This coordination has recently moved from regional to national agencies.

In 2006 the national network introduced the Dutch new inspection method (NIM) to assess the compliance of safety legislation. The results of the safety inspections since then show that the total number of safety regulation violations is roughly the same. This indicates that the current inspection methods and the connected enforcement actions of safety regulation do not have the expected result.

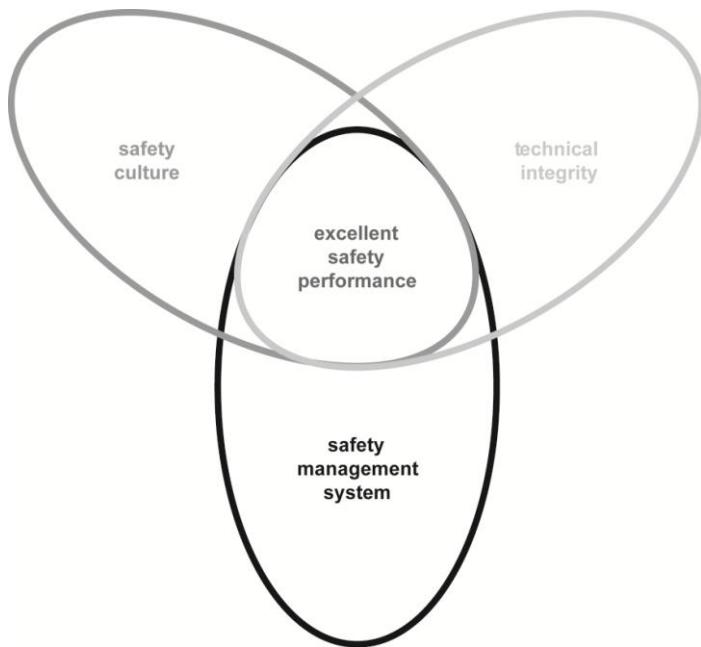
In 2011 a major fire incident took place at Chemie-Pack in The Netherlands. Chemie-Pack was a high-risk establishment that stored and handled chemical goods located at the industrial area of Moerdijk. This incident increased the political and governmental and political attention on compliance of the safety regulation in high-risk establishments on a national level. The competences of the public authorities responsible for compliance with the Seveso-regulation were put under a microscope.

The national network is now searching for new and simple ways to report about the safety performances off high-risk establishments. It is also searching for new ways to achieve improved compliance of the safety regulation in all high-risk establishments. The DCMR environmental protection agency, working in the Port of Rotterdam, is looking for these ways. This article describes the possibilities for improving compliance in these Seveso-companies. It is based on results of the safety inspections and experiences with the current inspection methods in practice. A theoretical background on these topics is not included in this article.

USING THE SAFETY PERFORMANCE MODEL

Defining the safety performance model

Three elements of the safety performance model determine the safety performance of a company: the technical integrity of its installations, its safety management system, and its safety culture. These three elements are depicted in Figure 1.

Figure 1 The Safety Performance Model

The first requirement for good safety performance is that the technical installations are designed properly, inspected regularly and maintained well. This will assure their technical integrity. Environmental regulation prescribes that a company which runs installations with large quantities of hazardous materials must have an environmental permit, which basically is a license to operate. The primary focus of an environmental permit is on technical requirements, known as the ***hardware***. The company needs to follow design standards and to install technical measures in order to control its risks. Furthermore, it has to apply Best Available Techniques (BAT), many of which are described in BAT Reference documents (BREFs) within the EU Industrial Emissions directive. The company must be able to demonstrate compliance with all this in order to acquire the environmental permit. While in operation, supervision is carried out by the regulatory agency in order to check whether the company satisfies the technical requirements of the environmental license. Whereas companies document large amounts of data on design, inspection and maintenance in their internal systems, inspections are by definition limited to checking small samples, and as a consequence, enforcement is limited to violations within these small samples. Regulation and supervision have focused on the technical integrity of installations in the 60s, 70s and 80s of the previous century.

The company documents in the company's management system the operations of its installations. For safety issues this is documented in a safety management system. A safety management system is a collection of procedures on tasks and responsibilities that aim at systematically controlling major-accident risks, also known as the ***software***. Seveso-establishments are required to have a safety management system in place. A key part of this system is the structured identification and evaluation of risks and the subsequent definition of

control measures. The establishment will be assessed ‘good’ when safety management system suits the installations and is implemented in the daily operational activities. Regular inspections check whether the system is sufficiently good and functions adequately. This additional focus on human error and management systems in inspections emerged since the 1980s.

More recently, attitude and behaviour, the company’s core values and communication skills are recognised as essential aspects for controlling major-accident risks. These constitute the third element of the model: safety culture or the ***mindware***. Big differences in safety culture between companies justifies that this is a separate element of the safety performance model.

A company that achieve a high score for each of the three elements will show excellent safety performance.

Up till now inspections assess the compliance of safety-regulation mainly by focussing on the safety management system of a company. The next section focus on the methods and results of these inspections in The Netherlands. It identifies new possibilities to improve compliance with regulation on the safety management systems.

Using the safety performance model in different type of inspections

Environmental aspects and safety aspects are focused upon in separate inspections. Software and hardware are combined issues in the annual joint safety inspections.

Hardware and Software: Traditional and risk planned inspections

The traditional inspections focus on the technical integrity and safety in industrial processes or storage and handling of dangerous products. All authorities follow the same inspection training and apply the same new inspection method. The new inspection method assesses the safety management system in the company: is it present, is it suitable, is it well documented and implemented sufficiently. Each authority assesses the safety system from its own field of expertise. Seveso-companies need to have and maintain a safety management system to control safety risks. According to Dutch law there are eight elements in the safety management system relevant for safety management. These topics, including control on installation processes, management of risks, emergency response plans, environmental permit compliance and safe labour conditions, are reviewed during the inspections. In a period of five years, the authorities assess each topic on documentation, suitability and implementation. They also focus on annual themes, such as integrity of storage tanks of bulk goods and tank maintenance. The topics are scored by the members of the inspection team with a performance scale. The authorities register the inspection results in a national online inspection database (GIR). They make an inspection report with the inspection results and send it to the company. An abstract of the report is published on a website. Enforcement will take place in case of non-compliance within these topics and can only be based on Seveso-II compliance. The authorities use a national Seveso-II enforcement strategy to rank the severity

of the non-compliance. This may lead to prosecution and be brought to court, or fines must be paid.

Other initiatives have been developed to improve compliance in Seveso-companies. Summaries of the safety inspections have been published nationally and the enforcement reports have been published locally. Companies were ranked on the basis of three elements of the safety performance model separately. The overall ranking determines the planning and programming scheme of the inspections. Sectors and companies have been addressed in specific meetings on the self-responsibility of the companies. In Sounding board meetings opportunities have been created to discuss the Seveso-compliance.

Mindware: Addressing safety culture in practice

The DCMR started a safety culture inspection program in 2012. As a first step, the research institute TNO was commissioned to assess the quality of safety culture in 14 companies. The study focused on four industrial sectors: refineries, chemical industry, tank terminals, and storage and transhipment companies. In the project TNO developed a quick scan to measure the safety culture in a company. Specific attention was given to those dimensions of safety culture that are related to characteristics of the Seveso safety management system. The results show the strengths and weaknesses of the safety culture for the individual companies. Each company could use the results to improve. It appeared to be possible to differentiate between the four industrial sectors.

Using the safety performance model in practice

In 2013, DCMR defined a pilot project on how to address safety culture within Seveso inspections. Safety culture was added as a specific part to inspections at three Seveso companies. Safety culture experts joined the Seveso inspection teams to assess the safety culture. In their inspections they focus on parts of the safety management system that are assessed insufficient and functions inadequately according to previous inspections. They use observations from the Seveso inspectors during the inspection and conduct interviews with employees. The experts inform the management of the company about their findings. If needed they challenge the manager to make improvements in the safety culture. Experiences were positive and the companies showed interest in the subject. Thus, safety culture was formally introduced in the 2014 inspection program of the DCMR, and continued in 2015. This program consists of three elements: selection of companies, safety culture assessment, and communication with industry associations. The relevant industrial sector associations (four different sectors) have developed themselves an action program for safety, the ‘Safety First’-program. This program wants to stimulate companies to invest proactively in 10 action points for increased safety. The safety performance model has been designed to use as an addition to the inspection program in practice only. It is not used for scientific research.

ACHIEVING IMPROVED COMPLIANCE

Current compliance

Compliance with Seveso regulation should be important for all companies. It is a minimum effort, since not all safety measures are part of the regulation, and thus an obligation for the companies. Inspections of the companies are expected to lead to a reduced number of violations. Based on the inspection results the national network publishes an annual Monitor Compliance and Enforcement in high-risk establishments in the Netherlands since 2011. This monitor is integrated in the State of Safety, a joint document of the public authorities to inform the Dutch national government about the safety performances of high-risk establishments.

According to the national Monitor, measured in 2011 and 2014, the Seveso compliance assessment on the elements of the safety system in the Netherlands, shows no significant in- or decrease in the number of violations.

Figure 2 Number of assessed topics in Inspections in 2011 and 2014

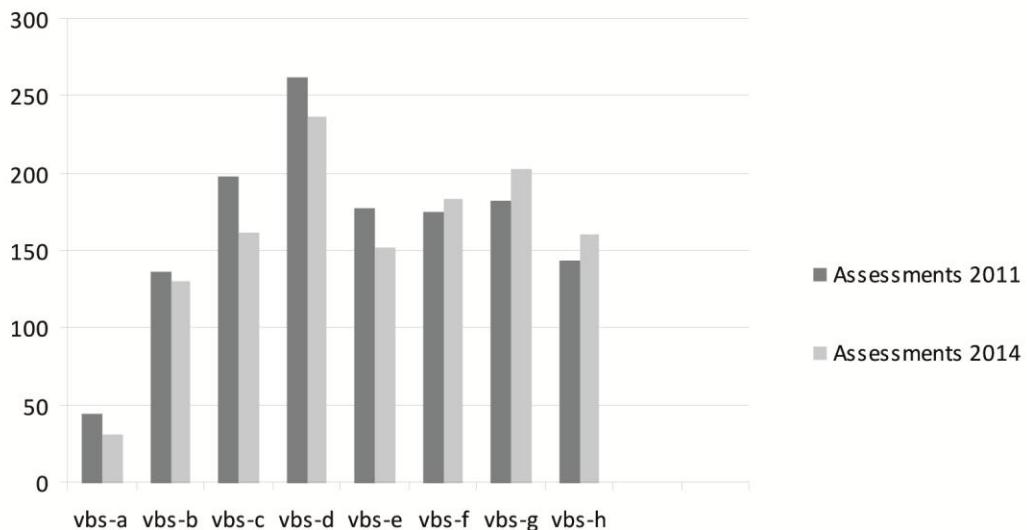
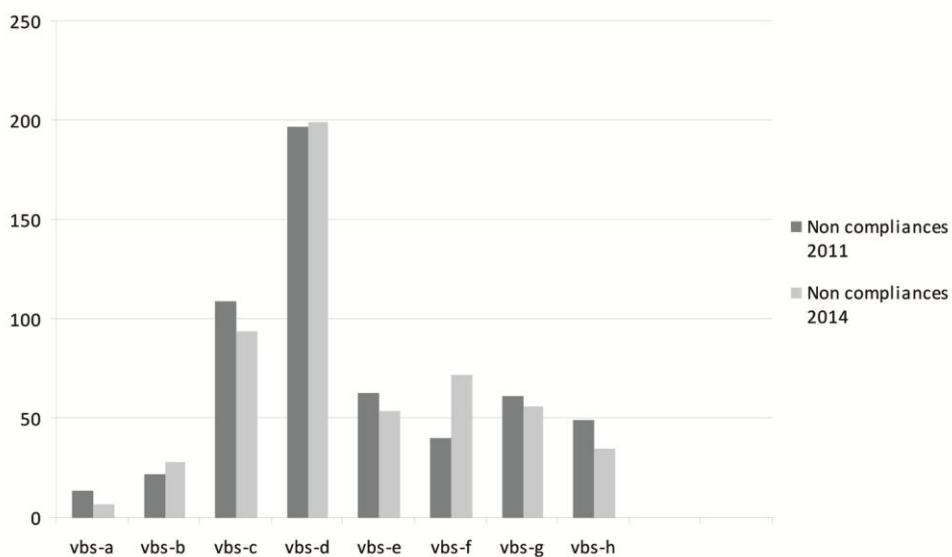


Figure 3 Number of non-compliances in Inspections in 2011 and 2014

The enforcement action based on these – minimum – expected efforts does not seem to be the right incentive for the companies to comply with the regulation. What can be done to improve? The Seveso directive itself does not give obligations for a good safety culture in a company. Other non-regulated instruments may probably have larger effects on compliance by a company. For instance negative publicity can result in damage to reputation. A national initiative to publish public summaries of inspection reports give the public more information and a possibility to make enquiries of the safety situation of a nearby company. The DCMR started with publishing enforcement decisions. The companies reacted to these publications ranging from acceptance to disagreement. Some companies indicated that they have objections to publication. It is too early to assess the effect of these publications on the level of safety performance of the companies.

Added possibilities

Other mechanisms can influence the safety performance, the so-called horizontal mechanisms.

- *Economic performance.* Installations should function reliably to be able to deliver the contracted products to the client.
- *Reputation damage and corporate social responsibility.* Companies lose contracts when their reputation is damaged.
- *Internal safety performance measurements.* Company measurement instruments have been developed to cover performance demands from clients. These instruments are internal and external audits, certification, due diligence audits of insurance companies and banks.

The horizontal mechanisms and the governmental control should not be contradictory. The governmental control is the minimum, and all the added mechanisms should have added value. It is both in the interest of the company and of the governmental inspection that control and added mechanisms have an additional effect on all three elements to increase the overall safety performance.

Improvement on technical integrity i.e. a broader demonstration of compliance, could be realised through a more comprehensive reporting system. This could be done in a variety of ways, such as an on-line system, a yearly report, or a Self-Assessment Questionnaire. More comprehensive reporting by a company must not imply that the regulatory agency takes over the company's responsibility.

Certification of the safety management system could be of additional value for the company as well as for supervision. Although many companies do have an ISO 14001 certificate in which elements of the safety management system have been assessed, this does not imply that it has been assessed according to the requirements of the Seveso Directive. This demands a dedicated standard and preferably an associated certification scheme. Currently, a draft version of such a standard is available for the requirements of the Seveso-III Directive, and the development of a certification scheme is being investigated. In addition to the option of a certified safety management system, a company could use a Self Assessment Questionnaire in order to find out how well-developed its system is.

There is no law to regulate safety culture in a company. Safety culture measurements, however may make the company more conscious of the necessary improvements, and stimulate to invest in safety measures. Companies can take initiative in executing a Self-Assessment Questionnaire. An example of a Self-Assessment Questionnaire is the hearts and mind programme of Shell. One of the Self-Assessment Questionnaire questions brings together the regulatory obligations and the internal obligations of the company. Building upon this approach will have to deliver more information on the condition of the safety culture. The application of Self-Assessment Questionnaire in this way could be used to communicate with the regulatory agency in a uniform manner.

DISCUSSION AND CONCLUSIONS

Discussion on improvements

It is possible to find the new ways to work on improvements, but what is the preferred next step? Both authorities and establishments must search for possibilities.

Improvements by the authorities

The authorities can explore the use of the Table of Eleven in joint inspections. This model based on behaviour sciences sums up 11 essential issues in compliance with regulation. It gives an insight in strengths and weaknesses of compliance and enforcement. It can be applied

in each phase of the process of enforcement. Interesting point is the reason why establishments comply to Seveso II or not. If violations are repeated more prosecution must be taken into a consideration. The Table of Eleven can give the enforcing authority an answer why a company will not comply to legislation. It also can give an insight in its perception of enforcement.

The DCMR wants to explore a new method where companies, certifying organisations and governmental organisations together work on the safety performance in a company. The exchange of reliable information on the safety performance is important. It is not very effective to focus on a lack of inefficiency of the governmental efforts. It is a complex reality with an important role for the companies and the certification organisations. This is realised by the local and regional governments and by the companies' sector organisations. Minimisation of the risks inherent to production processes of Seveso companies require efforts of all parties to cope with the request from society for excellent safety performance.

Improvements by the establishments

Key point is the question: How establishments implement their own responsibility for a save operation? It is not only complying with legislation. It is also sharing information with other Seveso-establishments and peer reviews. Other initiatives can be regional safety networks.

Many companies achieved an ISO 14001 certificate with elements of a safety management system. The ISO 14001 norm does not require the certification institute to assess that the safety management system has been fully implemented according the Seveso-regulation. A commonly agreed new norm should be introduced to certify the safety management system. This new norm will have to have commonly agreed quality requirements that can be used to certify by recognised certification institutes. The certificate can then be used by the governmental organisations. The Dutch NTA8620 can be used as a basis for further development using also the new Seveso-III requirements.

Additionally, a new developed certification scheme is necessary in which descriptions are given on the quality of the certification auditors, the research method, the information exchange report format and a qualification on the time efforts put into the audit. In this way the governmental organisation can assess the value of the Seveso-certificate. See Annex for description of tasks and roles of governmental organisations and the certification institutes.

Conclusions

A company can improve their safety performance by focusing on all three elements of the safety performance model: hardware, software and mindware. This safety performance model may be used to agree on sharing company information to make effective and efficient control possible. The safety performance can be improved when reliable information is available, including information on the safety culture. At present, inspection agencies make use of available safety performance information within the own organisation. This information alone does not lead to a reduced number of violations.

The DCMR is working on agreement with all stakeholders to improve the use of the safety performance model. Ideas for activities are:

- Explore the use of the Table of Eleven in joint inspections.
- More prosecution of violations when performances are not improving.
- Develop a new method where companies, certifying organisations and governmental organisations together work on the safety performance in a company.
- An agreement on the role and tasks and information exchange of the governmental organisations and the companies.
- A new norm to certify the safety management system on the basis of the Dutch NTA8620, updated with requirements of Seveso-III.
- An elaborated Self-assessment Questionnaire, to assess the safety culture and peer reviews.

Effectiveness of these ideas on Safety performances in Seveso companies needs further exploration. This paper gives an opening for scientific institutes to conduct further research. The motivation to work on improving the safety performance is large with many stakeholders. The further research will help in finding the right routes.

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Chapter 9: SHIFTING RESPONSIBILITIES: A REFLECTION ON SOIL GOVERNANCE IN THE NETHERLANDS

Edith van Bellen-Weijnen¹

ABSTRACT

This article is the foundation of a research in progress. Soil and groundwater remediation policy in the Netherlands has been dynamic over the last 35 years, certainly compared to some other environmental domains. The law has changed several times over the years and has involved diverse legal instruments, consisting of a combination of semi-public, private and self-regulation. Key actors were and still are diverse and the primary responsibility for achieving collective goals has shifted several times. Authority levels have also changed over the years. In spite of both practical and financial efforts, there is still considerable soil and groundwater contamination in the Netherlands, from both old and new spills, as well as spills not fully ‘cleaned’ (that is, functionally cleaned), involving sites that need to be permanently monitored and registered. Can lessons be learned from the past to inform the future? This paper focuses on taking a scientific approach to a deeper analysis of soil and groundwater remediation policy in the Netherlands over the past more than three decades, by analyzing the role of the market and the government, the goals, and the effectiveness and legitimacy of the instruments applied. First an analysis will be made of the possible shifts in governance in the soil and groundwater remediation sector by applying a scientific model that focusses on actors, policy discourse and instruments in the soil sector. The analysis will also contribute to the second aim of the research, which is to analyse and evaluate how to achieve compliance with diverse rules and regulations arising from possible shifts in governance, while taking into account the diversity of actors in this domain. A key factor in this analysis of compliance will be awareness of the types of rules as well their legitimacy and effectiveness. As self-regulation is an important component in the mixture of legal instruments, special attention is given to the characteristics of this legal phenomenon. The overall contribution of this research will be to give more relevant insight into how the governance and compliance of a public-private domain with diverse legal instruments and regulation from various sources, functions in an aware, legitimate and effective way. A comparison will be made with another country (USA) and an in-depth case study will be part of the research. The conclusions will be presented in four subsequently published articles.

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Email: ebw@vanbellen-weijnen.nl The author is also undertaking her PhD research at the University of Utrecht, Law Faculty (Prof. mr B.J. Schueler, Sponsor) and the Copernicus Institute (Prof. dr P. Driessen, Sponsor; Dr C. Dieperink, Assistant Sponsor Sponsor). This article contains the foundation of the research.

Keywords: shifts of governance, compliance, self-regulation, governance, soil and groundwater, soil and groundwater governance, soil and groundwater remediation

SOIL: OPPORTUNITIES AND THREATS

The Function and Importance of Soil

Soil² is one of the most important parts of the natural environment. As a natural resource, soil performs a number of key environmental, social and economic functions. For example, it contains more species in number and quantity than all other aboveground biota in total.³ The condition of soil also predicts the quality and resistance of ecosystems. Another way of characterizing the function of soil is to distinguish between the carrier function (building), the production function (agriculture and raw materials), the regulation function for balancing ecological systems (including the buffer role) and the information function.⁴ The *uses* of soil can be referred to as being for agriculture, building, recreation, nature, forestry, gaining raw materials and underground infrastructure.⁵

In general, soil can be considered as being of great importance for human existence and for biodiversity. Soil contributes to the maintenance of lifecycle processes in general and is an important environmental domain, as stated in the International Convention of Biological Diversity (CBD, 1994).

Threat: Soil Pollution in the Netherlands

The diverse functions of soil may also compete with each other, or in other words, the possibilities for soil use are not unlimited. Building industries or homes without being aware of the consequences for soil use may drastically diminish the possibilities for using the same area for nature or agriculture. For example, lowering the groundwater level for the building of houses may have a negative effect on future agricultural possibilities. There is a continuing challenge to find and maintain a balance between different soil functions. The sustainable use of soil can thus be defined as the ‘balanced development and practical use of soil in such a way as to not affect the soil use possibilities for future generations’.⁶

One of the major threats to this delicate balance – and therefore to the sustainable use of soil – is soil and groundwater pollution. Industrial activities, accidental or intentional spillage of hazardous substances and human/industrial waste management activities can have major negative consequences on natural resources (land surface, underground soils, groundwater) and pose risks to human health via direct contact with, ingestion of, and/or inhalation of contaminated soil, groundwater or vapours.

² Soil is here defined as including groundwater and underground.

³ Blum 2005.

⁴ Blum 2005.

⁵ Blum 2005.

⁶ Soil compendium, 2015.

In the Netherlands, soil and groundwater contamination has been an issue on the formal legislative agenda since the early 1980s, starting with a case that had widespread societal impact: the Lekkerkerk case.⁷ A residential area with 300 houses was built on a waste dump. It was discovered by a leakage of the water supply drains as a result of the chemicals that had corroded them.

The prevailing idea at the time was that the Lekkerkerk case was an isolated incident, that there might be more cases but that it would be limited in time to identify and clean all possible Dutch sites. A temporary law was enacted to address these polluted locations.⁸ It was estimated that the Netherlands had about 4000 polluted locations, of which 350 needed urgent attention. The costs were estimated to be about 1 billion Dutch guilders,⁹ and it was expected that the ‘polluted Dutch areas’ would be cleaned within ten years.

Jumping forward to 2015, this original expectation can now be considered naïve. The law is still in existence, and was even made permanent in 1994.¹⁰ Although many sites have been investigated and remediated since then, the estimation 30 years later (as of 2014) is that 250,000 locations¹¹ are still seriously polluted and 1400 of these locations pose significant risks to people or the ecosystem or pollution might spread to the groundwater.¹² By the end of 2015, the most urgent locations should be remediated or are at least under control. All of the other locations will get attention in the event of functional changes and building activities. Of the so-called urgent historical locations, the causes of pollution mostly include chemical cleaners (20%), production, storage and processing chemicals (12%), gasoline stations (11%), metal processing and construction (11%), mud and dumping locations (8%) and fuel storage (7%). Another 31% comprises a variety of activities, like machine industries and gasworks. Most of the contaminants consist of volatile chlorinated hydrocarbons (VOCL) (47%). Other contaminations include volatile aromatics (15%), heavy metals (13%) and mineral oil (11%). A further 9% consists of tar products, cyanides, asbestos and pesticides.

When analysing the contaminated soil and groundwater situation in the Netherlands, it is also important to realize that many historical sites that are considered to be ‘remediated’ still contain significant amounts of residual pollution. This often is the result of practical limitations in technology to achieve 100% removal of contaminants; a remediation goal that allows for higher levels of residual contamination to remain in the soil and groundwater based on the current and future land use function (for example, industrial versus residential uses); and the adoption of cost-benefit approaches to lessen the economic burden of clean-up costs.¹³ But if the function of the ground might change in the future, for example from

⁷ See also TK 16 821: the direct impact of and reason for the legislation is summarized in this state paper. Other cases with a major impact at that time included Utrechtse Griftpark, Zellingwijk in Gouderak and the gasworks at Kralingen.

⁸ Interimwet bodemsanering (1983), TK 16 821.

⁹ See also Memorie van Toelichting TK 16 821.

¹⁰ Staatsblad 1994, 331 and 332.

¹¹ Mostly all of them polluted before 1983.

¹² Compendium voor de leefomgeving, indicatoren oktober 2014.

¹³ Functional cleaning was enforced by law in 2006.

industrial to housing, or when the risk exposure standards change (for example, to a lower and more protective drinking water standard or because of newly-identified exposure pathways such as vapour intrusion),¹⁴ residual pollution can become a serious concern again, or at the very least can lead to additional and significant financial expenditure. The current Dutch Soil Standard allows for higher levels of residual pollution under a risk-based approach, but it requires ongoing awareness and continuous monitoring of the actual impact of residual pollutants. There are also new kinds of pollutants that no one had thought of before as being a possible risk.¹⁵

There have also been ‘new cases’ identified in the last thirty years, resulting from accidents and industrial failure.¹⁶ Although the cleaning regime is formally stricter for new cases, since the law requires the removal of all substances contributing to soil and groundwater pollution (which is not required for old cases),¹⁷ it will be almost impossible to achieve in every situation. Some incidents involving so-called mobile pollutants cannot easily be fully remediated simply because of the practical circumstances in which they instantly spread to groundwater systems. There may also still be a number of polluted sites that have not been officially reported, even though the law requires it.

It can be concluded that for a relatively small country like the Netherlands with a high population density, there has been and still is a lot of pollution in the ground and in the groundwater that has given and continues to give concern about future sustainable use of Dutch soil.

Remediation of Soil Pollution

In spite of the pollution remaining in soil and groundwater today, as described in section 1.2, a closer examination of the remediation efforts in the last thirty years shows that a lot of soil and groundwater research has been conducted by the government as well as industry and real estate developers. A lot of effort has been made to attain better soil and groundwater conditions in the Netherlands in general, including many policy and legislative initiatives undertaken since 1983 to try to achieve effective remediation.¹⁸

However, the future cost of remediation of the locations is still estimated to be €1.52 billion. The choice of remediation is then only related to the actual function. It is anticipated that about 45% of these costs will be paid by the government and 55% by private third parties. 58 locations are responsible for half of all the costs.¹⁹ It could be said that remediation is a public-private challenge.

¹⁴ Such as in the US, where the VOCL standards for remediation recently changed drastically.

¹⁵ Like PTB, antibiotics, nanotechnology waste, chemical waste, etc.

¹⁶ New spills occur often in industrial areas like Rotterdam Harbour.

¹⁷ See section 3.2.2 The Legal Mixture.

¹⁸ See also sections 2.1 and 2.2.

¹⁹ Soil compendium.

Remediation of complex contaminated sites can entail enormous costs. In brief, the practicalities of remediation include much research to define the nature and extent of the contamination and assess the risks to human health and the environment. In this regard, it is important to distinguish between mobile and immobile pollutions, with the latter, such as VOCs (47% of the historical sites), potentially being huge and unpredictable in form. Cost effective and reasonable measurements will have to be extrapolated in order to determine what the big picture in the ground is like. Once the possible contamination contours have been made, the remediation itself can be very costly too. For example, large volumes of soil might have to be removed to a dumping area, or a machine for groundwater remediation might have to remain on site for years with serious annual costs. Remediation is not always a simple process.

Aside from the technical aspects and possible high costs of remediation, the other complicating factor in remediation is determining who is responsible for meeting the costs. Although various laws have tried to address this issue over time,²⁰ there are often disputes about who really caused the pollution and should therefore be held responsible for remediation. This is further complicated by the related high costs as well as the potential for being held liable for risks. Contaminants can also interfere with each other so that it is not always easy to distinguish one cause and therefore one polluter from another.

Prevention of Soil Pollution

Later in the 1980s, the *prevention* of soil contamination also became a focus of government policy and action, often in the form of highly technical regulations and licensing requirements imposed on industries and businesses that produce, use, store, transport and dispose of chemical and waste products. For example, fluid resistant floors were required in buildings and areas with a possible danger of soil pollution, soil transportation had to be reported, and the soil quality had to be measured. The Soil Prevention Act (Wet bodembescherming, Wbb) introduced the ‘*good care* principle’ for soil use. In licences the so called baseline measurement was introduced to measure at the start the condition of the ground and then to measure at the end of the activities the possible contamination that the specific user of the territory added to the ground.²¹ Many measures have been introduced in the last thirty years, but in spite of all the initiatives and investment, the costs described above remain for historical sites and can now be added to the costs of more recent incidents.²²

Conclusion

On the basis of the descriptions of the Dutch situation above, it can be concluded that the past and future protection and cleaning of soil and groundwater will continue to pose complex technical, financial and legal issues, more so than anyone could have imagined in 1983. This fact, along with the number of locations still at risk (and that number continues to grow as

²⁰ See section 2.2.

²¹ Various sections in the Wbb.

²² Like Chemie-Pack.

new industrial activities are added),²³ gives good reason to keep monitoring the Dutch soil and groundwater situation, now and in the future.

SHIFTS IN GOVERNANCE

Shifts in Public Governance

Before soil legislation came into force in 1983, allocating responsibility for meeting the costs of remediation was a political matter.²⁴ The key figure in the new law in 1983 was the polluter, although in practice the government often cleaned the soil itself at first and later tried to recover the money in civil proceedings.

However, after several years it became clear that it wasn't so easy to find and charge the polluter and recover the money already spent by the government on cleaning the sites.²⁵ The approach shifted towards more public law enforcement instruments such as penalties for non-compliance, but the awareness that many more locations had to be remediated than originally estimated meant that the owner responsible also came into play as another possible financial contributor. The owner had not polluted but had bought the real estate and should have known, or perhaps even knew, that it was contaminated. This political shift towards trying more to share the costs of remediation with the private market led to a lot of opposition, but the opposition didn't win. The range of financial contributors not connected to the cause of the pollution expanded.

There was one more significant political change. It gradually came about that the multifunctional use of soil and groundwater as set out in 1983 was no longer the standard remediation goal. The so-called functional approach became more and more accepted as a pragmatic and responsible solution.²⁶

In the 1980s the government was the central activator, but today the government has stepped into the more formal role of inspector, and is more an institute for the formal approval of research, licences and evaluations, and perhaps subsidies.²⁷ With regard to prevention the government was already in a more traditional role when the law was brought in in 1987.

Mixture of Regulatory Instruments

Formal Law: Public and Private Instruments

²³ Even a fire can cause severe soil pollution, so threats to soil will therefore have an ongoing history.

²⁴ At the beginning of the 1980s there had already been another legislative initiative based on European legislation, but this was unsuccessful.

²⁵ There is a great deal of jurisprudence, see note 30.

²⁶ First by semi law (Besluit en Regeling locatie specifieke omstandigheden) Stb 2002, 500, later by formal law: 1 January 2006, Stb 2005,680 and 681.

²⁷ Bedrijvenregeling.

As stated earlier, the first temporary act for cleaning historical sites (Interimwet bodemsanering, IBS) came into force in 1983. The general legal approach at that time needs some clarification.

Regional Dutch authorities called provinces had to make a list of risky sites that had to be researched and cleaned. In most cases, the government spent the money to do the job in the first instance.²⁸ After the money had been spent, the Ministry, together with the state lawyer, started proceedings to hold a polluter liable and to try to recover the money spent for remediation through civil cases (article 21 cases). This created a lot of case law, not all of it in favour of the government.²⁹

The approach changed slowly in practice. On the basis of the Temporary Act (IBS), the Ministry urged the provinces to be more strict on polluters regarding the costs of clean-up, instead of the Ministry spending the money in advance. The law also allowed for the possibility of public enforcement but this option was almost never used. The real estate owners of the polluted sites also slowly came into the game, still under the same Act but based on an article (21 part 2) that had never been used before.

In principle, the soil had to be 100% cleaned so that the multipurpose use of the ground was restored. However, it became clear that this wasn't always possible, so a sort of addendum was made by the Ministry outlining the circumstances under which another remediation result was acceptable.³⁰

In 1987 the Dutch Protection Act for prevention came into force (Wet bodembescherming – Wbb). It set conditions for new pollutants that had come into being since 1987. The approach for these types of pollutants was to immediate remediation and restoration of the ground to its previous condition. In addition to this, there was a general requirement to take proper care with soil use. This law is considered to be more of a means of public enforcement. If a polluter doesn't adhere to the requirements, public instruments will be employed to enforce these actions.

At that time it also became clear that the historical sites hadn't been remediated within several years, and a permanent law was needed for the historical sites too. It was intended that this new regulation would be combined with the 1987 law for prevention. It took until the 1990s for these two laws to be integrated, but they still operate independently.

Today both private and public instruments are found in the law but public enforcement for historical sites has become the central focus (although the use of private instruments is still possible too). As stated earlier, in the combined Act the functional use of the property is the official focus of remediation for the historical sites.

²⁸ Millions of Euros (guilders at that time).

²⁹ There is much related case law, including: HR 30 September 1994, M en R 1994, 112 (Staat/Shell/Gouderak); HR 24 April 1992, NJ 1993,643 and 644 (Staat/Akzo Resins en Staat/Van Wijngaarden).

³⁰ For example, controlling contamination, putting one metre of clean sand above the pollution, etc.

It is also relevant to note that the municipalities play an important role alongside the provinces. When issuing licences for building activities, the local authorities can set the level of cleaning higher than the province does, with their motivation depending on the local ground and groundwater conditions. The soil and groundwater conditions can therefore be influenced at another level too.

With regard to prevention, the environmental licence plays an important role alongside the general soil care principle. But one should realize that also new cases challenge private relations, for example in cases of sale of real estate or renting it.

Informal and Semi-regulation

While the previous and current law seems relatively clear in its performance and language (it also contains rather abstract and general formulations), in the last decades the Ministry has added informal and semi-regulation for all parties involved in site cleaning and prevention. This regulation is intended to guide all parties, including the provinces as the central soil authorities, in the standards to be used in practice, for example, the concentration of substances above which there is danger to humans and the environment. But the branch itself has also developed standards, partly in cooperation with the Ministry, such as standards for appropriate research and cleaning measurements.³¹ Self-regulation has also started playing a role, where rules are made or interpreted for practical use without the involvement of the government, often in an attempt to simplify the existing rules.³² There has also been use made of contracts with branches to prepare for changes in the law,³³ or to make additional standards or agreements or explain the use of existing rules.

It is clear that there is a variety of types of instruments to be found in Dutch soil regulation.

Conclusion

When analysing soil policy and regulation in the last decades, it can be seen that a combination of different policies, including diverse legal approaches and a variety of instruments, have been chosen to address the cleaning of historically polluted sites, and to prevent the soil from getting contaminated again in the future. An interesting aspect of this is that the Dutch Ministry for Environmental Affairs has recently signed an agreement with the network organization for companies³⁴ to find a balance between the efforts of market actors, such as companies, on the one hand, and the government on the other, in developing a clear strategy for soil protection in the period 2016–2020.

On the basis of the developments described above, it can be concluded that it is worth taking a closer look at the reasons for greater or lesser government involvement, and the influence of

³¹ SIKB, the Dutch Knowledge centre for Soil and Groundwater protection and remediation.

³² Richtlijnen Bodem, or soil guidelines.

³³ For example de Bedrijvenregeling/ 11 juni 2001, Convenant bodemsanering in gebruik zijnde bedrijfsterreinen, also SUBAT (gasoline stations), SBNS (real estate railway) etc.

³⁴ VNO-NCW and MKB, Dutch leading Branchorganizations for employers.

the various instruments on remediation and prevention with regard to the sustainable use of soil and groundwater for future generations.

SCIENTIFIC STATE OF THE ART

Shifts in Governance: Factors that Influence Policies

In the scientific literature, during the period of 1970 to the early 2000s Dutch environmental policy is described as ‘shifting from government to governance’.³⁵ Various theories state that policy domains shift towards the pole of governance, but some also point out that government and the state retain a significant role. According to some, the shift should be seen as a change in the role and power of the state and other actors.³⁶ The term ‘governance’ is seen as a follow-up for the traditional term ‘government’, entailing greater involvement of other parties, stakeholders, in the governmental role.³⁷ Weber³⁸ states that this shift is visible in all environmental domains except perhaps for noise. However, although policy and legal instruments relating to soil have changed a lot over the last 35 years in the Netherlands, it is uncertain whether the shifts are as obvious as one might assume.

Although many studies have been done relating policy shifts to the environmental domain,³⁹ such an analysis has not yet been carried out for the sustainable use of soil and groundwater. As previously mentioned, Dutch soil and groundwater policy and regulation give an interesting angle from which to view shifts in governance. What makes soil an all the more interesting domain with respect to private-public coalitions is the fact that mobile pollution in particular often demands action from coalitions, since it crosses property boundaries. From a technical point of view, it is seldom the case that a single entity can solve the problem alone. It is also interesting in this respect that Driessen et al.⁴⁰ ‘elaborate on interactive policy-making as a necessary governance approach in complex policy issues with many stakeholders’.

Although some research has been done on possible shifts, these studies don’t yet supply all of the answers. In analysing two environmental domains in relation to shifts, Driessen et al. (2012) concluded that:

‘The main purpose of our case studies has been to show through our typology how shifts in governance can be carefully described and meaningfully compared across sectors. We have not yet attempted to methodically explain the intensity and direction of the shifts we observe. Yet, it appears that internal and external dynamics have played a role in both cases as well as conflict, gradual changes over time, policy

³⁵ Driessen and Glasbergen 2002a; Runhaar et al 2010; Pierre 2000; Heritier 2002; Weber 2013.

³⁶ Weber 2013.

³⁷ Weber 2013.

³⁸ Weber 2013.

³⁹ Driessen 2005; Pierre 2000.

⁴⁰ 2001.

entrepreneurs and changing venues for decision-making. More systematic empirical research is needed to ultimately answer explanatory questions regarding shifts in governance.⁴¹

A lot of concepts have already been developed to more deeply analyse and evaluate the possible shifts in soil remediation described above.⁴²

THE LEGISLATION MIXTURE: ANALYSING COMPLIANCE

Following the financial debacles within Western companies in recent decades,⁴³ a key societal and political issue has become ‘compliance’ with regulations and how to achieve or even guarantee that organizations are ‘acting in accordance with the applying regulations’,⁴⁴ with the aim of avoiding further financial disasters. Compliance in this context could generally be defined as an organization or company conforming to laws, regulations, standards and other requirements such as permits to operate.⁴⁵

Although it seems to have significant roots in the financial world, the issue of ‘compliance’ more and more is having an influence in other risky domains, such as the operational industries.⁴⁶ This may be due to accidents with a serious impact on society, for example the wide range of accidents in recent decades that have brought damage to both people and the environment.⁴⁷ These accidents have brought up a lot of issues comparable with those in the financial world,⁴⁸ and compliance is one of them, both as a container subject and how it is to be achieved. The role of compliance officers, for example, has become more visible, and explicitly, the role of the whistleblower has also become more present and discussed. In general, a responsible or ‘sustainable company’ is expected to be very aware of its compliance behaviour.

As stated earlier, soil regulation in the Netherlands (relating to both remediation and prevention) consists of many types of regulations. What does this mean for the issue of compliance? Compliance with soil regulation is made all the more interesting by the

⁴¹ Driessen et al. (2012).

⁴² Model Hysing; model Driessen.

⁴³ Enron 2002 USA, which also lead to the Sarbanes Oxley law (for prevention); Ahold, February 2003.

⁴⁴ Besides the quality and character of inspections, the role of the government in general, but also the role of internal and external stakeholders, discussions about risks and what to be accepted and what to avoid, and the quantity as well as the quality of laws and regulation; also integrity comes around the corner in this perspective as well as governance.

⁴⁵ Anthony Tarantino; later in this paper it will seem that this definition is far too broad for an effective understanding of compliance.

⁴⁶ In a research done on June 2012 by the Dutch Ministry of Environment and Transport it seemed that 60 percent of the so-called BRZO-companies did not comply (fully) with the safety rules; Ale and Mertens (2012) state that four accidents yearly in the Netherlands is too high as well.

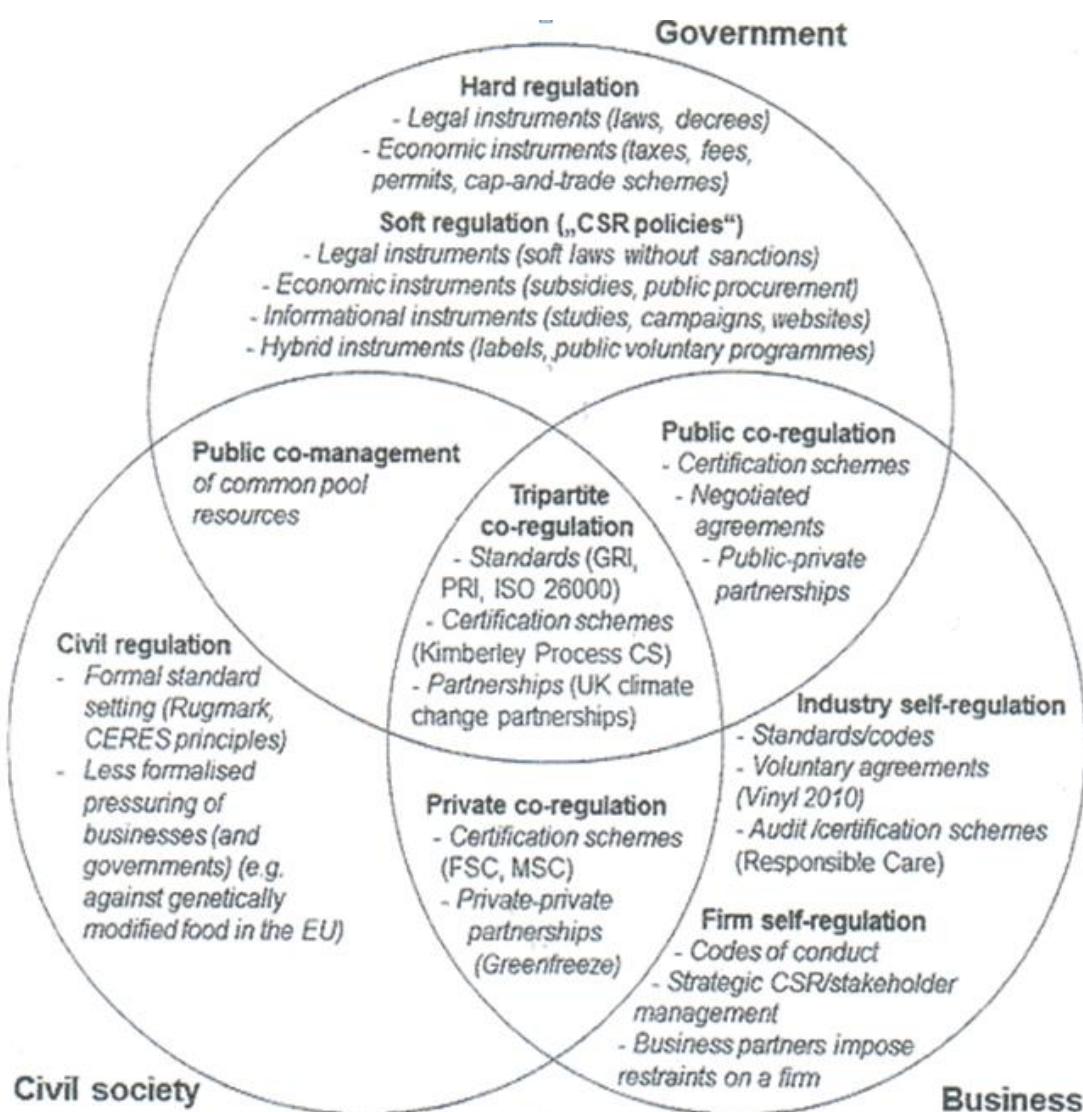
⁴⁷ BP (Gulf of Mexico, 2010), Shell (Nigeria, 2008), Chemie-Pack (2012), Odfjell (2013), Enschede (May 2000), but other domains include, for example, healthcare, food, air flight, tax domain.

⁴⁸ Here also could also be added the regulation reflex, by which, in short, is meant more rules in response to failures, also governance as a key subject is centralized in this discussions about improvement of compliance behaviour.

participation of many entities in the remediation processes: the polluter, the owner of the site from which the pollution originates, other owners with polluted sites, the local and regional authorities, sometimes the water authorities, and environmental and remediation companies. There are many parties involved that have to be aware of the legal basis of their activities. But do they have knowledge of the law and its interpretation? Are they aware of the formal and informal rules that are to be applied?

Steurer has made an interesting overview of the different forms of regulation (see Figure 1). Soil regulation in the Netherlands encompasses many of these forms, including both a formal soil remediation and prevention law and many informal typologies.

Figure 1 Overview of Different Forms of Regulation (Steurer, 2013)



Many studies have been done into compliance and new forms of informal regulation,⁴⁹ such as certificated protocols and self-regulation, mostly from a criminological or sociological point of view, or from a more legal point of view. The two aren't always combined though, nor is compliance studied with particular regard to Dutch soil regulation.

There are many other studies into compliance and new developments from different points of view. For example, Ale and Mertens (2012) in the Netherlands don't want the government to step back due to an audited company showing good behaviour. There is much literature on how to judge a company in general, as either being a well-intentioned or perhaps a badly behaving and rational entity.⁵⁰ Analysis has further revealed that about 10% of companies deliver an outstanding compliance performance,⁵¹ but they do so independently from government requirements. Even if there were no inspections they would continue to behave properly. A further 10% of companies have been found to behave badly, no matter what the government does or does not do. There is of course the possibility for the government to have an influence, but these measures are very powerful, such as taking over the board of a company. The remaining 80% of companies can be influenced by...indeed, what? Perhaps they can be affected by more frequent or better inspections, but inspections can differ a lot too. For example, they can be broad or concentrate on particular regulations. They can have a dominant structure (top down) or they can have be more advisory in nature with a more horizontal relationship. They can concentrate on the practical side, but can also focus on paperwork, such as monitoring results, waste registration, etc. All of these are known to be the more classical controlling mechanisms.

Many scientific studies in the last twenty years have analysed the influence of inspections and sanctions on the behaviour of individual companies ('specific deterrence') as well as on all companies together ('general deterrence'). Some claim that the influence of general and specific deterrence is obvious and necessary,⁵² others focus more on alternative influences⁵³ or even doubt the influence of deterrence altogether.⁵⁴

Furthermore, Gunningham (2005) states that some, mostly larger companies go beyond legal compliance in order to gain the best reputation or for other internal reasons. After studying two hundred firms, Thornton, Gunningham and Kagan (2005) analysed the direct influence of either specific or general deterrence and found that was not so great. They found that what they called 'implicit general deterrence' was of far greater importance, by which they meant the culture of compliance combined with regulations themselves.⁵⁵

⁴⁹ Steurer 2013.

⁵⁰ Van Wingerde (2012) gives an overview of the different scientific approaches taken both by different authors as well as at different times.

⁵¹ Six 2010.

⁵² Mertens et al. 2012..

⁵³ Gunningham 2005.

⁵⁴ Van Wingerde 2012.

⁵⁵ Parker and Nielsen, 2011.

Looking at all of these studies, however, it still seems unclear in what way the true and practical awareness is related to the exact legal framework within the company. How are soil regulations practically translated into current businesses and operations, looking both from the top down and from the bottom up to the highest board level, involving all responsible parties and focusing on the law or regulation as it is written and intended in parliamentary documents, and finally judged and explained in court? The latter certainly occupies the mind of the internal corporate or site lawyer, but is it also in the minds of the more practical workers and technicians while they go about their daily activities? Or do they use alternative means of achieving compliance? How does this really work?

Nielsen and Parker (2011) state that it is no easy task to really examine the behaviour and organization of companies, since the companies have to be cooperative and even want to be open to research.⁵⁶ However, since transparency, taking responsibility and employing integrity in moving towards a sustainable future are desirable paths to follow, perhaps companies should be more willing to allow this research. But are they? Developments such as the rise of compliance officers and the legislation around so-called whistle-blowers gives all the more reason to believe that the time has come for greater cooperation with scientific research within companies. At least openness is a topic for discussion, both internally as well as externally in relation to the government and civilians.

When looking at compliance, the development of self-regulation has some interesting aspects that are deserving of extra attention. There is also a lot of scientific literature relating to self-regulation or other forms that are distinct from the more traditional ‘command and control’ mechanisms. See, for example, the clear picture that Steurer (2013) presents (Figure 1).

Some commentators state that pure self-regulation is regulation without the interference of the government,⁵⁷ but others state that it is also about how companies regulate themselves, for example by using management systems that incorporate compliance behaviour.⁵⁸ In other words, the practical instruments that a company develops by interpreting the law that is to be applied, are also forms of self-regulation. However this is a different definition from the first one. So when analysing the reasons behind and the societal effects of self-regulation in order to protect the environment and people from severe damage, one should first more deeply analyse the definition of self-regulation.

Van Driel defines self-regulation as ‘private rules established – whether or not in cooperation with others – by those to whom they apply, or their representatives, with supervision jointly exercised by these groups’.⁵⁹ In Nielsen and Parker, the focus seems to be more on the intrinsic values that are developed when self-regulation is used.⁶⁰ They state that self-

⁵⁶ Parker and Nielsen, 2011.

⁵⁷ Baarsma 2003.

⁵⁸ De Bree 2011; 2013.

⁵⁹ 1989, p. 290.

⁶⁰ Nielsen and Parker 2011, p. 86.

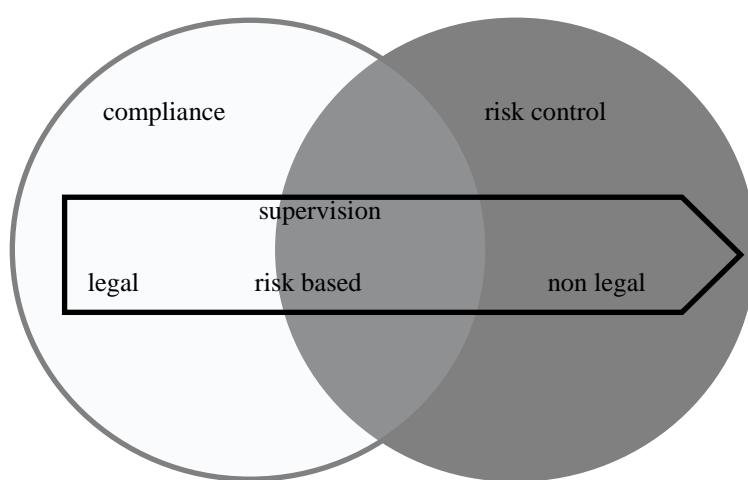
regulation leads to better results because of the developed intrinsic value within the involved people.

Driessen seems to focus more on the societal process,⁶¹ analysing the possible shift towards greater self-regulation, not in place of but more as an extension to the classic methods of regulation. Driessen is interested in the factors influencing this shift, a distinguishing between centralized, decentralized, public-private governance, interactive governance and self-governance.

Authors such as Six (2010) who also examine modern compliance developments, focus more on the relationship between the company and inspection. Six studies ‘trust’ as a possible relevant horizontal aspect of compliance, but admits that not every company is suitable for this mechanism. In her opinion, trust should also be combined with more traditional aspects of inspection.⁶²

Another approach when investigating the development and existence of self-regulation is the following. In practice, it is often noted (from experience and as stated by many technical engineers) that even if a company is in compliance with all regulations (which is already Utopia to them), it will not and cannot avoid all possible risks (see Figure 2). This figure underscores the suggestion that regulations are not the key focus for the average company, but risks are. This picture also gives an explanation for the possible friction that exists between the enormous quantity of regulations with which a company is expected to comply, and the reality of the true risks to the environment and people. This analysis also gives support to the more risk-based form of self-regulation. The so-called risk circle must be closed by self-regulation, since regulations don’t cover it.

Figure 2 Interaction Between Compliance and Risk Control in Self-Regulation (according to Sparrow, 2011)



⁶¹ Driessen 2012.

⁶² Six, 2010.

When looking further into the legal discipline for definitions, Cafaggi should be mentioned. Cafaggi uses the definition of ‘new regulatory models coordinating public and private regulators’⁶³ and is very much in favour of using self-regulation for promoting the internal European market. Like Driessen, he sees self-regulation being used more as an addition to rather than a replacement of the current methods. Furthermore, he states that it is necessary for self-regulation to be somewhat conditioned on the European governing level, to give it a more legitimate character. Self-regulation in its legal form tends to be more concerned with private law than public law. This is interesting in the environmental and health area where the public factor is more connected with public law.

KNOWLEDGE GAP

Shifts in Governance

It was stated earlier that the ‘shifts in governance’ that have taken place over the last decades have been receiving scientific attention. Several environmental domains have been studied in relation to these shifts,⁶⁴ but not yet soil remediation. Policy and formal and informal legal instruments in the Netherlands over the last 35 years give interesting ingredients for further scientific analyses and evaluation of these possible shifts. It seems that the Driessen model suits this purpose very well.

The Legal Mixture

There is much in the scientific literature about compliance, even relating to new instruments such as protocols, audits and management systems. In the legal literature there have been studies into the legitimacy of alternative instruments for achieving compliance,⁶⁵ but there are fewer studies that examine the effectiveness and concrete legal transfer and legal awareness of a combination of instruments.

RESEARCH PLAN

Aim of the Research

It was noted above that the Dutch have inherited a huge soil pollution problem which needs attention both now and in the future.⁶⁶ Soil remediation has been governed by different policies and legal incentives over the last 35 years, with the government using both formal legislation and informal and semi-legal instruments. That there is such a long time frame and

⁶³ Cafaggi, 2011.

⁶⁴ Weber, 2013.

⁶⁵ Among the researcher: Van Gestel, R.A.J., RU Tilburg, Netherlands.

⁶⁶ Also in Europe soil pollution is still at stake although the European Guideline for Soil is not yet accepted and in force.

the challenge still remains for the future raises interesting questions, whose answers might contribute to a future solution:

What was the overall effect of this combination of public and private influences? How can their input be explained, and how effective is this combination?

This research will break down the larger question into smaller ones by analysing the role of the government in relation to the other entities involved over time, thus dividing it into several relevant timeframes (parallel with important changes in policy or law) and including an analysis of the interpretation of the instruments to today's practice of remediation as a way of reaching policy goals.

To also give the research a broader focus than just the situation in the Netherlands, it is also the intention to study another country's approach to soil policy. The United States may be an interesting subject since it is culturally comparable to the Netherlands, but it differs in having more space. Some commentators suggest that the US is ahead of the Netherlands, so there may be lessons to be learned.⁶⁷

Research Questions

A central aspect of this research is the analysis and evaluation of shifts in policy and the legal transfer of that policy to everyday practice in the sustainable use of soil and groundwater in the Netherlands. The following research questions will therefore be addressed:

- Which of the shifts from government to governance in Dutch soil and groundwater policy over the last 35 years are to be analysed and evaluated? If shifts are detected, how can these shifts be explained?
- How is Dutch soil policy translated into what kind of legislation, theoretically as well as practically? And with what awareness and concrete recognizable effect?
- What is the overall effectiveness of the sustainable use of soil when analysing a concrete and complex remediation process, incorporating actual policy in the Netherlands and taking into account the legal mixture and its influence on the process?
- What aspects are typical to the Dutch situation, as deduced from an analysis of the policy and legal mixture in a comparable Western country?

Relevance of the Research

It is the aim of this research to analyse in greater detail the role of the government in the last 35 years, as well as the use of a mixture of instruments, including their effect in practice. The research should allow conclusions to be drawn about which policies and legal influences will work best in the future for sustainable soil and groundwater use. This study is not only about soil, however. It is also about how best to regulate a certain environmental domain, and will thus examine the effectiveness and awareness of those required to follow the policies, as well

⁶⁷ Interesting is the change of the VOCL-limit recently in the states; it opened old cases again; can that happen in the Netherlands too?

as the role of the government. In that regard, the research will also contribute to gaining greater insight in general into how a mixture of regulation instruments and the role of the government influence the governance of a certain public domain. Many other relevant domains such as water and air also tend to be regulated by a mixture of instruments, so investigating the Dutch soil domain will certainly be of use in better understanding how a domain can best be regulated. Finally this research might also give interesting insights into related disciplines, since it will try to connect legal knowledge and observations with more sociological compliance theories.

RESEARCH METHODS

Analysing the Literature

An important part of this research will include studying documents, state papers and background information on soil governance over the last 35 years, as well as studying and analysing jurisprudence relating to relevant soil case studies in general. This theoretical approach used for the Netherlands will also be carried out for another country, probably the United States.

Empirical Analyses

Another important aspect to take into account is practice. The research is also meant to give greater and deeper insight into the practical consequences of the shifts in governance, and the legitimacy and effectiveness of the shift in the mixture of legal and semi-legal instruments. In-depth interviews will be carried out with key players involved in the different stages of possible shifts, as well as expert meetings with local and central government bodies, environmental advisory groups and cleaning companies. An overarching case study will be an important part of the research too analyse the related concepts. This will most likely focus on a private-public collaboration in a large regional groundwater remediation.

SCIENTIFIC RESULTS

The research will lead to more insight into:

- Dutch soil governance over the last 35 years and the possible shifts in governance.
- The mixture of regulatory instruments in the domain of soil governance: exploring their legitimacy and effectiveness, therefore deepening the understanding of compliance.
- The aspects of a complete regional groundwater approach in the Netherlands as a relevant case study to contribute to the scientific analysis.
- A comparison of shifts in governance and regulation methods by describing and analysing a comparable situation in the United States of America.

The above analyses will yield the necessary ingredients to further strengthen the soil governance concepts and regulation necessary for a sustainable future in soil use and management. This research also intends to contribute to a practical analysis of compliance within the possible shifts in governance and might thus even yield important tools for inspection approaches.

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Chapter 10: INFLUENCE OF CITIZEN ENVIRONMENTAL COMPLAINTS ON ADMINISTRATIVE SANCTIONS FOR POLLUTION REGULATION IN INDIA

Keerthi Kiran Bandru¹

ABSTRACT

The ‘public grievance system’ in the pharmaceutical capital of India, Hyderabad is a novel approach established to concentrate on the citizen environmental complaints through administrative sanctions. In this paper we investigate the relationship between citizen environmental complaints, properties of violations and characteristics of violators with regulatory administrative sanctions. Data is drawn from the pollution regulatory authority in the state of erstwhile Andhra Pradesh in India for the years 2005-2012. The empirical evidences indicate that citizen complaints are significantly influencing the severity of administrative sanctions. High number of high pollution generating firms disclosed through citizen complaints expose the violation practices and reveals that non-compliance is a norm and carries great threat to the environment if not regulated. The non-significant correlation of the properties of the violation – economic motivations, act based violations, environmental damages and illegal practices with the severity of sanctions identify the persuasive strategies of the regulators and less respect to environment and also concerns of the citizens. Stringent enforcement of special monitoring programs-joint actions plans; boosted the confidence in citizens and also enhanced the legitimacy of the severe monetary sanctions. Nevertheless, firms are in better position to negotiate compliance at the cost of the continuous release of pollution. Repeated offenders have been received lenient sanctions attributed to the debatable appellate authority review procedures and lengthy legal cases. The external pressure from the citizens, higher-level judicial involvement and technological advancements coupled with special monitoring programs promoted the regulatory negotiations to obtain the compliance assurances from industries. The regulatory institutions to measure and assess the compliance are again not reducing the pollution discharges and considerable attention for reforms. The implications of this study are that the citizen environmental complaints shall be supported with more accountable response mechanisms by the public regulators and regulatory agencies need robust enforcement institutional support for the optimal compliance.

Keywords: Pollution control, administrative sanctions, citizen environmental complaints, responsive regulation

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INTRODUCTION

The environmental regulation strategies for the optimal compliance are in constant transformation and eyeing for the innovative ideas/instruments to balance the development vis-à-vis environment. The need for efficient monitoring and dynamic enforcement strategies has been rigorously emphasized for all political and economic settings. Recently, the complex local pollution control and enforcement actions, mainly in developed countries context are strengthened with the reformed citizen participation approaches ([Blackman, 2010](#)). The past view of ‘citizens as victims of pollution’ is replaced with ‘citizens as active contributor’ in the efficient regulatory regimes ([Gunningham, 2011](#)). Similar to other enforcement strategies, the developing countries environmental policy innovations are also replicating these methods by reviewing their citizen participation approaches. Citizen participation varies from protests, negotiation, education, information dissemination, advocacy, public hearings, and grievances to finally litigations. The communities have successfully pressurised regulators and/or defaulting firms either formally or informally, wherever citizen participation is institutionalized and functioning even in the weak enforcement systems. Yet, the impact of these citizen actions on regulation and compliance are not completely understood ([Van Rooij, 2010](#)). The impact of informal regulation or citizen participation on enforcement strategies is widely recognised ([World Bank, 2000](#), [Kathuria, 2007](#)). But, the direct assessment of citizen environmental complaints on regulation are very limited and majorly focused on the determinants ([Dong et al., 2011](#)). In the Indian context the role of citizen environmental complaints on enforcement in specific and social welfare in general has not been explored, though few studies tested other societal pressures ([Kathuria, 2007](#), [Murty, 2010](#)). The present study fills the gaps in the regulatory literature to understand whether the citizen environmental complaints as external component to the regulation and on firms, influences the enforcement strategies and compliance behaviour. Given the limited empirical knowledge on the influence of citizen complaints on the severity of administrative sanctions, this study intended to provide useful insights on determinants of the sanctions. The determinants, which might influence the severity of the administrative sanctions and their influence on the compliance are targeted in this analysis. The research also investigates if there is any difference between the regulators response if the non-compliance is identified through citizen-initiated actions and actions initiated by the regulators? The present analysis restricted only to the interactions between citizen environmental complaints, violations behaviour and regulatory administrative sanctions. The results identify that the citizen complaints though generate the inspections, they being not institutionally backed and fail to promote the compliance. An important policy implication of the study is institutionalisation of legal powers of compensations and fines, transparency and informing complaints about the progress would strengthen the regulatory administrative sanctions role in pollution prevention. The paper is organized as follows: In Section 2 the methods used for this analysis is defined and followed by the dependent and independent variables used in the economic model. The descriptive statistics and results are discussed in the following sections 3 and 4 and the major findings and policy implications are elaborated in Section 5.

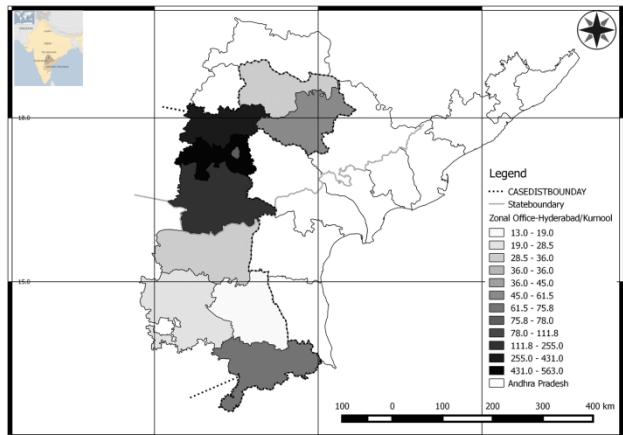
Public Grievance Cell or Taskforce

The lack of subject experts as leaders, temporary appointments of bureaucrats as the regulatory authority heads, low number of scientific staff compared to the firms ratio, shrinking budget for enforcement activities are few of the regulatory institutional properties affecting the efficient regulation in India (Bandru, forthcoming). On the other hand, though the ‘judicial environmental activism’ ([Sahu, 2014](#)) is well known and effective in controlling the pollution, the long delays and high costs makes it unaffordable to citizens and ineffective to encourage the compliance. Therefore, the Andhra Pradesh Pollution Control Board (APPCB) has institutionalised ‘public grievance cell (PGC) (also called as taskforce)’ in August 1995 with main responsibilities to initiate quick actions on complaints, inspect complaint areas, prepare time bound mitigation plans, to assist the problematic industries, to ensure the implementation of orders from the courts and monitor the ambient air quality and water quality in problematic areas (refer for geographical representation of the case location). Two night surveillance teams were also assigned to the taskforce office in the year 2000 with additional legal powers to identify and take actions against illegal dumping activities of industrial wastes. A special taskforce was established for the highly industrial districts of Medak and Rangareddy in April 2009, after receiving orders from the Supreme Court of India. The non-complying industries identified through citizen complaints or taskforce inspections are called to attend the ‘legal hearings’ held before the task force committee. An external advisory experts committee is formed to provide the technical assistance to the taskforce. The regulatory administrative sanctions against non-compliant industries are decided in these legal hearings chaired by the highest-level of regulatory authorities². The facts of each case are reviewed in the legal hearing and a combination of directions/closure orders/stop production orders/ revocation of closure orders are issued to the industry with in the legal powers provided under environmental legislation³.

² The member secretary of APPCB, technical experts, industrial association representatives participate in the legal hearings.

³ Section 33 of Water Act, Section 31 of Air Act, Section 5 of EP Act provide all the legal powers to issue directions, to revoke or suspend licences, to issue closure orders and also impose monetary sanctions.

Figure 1 The study region with number of cases



Source: Author representation (Keerthi Kiran Bandru)

METHODS

Theoretical Background: Citizen Complaints and Administrative Sanctions

The theoretical background of the present analysis is developed from the traditional law and economics frameworks of environmental regulation and private enforcement ([Naysnerski and Tietenberg, 1992](#)) with special emphasis on institutions ([Swanson, 2002](#), [World Bank, 2000](#)). The standard economic models predict that the firms balance the expected costs of polluting with expected gains ([Polinsky and Shavell, 2000](#)). In addition to the abatement costs, the enforcement literature focused also on the intervention strategies, legal enforcement powers, internal capacities and external pressures from community and judicial systems for the deterrence of non-compliance and to achieve better environmental quality ([Baldwin et al., 2012](#), [Gunningham, 2011](#)). Several studies focused on the determinants of community involvement and linked with compliance behaviour and level of monitoring and enforcement directed at specific firms ([Earnhart, 2007](#), [Stafford, 2013](#), [Dong et al., 2011](#), [Liu et al., 2011](#)). Yet, there have been few studies analysed the role of the citizen complaints ([Stafford, 2006](#)), though barely any in the Indian context. The citizens create external pressure through informal requests on the ground to the firms and/or to the local inspectors and also formal complaints to the regulators, which influences the enforcement strategies (World Bank 2000). If there is no improvement even after informal verbal requests to the industries and pollution problems remains, the affected citizens register a formal grievance to the regulatory agency. Admitting the deficient institutional frameworks, increasing public awareness on environmental degradation, health issues and damages to the private properties encourages community to involve in the private enforcement actions ([Li et al., 2012](#), [World Bank, 2000](#)). The citizens reflect on the level of public regulatory monitoring and enforcement, and decide to initiate the complaint to maximize their expected benefits from the resources use through better environmental quality. The decision to whether or not to complain is subject to many

factors such as budget, time constraints and other impelling institutional factors-probability and level of regulatory response, collective action among society, dependency on the polluter and magnitude of the problem. The thriving incentives for the citizen's complaint could be more regulatory inspections, which might result temporary or permanent relief from the pollution problem and also maximizes the benefits from use of the resource ([Dong et al., 2011](#), [World Bank, 2000](#)). On the other hand, the increased probability of inspections enhances compliance costs because of citizen complaints and resulting regulatory administrative sanctions or the judicial cases ([Lo et al., 2009](#)). Thus, the incentives for firms are to comply with legislation to avoid citizen complaints as well as expected high compliance costs. The polluter chooses non-compliance, if the compliance cost and transaction costs for the regulatory interaction is cheaper ([Dasgupta et al., 2001](#)). The inspection and monitoring capacities, legal powers to impose stringent sanctions of the regulatory agency define the transaction costs. At the same time, the public regulators' incentives to respond to complaints are higher trust among citizens and better quality of environment with amplified industrial compliance. The public regulators also fear about the directions from Central agencies or stringent directions if citizens complaint to higher authorities or from judicial system if citizens choose to approach the courts.

The sanctions issued within the legal boundaries and without the judicial interference are defined as the 'regulatory administrative sanctions' and are part of the broad enforcement strategies ([Abbot, 2009](#)). The understanding of the administrative sanctioning powers and scenarios is very important in developing counties context. The cases filed by the public regulators against the industrial pollution incidents are rare, as the results of the legal orders portray the regulators as main culprits for the environmental pollution problems. The public regulatory agencies are entrusted with environmental protection and development of nation. Within this development vs environment dilemma, the public regulators choose optimal enforcement strategies. Therefore, the analysis of the suitable conditions for the administrative sanctions, which are directly under the powers of regulators, is important. Various enforcement propositions discusses the hierarchies of sanctions and regulatory intervention strategies, crucial role of institutions, responsiveness of regulators are necessary to enhance the compliance ([Baldwin and Black, 2008](#)). The responsive regulation theories argue that the hierarchical sanctions must address the multiple motivations of the violations ([Ayres and Braithwaite, 1992](#)). In contrast to the traditional regulation approaches, the responsive regulation theories built on the assumption that the industries do cooperate to achieve the compliance. The cooperation brings soft and persuasion as first reaction and opposite brings the harder sanctions ([Ayres and Braithwaite, 1992](#)). The taskforce of the APPCB also adopted the hierarchies of administrative sanctions to deal with the defaulting firms. But, the limited enforcement powers of the regulatory agencies in the developing countries context are well documented and the conditions of responsive regulations-accountability, transparency and legal powers become major constraints. Therefore, the present case explores the conditions required for efficient use of responsive regulations strategies in the India environmental regulations context.

Economic Model: Dependent and Independent Variables

The dependent variable used in the analysis is the severity of administrative sanctions imposed against the defaulting firms. This ordered categorical variable is constructed based on the observations made from the legal hearings and interviews⁴ with stakeholders to depict the severity of sanctions opted by the APPCB. The document analysis of the legal hearings indicates that, the PGC do not embrace any standard naming procedures for the sanctions. Particularly, different wordings have used for similar sanctions. For instance, the closure orders, temporary closure orders, temporary stop production orders, stop production orders reflect more or less same impact to the firms. The categorisation of sanctions from the combination of directions is the biggest challenge in this analysis. Some of the directions are very vague in nature. For instance, sanctions such as change the behaviour, install suitable technology to meet the standards, reduce production to meet the standards, switch to cleaner fuels, safely dispose the hazardous waste etc. The directions have coded based on the words used, which describe the steps or actions to be taken by the firm. These multiple directions are further categorised into five levels to describe the economic impact on the firms. The sanctions, which pose similar level of economic burdens or profits, are grouped in to single category. The detailed wording used in the legal hearings is listed in the Table 1. Considering the discrete nature of PGC authorities in the directions, the analysis considered the final decision, which reflects the sanctioning strategy. The value 0 considered the sanctions favourable to the firm, as the decisions are to revoke the sanctions and value 4 is for stringent sanctions to cap on production or direct to close down the industry until they achieve the compliance. These hierarchical sanctions are partially described under on-going pollution control initiatives in the ‘citizen charter’ published by the APPCB (Citizen Charter of APPCB, 2013). The lowest sanction is to issue the licence to operate and amputate the affirmations, which are favourable decisions to the firm. The second lowest sanction is to delay the decision because of various reasons; firm requests, need for more information or conflict of information. Apparently, these are also favourable to the firm as status quo endures. In other words, these are not sanctions to the firms, but final orders always direct the firms to comply with the previously issued directions. Moreover, the firms are in the regulators purview and if they found guilt in future, the compliance history acts as decisive factor. While, the first two sanctions errand the firm, the enduring sanctions enact direct or indirect monetary investments or assurances. The directions to changes in the production technology or modifications in the treatment process are the major decisions, which comes under the third category of sanctions and pose indirect monetary burdens on the firm with some flexibility in time and negation power over the implementation. If the firm did not respect the committed directions, the regulator escalates the sanctions with financial assurances and stringent time schedules for accomplishment. The orders to reduce the

⁴ Semi structured interviews with open ended questions were conducted with ex-member of the taskforce legal hearing committee, environmental consultant and environmental engineer working in the taskforce office. The focus was to understand the working mechanisms of taskforce and implications of directions.

production or temporarily stop production until they achieve the compliance are also part of this fourth level of sanctions. Finally, if the regulators are still not satisfied with the compliance efforts of the firm, they impose the last resort to close down the industry with disconnection of electricity and water supplies, monetary fines for illegal activities or can also orders to relocate the firm. The fifth level of sanctions is the greatest administrative sanctions posed by the environmental regulatory agency in India. The next step will be to initiate the legal processing in the courts against the firms.

Table 1 The Hierarchical Administrative Sanctions-Dependent Variable (REGACTION)

Severity of Sanctions	Category of Sanction	Wordings used in the directions
0	Favourable to the firm	To revoke the closure order/stop production order; To return the Bank guarantee; Issue warnings for not to repeat the violations; Directions to comply with general consent conditions; To issue consents
1	Decision is delayed	To re-inspect by a committee to find more facts; To re-verify the documents; Decision defer to the next meeting; To seek legal opinion
2	Indirect monetary sanctions	Temporary revocation of closure/stop production orders with time bound specific directions to comply; To obtain consents; Take membership in CETP/TSDF; To produce only consented products; To dismantle the illegal pipelines; To install the technology in a given time-for example, flow meters; Written assurances to comply with the directions
3	Direct Monetary sanctions with flexibility	Time bound specific and general directions and submission of Bank Guarantee; Reduce production; Lift the waste from contaminated site; temporarily stop production
4	Direct Monetary and Severe Sanctions	Stop production order; Closure order; Submit Bank Guarantee; Disconnection of electricity or water; Relocation of the industry; Remediate the contaminated site; Compensation for the damages; Fines for the illegal dumping of Hazardous waste, Forfeit the Bank guarantee

Source: Author representation (Keerthi Kiran Bandru)

The regulatory enforcement literature has identified that sanction decisions depends on industry features, extent of violations, costs for monitoring, environmental quality objectives and expected endogenous level of citizen complaints, which have developed as independent explanatory variables. These independent variables and how do they influence the regulatory administrative sanctions are described below⁵. First, the institutional and firm specific properties-age, pollution category, production category, district location, etc. gives a general understanding about the characteristics of firms and influence on the severity of sanctions and citizen complaints. Second, the nature of violations –number of times appeared, violations purely based on economic motivations, violations causing environmental harm, compliance

⁵ This section is mainly adopted from Van Rooij, B. 2006. *Regulating land and pollution in China lawmaking, compliance, and enforcement : theory and cases* [Online]. [Leiden]: Leiden University Press. Available: <http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=191775>.

with general and specific directions, illegal discharge practices and compliance attitude describes whether the motivations, capacities, and extent of violators define the sanctions. The ‘perceived gravity of the violation’ and ‘culpability of the offender’ are the main driving factors for the severity of regulatory sanctions. The destination of the pollutants and pollution type explains if magnitude of pollution has any impact on regulation and on complaints. Third, the citizen complaint properties-type of complainant and involvement of judicial cases explores the citizen’s perceptions about the regulation and social welfare and tests the impact of social context on regulatory enforcement ([Van Rooij, 2006](#)). In addition to the above external feature, the internal variables of the regulatory context are represented through inclusion of special monitoring programs-joint action plans⁶. The variables used in the analysis and their possible influence are described in the Table 2. Various models have tested to assess the robustness of the results.

From the above brief theoretical foundations, the following model (equation 1) has developed to estimate the citizen complaints influence on the administrative sanctions. We hypothesize that the involvement of citizen complaints⁷ increases in the severity of administrative sanctions. The categorical ordinal outcome variable explores the hierarchical sanctioning strategies. Besides including several violation and violator properties, we also included other district and year control variables to capture changes in the citizen complaints patterns and enforcement strategies. All the estimations have carried out using the statistical software STATA version 10.1.

$$REGACTION = \beta_0 + \beta_c X_{cj} + \beta_r Y_{rk} + \beta_f Z_{fl} + \beta_v W_{vm} + \beta_p V_{pn} + \beta_n Dummy_{nj} + \varepsilon_j \quad ----$$

Equation (1)

Where, X_{cj} is the vector of c citizen complaint; Y_{rk} is vector r regulatory strategies; Z_{fl} is vector of f firm level variables; W_{vm} is vector of v violation characteristics; V_{pn} is the vector of p properties of pollution problem and $Dummy_{nj}$ are n dummies for district and year and ε_j is error term. The equation 1 can be interpreted as the severities of regulatory sanctions are influenced by the presence of citizen complaints. In the non-linear model estimations, the coefficients of the models are not directly interpreted as the percentage changes in the level of regulatory sanctions due to the presence of citizen complaints. This is due to the distribution function is non-linear cdf and the change in probability will vary at different point of the probability function ([Ghosh and Kathuria, 2014](#)). Thence, the marginal effects are estimated to get the appropriate rate of change in the probability of observing the non-zero dependent

⁶ The joint action plan is implemented from August 2007-January 2009 with special monitoring teams, establishment of new taskforce office at problematic industrial locations, obtained commitment from firms to install the advanced treatment technologies.

⁷ It is important to clear the review process again to avoid the over importance to the citizen complaints. As we observed, the regulators initiate the inspection first time as a result of the complaint and impose certain level of sanctions, which will be reviewed after scheduled time. The succeeding review reason is also considered as the citizen complaint, although the reason is to verify the compliance and scheduled in the previous taskforce meeting. Since, the main reason for the investigation is the citizen complaint and the citizens also keep the firm under their radar for further violations, the study considered the following reviews reason is also citizen complaint

variable, when the explanatory variable changes by small amount holding all other variables constant at their means ([Ghosh and Kathuria, 2014](#)).

The dependent variable REGACTION is estimated by the key explanatory variable is the presence of citizen complaints (COMPLAINT). The citizen complaints itself indicates that the pollution is entering into their lives, due to which their utility from resource use is reduced. The other independent variables used in the analysis are regulatory intervention strategies-special monitoring programs (JAP), court cases by or against industries (CASE); characteristics of the violators-age (AGE), production category (PRODU), red pollution category (RED), compliance history in number of times appeared in the legal hearings (TIMES); properties of violation-economic gain motivated violations (GAIN_V), violations with environmental harm (ENVHARM_V), act based violations (ACT_V), illegal practices (ILLEGAL_V); properties of the pollution problem-pollution entered into private properties(DESTIN), involvement of multiple pollution problems (MULTIPL) with year, district and production category dummies. The interaction terms are developed between citizen complaints and properties of violations, regulatory interventions.

Table 2 Variables Description

Variable (1)	Description (2)	Expected sign (3)
Dependent variable		
Level of regulatory sanction (REGACTION)	Ordinal outcome variable =0 Favourable to firm =1 Decision is delayed =2 Indirect monetary sanctions =3 Direct monetary sanctions with time bound compliance plans =4 Direct monetary and severe sanctions	
Independent variables		
Citizen Complaint (COMPLAINT)	=1 Citizen complaint at any time =0 PCB inspection	+
Legal cases by firm (CASE BY FIRM)	=1 firm approached appellate authority/High Court against the board decision	+
Legal cases against firm (CASE AGAINST FIRM)	=2 case against firm in High Court, Supreme Court by citizen/CSO/Board =0 No case	?
Joint Action Plan (JAP)	=0 before the JAP implementation =1 during the JAP implementation =2 after the JAP implementation	?
Red category pollution generating firms (RED) ⁸	=1 Red category firms =0 Other wise	+
Production category (PRODU)	=0 others =1 Chemical =2 Metal and non-metal =3 Leather, paper, food and textile	
Times offended (TIMES)	=2 two times offended =3 three times offended	+

⁸ APPCB has developed Red, Orange and Green colours categories based on their toxic pollution generating potential. The Red category consists a total 101 types of industries covering all sorts of production and non-production activities.

	=4 Four times offended =5 five or more times offended	
Multiple pollution problem (MULTIPL)	=1 more than one type of pollution problem-water, air, hazardous waste =0 otherwise	+
Pollution destination (DESTIN)	=1 Pollution entered into private properties =0 other wise	
Violations with financial gains (GAIN_V)	=1 Violations with financial gains =0 otherwise	+
Environmental harm violations (ENVHARM_V)	=1 if the violations generate environmental harm =0 otherwise	+
Act based violations (SERIOUS_V)	=1 non-compliance with previously issued directions =0 otherwise	+
Illegal violations (ILEL GAL_V)	=1 Illegal practices of waste discharges =0 otherwise	+
Age of the firm (AGE)	Age of the firm	+
Year dummy (YEAR)	Dummy for each year	+
District dummy (DISTRICT)	Dummy for each district	+
Production category dummy (PRODU)	Dummy for four production categories	?
Interaction terms	Citizen Complaints X Environmental Harm Citizen Complaints X Act based violations Citizen Complaints X Illegal violations	+

Source: Author representation (Keerthi Kiran Bandru)

Data Sources

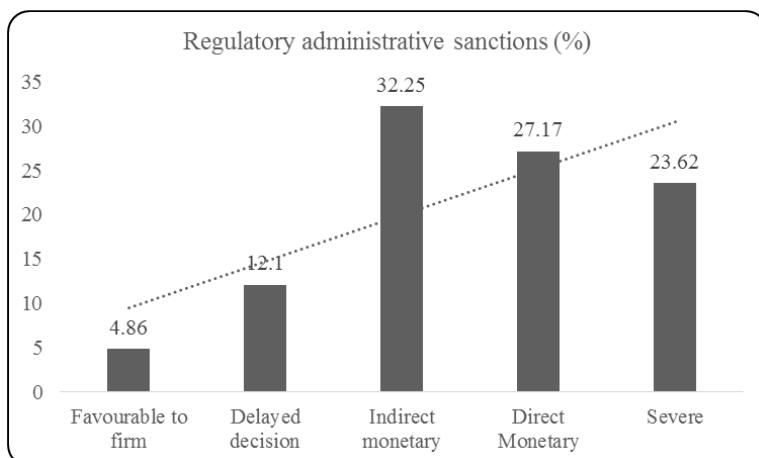
The taskforce of APPCB organizes meetings (called as ‘legal hearings’) from time to time to deal with the citizen complaints and defaulting firms. The minutes of the legal hearings from 2005-2012 is collected from APPCB Taskforce Hyderabad office by using Right to Information Act⁹ (2005). The data has 1380 observations and covers three APPCB Zonal jurisdictions-Hyderabad, RC Puram and Kurnool and ten districts-Hyderabad, Ranga Reddy, Warangal, Mahaboobnagar, Karimnagar, Anantapur, Kurnool, Kadapa, Chittoor and Medak (). These legal hearing minutes describe the nature and extent of violations observed, past history of the industry, compliance with previously given specific or general directions, and details of the inspections, description of the complaints, problems and final decisions. The firm specific features have collected from the other industrial departmental databases-The Federation of Andhra Pradesh Chambers of Commerce and Industry (FAPCCI), Micro, Small and Medium Enterprises (MSME), Directorate of Economics and Statistics, Andhra Pradesh Pollution Control Board. Firms are categorized into three production categories-other small scale industries, chemical, metal and non-metal and food, textile, leather and paper, which are based on the National Industrial Classification (NIC), 2008. Although, the selection of defaulting firms for the analysis poses the selection bias, as [Nielsen \(2006\)](#) argued the usage of the legal documents assists in understanding the exact behaviour and not the perception of the actors. Moreover, the defaulting firms real time violations analysis and the response of the regulator helps in uncovering the broader enforcement strategies.

⁹ Right To Information Act (2005) is designed to get the information from the public agencies about their activities. For example: expenditure, plans, reasons for issuing or revoking licenses etc., Every public agency must appoint a Public Information Officer (PIO) to process the applications of citizens.

Descriptive Statistics of the Administrative Sanctions

Among the total observations of 1380, highest cases (32%) received indirect monetary sanctions and lowest cases received firm favourable sanctions (5%) (refer Figure 2). The last two levels of sanctions are severe in nature and compose more than 50% of the total sanctions. The last three sanctions, which have monetary impact on the firms together contributed to the 83% of total sanctions. While, the direct and indirect monetary sanctions with 60% have major contribution in the total sanctions. The decision-delayed cases are 12% among the total, which indicates the regulatory agency lacks certain information to decide the sanctions. Although, the severe sanctions are imposed on 24% of the cases, which appears to be big in number, firms received a drop in the severity of sanctions in the succeeding legal hearings. As we can observe from this trend that, the firms negotiate the compliance under the watchful eye of the regulatory agency. As a result, the firms, which received severe sanctions also receive direct monetary sanctions and will be continuously monitored by the regulatory agency. This trend indicates further that the regulatory agency prefers to protect the firm production activities and also tries to bring them into compliance by using severe sanctions whenever necessary.

Figure 2 Distribution of type of regulatory administrative sanctions



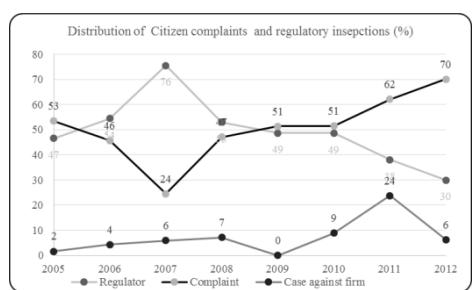
Source: Author representation (Keerthi Kiran Bandru)

Distribution of Citizen Complaints

The first independent variable estimated in the analysis is the reason for the legal hearings—citizen complaints or regulatory inspections. The evidence show that citizen complaints (48 %) are almost equally contributed with the regulatory agency (52%) to identify the defaulting firms. If we see the time trend, it indicates that the citizen complaints role is increasing from the year 2009. The years 2011 (62%) and 2012 (70%) have seen prominent role of the citizen complaints. In contrast, the regulatory agency initiations contributed to 50% during 2009-2010, but, reduced in the last two years and restricted to 37% and 29%. The remaining years observed equal share of citizen complaints and regulator as the reason of legal hearings. Again, 2007 has been exceptional with 75% of the cases are initiated by the regulatory agency

(Figure 3). The citizens simultaneously explore multiple options to overcome the pollution problem depending on the resources. Filing a public interest litigation or writ petition in the courts is conjoint owing to the resources. The citizen's alacrity to engage with judicial system is predictable and low. The court cases¹⁰ against the firm by citizens/CSO/experts/political leaders is only 5% in total observations of 1380. The citizens favoured more litigation in 2011 with 24% (in the 160 complaints). The time trend also show eloquent patterns of rise in cases, except that, there no litigations in 2009 with steady increase between 2010 and 2012 (figure 3).

Figure 3 The distribution complaints, regulator initiations, legal cases against firms during 2005-2012



Source: Author representation (Keerthi Kiran Bandru)

RESULTS: REGULATORY ADMINISTRATIVE SANCTIONS

The ordinal probit estimations from four different models are tabulated in Table 4 and descriptive statistics of the data can be observed in Table 3. The citizen complaints as main explanatory variable found significant in all four models indicating the robustness of estimations. Surprisingly, the firm characteristics and the violation properties appear non-significant. The violation properties (economic gain, environmental harm, act based violations and illegal practices) are excluded in model 1 and included in remaining models. Model 2 excluded the regulatory strategies (JAP) and model 3 excluded both JAP and court cases. The inclusion of JAP, court cases and interaction terms enhanced the explanatory powers of the variables in the model 4. This has been done to estimate, if the special monitoring programs pose any impact on the sanction strategies. The citizen complaints in all the models are significant and positively correlated with the regulatory sanctions. The pollution affected citizens also complained to the political leaders-ministers or directly to the Chief Minister in the government campaigns. For instance, the citizens' complaint to the Chief Minister of Andhra Pradesh during one of the government program about the pollution in Kattedan industrial area resulted the enforcement of stringent actions against the old textiles industries to further prevent deterioration of Noor Mohammad Lake¹¹. While, the flexible options to

¹⁰ The observations included only from the 1380 cases. The actual number of cases filed in courts may be high in numbers. But, this analysis included the legal cases in the 1380 cases.

¹¹ The restoration of Noor Mohammad Kunta Lake and Kattedan Industrial Estate has been undertaken with a World bank assisted project from 2012.

register complaint through telephone lines have resulted positive outcomes in China, similar assessments are not possible here because of dearth of data. But, the qualitative observations indicate that the citizens preferred to use fixed telephones or mobile phones to lodge the complaints. Some citizens even used the E-mail to notify the pollution problems to the regulators. Further, tipsters also collected evidences in the form of photos, videos and also detained the drivers of illegal discharges. The information provided through evidences collected by the citizens is, however, not scientific and institutionally can't be interpreted as evidence against the firms in the legal cases. Therefore, the inspectors follow the standard procedures to collect the legal samples in the presence of the firms and rarely the affected communities are involved in this process.

The regression with court case by firm and court case against firm identify that both are significant but negatively correlated with the severity of the sanctions. The case by firm is generally disagreement with received sanctions and allures to the appellate authority, which mostly produces positive outcomes to the firms. Whereas, case against firm by the citizen is bringing unusual institutional hurdle to sanctioning authorities. The regulators are not allowed to change the status quo when it is matter of judice. Therefore, in both the legal cases, the regulatory authority is forced to use lower sanctioning strategies.

The red pollution category variable is significant and positively correlated in all the models. This confirms that the regulatory strategies are partially following the risk-based approaches by spending their capacities to deal with high pollution potential industries. The severe sanctions against red category firms further indicate that, the responsive strategies of the regulators in using deterrent sanctions to protect the environment. However, the deterrence of the sanctions is being reduced due to several other institutional constraints, including the legal cases and lack of sanctioning powers. The enforcement of sanctions at the ground and monitoring and assessing the compliance are few but predominant restraints of the PGC in achieving regulatory objectives of environmental protection. Although, the complaints are not based on the industrial pollution category, the complainants are aware of the toxic impacts of emissions coming from the chemical firms in highly industrialised districts. It is also alarming sign, that most of the red category firms are not in compliance, which might release highly toxic wastes into the environment. The production category is included as dummy in the analysis, as the red category firms entails several of these categories. The regulatory strategies are also developed based on the pollution potential than to the production category. The APPCB do have production category wise emission standards¹² but do not have monitoring mechanisms to verify the compliance. The joint action plan is devised to focus on these issues to improve the monitoring capacities and also make sure about installation and operation of treatment technologies for achieving prescribed standards. However, severe sanctioning strategies have not explored during implementation of JAP and significantly used after the implementation time. This means, that the regulatory agency has been shadowing soft

¹² For instance, the effluent standards for the Pharmaceutical and bulk drugs, siting guidelines for the mining activities (for more details visit <http://www.appcb.ap.nic.in/Env-Standards/category.htm/>)

persuasive strategies on the offenders with additional assistance and time to install the treatment technologies. Within the JAP framework, the regulators have obtained commitments from firms for the installations of advanced zero liquid discharge (ZLD) treatment technologies and meet the effluent standards within a time frame. The regulators patiently waited till the deadlines and started pressurising the firms, which did not achieve the compliance or not initiated any steps towards as per the assertions. As the treatment technologies need some time for purchase, installation and standardisation, the regulators are also lenient for some months even after the deadlines are expired and did not impose severe sanctions. The sanctioning patterns reveal that, first lenient options are explored before tapping the deterrent tools even after the firms identified with repeated violations.

Table 3 Descriptive Statistics of the variables

	Observations	Mean	Std. Dev
Dependent Variables			
Severity of administrative sanction	1380	3.52	1.12
Independent Variables			
Complaints			
Complaint	1380	0.47	0.49
Court cases	1380	2.84	0.49
Regulatory strategies			
Joint Action Plan	1380	1.19	0.87
Firm characteristics			
Age	983	1993	10.78
Red pollution category	1380	0.79	0.40
Production category	1380	1.78	0.81
Times appeared in the legal hearing	1380	2.50	1.53
Districts	1380	7.62	2.39
Year	1380	2008	2.64
Violation properties			
Violations with economic gain	1380	0.73	0.43
Violations with environmental harm	1380	0.87	0.33
Act based violations	1380	0.80	0.39
Illegal practices	1380	0.48	0.50
Characteristics of Pollution			
Destination	1380	0.32	0.46
Multiple pollution problem	1380	0.80	0.39

Source: Author representation (Keerthi Kiran Bandru)

On the other hand, firms compliance history demonstrates interesting correlation to the sanctioning strategies, which depicts adaptation of responsive regulation strategies ([Ayres and Braithwaite, 1992](#)). The firms appeared until four times are statistically significant but negatively correlated with the sanctions. This indicates that firms are in better position to negotiate compliance with the regulatory agencies during their repeated interactions. The negative correlation with the severity of sanctions shows that, PGC prefers to use the persuasive tools than stringent options. Apparently, the use of soft tools more often on the

repeated offenders develops the defiance attitudes in the regulated community. The appearance of large number of repeated offenders indicates the strong waves of non-compliance insolences. Surprisingly, the firms appeared five or more times is negatively correlated but not significant. This can be interpreted in different ways. First, the firms might have taken steps or achieved compliance after four times, which changed the severity in the sanctions. Second, the regulators have to step down because of the appellate authority involvement, as most of the firms have approached the appellate authority after receiving severe sanctions. Third, the regulatory agency might have given up on the compliance attitudes of the firms, due to various reasons-political interference, rent seeking or conflict of interest with state government. The appellate authority even questioned the justification for the monetary sanctions in illegal discharge cases and directed to reduce the amount of fine. In other instances, the firms are exempted from the bank guarantees to be paid, or given additional time for the compliance etc. The appellate authority decisions are also some time contradictory to the regulatory agency. For instance, the appellate authority ordered to restore the disconnected electricity supply directly to the electricity authorities, whereas, they are supposed to direct PGC. Therefore, is it clearly evident that the regulatory agency lacks the institutional support and powers for the enforcement for the monetary sanctions and review procedures to appellate authority is debateable to develop legal powers to the administrative sanctions.

Table 4 Citizen complaints influence on regulatory sanctions

Variables	Model 1	Model 2	Model 3	Model 4
Citizen Complaint	0.315** (0.151)	0.366** (0.167)	0.337** (0.166)	0.419**(0.168)
Case by Firm	- 0.507***(0.1 30)	- 0.504***(0.1 31)		-0.515***(0.131)
Case against firm	- 0.569***(0.1 41)	- 0.598***(0.1 42)		-0.597***(0.142)
During Joint Action Plan	0.218*(0.121)			0.185(0.123)
After Joint Action Plan	0.959***(0.3 70)			0.928**(0.371)
Red Category firms	0.246***(0.0 895)	0.227** (0.0895)	0.241*** (0.0892)	0.240*** (0.0899)
Two Times Appeared	- 0.382***(0.0 834)	- 0.390***(0.0 834)	- 0.405***(0.0 833)	-0.379***(0.0835)
Three Times Appeared	- 0.426***(0.0 965)	- 0.440***(0.0 964)	- 0.467***(0.0 960)	-0.428***(0.0965)
Four Times Appeared	- 0.270***(0.10 5)	- 0.275****(0.1 05)	- 0.295****(0.1 05)	-0.271****(0.105)
Five or more times appeared	- 0.0380(0.091 9)	- 0.0546(0.092 0)	- 0.0807(0.091 3)	-0.0448(0.0922)
Pollution into private	-	-	0.0491(0.085	-0.0173(0.0874)

properties	0.0114(0.087 2)	0.0216(0.087 1)	9)	
Multiple pollution problems	0.0230(0.077 2)	0.0317(0.077 2)	0.0270(0.077 1)	0.0236(0.0773)
Financial Gain Violations		- 0.0228(0.097 0)	- 0.0113(0.096 9)	-0.00476(0.0973)
Environmental harm		0.137(0.101)	0.0980(0.101)	0.135(0.101)
Act based violations		0.108(0.126)	0.127(0.126)	0.0931(0.127)
Illegal Violations		0.0974(0.103)	0.0514(0.102)	0.0738(0.104)
COMPLAINT X illegal	0.227**(0.10 9)	0.148(0.141)	0.177(0.140)	0.171(0.141)
COMPLAINT X Act based violations	- 0.0937(0.134)	-0.207(0.172)	-0.231(0.172)	-0.223(0.173)
COMPLAINT X JAP	- 0.133*(0.073 2)	- 0.0845(0.072 8)	- 0.126*(0.072 3)	-0.119(0.0741)
Age Dummy	YES	YES	YES	YES
Year Dummy	YES	YES	YES	YES
District Dummy	YES	YES	YES	YES
Production Category	YES	YES	YES	YES
Constant cut1	- 0.991**(0.45 0)	- 0.861*(0.458)	- 0.876*(0.457)	-0.829*(0.458)
Constant cut2	-0.240(0.448)	-0.111(0.455)	-0.137(0.454)	-0.0754(0.456)
Constant cut3	0.747*(0.447)	0.875*(0.455)	0.831*(0.454)	0.913***(0.456)
Constant cut4	1.534*** (0.4 49)	1.662*** (0.4 57)	1.611*** (0.4 56)	1.702*** (0.457)
Observations	1,380	1,380	1,380	1,380
Pseudo R-squared	0.0373	0.0370	0.0297	0.0387
Log lik	-1943	-1943	-1958	-1940
Chi-squared	150.5	149.3	119.7	156.1
p-value	0	0	0	0

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Source: Author estimations (Keerthi Kiran Bandru)

The properties of violations used in the analysis are surprisingly, in contrast to many other findings (for example, see ([Dasgupta et al., 2001](#), [Liu et al., 2011](#), [Liu et al., 2010](#), [Van Rooij et al., 2013](#), [Wang et al., 2003](#))), not significant in determining the sanctions. This evidence shows that the regulators are not using the deterrent tools even when they detect violations with high magnitude and environmental impact. The firms identified for the lack of treatment technologies receive similar level of sanctions with the firms used illegal methods of disposal. Likewise, the act-based violations of the firms are also equally treated with the economic motivation based violations. The estimations do not exactly reveal which kind of violations received and at which level of sanctions. This is the serious limitation of the study due to lack of data. The qualitative observation of directions, identify the use of standard set of statements in their orders for various violations categories. In relation to the properties of violations, we also estimated the properties of pollution problem-pollution entering into private properties

and multiple pollution problems- and both of them are insignificant. It is not uncommon to observe that firms involved in one medium of pollution- water or air is also prone to involve in other discharges ([Liu et al., 2011](#)). This shows that the firms are somehow aware about the weak enforcement strategies and take advantage of it. Though, there is different legislation available for Water, air and hazardous waste discharges, all of them pose analogous sanctioning powers in India. The remarkable observation about the pollution interference with private properties-farm lands and houses etc. are also negatively correlated with the sanctions. This indicates that the citizens' environmental concerns and even economic damages-agriculture crop loss, health damages, fish death etc., are not interfering with the administrative sanctions. In other words, the polluter does not pay the affected communities. The compensation to the losses of agriculture and other economic losses has never been considered by the PGC in defining the level of sanctions. The compensation institutions are being developed in a complex way to exclude the citizens and benefit the polluters. The pollution damage assessment and evidences of damages in relation to the released pollution is beyond the scope of the present environmental regulatory agencies in India. Though, they have been empowered to issue permissions for the operations and use the natural resources by releasing the emissions, the PCB do not have autonomous powers for the compensations. The only successful relief for the 18 villages around Patancheru is the Supreme Court order to provide the fresh drinking water. But, the compensations to the agricultural loss involve other government departments-revenue, agriculture, ground water, industrial etc. Therefore, there is an urgent need to revise the institutions to assess the environmental damages and also polluter pays principle application in India.

The citizen interaction terms with properties of violations and enforcement strategies are also tested and observed that only citizen complaints combined with illegal discharges are positively correlated but not significant. Remaining interactions terms are not significantly correlated with the administrative sanctions. Even the complaints combined with JAP are also not significant and negatively correlated. When the regulatory agency spends more resources while negotiating the compliance with firms, the complaints do not receive much attention and do not interfere in the administrative sanctions.

Table 5 Marginal Effects of the Citizen Complaints Influence on Severity of Regulatory Sanctions

VARIABLES	Favourable to Firm	Decision Delayed	Indirect Monetary Sanctions	Direct Monetary Sanctions with Action Plans	Direct Monetary Severe Sanctions
Citizen Complaint*	-.0353639	-.0642089	-.0662031	.0410132	.1247649

Case by Firm*	.064074 6	.086482 7	.0483 752	-.0737826	-.1251534
Case against firm*	.079351 7	.100396 5	.0480 448	-.0884571	-.1393401
During Joint Action Plan*	- .014124 6	- .027636 3	- .0316 34	.0161897	.0572061
After Joint Action Plan*	- .083145 3	- .137934 7	- .1361 656	.0844222	.2728285
Red Category firms*	- .022936 9	- .038591 7	- .0338 045	.0280439	.0672907
Two Times Appeared*	.039707	.062116 5	.0477 974	-.047879	-.1017443
Three Times Appeared*	.047460 4	.070861	.0496 899	-.0565883	-.1114258
Four Times Appeared*	.027398 1	.044192 4	.0356 941	-.0334803	-.073806
Five or more times appeared*	.003865 1	.007011 2	.0069 968	-.0046942	-.0131791
Pollution into private properties*	.001465 3	.002693 6	.0027 521	-.0017701	-.005141
Multiple pollution problems*	- .002010 7	- .003678 1	- .0037 253	.0024343	.00698
Financial Gain Violations*	.000399 6	.000738 3	.0007 61	-.0004816	-.0014173
Environmental harm*	- .012388 6	- .021488 1	- .0198 003	.0151958	.038482
Act based violations*	- .008239 3	- .014688 1	- .0142 179	.010054	.027092
Illegal Violations*	- .006202	- .011445 7	- .0117 868	.0074675	.0219673
COMPLAINT XI illegal*	- .013510 6	- .025897 4	- .0286 072	.0157792	.0522368
COMPLAINT X Act Based violations*	.019585 2	.035011 7	.0343 26	-.0236375	-.0652866
COMPLAINTXJAP*	.010024 4	.018495 1	.0190 19	-.0120892	-.0354499

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: Author calculations (Keerthi Kiran Bandru)

The model 4 explains citizen complaints significance even after including all the other variables. Therefore, we assessed the marginal effects for this model to understand the probabilities of citizen complaints on each level of regulatory sanctions, which are tabulated in Table 5. The predicted probabilities of severe sanctions will be 12% more if there are citizen complaints involved. While, the citizen complaints are negatively influencing the first three levels of administrative sanctions, which are more or less favourable to the firms. The

two stringent sanctioning strategies with direct monetary sanctions and severe sanctions are positively influencing in the presence of the citizen complaints. Particularly, the severe sanctions will increase 12% if there are citizen complaints registered against the firms. Though, it does not seem very big number, the reality is much bigger due to the fact that citizens role in environmental protection is very limited in India. The legal procedures, however, have negatively influencing the administrative sanctions. The cases against and by the firms are beneficial to the firms as they reduce 13% and 12% of severe sanctions respectively. The probabilities in the first three levels of sanctions due to legal cases are, contrast to the citizen complaints, are positively influencing. Similarly, the last two level of stringent sanctions are, again in contrast to the citizen complaints reduces the administrative sanctions. At the same time, the enforcement of special monitoring programs increased the probability of severe sanctions by 27% and followed citizen complaints trend with negative relation for first three level of sanctions followed by the positive relation. The increase in severe sanctions after the JAP indicates the strong role of special monitoring programs and continuous compliance assessment to legitimise the sanctions.

Surprisingly, the history of the offender is reducing the probability of imposing severe sanctions. The firms appeared up to three times in the legal hearings receive around 11% less severe sanctions. Subsequently after three times, the firms' appearance in front of the regulator and also violations are not increasing the severity of sanctions. The predicted probabilities of first three levels of sanctions on are similar for repeated offenders, even if they attend more than 5 times. This clearly indicates that the environmental regulators in India are constrained to use to persuasive sanctions. Apparently, the probability of severe sanctions on repeated offenders is not increasing even if they appear in front of PGC more than five times. The institutional constraints for the enforcement of severe sanctions form a strong basis for the environmental reforms in India to enhance the legal powers to environmental regulators. In relation to the sanctioning strategies, it is prerequisite to assess the extent and nature of the motivations of the violations. The properties of the violations irrespective of the extent of environmental damages, malicious motivations and non-compliance with previously issued directions are also enhancing the probability of severe sanctions. Therefore, the regulatory agency shall seriously consider categorising the violations based on environmental damage, economic motivations and respect to environment and legislation to devise better sanctioning strategies. All the violations can't be grouped into lack of capacity and hold the persuasive positions. The violations such as effluent discharge during night times, through special pipelines, adulterating the pollution control equipment, not installing the flow meters, submission of false records, and intentional release of emissions above standards shall be regulated through direct monetary sanctions. The pollution tax is one such economic tool highly used in developing countries. Though, the firms are paying for their own treatment charges based on the pollutant concentrations, there are not such provisions for administrative fines for the quality of pollutant released into environment. The HW rules have slightly changed the situations through empowering the regulators to impose ₹ 25,000 for ton of mismanaged HW. The JAP further empowered the PGC to impose additional treatment

charges on the firms, if they exceed the prescribed CETP inlet standards. The PGC further institutionalised the bank guarantee mechanisms to ensure the compliance of agreed conditions. The enforcement strategies with bank guarantees, monitoring the compliance and willingness to freeze the bank guarantees have strengthened the regulatory agencies.

DISCUSSION

The analysis is based on the assumptions that the citizen complaints influence the severity in the administrative sanctions. 1380 observations of non-compliances from one of the highly industrialised state in India are used for this analysis. The legal cases dealt in the public grievance cell of APPCB describes the actual enforcement strategies and behaviour patterns of the environmental regulatory agencies and to the authors knowledge it is first of such analysis in India. We observe that the citizen complaints positively influence the severity of regulatory administrative sanctions decision in the APPCB jurisdiction in India. The private enforcement theories argued that, the citizen actions acts as complementary to the regulatory agencies with limited enforcement powers. The regulators use the citizen's knowledge to identify the defaulting firms to overcome the monitoring constraints. The regulators are cautious to protect the privacy of whistle blowers by not disclosing names or other particulars. The institutions to protect the anonymity of the tipster are crucial to enhance the confidence among the citizens through accountability and strengthen the grievance system. The special monitoring programs pointed out the internal economic features of the industries-treatment technologies and also provided assistance for better compliance. The citizen complaints provided the perceptions on the social licence for the operation. The results show the competence of citizen environmental complaints and administrative sanctions in the developing counties context, which can be multiplied in similar regulatory conditions. The planned regulatory reforms in India coupled with demands from sustainable development and climate change impacts provide the scope for multiplications of the outcome from this study. The public regulatory agencies implemented stringent environmental standards and deterrent procedures due the citizen demands and judicial involvement. This trend indicates that the government services need attention from citizens to avoid the race to bottom and not to ignore the environmental protection in developing countries.

CONCLUSION

The combination of the traditional monitoring procedure with obtaining assurances for installation of advanced treatment technologies from industries and responding to the citizen environmental complaints indicate that the successful implementation of the environmental legislation is possible with combinations of traditional enforcement tools and diverse compliance strategies. The paper also stresses the urgent need to develop valid databases about the compliance history and provide access to the regulatory agencies. It is evident that the officials of the taskforce are successful in obtaining the assurances from the industries by

reflecting on their previous commitments and steps taken to achieve the compliance. Although, the existing datasets are useful in designing and planning the industrial zones in India, there is great scope to make use of the advanced technologies- use of online monitoring technologies, developing of GIS tools to locate the problematic industries after the complaints will enhance the enforcement, which is also a challenge to achieve next-generation compliance in developing countries.

In conclusion, this paper identified the evidences of influence of the citizen complaints in the administrative sanctions, innovative regulatory strategies and special monitoring programs produce the compliance. Further, the limited enforcement powers of regulatory agency is highlighted and showed that citizen complaints role as information providers. But, still the complaint and regulatory interaction is not fully explored in Indian context. Further studies can estimate the type of complainant and citizen participation methods influence on the sanctioning strategies. Moreover, similar approach can be tested in other public regulatory services in the sectors of energy, health, tax, infrastructure, water supply and waste management.

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Chapter 11: GATHERING INFORMATION UNDER COMPLIANCE MECHANISMS:

POTENTIAL NEW WAYS FOR CURRENT CHALLENGES

Zerrin Savaşan¹

ABSTRACT

In this paper, it is aimed to search for the ways for dealing with challenges existing within the gathering information component of the compliance mechanisms (CMs) created under multilateral environmental agreements (MEAs). For this purpose, firstly the existing rules and procedures used for gathering information on the parties' performance under CMs are scrutinized. Then, their weaknesses undermining the efforts to ensure compliance are evaluated. Thirdly, new ways for possible improvements are investigated as response to the present challenges. Finally, it is argued that, coordination between CMs raises as an important challenge of compliance, so it becomes also necessary to investigate the new ways of further coordination between CMs for better compliance, in addition to the new ways of gathering information.

Keywords: challenges, compliance mechanisms, gathering information, improvement, multilateral environmental agreements

INTRODUCTION

The awareness on the significance of compliance in environmental issues has led to the searches for new ways which can best enable the states to meet the environmental agreements's obligations, and thus enable them to comply with the commitments under these agreements. Those searches have resulted in new mechanisms based on preventive approach aiming to not just solve, but prevent the problems before they occur. These new mechanisms involving related institutions and procedures, which are more flexible and dynamic mechanisms than traditional ones, are named as 'compliance mechanisms.' They have different components like non-compliance procedures (NCPs) (institutions-procedures-scientific, technological and economic assessment and their institutions), response measures (capacity building and technical and financial support and negative measures) and information gathering. All these components have different effects on ensuring compliance, but as the first step of the mechanisms is gathering information-reporting phase, it not only solves the present non-compliance problems, but also the possible ones. Indeed, by reporting, states open the way of resolving the possible ones beforehand. That is, according to the problem that they

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have (e.g.financial problem, technical inadequacy.etc.), they are granted by remedies and thus can resolve it before it results in non-compliance.

Therefore, this component of the mechanisms particularly requires to be analyzed and understood carefully to find out more effective ways of ensuring compliance. Remarkably, the determination of its weaknesses involved in itself undermining its characteristics supporting compliance is very crucial to find out new ways/forms which can be more effective on gathering accurate information in the short run, and by this way on ensuring compliance in the long run.

In this paper, it is so aimed to search for the ways of dealing with challenges existing within the gathering information component of the compliance mechanisms (CMs) created under multilateral environmental agreements (MEAs).

For this purpose, firstly the present rules and procedures used for gathering information on the parties' performance under CMs are examined.

Then, their current/potential weaknesses undermining the efforts to ensure compliance are evaluated under nine dimensions: self-reporting principle; the complexity of data that should be reported and the technical character of the process; harmonization problem-different methods-deadlines used by parties; problems in monitoring and verification processes; challenge of capacity-building (introducing new regulations and training new personnel..etc) especially for developing country parties; lack of non-governmental organization(NGO) participation to the process; transperancy issue; lack of coordination; lack of proper financing.

Thirdly, with a more forward-looking perspective with some prospects with regard to the future, the new ways-forms for possible improvements of these weaknesses are studied again under nine dimensions mentioned above.

Finally, based on the findings, it is argued that in addition to the new ways of the present system, it is also necessary to investigate the new ways of further coordination between CMs, which raises undoubtedly as an another prerequisite for achieving the characteristics of better compliance in CMs.

CURRENT SYSTEM FOR GATHERING INFORMATION UNDER CMS

In order to go further in details on gathering information issue, it is here first of all essential to clarify what the concept of compliance mechanism (CM) within the multilateral environmental agreement (MEA) refers to.

It is possible to speak of mainly three types of mechanisms which can ensure compliance (Epiney, 2006). These are:

Mechanisms ensuring compliance by confrontational means, including counter measures on the basis of the Law of Treaties(LoTs), withdrawal of membership's privileges, trade

restrictions, responsibility-liability and dispute settlement procedures(DSPs) (Wolfrum, 1999).

Mechanisms ensuring compliance by non-confrontational means, including providing economic benefits to balance environmental commitments, compliance assistance, capacity building (Wolfrum, 1999).

Mechanisms which can be defined in neither confrontational or non-confrontational character, “such as information rights or accord standing in internal judicial review procedures” (Epiney, 2006:325).

It is also possible to apply different categorizations for defining CMs, for example, Mitchell (1994,1996) and Faure & Lefevere(1999) mention three parts of any compliance system: a primary rule system, a compliance information system, and a non-compliance response system. Similar to them, Chayes & Chayes consider a mechanism involving dispute resolution procedures, capacity building, transparent information system, treaty adaptation and response systems(Chayes & Chayes,1995; Chayes & Chayes and Mitchell,1998). Main elements involved in CMs are explained in six categories by Beyerlin, Stoll and Wolfrum (2006).

These are:1. reporting 2. assessment 3. supplementary means of information-gathering 4. non-compliance procedure 5. options for responding to verified cases of non-compliance 6. institutional setting and procedural safeguards.

Among those, the United Nations Environmental Programme (UNEP)’s definition can in fact be used as a guiding definition to understand particularly how CMs can be identified understandably.

According to its definition (UNEP, 2007) CMs created under MEAs are designed to encourage compliance by their four components and so have to be identified under these four main components. These are:

- 1. Institutionalised multilateral non-compliance procedures (NCPs):** involves institutional structure (ComplCom/ImplCom), powers and functions and procedural phases/guarantees.
- 2. Multilateral non-compliance response measures:** involves appropriate responses (positive and negative) to non-compliance to produce and maintain a sufficient level of compliance acceptable by the parties.
- 3. Dispute settlement procedures (DSPs):** involves traditional means of settling disputes (diplomatic and judicial means).
- 4. Gathering information reviewing national performance of MEAs:** involves mechanisms for reviewing and assessing the performance of the parties in order to identify compliance problems beforehand

They all different functions in the processes of ensuring compliance, but here, in parallel with the subject of the paper, the focus will be on performance review information.

To make it clear what it refers to, firstly a distinction should be made between performance review information, “operational information” and “overall regime review” (UNEP, 2007:24). Of those, operational information stems from operational obligations of the parties to the MEAs and is provided by exchanging information between parties on environmental conditions, technologies...etc. Overall regime review, on the other hand, is a different form of performance review, but, it focuses on the regime’s overall performance rather than a particular party’s performance. Performance review information, on the other hand, refers to the reporting of the parties (generally as annual reports) on the measures that they have invoked to meet with the obligations of the MEA in question. It can either contain information on the overall importance of the MEA, or information on the implementation of its specific provisions (Sachariew, 1991). Yet, it is usually prepared on the basis of the specific provisions of the MEA concerned.

These different types of gathering information are all inter-related, as data provided by operational information exchanges can be also used for parties’ individual performance review. In addition, it is not possible to lead to the overall regime performance without determining the individual parties’ performance. So, they can be used as supplementary information, yet, none of them can substitute the performance review information, because none of them provide the assessment of the national environmental responses to MEA obligations.

Performance review information, in general, is rendered by self-reporting of the each state party to the MEA. The commitment to reporting stems from the MEA itself or from a decision adopted by the organ created by the MEA. It is often made regularly on the basis of standard criteria(if provided) regarding the state’s performance in the adoption of necessary measures (“legislative, administrative, technical and other measures”) to comply with the provisions of the MEA concerned (Sachariew, 1991:43).

When the performance reports are submitted, they are generally sent to the secretariats which forms another report based on the submitted one. This consolidated report prepared by the secretariat are sent to the competent body of the MEA (Meeting of the Parties (MOP)/Conference of the Parties (COP) or Compliance Committee (ComplCom) Implementation Committee(ImplCom) for their discussion and assessment.

To illustrate, under the Montreal Protocol(MP)’s CM, to request all parties to comply with the provisions of articles 7 and 9, MP and the timely reporting of data and any other required information is a legal obligation for each party (MOP 6, Decision VI/2, 1994:15, para.84).

Under art. 7 (1, 2), each party to the MP is obliged to provide its statistical data of production, imports and exports of listed controlled ozone depleting substances (ODSs) to the secretariat within three months of becoming a party (art.7(1)) or within three months of entry

into force of the relevant amendments with regard to the listed substances to the MP for that party (art.7(2)).

In addition to this initial report (base-year data) process, in accordance with art.7(3), the parties also must submit statistical data to the secretariat on their annual production of each of the controlled substances. Additionally, for each substance, the parties also must submit amounts used for feedstocks, destroyed by technologies approved by the parties, and also imports from and exports to parties and non-parties for the year during which related provisions concerning the substances entered into force for that party. They must submit them for each year thereafter which should be not later than nine months after the end of the year to which the data relate. They also must provide statistical data on the annual imports and exports of each of the controlled substances in Group II of Annex A and Group I of Annex C that have been recycled.

Article 9, on the other hand, requires the submission of a biannual report to the secretariat including a summary of their activities that they have undertaken pursuant to this article (art. 9(3)). Thus, as well as the annual reports, parties must also provide the secretariat with a biannual summary of their activities on research, development, public awareness and exchange of information every two years.

When these reports come to the secretariat, it makes them available to the parties and provides information to non-party observers (art.12c, 12f, MP). It analyses and assesses the data reported during the course of preparing its report. When it finds the signs of possible non-compliance by any party with the obligations under the MP, it can ask for more information and data from the party in question (NCP, para.3). However, while it has entitled to seek for clarification on data, if an agreement can not be reached on it, it has to use the data provided by the party (MOP 7, Decision VII/20:37, para.94).

The secretariat prepares reports on such information, merely “filtering” (Marauhn, 1996:715) it in order to reach to a summary report on data gathered from related sources. Through this summary report, it also provides information to the ImplCom on the parties’ failures or possible failures concerning compliance with the provisions of the MP.

The ImplCom, where it considers necessary, can also request further information through the secretariat (NCP, para.7c). The Committee can undertake information-gathering in the territory of that party to carry out its functions (NCP, para.7e). However, such on-site visits is only possible if the party concerned invites the ImplCom for information-gathering in its territory, so in practice, the ImplCom can only rely on the reports provided by the parties. Another important issue that should be taken into account regarding on-site visits is that for the conduct of such visits, it is necessary to develop procedural safeguards, to agree on a set of rules for every single visit or a set of rules for all on-site visits made by the Committee under the MP (Marauhn, 1996).

Under the Kyoto Protocol (KP), as differently from the MP system, there are also expert review teams -site visits are also exercised within these in-depth reviews-reviewing the information submitted under art. 7 (communications) by Annex I parties as part of the annual compilation and accounting of emissions inventories and assigned amounts, if it is submitted under art.7.1. or as part of the review of communications, if it is submitted under art.7.2 (art.8.1, KP). The report of the team includes an assessment on the implementation of the commitments and identification of any potential problems in the fulfilment of them (art.8.3), and thus assists the MOP on giving the decision on any matter on the related party's compliance situation (at.8.6).

IMPROVING THE CURRENT SYSTEM

In this section, there will be two main parts. One will address the major weaknesses of the current system, and the other will question how these weaknesses can be overcome and/or whether new ways can be thought instead of the existing ones, if can, what kind of forms should be thought to yield the desired results for enhancing compliance.

Current Challenges

Self-reporting principle

The first challenge about gathering information on the parties' performance is self-reporting by the states which raises as a challenge under most MEAs. In self-reporting method, the states can review their performance through a self-assessment procedure without the interference of the other parties. It can lessen the free-riding problem making all parties know about each other other's situation. Free-riding implies the deliberate attempts to escape the costs of meeting the requirements of the related MEA. It emerges in two ways: a state may prefer not to participate to that MEA to escape its own costs, but to benefit from other parties' efforts (non-participation), or may prefer not to meet its requirements (non-compliance) (Hovi, Froyn and Bang, 2007; Kolari, 2002). In fact, through each party's reporting on its own performance, while the reporting party learns about its own situation, it also learns about the others' performance as well. This provides the information to the parties about whether their own compliance can be interrupted by free-riding, or not (Beyerlin *et al*, 2006). As the reporting states do not want to share all realities to maintain their good reputation, and the others avoid condemnation towards them not to deteriorate their relationships with them, this method has the potential to result with a "vaguely formulated" (Faure&Lefevere,1999:147) information and "underreporting" (Berntsen, Fuglestvedt and Stordal, 2005:91). So, the reports's objectivity and reliability remain questionable.

Harmonization problem

Reporting can also be incomplete or insufficient, since the methods used by parties in collecting data are not known well. In fact, different criteria used by different parties for reporting makes difficult gathering objective and qualitative information, and so makes harder

“any meaningful discussion” on the information reported and “assessment of the reports at the next procedural level” (Sachariew, 1991:44).

The likelihood of compliance can be so to a large extent increased by creating elaborate harmonized procedures to reduce the workload and costs on reporting, and provide consistency between the reports of all parties. So, qualified reporting requires “a uniform format of reporting with clear and precise requirements as to how and what to report” (Wang and Wiser, 2002:183). Criteria of the reporting is also necessary to hinder reporting in different ways. But also, it requires standardization and harmonization for reporting procedures-deadlines..etc, and so for guidelines in order to help the parties to prepare their reports in these standard formats.

The complexity and the technical character of the data

The complexity of the ODSs or greenhouse gases that should be collected and reported (e.g. the abundance of the number of ODSs in the Montreal Protocol) is also another crucial issue making the reporting process challenging for gathering accurate information. To illustrate, the Kyoto Protocol is primarily based on six specified greenhouse gases and emission targets with quantified-binding nature. So, it is generally expected that the estimates of emissions can be managed in an easy manner and the review of the inventories of these estimates can accurately render the assessment of compliance. However, in practice, it is not feasible to lead to certain emission estimates because of “the inclusion of several gases from a variety of sources, including managed ecosystems and even carbon sinks in forests” which can change over time (Berntsen, Fuglestvedt and Stordal, 2005:85).

The complexity of the reporting criteria and procedures can also trigger late reporting among the parties. It can become an usual situation for the parties by the time, although there is a certain date has been determined for the submission of reports (e.g.30 June for each year in Decision XV/15, MP). This situation ultimately affects negatively the Executive Committee of the Multilateral Fund’s work (see also Decision XXII/14), and so prevents necessary assistance granted to the developing countries to enable them to comply with the Protocol’s control measures.

Challenge of capacity-building

These all above mentioned difficulties make data collection and reporting burdensome for the parties, particularly for developing country parties, due to their lack of capacity to provide sufficient technical, financial and human resources to fullfil their data-reporting requirements.

Problems in monitoring and verification processes

Reporting produces the basic data for monitoring and verification. However, it should not be implicated them. While reporting implies the examination whether necessary measures are adopted by the related party to meet the MEA’s requirements, monitoring entails their “continuous observation” (Sachariew, 1991:34), observation of the activities forming that

data; verification means to evaluate the completeness-straightness and certainty of information gathered on compliance.

Through monitoring, the degree of compliance with international environmental requirements can be evaluated and existing environmental standards can be promoted based on its data which can be used as “scientific criteria” (Sachariew, 1991:35) for that promotion. On-site monitoring can also be used for verification with the consent of the parties (Wang and Wiser, 2002).

It should be noted here, under MEAs, on-site visits (on-site monitoring or on-site inspections) have not been very much dominant, as they are still heavily debated particularly due to the principle of state sovereignty (Faure and Lefevere, 1999), or some other reasons depending on the features of the related MEA, e.g.under the International Convention for the Prevention of Pollution from Ships (MARPOL), countries do not want inspections in their ports since they make them less attractive for oil tankers than the neighboring ports (Mitchell, 1994). Yet, very recently, it is possible to see the samples of them under some MEAs, like the Ramsar Convention on Wetlands, Montreal and Oslo Protocols. It can also be argued that, as long as the transparency increases and the role of NGOs in submitting information increases, site visits become less important (Bothe, 2006).

The number of MEAs providing third-party monitoring or verification is less than those providing self-reporting systems (UNEP, 2007). In the present system, the competent organs of the MEAs generally carry out the function of assessment on the gathered information. Indeed, while monitoring is generally governed by the organs of the MEAs, that is, COPs, MOPs, ImplComs or secretariats through their assessments on states' reports; verification is undertaken usually by the secretariats of the MEAs, and in few cases, by an expert team (e.g.KP CM).

To illustrate, under the CM of the MP, when the parties' reports come to the secretariat, it assesses the data reported, and if it finds the signs of possible non-compliance, to verify compliance, it can ask for more information and data from the party in question (NCP, para.3). However, if an agreement can not be reached on it with the party concerned, it has to use the data provided by the party to it (MOP 7, Decision VII/20, 1995). The Implementation Committee (ImplCom), on the other hand, can also request further information through the secretariat (NCP, para.7c), where it considers necessary. It can also undertake information-gathering in the territory of that party to carry out its functions (NCP, para.7e). However, such on-site visits is only possible if the party concerned invites the Committee, so in practice, it can only rely on the reports provided by the parties.

Under the CM of the KP, verification is provided by a subsequent independent expert review and site visits are exercised within the in-depth reviews. ERTs have the power to conduct a “thorough and comprehensive technical assessment” of the performance of the parties to the Protocol. They identify questions of implementation providing independent information to the review process. Yet, as their report is prepared on the basis of comprehensive technical

assessment, their complexity and technical nature can make the controversial issues regarding these processes rather difficult to follow for the public and thus can undermine the “transparency and openness” of the system (Andresen and Gulbrandsen, 2005:180).

Transparency problem

Given the fact that more transparency ensures more openness in gathering and assessing of the information within the reports, it may be considered as one of the main principals of gathering accurate information. Indeed, improving the NGO participation both to the stage of the reporting of the parties and the stage of preparation of summary reports by the secretariats, it can have the potential to increase the public’s pressure for improving the quality and reliability of reporting processes.

In the current system of mechanisms, the general tendency is to render openness of the reports to public as soon as possible, so deserves to be appreciated. Nevertheless, there are some restrictions on making all information public. For example, under the NCP, MP, the ImplCom’s reports are available to anyone upon request and also all information exchanged by or with the ImplCom related to its any recommendation to the MOP is available to any party upon its request. However, the NCP restricts this opportunity with the reports not containing any confidential information, and with the obligation to protect the confidentiality of information that the part has received in confidence (NCP, para.16). Moreover, it also obliges the members of the ImplCom and the parties involved in its deliberations to ensure the confidentiality of information they receive in confidence (NCP, para.15). Here, determining whether information is confidential or not, and the possible results of not meeting with these rules of the NCP remain as question marks. As it is not so detailed in the NCP, there are no specific rules on who decides whether information is confidential or not, or what will be if the members of the ImplCom or parties do not protect the confidentiality of the information (Marauhn, 1996).

As a second example, under the NCP, KP, information can be kept from the public on request of the party being investigated and at the discretion of the EB until the conclusion of the proceedings (NCP Section VIII (6)). Even though this has not been used till to date, and both the ComplCom and two branches “have made considerable efforts toward transparency” (Doelle, 2010:258), it still makes the transparency issue questionable.

Lack of NGO participation to the process

Discussing the gathered information with the public and rendering NGO participation are also very important in the reporting process, as they can decrease the question marks in the minds on the objective nature of the information in the reports. They can be involved into the phases of the reporting of the parties or reports prepared by the related organs of the MEAs. Their participation to the reporting of the parties depends generally on the attitude of the party towards NGO participation (e.g.MP). If it accepts, NGOs can participate to their preparation or can give their findings or critics to the party.

In the stage of preparation of summary reports by the related organs (generally secretariats), it depends on the authority given by the MEA to the secretariat. If it has entitled to employ additional sources of information provided by the NGOs in the report, it can do it. Otherwise, it can not. So, the secretariats in some MEAs, granting this competent to them, can decide to launch the NCP on the basis of information gathered from other NGOs. Thus, NGOs can support monitoring through providing information to these organs. Yet, the main control in general is held by the organs of the MEA concerned, the NGOs do not have the right to vote (Beyerlin *et al.*, 2006).

Lack of Coordination

It is generally admitted that, even though all environmental problems,- and also the international environmental system within itself- are interrelated, CMs have been built under a decentralized system, that is, under regimes that are considered in relative isolation addressing the specific issue areas individually. Therefore, despite the current new developments for strengthening coordination, -e.g.the creation of the GEF for integrating financial mechanisms, developments on reporting for integrating obligations (particularly in biodiversity-related MEAs, UNEP's guidelines on non-compliance.etc),- the major drawback still appears as the coordination problem.

That is, there is an obvious and urgent need to the strong coordination and creating synergies(thematic or operative synergies (Mrema, 2006) or procedural synergies (Pitea, 2009) and interactions across the components of the same CM, but also different CMs, particularly for those within the same cluster, together with strengthened CMs (Beyerlin *et. al*, 2006; Chambers, 2008; Chasek *et.al.*, 2006; Levy *et.al.*, 1995; Oberthür, 2006, 2002, 2001; Oberthür and Gehring 2006;Pitea, 2009;Wolfrum and Matz, 2003).

This problem emerges then in two dimensions: in (more strongly) between different CMs of different MEAs and in (less effectively) between different bodies/parties of the same CM itself.

Regarding gathering information, better coordination, through good communications and dialogues between all bodies/parties of the same CM itself/or different CMs of different MEAs can provide the use of resources most effectively and avoid duplication among similar bodies. Thus, it can speed up the progress towards more coherent/accurate information.

Lack of Proper Financing

In CMs, financial resources are generally provided from the general budget prepared and adopted by the COP/MOP for the MEA in question. Based on its estimations on future expenses necessary for effective functioning of the compliance mechanism, it determines the necessary budget for a definite term. It also determines the contributions (binding ones) that should be granted by the contracting parties “on the basis of the UN General Assembly’s scale of assessment” of which legal basis is the UN Charter (Jacur, 2009b:422). To strengthen these obligations, the decisions are also adopted on the basis of “an equal basis of developed and

developing countries, consensus or double qualified majorities" (Jacur, 2009b:431). In the majority-voting, both the majority of the countries present and voting and also the majority of contributors, are required for deciding on the replenishment and on disbursement of resources.

In addition to the contributions determined by the budget, also voluntary contributions of the parties form the financial resources to the compliance mechanisms. However, as the voluntary contributions are not able to be estimated correctly and precisely, and the binding contributions can not be gathered timely and completely from the parties, financial resources usually fail to meet the needs of the compliance mechanisms.

Thus, both voluntary and binding contributions existing in the current system fail to guarantee a regular, more "timely," "stable" and more "predictable" payment for financing compliance mechanisms (Jacur, 2009b:437).

Lack of proper financing in CMs, on the other hand, can lead to raising some significant problems in their functioning. For gathering information component, it can cause failure in the functioning of the current system, such as failure in providing experts's views, and on-site examination..etc, and also failure in carrying out some necessary activities recommended to improve the current system, such as gathering information from other sources rather than states themselves, ensuring coordination between CMs etc.

Dealing with Challenges: Potential New Ways

In this section, the ways for possible improvements of weaknesses on gathering information will be focused on again under nine dimensions mentioned above.

Self-reporting principle

Although self-reporting principle is widely applied in most of the CMs, information can/should be gathered from other sources as well and they can be used as supplementary:

- from an independent international institution (the Cooperative Programme for the Monitoring and Evaluation of the Long Range Transmission of Air Pollution in Europe(EMEP) can be raised as an example, even if it is not an independent institution. It is established under the Convention on Long-range Transboundary Air Pollution of 1979 through a Protocol (28 September 1984) (Maljean-Dubois&Richard, 2004; Marauhn, 1996).
- from the reports provided by other states,
- from the activities of the MEA's competent organ (such as requesting further information, monitoring, verification, site visits (under Montreal protocol, site visits are only possible if the party concerned invites the ImplCom for information-gathering in its territory. Under Kyoto Protocol, site visits are exercised within the in-depth reviews, taking the approval of the party concerned as well (Decision 2/COP 1, para.2c).
- from international organizations and NGOs.

Under the Kyoto Protocol, self-reporting is an important problem as well. Yet, here, there is at least opportunity to benefit from relevant factual and technical information provided by qualified IGOs and NGOs (NCP, Section VIII, 4; RoP, 20) and expert advice (NCP, Section VIII, 5; RoP, 21) for the relevant branch while deciding on the issue. So, these sources of data in addition to national reports are considered seriously by the ERTs and by the each branch of the ComplCom in practice, the verification of the information can be more reliable and effective under the CM of the KP.

Moreover, the threat by the related organ of the MEA “to rely on estimates or non-official information if the state does not submit official data” (Sachariew, 1991:43) can be a further means of improving compliance with reporting obligations as a first step, but, incrementally, it should be backed up by new regulations under the CMs of the related MEAs to improve overall compliance of MEAs’ requirements.

The complexity and the technical character of the data

If the MEAs should stipulate reporting requirements and provisions as clear as possible to make the assessment of compliance easier, thus, they can improve it further (Weiss, 1999). Raustiala (2001), in his analysis on ten major MEAs covered in the UNEP GEO-2000 report, notes that compliance review institutions are most developed where MEA commitments are most specific. However, there is still problem of simplification regarding both the complexity of the reporting criteria and the procedures that should be followed by the parties. So the reporting process still remains challenging for gathering accurate information. In addition to all other efforts for simplification, different working groups can be established just for observing the process, noting the weaknesses, and designing more simple processes/procedures for reporting.

Harmonization problem

Some MEAs can provide “template[s]” (Raustiala, 2001:70) (or “reporting formats”) (Sachariew, 1991:45) to establish the harmonization and standardization of the information reported, the methods used for gathering this information and also deadlines for the submission of reports (e.g. MP, MOP 2, Decision II/10) and provide guidelines to help the parties to prepare their reports. Through the approval of the MOP 9 of new formats for reporting data under art. 7, MP, the old data formats used by the parties to report data have been replaced, and beginning 1997 onwards, the revised formats have been used. In order to assist the parties in providing the data as required by the revised formats, the handbook on data reporting under the montreal protocol has been prepared and distributed to all parties by UNEP -division of technology, industry and economics (UNEP-TIE). To collect the required statistical data under art. 7 (1, 2)of the MP, parties have relied heavily on customs statistics, organised in most countries according to the Harmonised Commodity Description and Coding System elaborated in the framework of the World Customs Organisation (WCO) on the basis of the Harmonised System Convention (Oberthür, 2001). The UNEP’s guideline prepared for the MP can also be given as an example to these guidelines (UNEP, 1999). The

Intergovernmental Panel on Climate Change (IPCC) also provides uniform forms for estimating the emissions in the reports, and the Kyoto Protocol also requires periodic reviews of the guidelines for national systems (art.5.1), the preparation of inventories (art.7.4), as well as for the review of implementation of the KP by expert review teams (8.4). This way can render a more systematic basis for the methods used by parties in collecting data and for making the comparisons of that data.

However, the CMs of both MP and KP are the most developed of those, so there is till need to develop similar methods for others under different MEAs. They should particularly have a systematic basis and be acceptable for all parties to the MEA in question.

Challenge of capacity-building

Very recently, in Rio+20, it is underlined that, to provide the “integration of sustainability reporting,” taking into account particularly “the needs of developing countries, including for capacity building, ”should be encouraged for managing the best in the reporting process (Rio+20 Report, 2012:8,9).

In line with this view, for example, under the KP (art.11.2b, KP), developed countries are required to meet the “agreed full incremental costs” of developing country parties for providing the implementation of their reporting obligations. The 1990 Montreal Protocol amendment has also stipulated to “meet all agreed incremental costs” (art.10.1, MP) of developing countries, and Multilateral Fund renders funds to them for the foundation of national ozone units of which basic function is the preparation and submission of these reports.

These kind of supporting tools can be a good way of facilitating the developing countries to improve their reporting facilities.

Compelling/punitive tools also can be used, beside these supporting ones like used under the MP. In fact, parties classified as developing country parties under art. 5, MP can lose their status if they do not report their base-year data as required by the MP within one year of the approval of their country programme and their institutional strengthening by the Executive Committee (MOP 6, Decision VI/5, 1994:15-16, para.84).

However, the practice shows that in these mechanisms prevention and facilitation -rather than dispute settlement and enforcement-penalties-sanctions- are the raising key words, and the forms based on these key words are more preferable to be applied in practice. So, similar funding opportunities like in MP and KP, just for improving reporting processes can be thought as a good way of encouraging the developing countries to submit reliable/qualified data on time. But, still the problems continue, then different response measures to be applied can be thought for these parties.

Problems in monitoring and verification processes

In the current system of gathering information under the CMs, there is usually no supplementary third-party monitoring and verification mechanism, these functions are carried out by the organs of the CMs. However, for an effective operation, assessment should be preferably by independent experts rather than the organs of the related MEAs. Even under the CMs having independent expert review, like the CM of the KP, the complexity and technical nature of the assessments can make it difficult to follow for the public.

To overcome the shortcomings on monitoring and provide a more effective monitoring mechanism, Young (2002) proposes to establish a global mechanism namely, “Global Environmental Observing, Monitoring and Assessment Programme(GEOMAP).” This is supposed to be a mechanism for monitoring and evaluating the state of the environment, financed by UNEP and UNDP and working closely with the secretariats of MEAs.

However, as in general in functioning of the CMs, the major drawback appears as the coordination problem within this sort of global mechanism as well. Therefore, instead of one central organization, to keep on the current system with improvements specifically involving independent expert reviews and their more simple assessments can work better in practice. So, there is still need for further work on these type of improvements.

Sachariew (1991:50) suggests the establishment of a “supervision package” composed of several techniques connected logically with each other and combining the advantages of each.” Thus, he aims to provide a linkage between different applications of supervision in different MEAs. In this system, the reports are evaluated by a body of experts entitled to request additional information and to assess the compliance of the parties, but not to give response measures to them. It can be supplemented by fact-finding, inquiry or inspection. It deems necessary to adopt more elaborated procedural rules on the submission, format and contents of the reports, measures that can be given to non-complying party, on the right to request additional information etc.

The creation of a “world-wide environmental supervision agency” (Sachariew, 1991:51) which would operate in parallel with the MEAs’ competent organs, yet lessen overlapping reporting requirements providing a network on the reporting procedures, is his another suggestion. It is proposed specifically due to the “multiplication of reporting systems” (Kiss, 2006:245) which cause “the problem of cooperation and coordination” (Kiss, 2006:245) between the different MEAs’ competent organs. Sachariew (1991) also suggests a centralized coordinated information management system which is necessary for developing countries to implement MEAs (also see Batagodal, Perera and De Alwis (2004) for a new strategy for centralized information management on MEAs in developing countries).

Transparency problem

Even though the transparency issue is taken as sensitively under most of the MEAs, still, there are restrictions on openness of the reports due to the confidentiality of the information or the request of the party being investigated. However, these mechanisms as different from formal-traditional mechanisms established for settling disputes between parties should be more flexible and open to public. So, removing these restrictions should also be thought for making the system as transparent as possible.

Chasek, Downie and Brown (2006:275) also suggests establishing mechanisms by which secretariats or COPs would publicly consider complaints brought by states, IOs, NGOs, or other actors about non-compliance by a particular party. This can also be a further step towards more transparency under CMs, but it does not provide the reporting phase transparent, so it is still required to eliminate the limitations on transparency issue.

Lack of NGO participation to the process

The NGOs can be involved into the phases of the parties' reporting or the reports prepared by the related organs of the MEAs. Yet, their participation can be restricted by the rejection of the related party. To prevent the discretionary attitudes of the parties, at least acceptance of their participation should be applied as rule, and rejection as exception providing justification.

In the stage of preparation of summary reports by the related organs (generally secretariats), their role can be strengthened further, even if having right to vote is not included. At least, the same procedure advised above, providing justification for not involving NGOs to the gathering information phase, can also be included to the stage of preparation of summary reports by the related organs.

Lack of coordination

In order to overcome this shortcoming, the suggestions should be considered in two dimensions: coordination problem 'in CMs' and 'in between CMs.'

Even if it is not so serious problem 'in CMs,' particularly in most developed ones, like the CMs under the KP or MP, it raises as an obvious and urgent need 'in between different CMs,' particularly for those within the same cluster.

As regards 'in between CMs,' there are several suggestions on improving the coordination like:

- developing a sort of general code for CMs (Epiney, 2006),
- entrusting a single body with addressing compliance issues (Beyerlin *et al*, 2006; Ehrmann, 2002; Pitea, 2009),

On the issue of clustering, the Second Consultative Meeting of MEAs on IEG agreed that, clustering of MEAs for promoting collaboration and coordination should be carried out at the sectoral level (e.g.the biodiversity-related conventions, the land conventions, the chemicals and hazardous wastes conventions, the atmosphere conventions and the regional seas

conventions and related agreements), the functional level (e.g.trade-related MEAs, conventions with prior-informed consent procedures and conventions with customs procedures) and the regional level (e.g.capacity-building, enforcement and compliance etc.) (UNEP, 2006; Oberthür, 2002).

And suggestions on clustering issue of MEAs like,

- creating a permanent location for a number of COPs or co-locating MEA secretariats (Oberthür, 2002),
- arranging regular meetings of representatives from different mechanisms.

Due to the self-contained character of the MEAs in which CMs are established (Beyerlin *et al.* 2006; Pineschi, 2004; Wolfrum, 1999), the establishment of a uniform regime on compliance is not seen as so much possible in the future. Therefore, the suggestion to establish a World environment organization (WEO) may be just considered as a long-term strategy (Biermann, 2007; Charnovitz, 2002, 2005a; Rechkemmer, 2005; Simonis, 2002a, 2002b).

Besides these suggestions, the transgovernmental compliance networks can appear as crucial means of ensuring coordination. However, it becomes first of all necessary to formulate a more systematic approach in addressing the problem of coordination between CMs and these networks. Potential new ways should be searched for creating cooperation between CMs and these networks, as the most lacking side of the networks is that they have no relationship (or little) with CMs.

Here there are some suggestions on how they can work together with (Savasan, 2015:98-99):

- Like NGOs, they can participate to their meetings as observers, or nominated positions can be dedicated to the networks for involvement and coordination with CMs.
- For the long term, particularly, INECE as the key global network on compliance issue, can undertake the task of coordinating the relations between different CMs
- Specifically, with respect to gathering information issue:
- Appropriate communication mechanisms can be designed to ensure all/or some participants of the networks have access to all information and to all/or some proceedings of the CMs.
- Reporting arrangements can be considered, and related participant of the network can report on the related issues given by the CMs.
- Through these functions, networks with their flexible and informal structures can serve for both strengthening coordination in both ‘in CMs’ and also ‘in between CMs.’

Lack of proper financing

In the recent period, there are new trends to improve financial resources, and thus to improve compliance. New funds established for specific agreements can be given as an example to these new trends. To illustrate, the current financial mechanism the CM of the Kyoto

Protocol, which is operated basically by the Global Environment Facility (GEF), includes four funding opportunities: GEF Trust Fund, the Adaptation Fund(AF), the Special Climate Change Fund(SCCF) and the Least Developed Countries Fund (LDCF). In addition to them, the Prototype Carbon Fund(PPFC), which is established by the World Bank, and not institutionally linked to the UNFCCC or the Kyoto Protocol, should also be underlined here. It is also noteworthy here to mention the Green Climate Fund which was established very recently, in 2010, at COP 16, by Decision 1/COP16(para.102), as an operating entity of the financial mechanism of the Convention(art.11). The Multilateral Fund of the Montreal Protocol (art. 10, MP), the World Heritage Convention Fund, the Ramsar Convention's Wetlands Conservation Fund, the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP) as the funding mechanism for relevant projects under the issues related to the climate change (art.11, UNFCCC; art.11, KP), can be counted amongst the other new funds (Jacur, 2009; Maljean-Dubois and Richard, 2004).

Besides them, a “specific budget line” (Jacur, 2009:422) can also be proposed for financing of CM in the general budget.“[S]elf-financing of compliance bodies” (Jacur, 2009:437) in which a determined amount of financial resources is separated to finance the commitments for complying with the obligations of the MEA, so, to finance specifically the compliance mechanisms of the MEA, can be the means of overcoming the problems on financing of CMs allowing “them to be independent from the often irregular and unpredictable funding approved by the COP” (Jacur, 2009:437). This specific budget line can be arranged as involving different lines in itself for different components of the CM. Thus, for just reporting stage, the parties can have a specific amount of funding provided within the regular budget of the mechanism, and specific amount for other stages/components of the mechanism.

CONCLUSION

The findings show that, under the CMs of the most of the MEAs, particularly most developed ones, like those of the KP and MP nearly all parties are tended to comply with reporting obligations of the CMs from the beginning.

To illustrate, data on the parties' reporting of the MP explicitly display the presence of general tendency towards compliance on reporting under art. 7 by nearly all the parties of the Protocol from its initial years. In fact, the total number of parties to have reported their 2009 data under art.7 (3) is 167 (123 parties operating under art.5(1) and 44 not so operating) (MOP 22,Addendum, 2010). This means that, of the 196 parties required to report data, 167 of them had reported their data(at the time of the preparation of the Implcom 45 report, 178 parties-to the MOP 22, Decision XXII/14, 196 parties of the 196 had reported). More importantly, to the report of the Secretariat on the reporting of data by the parties presented for MOP 22 (2010), for the period 1986-2008, all parties are in full compliance with their data-reporting obligations under art.7(3) (ImplCom 45, 2010;MOP 22, Decision XXII/14, 2010).

As another example, under the KP, it is observed that, the EB in all cases has sought expert advice, in particular, it asked members of the expert review team to present their reports and advice, and also asked other independent experts for their advice, and the parties have usually achieved to resolve disagreements cooperating with the ERTs before the formal proceeding has been initiated by the ComplCom.

Based on the findings, then, it should be finally stated that, the current system (particularly most developed ones of CMs) already operates well in practice to gather information regarding parties' performance of compliance, but, it has still some challenges, so requires to be improved by opening the ways of providing information not just by the states reports, but also third parties/experts, creating elaborate harmonized procedures which should have potential to ensure accurate and comparable information, by providing the assessment/monitoring/verification of this information by independent experts, sharing/discussing it with the public and strengthening the ways of coordination. Additionally, it is quite essential to seek for the new ways of assuring proper finance to support both the operation of the current system, and also those new ways recommended for improving it.

In brief, under these conditions in the short term, to benefit from the potential contributions of the current system through further improving its functioning with decreasing its weaknesses through potential new ways, seems the best way of leading to more accurate, updated, reliable, transparent, coordinated information.

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Chapter 12: SUPERVISION, DO WE DARE TO CHANGE?

Paul Meerman¹

ABSTRACT

This paper is written with the Dutch structure of environmental inspections in mind. In the Netherlands, inspections are usually carried out in the classic way. Mostly only the output is assessed. This paper is about the practical experience with a new methodology which was (initially) developed to reduce the burden of supervision and reflects on the learning points which were challenged during this development proces. This approach results in a birds-eye view on elements that are associated with compliance management systems. The article is written in a personal capacity. The author is currently working as a policy adviser at the Regional Inspection Agency Omgevingsdienst Midden- en West-Brabant (OMWB) and running an IMPEL project together with the Province of Noord-Brabant and the Erasmus University, Rotterdam School of Management.

Keywords: Supervision, Management systems, Compliance, Trust, Change

INTRODUCTION

As mentioned in an article for the IMPEL Special Report Society² society is changing continuously and rapidly. Individuals are more outspoken, empowered and get more (and especially faster) information through various channels. Everybody is involved in discussions nowadays. The danger of this is that assumptions and facts tend to get confused. In the world of supervision, this can lead to inhibition of innovative developments because innovations benefit from facts rather than assumptions and myths. In addition, techniques change so rapidly that Inspection Agencies have a hard time keeping up. This is especially true if one takes into account that budgets (and therefore the number of supervisory hours) are reduced. There is barely time for training, and as such competencies of inspectors tend to erode instead of continuously improve.

If we retain the practice that every company should be physically inspected at least once a year, which is no doubt at the expense of the number of supervisory hours, then we must realize that we only fall back. The bottom line is that the level of inspections is roughly negligible. The inescapable conclusion is that a more effective approach is needed. We do not live in a risk-free society. Even well designed management systems are subject to

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² Impel Special Report: Paul Meerman: Compliance Management: Change, because it must HAPPEN and certainly can, 2015

human error. An offense can therefore easily happen, even if a company still does the best it can, and even if there are appropriate licensing requirements. It is about what you as a public regulator do to prevent those violations, and how to deal with it if they occur. The snapshot supplied through traditional supervision does not deliver the whole story. Therefore, smart approaches of supervision are needed.

REDUCE BURDEN

As the industrial sector (especially in the waste and the chemical sector) experience a high burden, the province of North Brabant (further the province), who is in charge of the supervision on environmental legislation in a part of South Netherlands, decided to work on a methodology of supervision that intends to solve this so called problem. In fact, the actual number of visits under the supervision is not causing this burden by itself, it is also the amount of rules and legislation, the administrative hassle, the many authorities who come along on every moment and the (according to the enterprises) under-performing supervisors which causes this burden.

Around 2010 we (in the province) regularly were confronted with the following propositions:

- The supervisory authorities works primarily from the applicable rules and gives no or insufficient information to understand the real risks.
- An inspection of a company has little added value and is (too) often experienced as a burden.
- The supervisory authorities are seen as a troublesome experience, with the indirect result of a crumbling support for the law and the inspections.
- the supervisory authorities make little use of the company (quality) management systems.
- The supervisory authorities have little (insufficient) knowledge and skills to keep up with the regulated businesses.

As far as I am concerned I will question the theory about the performance of supervisors. It is seen as an attack towards the supervisor who tries to do his/her job as properly as he/she can do (* when I speak about a supervisor it can mean a he or a she). This supervisor is, however, bound to direction given by his executives. The executives on their turn are given a assignment by politicians. Politicians base decisions on signals provided by society. It should be of no surprise that there are budgets attached to those assignments and unfortunately observations have shown us that these budgets determine the quality and power of supervision. The province started to work on a methodology to reduce the compliance burden and increase the quality of supervision. This method should also lead to improve the compliance behaviour.

METHODOLOGY

A lot of the bigger regulated companies are full-time operations running for 8.760 hours a year. The average inspection frequency (at a larger company) is approximately 80 hours (or lower). This means that less than 1% of the time that a company is operating it is physically inspected. If that time is spent on traditional inspections (only based on output and the given permit), then the Inspectorate only has a snapshot of (a limited part) of the company. It doesn't say anything about compliance, about safety, about behaviour, about managing the risks or about the intentions a company has.

Law enforcement in the Netherlands was long driven by the principle: "trust is good, control is better." This principle, however, does not do justice to companies and public that pay attention to proper compliance with legal requirements. For big industrial companies the assurance of compliance requires a supportive corporate culture and also an investment in an effective management system. The province holds the opinion that companies with a good record in compliance management deserve trust.

The province has defined standards for four levels of compliance management according to which companies can be classified³:

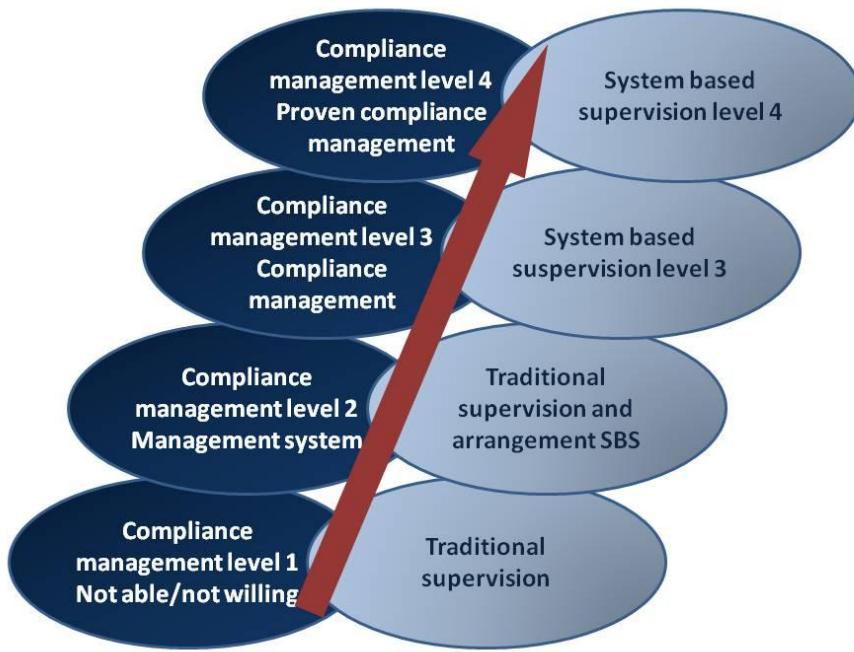
- 1) Companies that do not want to and/or cannot manage regulatory compliance. These companies are not willing to manage compliance or not able to manage compliance because of the lack of competencies. These companies are unfamiliar with the principles of quality management.
- 2) Companies with a certified or certifiable management system in accordance with, for example, the ISO 9001 or 14001. These companies have verifiably implemented quality management to some extent, but this is not specifically aimed at assuring regulatory compliance.
- 3) Companies with an effective compliance management system. These companies have a management system that is specifically aimed at assuring regulatory compliance.
- 4) Companies with a proven compliance management system. These companies have a management system that is specifically aimed at assuring compliance. Also, this compliance management system has shown good results for several years and the company is working on continuous improvement.

The difference between levels one and two is that the level two company has a management system in operation whereas level one does not. With level three, a company has a specific compliance management system. This is verified by an audit methodology using a checklist with questions and verification items. The audit is performed by specially trained and educated public supervisors. Companies have to score positively on all essential and partly at the important elements of the checklist. Every element is checked to determine if it is fit for purpose, whether it is documented and whether it is implemented. Level four requires that the

³ Provincie Noord-Brabant, beleidskader systeemgericht toezicht, 2011

system meets additional criteria and that the system meets this level for at least two years.

Figure 1 Compliance management and supervision⁴



Each of the four levels of compliance management calls for a different supervision approach. When a company is in compliance management level 2, it can be invited to make arrangements about improving to level 3 and 4, in which case supervision is adjusted. This development model shows how companies and regulators can work together to progress to a higher level by focusing on better assurance of compliance and appropriate methods of supervision that accompany growing trust. In level 4, preventive supervision is limited to a yearly audit and few output samples.

Being in compliance, transparent and open behaviour can lead to an adjusted approach

TRUST

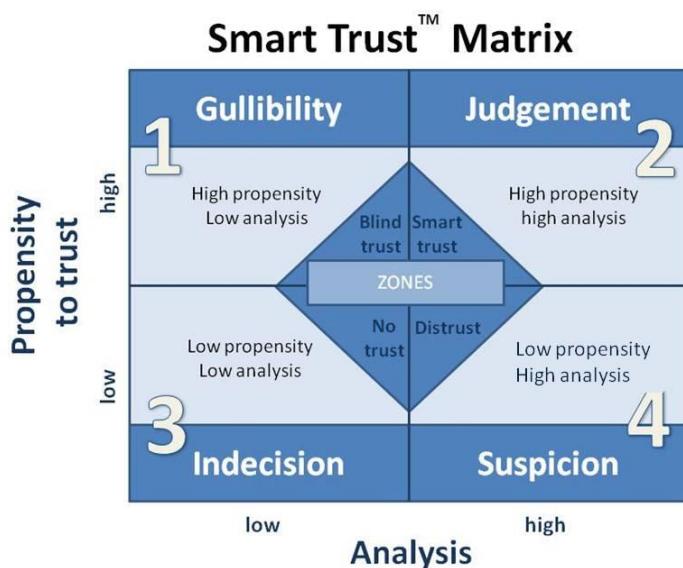
The above mentioned methodology is based on several notions. For example: management systems, culture, safety, compliance, open behaviour and transparency are some of these elements. Trust is another element. Justified trust to be specific. During development we distinguished no trust, distrust, blind trust and justified (smart) trust. Trust on one side is based on the fact that we tend to (propensity) and on the other side, on available analysis of

⁴ Impel report Compliance assurance through compliance management systems, 2011/04, 2012

data. Justified trust leads to efficiency because of less monitoring and less transaction costs⁵ and is expected to lead to better compliance because of the assurance the system is designed to yield.⁶

In many cases there is a dark sideblack edge on trust where, historically in the world of supervision, the attitude was: "trust is good, control is better". It is important to build the required confidence. Frederique Six stressed the importance of building interpersonal trust within organizations.⁷ Through the collection and analysis of data trust could grow. Confidence with supervision is still too often associated with blind trust or distrust even though the justified trust gives so many opportunities.

Figure 2 Trust Matrix⁸



MANAGEMENT SYSTEMS

The methodology used in the province of Noord Brabant is called System Based Supervision. As implied: supervision based on management systems. . The methodology addresses the efforts of businesses by taking the management systems of companies into account. Through the management system a company assures compliance with legislation and regulations. Both the government and the company use the risk profile produced or drafted by the company into account. It is very important that a company is willing to manage the risks. If they are willing and able to demonstrate this, the supervisor can switch from output focus (based on rules and

⁵ Fukuyama, 1995

⁶ De Goffau, 2008; Gunningham et al, 2009; Huizinga et al. 2009

⁷ F. Six, Vertrouwen en verstoringen. Interpersoonlijk vertrouwen opbouwen binnen organisaties, 2004

⁸ Dr. Stephen R. Covey

permit regulations) to supervision on the management systems on which you also do a review in the workplace through reality checks (vice versa).

The principle behind supervision based on compliance management systems is that the company has implemented the full Plan, Do, Check, Act (PDCA) cycle for compliance. The most logical way is to mainly judge the company on the audit of the compliance management system and let the company do the bigger part of output inspections themselves (in fact it is this part where we should heading to: leave the responsibility with the company) as part of the compliance management system. As the supervisor always wants to verify the company's own inspections by sampling (reality checks), there will always be a limited number of samples to be taken by the supervisor.

BEHAVIOR AND CULTURE

The culture of a company should be supportive for compliance assurance. Elements of a good culture are demonstrated by, for example, open and transparent behaviour, the ability to demonstrate effective internal control mechanisms, provide regular staff training and safety procedure awareness is evident. A company should be acting with intrinsic motivation. They must have a policy to have no violations. Where a violation has occurred, they must take adequate action to rectify it whilst being open and transparent. If this is demonstrated, the supervisor or Government can step back and adjust supervision.

LEARNING POINTS

Working with the methodology learned us, from a Government perspective view, some things. These are:

Transparency paradox

There is the transparency paradox to deal with. This paradox comes down to the following: the starting point for implementing system-based supervision is mutual trust. The company ensures that compliance is secured well and the Government is shifting the focus of its monitoring of the actual compliance to the system to ensure compliance. It is essential that the company really operates the full PDCA cycle, which means that the company also proactively looks for its own violations in order to correct them and to take measures to prevent the violation from occurring again. They have to determine its own compliance, undo violations (infringements) itself, and work to get a higher level of compliance through continuous learning and improvements. In order to assess the performance of the system fully openness (transparency) is needed. If this cycle is operating well and a company takes enough and adequate measures, an external intervention (on Administrative law) is not necessary and might even be counterproductive. As it concerns Criminal Law this may be different. The public prosecutor has his own policy to intervene in criminal offenses. When openness about

infringements leads to interventions in Criminal Law it might stop this openness and it will have an effect on trust.

Understanding

It is necessary that both the company and the Government (inspection authority) speak the same language. By auditing management systems the authority can understand (learn) the way a company thinks and acts. Mutual trust will lead to a better understanding.

Criteria for Compliance Management Systems⁹

How do we define and identify a compliance management system? In order to do so we need the requirements for compliance management systems. In several documents (like the Norwegian decree, the EMAS regulation, the Dutch requirements for Compliance management systems ISO 14001 / ISO 19600) we have found various levels of system requirements. Although there are differences in the requirements set for compliance management systems, we recognize that certain key elements can be identified.

We can identify the following basic elements for an effective compliance management system, based on the requirements set in the management system standards:

Risk management

The system should include a process for the identification, analysis and control of environmental risks. It should ensure that risks are kept at or below a minimum, acceptable level by implementing effective measures to control and prevent harm to the environment which are triggered by reaching or exceeding the minimum levels.

Registration of legal requirements

The system should include a systematic process for the identification, registration and analysis of regulatory requirements including permit requirements. The company should actively monitor any changes in legal requirements, and anticipate these changes so that measures for compliance can be taken in time.

Senior Management commitment

Senior management should give priority to compliance and promote a culture in which being compliant is part of the overall management of the company.

PDCA compliance

The system should include a full plan-do-check-act cycle for compliance. This implies that the company makes adequate plans to ensure compliance, executes those plans, actively measures its own compliance level and take measures to correct failures and errors (violations) and prevents these from occurring again.

Internal control

⁹ Impel report Compliance assurance through compliance management systems, 2011/04, 2012

The system should include an effective internal control function with the explicit task to actively check to what degree the company is in compliance. This function should be carried out by competent persons with adequate responsibilities and resources available and should be able to operate as independently from the operational part of the organisation as possible.

Competencies, knowledge and experience

The company should have employees with appropriate competencies for their jobs. As favourable framework conditions for such CMS standards, the competent public authorities should provide some external control and incentive system. Sampling to control environmental performance of CMS sites should remain in place (although could be executed less frequently), and incentives for installing performant CMS systems are useful. The criteria for compliance management systems as described in this paragraph are an important tool to be able to carry out a relevant assessment of the compliance management system. However, having these requirements is only one part of the story. We have found that it is of key importance how and under what conditions the system requirements are used.

Penalties

If a company deliberately manipulates the results of its compliance or output inspections to camouflage non-compliance, sanctions may have to be more severe than they would be towards a company's "simple" non-compliances without a compliance management system.

Risk Regulation Reflex

Risk control is needed to be able to prevent certain activities from harming the environment. But who is primarily responsible for risk control is often subject to discussion. A number of different parties are involved in this discussion. If politicians see a particular problem in society that is not expected to be spontaneously solved, regulation is their most popular response. This phenomenon, known as the risk regulation reflex, is especially strong if an incident occurs. This certainly effects the relation between the company and the inspection authority.

Supervisory Twist

There is often criticism on supervision. The argument is: supervision costs society only money, its experienced is redundant and it is certainly not effective or efficient. In times when there are no disasters, supervision is not perceived that necessary in the eyes of politicians and society. As a result, budgets are limited. In times when disasters occur, the finger of blame is pointed to the regulators. Politicians and society emphasize that public supervision should be strengthened and receive more resources to do their job. In many cases the quantity of inspections should yield to a smaller number of higher-quality inspections. If an accident occurs the assembled media in The Netherlands appears on television to explain their experienced thoughts and minds. Often it is articulated that public supervision has failed. In other words, the Government has failed. . It is remarkable because one could argue that the first responsibility is still with the entrepreneur where the incident took place.

What does such a supervisory twist actually have to do with a supervisor? If the finger always points at the government, uncertainties will occur. Under pressure of (social) media and the public, investigation(s) are started within the inspection authority (ies). Meanwhile, the media and the public ask questions and expect responses and consequences. People are nowadays more outspoken and social media provides an instant platform for subjective opinion. Time is no longer devoted to carry out thorough research and within the public one opinion is tumbling over the other. Who is the one to blame? The supervisor/inspector. "How is it that you"; "Why So"; "What did you ..." etc. We have to be careful not to make our supervisors afraid, afraid to make decisions that may go against their work at times when there is something wrong.

TIME TO CHANGE

We must keep in mind that both deterrence and cooperative approaches neither represents an optimal regulatory enforcement paradigm from a social welfare perspective as Oded concluded¹⁰.

But doing nothing is not an option as well. We can make steps, we can go forward. It is time to take responsibility. It is time to adjust the supervision in cases where it is possible. To put through changes, however, requires two parties: both the Government and companies. But both Government and companies have to be on speaking terms, must understand each other, must have a dialogue in an open and transparent atmosphere based on justified trust instead of mistrust.

Public regulators expect companies to behave responsible, take a pro-active stand towards compliance management and be transparent to their stakeholders including regulators. Both parties should consider trust as an option, and seek dialogue. If companies perform well managing their compliance and can demonstrate that, both authorities and companies can save a lot of time and money. Many companies are open to productive engagement with regulatory authorities. Therefore, making use of this potential opens up new ways of leveraging supervision policies. Prerequisites are that the inspectorate and the company both are consistent and reliable partners and also that the interests of third parties like public and NGOs are taken into account.

The Government should move away from simply applying the so-called "output-oriented" supervision. And, if this is politically infeasible, government should at least let society know that there are gaps in supervision and that there is no such thing as a risk free society. It is counter productive to continue to base public policies on responses to environmental incidents.

I argue that the Government should use the governance structure and the management systems of the companies in a smarter way. Also, I advocate a collaborative dialogue. Companies

¹⁰ Sharon Oded, Corporate Compliance, 2012

must be open and transparent, public authorities (Governments) should not fall into a crisis at every single incident. Government monitoring data could be used to analyze and determine partly on this basis how authorities should relax or tighten inspection regimes. So make use of risk-based supervision (Compliance Assurance through company compliance management systems that are more system oriented) basis. It must be a combination of both output and system supervision in which the assurance of compliance with legislation and regulations plays a prominent role.

Companies on the other hand should stop mistrusting the Government, and they should seek dialogue with the Government much earlier than usual. They should adopt a more pro-active stance. They should take the necessary measures and communicate that to the Government and the society. If companies show which management measures they have installed to reduce the risks and be transparent when changes are made in the management of business/production with an effect on compliance, trust is starting to grow. Companies should communicate that you no longer accept the bad compliers in your industry. Try, together with the industry associations, to come with an effective pro-active approach that can make level playing field even more valuable. Furthermore it is recommendable to share the benefits companies might get for taking responsibility of effective compliance assurance.

They should maintain continuous dialogue about violations, as well as risks and risk management. Government monitoring data could be used to analyze and determine partly on this basis how authorities should relax or tighten inspection regimes. So make use of risk-based supervision (Compliance Assurance through company compliance management systems that are more system oriented) basis. It must be a combination of both output and system supervision in which the assurance of compliance with legislation and regulations plays a prominent role. If companies perform well managing their own compliance and this can, on the basis of track records, indicate a level of justified confidence, then authorities can save a lot of time and focus efforts to neutralize the free riders. .

A good example of working together (both companies and government) can be found in Company Dossier¹¹. Providing the same information over and over to different government bodies, and rules that are difficult to understand leads to irritation. Both entrepreneurs and public authorities believe that things can be improved. The Company Dossier is a new way of collaborating and sharing information between businesses and governments with the aim of reducing the regulatory burden. The Company Dossier enables a company to record certain information about its operations just once and provide that same information to government bodies such as regulators and licensing authorities as often as necessary. The company itself determines which authorities have access to the Company Dossier. Proper arrangements should therefore be made in advance about how the company and government bodies can exchange the right information. These arrangements are established for each sector in a

¹¹ <http://www.ondernehemingsdossier.nl/company-dossier/>

collaboration agreement, so that there is ultimately one source of information for the company with its government bodies: the Company Dossier.

With the Company Dossier, the digital exchange of information between the company and government bodies is easier, more transparent and cost-efficient. The result: more time to do business, improved compliance with the rules and simplification of the supervision. When we use the management systems companies already have, we are moving to a more effective and efficient way of supervision. Winners are the environment and the society.

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Chapter 13: GLOBAL POLLUTANT REPORTING: COMPLEXITY AND COMPLIANCE IMPLICATIONS FOR MULTINATIONAL CORPORATIONS

Jonathan Nwagbaraocha¹

ABSTRACT

In an effort to understand the volume of pollutants entering the environment, several countries have implemented pollutant emissions reporting programs. Under a typical pollutant release and transfer reporting (PRTR) program, an affected facility is required to report to a government authority the volume of pollutants emitted into the air, water, and land as well as the amount of waste transported for disposal, recycling or reclamation. The pollutant emissions information collected by the government authority is then disseminated to the public. Whether a facility is required to report pollutant emissions depends upon the type of pollutants released, the quantity of pollutants released and, in some instances, the number of individuals employed at the facility.

Multinational corporations experience many challenges to comply with a myriad of PRTR programs. Compliance challenges include compiling, analysing and submitting a large amount of emissions data; keeping abreast of PRTR developments around the world; and complying with different reporting requirements for PRTR programs. Effective compliance with PRTR requirements is critical for a multinational corporation not only because of potential fines and penalties associated with non-compliance. Compliance is also important especially in light of recent regulations requiring corporate reporting of environmental information and the potential impact of the disclosure of this information on a company's reputation. PRTR data could also be useful for a facility when prioritising how to reduce pollutant emissions and releases.

The views expressed in this work are those of the author alone and not of any institution the author is or was associated with.

Pollutant Release and Transfer Reporting (PRTR) Programs

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The typical structure of a PRTR program requires a source of pollutant emissions to report releases and transfers of pollutants to a government authority. After collecting, organising and analysing the submitted pollutant emissions from all applicable sources, the government authority then releases that information to the public. The intent of a PRTR program is to require facilities to report releases of pollutant emissions into air, land and water and transfers of toxic substances in order to inform government and communities about the hazards in their areas. The public release of this information is intended to encourage reporting facilities to reduce pollution and increase public support of government environmental policies.

While adoption of PRTR programs has increased over the years, the implementation of these programs is still somewhat limited to industrialised countries. Countries with PRTR programs include the United States, Canada, Mexico, Australia, Japan, Norway, and Switzerland as well as European Members States such as England, Spain, France and Italy. Two major PRTR programs are the United States' Toxic Release Inventory and the European Union's European Pollutant Release and Transfer Register. Table 1 – Summary of PRTR Programs identifies countries that have adopted PRTR programs and the effective date of the legislation.

Table 1 Summary of PRTR programs

Country	Name of Reporting Program	Effective Date
United States	Toxic Release Inventory (TRI)	7 July 1999
Norway	Norske utslipps (Norwegian PRTR)	8 May 2008
Canada	National Pollutant Release Inventory (NPRI)	30 May 1998
Australia	National Pollutant Inventory (NPI)	1 July 1998
Japan	Japanese Pollutant and Transfer Register (Japanese PRTR)	7 July 1999
European Union	A. European Pollutant Emission Register (EPER) B. European Pollutant Release and Transfer Register (European PRTR)	A. 17 July 2000 B. 18 January 2006
Mexico	Registro de Emisiones y Transferencia de Contaminantes (RETC)	3 June 2004
Switzerland	Switzerland Pollutant Release and Transfer Register (SwissPRTR)	27 April 2007

Comparison and contrast of pollutant reporting program characteristics

Typically, PRTR programs share a similar structure and intent, which is to publically disclose pollutant emission information submitted by facilities. However, the specific requirements for pollutant emission reports programs vary. Facility reporting thresholds, methods of reporting, certification and data quality, and penalties for non-compliance are just a few characteristics of a PRTR program that often vary depending upon the implementing jurisdiction.

Facility threshold to report

The pollutant emission threshold, which triggers the obligation to report pollutant emissions, varies depending upon the implementing jurisdiction. In general, there are two types of reporting thresholds, a threshold based on an annual amount handled or the threshold based on the volume emitted from a particular facility. For example under the U.S. TRI, Canadian NPRI, Australia NPI, Japanese PRTR and Mexican RETC, a facility is only required to report emissions if it handles a certain amount of that substance. Alternatively, in European Union Member States, a facility is required to report pollutant emissions if it emits a certain volume of a substance into air, water or land. Most jurisdictions implementing a PRTR program have adopted a threshold for reporting that involves a facility exceeding a specific volume of a substance handled.

Table 2 Summary of Reporting Threshold for Arsenic displays the emissions reporting threshold for arsenic.

Country-PRTR Program	Arsenic Emission Threshold
European PRTR	<ul style="list-style-type: none"> • 20kg/year (air), • 5kg/year (water), • 5kg/year (land)
Canadian NPRI	50kg/year
Australian NPI	10,000 kg/year
Mexico RETC	5 kg/year
Japanese PRTR	1,000 kg/year
United States TRI	<ul style="list-style-type: none"> • 11,000kg/year (manufactured or processed) or • 4,500kg/year (otherwise used)

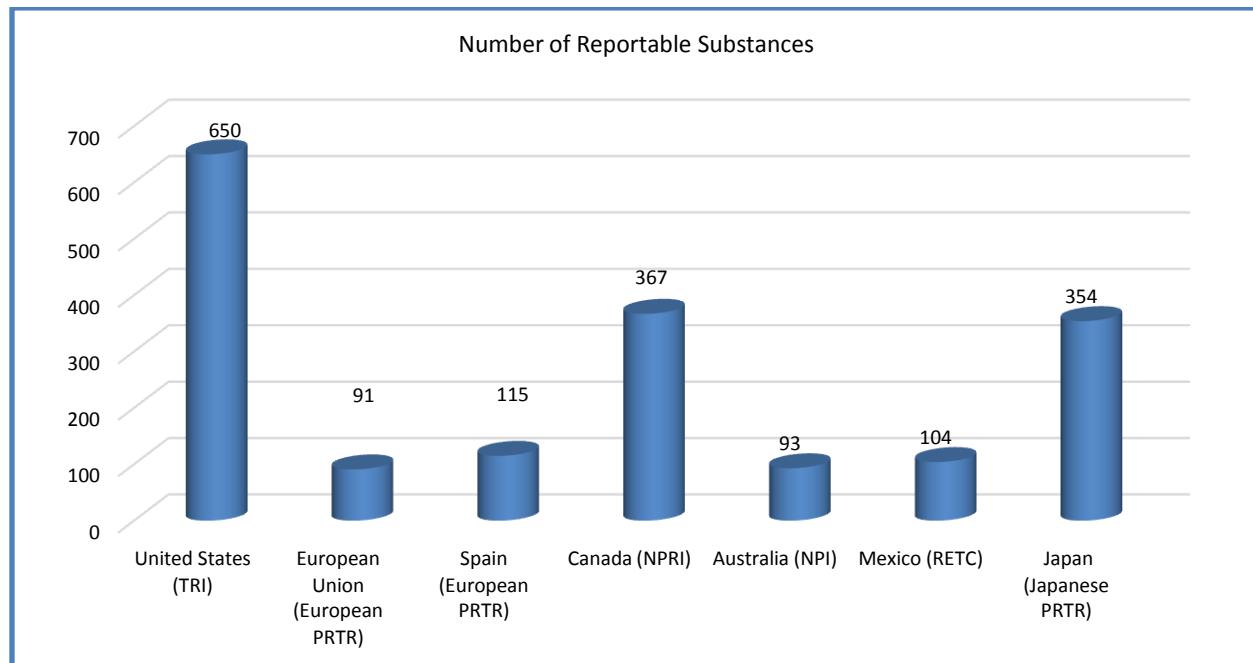
The differences between the reporting threshold values may be alarming. However, it is critical to acknowledge the differences between the two types of reporting thresholds, identified above. Typically, the countries with larger reporting thresholds have established a reporting threshold based on the volume of a pollutant handled not necessarily the volume of pollutant released into the environment. For example, under the Australian NPI, a facility is required to report if it manufactures or processes 10,000 kg/year of arsenic. The same

identical facility, located in a Member State of the European Union would be required to report if it emitted 20kg/year of Arsenic into the air.

Pollutants reported

The number of substances reported under a PRTR program also varies. The chart below displays the number of substances required to be reported under a number of PRTR programs.

Figure 1 Number of reportable substances



While PRTR programs typically require facilities to report emissions for similar substances, the number of reportable substances varies depending upon the implementing jurisdiction. Common substances that a facility is required to report include arsenic, benzene, chloride, phosphorus and asbestos. Initially, it may appear that facilities are required to report the most substances under TRI. However, the classification of substances varies per country. In some instances, substances are grouped together and in other instances the substances are listed individually. For example, under the European PRTR, substances are grouped together and classified as Halons, CFCs and HCFCs while specific substances are identified in the TRI. It should also be noted that since fiscal year 2010 that facilities in Japan have been required to report 462 substances under the Japanese PRTR, an increase from the previous number of reportable substances, 354.

In addition to differences in classifying substances, there are examples of PRTR programs having different reportable substances. Notably, the TRI, NPRI and NPI programs require facilities to report emissions of vanadium, while the European PRTR does not. There is added complexity within European Member States. For example, Spain requires the reporting

of certain emissions of vanadium as well as other substances in addition to the 91 substances required under Regulation (EC) 166/2006. Additionally, the Canadian PRTR does not include certain persistent bioaccumulative toxics (PBTs) such as chlordane or toxaphene while facilities are required to report these substances under the TRI, RETC and European PRTR. Additionally, TRI does not require greenhouse gas (GHG) emissions.

Greenhouse Gas Emission

Some countries, as they have implemented a GHG emission reporting program, have incorporated GHG emission reporting programs into existing PRTR programs. For example, under the European PRTR, Member States of the European Union have been required to report emissions of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆ since 17 July 2000. In Mexico, facilities are required to report emissions of the GHGs identified above under RETC and the Mexico GHG Program, a voluntary national program that works with businesses to measure and report corporate GHG emissions and project GHG reductions. Finally, GHGs emissions have also been incorporated into the Norwegian PRTR program.

Not all countries have incorporated the mandatory reporting of GHGs into PRTR programs. In countries, such as Canada, Australia, Japan and the United States, the reporting of GHGs is regulated under a program separate from an existing PRTR program. Since March 2004, the Canadian government initiated a phased in approach to the collection of GHG emissions by issuing a notice in the **Canada Gazette**, which set out basic GHG reporting requirements for emissions of CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. In addition to the national Canadian government, Canadian provinces such as British Columbia require the mandatory reporting of the six GHGs identified above. Since 1 January 2010, approximately 200 facilities are required to report GHG emissions on an annual basis.

Public availability

A critical component of a PRTR program is providing pollutant emission information to the public. While all countries, implementing a PRTR program, have incorporated the internet when making pollutant emission information publically available, the method of releasing pollutant emission information varies. Some countries, such as Mexico, provide pollutant emission information to the public in the form of an excel spreadsheet available on the applicable environmental agency website. However, other countries such as the United States, Australia, Canada, Norway and European Member States provide pollutant emission information in the form of an interactive HTML report where information can be manipulated by any number of parameters including year, location, substance, industry, and facility. Additionally, charts, maps and graphs can be produced on government authority websites for the United States, Norway, Japan as well as European Union Member States.

Certification and data quality

In order to ensure that the pollutant emission information submitted accurately reflects actual pollutant emissions from a facility, PRTR programs have incorporated a process that verifies the quality of the information submitted. Countries have developed different methods to verify the accuracy of the pollutant emission information submitted under a PRTR program.

Under the European PRTR, an operator of a reporting facility is required to ensure the quality of the information that is reported. In order to ensure the quality of the information submitted, an operator is encouraged to use a quality assurance system such as ISO 9001 or an environmental management system such as the Eco-Management and Audit Scheme (EMAS) or ISO 14001. A member state is also required to assess the quality of the data submitted by an operator and to determine whether information provided is complete, consistent and credible. In order to determine the data quality of the information submitted, a member state is authorised to verify information submitted against information:

- received as part of licensing procedures or compliance checking of permits;
- received as a result of self monitoring by facilities that is reported to the authorities; and
- related to participation in the Community eco-management and audit program EMAS or to ISO 14001.

Every three years the European Commission is required to evaluate the reporting process focusing on the evaluation of the data collection and reporting process.

Pursuant to the Australian NPI, a facility, reporting pollutant emissions, is required to certify that the information submitted “has been estimated using all due diligence in accordance with relevant industry estimation techniques and estimated or extrapolated using all due care and diligence and in accordance with estimation techniques agreed by my state or territory environment agency.” A reporting facility can certify the information by completing the Certification part of the online system, NPI Online, or by using a certification form available on the NPI website if the pollutant emission information is submitted via a paper report.

In Norway, reporting facilities are responsible for the data that is reported, including the quality of the data. Since 2007, electronic reporting of pollutant emissions data has been implemented. The electronic reporting system automatically checks the data that a facility is reporting. Additionally, the Norwegian Pollutant Control Authority performs quality checks of data submitted which includes comparing emissions with the data reported during the previous year; comparing the emissions with the production volume and comparing the emissions with other available information on the industry.

Business Implications of Pollutant Reporting for Multinational Corporations

Generally, a multinational corporation has its headquarters in one country and operates wholly or partially owned facilities or offices in other countries. By building facilities in other countries, a multinational corporation, in theory, might reduce costs that result from an expanded level of output. While the expansion of facilities may result in a reduction of costs, this expansion makes effective compliance with a variety of environmental laws challenging for a multinational corporation. With facilities located in different countries, a multinational corporation is required to comply with a myriad of PRTR programs. As discussed above, complying with a variety of PRTR programs involves analysing a number of elements of the reporting program including whether a reporting program is mandatory, the emission threshold triggering the requirements to report emissions, and the process by which emission information is submitted and verified.

Effective compliance with PRTR programs is critical as many countries are implementing regulations to clarify what environmental information has to be reported to stakeholders as part of corporate reporting. Disclosure of this information can also impact corporate reputation, which can impact the ability of a facility to start or continue operation.

Disclosing pollutant emission information to corporate stakeholders

One potential implication for a multinational corporation is corporate reporting to stakeholders. Stakeholders include shareholders in a corporation or consumers of a product or service provided by a corporation. Corporate reporting may involve reporting of financial statements, corporate governance, and corporate responsibility, which includes how a corporation manages their impact on the environment, suppliers and society. Corporate reporting can take many forms including direct reporting to shareholders or mandatory corporate financial reporting to government authorities.

Over the years, concerns regarding environmental degradation, climate change as well as other social and environmental issues have increased. Consequently, a larger number of multinational corporations may report environmental and climate change risks to stakeholders. In addition to proactive action taken by some multinational corporations, there are increasing trends for countries to require companies to disclose publicly environmental and supply chain information as part of corporate financial social responsibility reporting. Recent activity in the European Union and United States provide examples of these recent trends.

In April 2014, the European Parliament adopted an *amendment to Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*, which is currently subject to the Council's approval. While companies have

previously been required to report non-financial matters under EU law, the amended Directive clarified the scope of environmental, social, and employee-related reporting. Under the amendment, companies exceeding an average of 500 employees on their balance sheet will be subject to mandatory non-financial reporting and have to provide information related to environmental matters. While EU member states will be able to clarify the scope of “environmental matters”, the amended Directive requires that at the very least companies provide a description of the policies, outcomes and risks related to those matters and will have to be included in the management report of the enterprise concerned. While EU members states will have a few years to implement the amended Directive, France already requires corporate social responsibility reporting. Decree 2002-221 of 20 February 2002 implements article L. 225-102-1 of the Business Code and modifies Decree 67-236 of 23 March 1967 requiring companies registered in France and on the French stock exchange to report every year on environment and health and safety information to the shareholder’s meeting. Under Decree 2002-221, an affected company is required to report emissions and discharges of

- GHGs;
- substances that affect acidification, eutrophication or photochemical pollution and of persistent organic compounds;
- substances discharged into the water and soil of that affect acidification or eutrophication,
- substances toxic for the aquatic environment; and
- toxic metals, radioactive substances, carcinogenic, mutagenic substances and substances toxic for reproduction into air and water.

A company listed on the French stock exchange, with a facility located outside of the country is also required to report:

- water, raw materials and energy consumption and measures taken to improve energy efficiency and the use of renewable energy;
- conditions of use of the soil, air, water and soil discharges having a serious effect on the environment;
- measures taken to avoid threats to biological balance, nature, protected animal and plant species; and
- measures taken to ensure compliance with the applicable environmental legislation.

A facility located in France is required to report amount of provisions and guarantees for environmental risks, amount of indemnities paid in implementation of a court decision, and action undertaken to repair the environmental damage as well as additional social, health and safety and environmental conditions.

As EU Member States begin implement CSR reporting requirements, case law demonstrates that the failure to omit or provide misleading information will be grounds for a stakeholder claims against a company. In a case before the England and Wales High Court, the court determined that there is a potential basis **of** claim of negligence against a company for any

acquirer **of** shares who suffers loss as a result **of** an untrue or misleading statement in, or omission from, the company's annual or half-yearly financial reports and accounts. Notably, a company is only liable in instances where a director knows, or is reckless as to whether, the statement was untrue or misleading, or knew the omission to be dishonest. Additionally, the United Kingdom is exploring ways to extend issuer liability to fraudulent misstatements in other market announcements including applying the liability to all announcements released via a recognised information service and not just periodic financial reports and accounts.

In the United States, corporate social responsibility reporting is not mandatory. However, publicly traded companies are required to disclose material risks to their businesses in certain U.S. Securities and Exchange Commission (SEC) filings to inform the public of a company's financial condition. The United States Securities and Exchange Commission (SEC), in a Staff Bulletin notice dated 27 October 2009, clarified its approach to Rule 14a-8(i)(7) to permit requests by shareholders requesting information about the financial risks companies face from environmental and social issues such as climate change. Under Rule 14a-8(i)(7), a company would not have to act on a shareholder resolution calling for the company to assess and disclose particular risks if the risks were related to the company's ordinary business operations. The ordinary business exception permits a company to exclude proposals involving business matters that are mundane in nature and do not involve any substantial policy or other considerations. Climate change risk evaluations requested by shareholders were deemed to fall within a company's ordinary course of business operations and were not considered appropriate for a shareholder vote. Therefore, shareholders that filed resolutions, requesting information about financial risk companies face from environmental and social issues, such as climate change, were often prohibited from obtaining this information because it was determined that the proposal involved a risk evaluation that is part of its day-to-day operations in determining the value of products.

For example, under Rule 14a-8(i)(7), the SEC allowed Xcel Energy to exclude a shareholder proposal requesting a report on the economic risks associated with the Company's past, present and future emissions of GHG; the public stance of the company regarding efforts to reduce these emission; and the economic benefits of committing to a substantial reduction of emission related to current business activities. The SEC allowed Xcel Energy to exclude the shareholder proposal because it sought an appraisal of economic risks and benefits concerning the emission of certain pollutants and that a financial evaluation of risks is a fundamental part of ordinary business operations. However, there was confusion about when shareholder proposals could be excluded under Rule 14a-8(i)(7). For example, the SEC determined that a Ryland Group shareholder proposal for the company to report on how the company is responding to rising regulatory, competitive and public pressure to increase energy efficiency and reduce GHG could not be excluded under Rule 14a-8(i)(7).

On 27 October 2009, the SEC issued a Staff Legal Bulletin discussing the SEC's policy toward a company's duty to address shareholder requests for information about risks the company is facing - particularly risks associated with climate change. The Bulletin stated that

on a going-forward basis the SEC would focus on the subject matter to which the risk pertains or that gives rise to the risk instead of focusing on whether a proposal and supporting statement relate to the company engaging in an evaluation of risk. In those cases in which a proposal's underlying subject matter transcends the day-to-day business matters of the company and raises policy issues so significant that it would be appropriate for a shareholder vote, the proposal generally will not be excludable under Rule 14a-8(i)(7) as long as a sufficient nexus exists between the nature of the proposal and the company. It is important to note that this policy statement is not specific to climate change risks, and could be used by shareholders to request risk information on any number of environmental issues.

In order to clarify when climate change would trigger disclosure requirements, the SEC issued a guidance document in 2010. In the guidance document, the SEC provided the following examples where climate change may trigger reporting requirements:

- **impact of legislation or regulation:** a company should consider whether the impact of certain existing laws and regulations regarding climate change is material;
- **impact of international accords:** a company should consider, and disclose international accords and treaties relating to climate change materially affect its business;
- **indirect consequences of regulation or business trends:** a company should consider, for disclosure purposes, the actual or potential indirect consequences it may face due to climate change related regulatory or business trends; and
- **physical impacts of climate change:** a company should evaluate for disclosure purposes the actual and potential material impacts of environmental matters on their business.

Similar to U.K. case, *Hall v. Cable and Wireless Plc*, there is U.S. case law related to corporate false or misleading statements. Section 10(b) of the Exchange Act and Rule 10b-5 prohibits false or misleading statements (or omissions) in connection with the purchase or sale of any security. Section 10(b) and Rule 10b-5 provide a private right of action for shareholders against officers and directors. Liability under these provisions is not only limited to reports filed with the SEC and can further extend to a broad range of communications, documents, or statements that are made “in connection with” a securities transaction.

One example of potential liability for sustainability statements is the lawsuit filed against BP in the wake of the Deepwater Horizon incident. Plaintiffs highlighted alleged misrepresentations in BP public statements and sustainability reports relating to safety programs and spill response capabilities and seizing. One example cited was BP’s stated commitment to “provide energy to customers now and in the future in a safe, sustainable and environmentally responsible way.” Other examples of liability related to sustainability or other non-financial information include alleged misrepresentations regarding the omission of

information on regulatory investigations, as well as certain boilerplate disclosures relating to sustainability and environmental compliance.

Effective compliance with a pollutant emissions reporting program may assist a company to accurately report environmental information within corporate financial reports. It is likely that the PRTR information required by pollutant emissions reporting programs may help a company comply with annual financial reporting by a corporation. For example, as discussed above, a company listed on the French stock exchange is required to provide emissions of GHGs in annual financial reports including direct emissions from fixed combustion sources; energy consumption and cooling/air conditioning systems for buildings and premises; and business travel. Companies ensuring the efficient collection of pollutant emission information may find it easier to organize, verify and disclose this information when complying with corporate financial reporting requirements.

Corporate reputation

Reported PRTR data can also impact the perception or reputation of a multinational corporation, which can affect the ability of a multinational corporation to provide a service or product or affect the ability of a corporation to continue operating a facility. Corporate reputation means how positively, or negatively, a company or similar institution is perceived by its key stakeholders. Key stakeholders include government authorities and shareholders as well as customers, employees, and suppliers. Poorly regarded companies may have a hard time attracting business, partnerships, and customers. As discussed above, a number of countries require multinational corporations to issue social, environmental and other reports auditing their performance or reporting annual emissions. These actions are relevant to any work on corporate reputation.

A key element for a PRTR or GHG emission reporting program is the public dissemination of the PRTR information submitted by a facility or corporation. On a variety of websites managed by national authorities and third parties, comparative pollutant emission information about a company is publically available. A perfect example of a third party pollutant reporting media is Scorecard, which is an online database that allows anyone to search for pollutant emission. Using Scorecard, anyone can find the largest polluter, the largest emitter of cancer causing pollutants, the largest emitters of water pollutant, the largest emitters of pollutants that cause birth-defects and the largest emitters of particulates and soot in a specific area. Pollutant emission information is searchable by company, location or chemical. Third party online pollutant emission databases, such as Scorecard, as well as the databases maintained by government authorities all make available pollutant and GHG emission information.

Being identified as a major polluter can harm the reputation of a corporation and impact the ability of a corporation to operate efficiently. A corporation identified as the largest polluter may find it difficult to obtain the necessary permits to continue operating at a location. Obtaining an operating permit is critical to ensure that a facility continues to produce a good

or service provided by the corporation. The failure to obtain permits can also impact other stakeholders such as shareholders or potential customers, which could create additional financial uncertainty for a corporation. Additionally, being identified as a major polluter may result in a facility being targeted for protest or boycotts by interested consumers or nonprofit environmental advocacy organisations.

Prioritisation of source reduction activities

PRTRs programs may provide an example of where voluntary/self-regulation and legalistic approaches interact in a complementary way. Hard law may result in voluntary approaches, for example, requiring companies to be more transparent and to report on their social or environmental performance but not specifying what that performance should be. As discussed previously, PRTR programs do not impose specific environmental performance requirements. However, this data may be useful for companies when identifying self-imposed environmental performance standards that reduce pollutant releases and transfers.

Recent TRI data provides an excellent example of how companies may find PRTR data useful when identifying what substances and processes to focus on when implementing self-imposed source reduction activities. In addition to reporting pollutant releases and transfers to the EPA, under TRI, U.S. facilities also report source reduction activities they have implemented. In 2013, a total of 3,362 facilities (16% of all TRI facilities) reported initiating 10,623 source reduction activities. This is an increase in reported source reduction activities reported in EPA's 2011 report, when 2,509 or 12% of all TRI facilities implemented a total of 8,430 source reduction activities. Of the source reduction activities implemented in 2013, facilities reported good operating practices as the primary source reduction activity, accounting for 37% of source reduction activities. Examples of good operating procedures include:

- improving maintenance scheduling, record keeping, or procedures;
- changing production schedule to minimize equipment and feedstock changeovers; and
- introducing in-line product quality monitoring or other process analysis system.

Twenty-two percent of facilities reported process modification as the type of source reduction activity. Examples of process modifications include:

- optimized reaction conditions or otherwise increased efficiency of synthesis;
- instituting re-circulation within a process;
- modifying equipment, layout, or piping;
- using a different process catalyst;
- instituting better controls on operating bulk containers to minimize discarding of empty containers;
- changing from small volume containers to bulk containers to minimize discarding of empty containers;
- reducing or eliminating use of an organic solvent; and
- using biotechnology in manufacturing process.

How facilities identified new source reduced activities is also important to review. In 2013, participative team management was the primary method of identifying newly implemented source reduction activities, accounting for 34% of the methods used to identify newly implemented source reduction activities. An example of participative team management is a facility investing in team training to identify process improvements. Internal audits were the second major method of identifying new source reduced activities, accounting for 22% of the methods used to identify newly implemented source reduction activities.

Key Elements of Effective Compliance WITH Pollutant Reporting for Multinational Corporations

So far this paper has explored key differences and similarities between PRTR programs and identified business implications for compliance with these programs. Effective compliance with pollutant emission programs is critical to address business implications highlighted above. Effective compliance involves a company determining what pollutant emissions information each facility is required to report and the corporate and facility processes in place to comprehensively obtain, organise, analyse and submit emission information. The key elements of effective compliance with pollutant emissions reporting programs are:

- thoroughly understanding legal requirements;
- accurate data collection; and
- effective analysis of data.

Thorough understanding and tracking of legal requirements

A company has track PRTR regulatory developments and understand what it is legally required to do under a pollutant emissions reporting program. Key compliance elements for a company to analyse when reviewing a PRTR program include identifying whether:

- requirements are mandatory, voluntary, or being modified;
- there are emission thresholds for facilities to fall under the scope of the program;
- reportable pollutants differ from other existing PRTR programs;
- deadlines to submit pollutant emissions differ from existing PRTR programs;
- there are specific reporting tools or methods of reporting; and
- there are formal processes for facilities to validate/certify information submitted.

Identifying these similarities and differences will assist a company as it creates facility and corporates processes to collect and report the appropriate information. Understanding the key components of existing PRTR programs is important, but companies also need to identify and respond to PRTR regulatory developments. For example, in 2011, there were 16 new substances added to the list of reportable substances under the TRI. These substances were classified as being “reasonably anticipated to be a human carcinogen” by the US national toxicology programme, and include: 1-Amino-2,4-Dibromoanthraquinone, furan, glycidol and

nitromethane. These substances are used in a variety of chemical processes, ranging from the synthesis of derivatives used as pharmaceuticals to the manufacture of vat dyes typically used with cotton, wool, and cellulose acetate. Furthermore, new reporting processes were introduced for US facilities on 21 January 2014, requiring them to submit all non-confidential reports to the EPA using the TRI-MEweb application.

Changes to the list of substances covered by reporting obligations or to the process to submit data will likely impact compliance costs. Depending on resources, a multinational company may decide to track regulatory development using internal resources, rely on external resources or some combination of the two. In any event, it is crucial for that company to verify that an internal procedure is in place to track regulatory developments that might affect reporting obligations and determine whether it needs to revise internal procedures to ensure compliance. For example, in light of the new reporting TRI requirement, a company would have to ensure that it modified internal procedures and processes to ensure that that it submitted all non-confidential reports to the EPA using the designated web application.

Accurate data collection

How a company collects information is equally important to knowing what a company is required to report. Multinational corporations have to develop effective data collection systems. However, data collection systems can vary. In a 2011 Information Collection Request, it was estimated that the average annual facility burden hours for a reporter complying with US TRI was 122.

Since April 1, 2012, companies in Israel have been required to comply with pollutant emission reporting requirements. Israel's PRTR program is similar to the EU-PRTR, but incorporates some U.S. TRI methodology and calculation methods. There are a total of 114 pollutants or groups of pollutants that facilities are required to report. During a pilot study to analyze how to implement a PRTR program, nine industrial facilities participated in the study to estimate the amount of hours it would take to annually prepare pollutant emission reports. Participating facilities were from a variety of sectors including energy, wastewater treatment, chemical, and food and beverage sectors. Facilities reported 2009 information for:

- air emissions;
- water (direct and indirect-transfer for WWTP); and
- waste transfer outside of facility (hazardous/non-hazardous waste).

Facilities were calculating emissions and Ministry of Environment was verifying the data. The largest estimate was from the largest chemicals facility while the lowest estimate was from WWTP.

Table 4 Estimated working hours (Israel PRTR Pilot Study)

	Lowest	Average	Highest
Initially	70	300	900
Following Years	30	90	200

The annual hour estimates from the U.S. and Israel PRTR programs demonstrate that a significant amount of time is required to comply with PRTR requirements. For a multinational corporation, developing a central office, division or employee within a corporation authorised to assemble and analyse emission data may facilitate the effective compliance with pollutant emissions and financial reporting requirements. It is critical for these companies to determine how to allocate compliance hours: facility officer versus corporate officer. A facility officer would be closer to emission data being reporting. However, identifying a central office, division or employee to analyse emission data may be more efficient because the task of compiling, organising, and submitting pollutant emissions information would not be sprawled across the world at different locations. Ideally, facilities would gather the pollutant and GHG emission at a facility and submit that information to the central office, division or employee within the corporate structure.

It is critical for a multinational corporation to identify which countries have established reporting of environmental data as part of financial report and to determine the pollutant and GHG emission information that the corporation is required to report. Compiling this information at a corporate level will likely help a company to analyse data whether as part of a pollutant emissions reporting program or as part of other corporate reporting to stakeholders.

Effective analysis of data

Implementing processes to effectively analyse pollutant emissions data becomes even more important in light of recent environmental disclosure trends and the impact on a company's reputation. The second section of this paper reviewed efforts by countries to incorporate the disclosure of environmental data such as pollutant emissions data into corporate financial reporting. In some instances the emissions data that has to be incorporated into a corporate financial reporting is similar, resulting in little additional cost to the corporation. However, in other instances, a corporation may be required to analyse pollutant emissions data as a result of regulations related to corporate financial reporting, which may result in a corporation incurring additional compliance costs. In order to analyse pollutant emission data,

multinational corporations may elect to use a variety of computer software programs including SAP, Entropy, Enviance or systems that are internally developed.

The wide disseminated and public availability of pollutant emissions information can also affect the reputation of a corporation and should especially concern multinational corporations. The reputation of a corporation can impact the perception of a company which can affect the ability of the company to sustain profit and operate efficiently. A facility or corporation identified as a “bad polluter” may experience challenges from a number of stakeholders including government authorities, shareholders, and customers. For multinational corporations, reputation is more complex because the company has to ensure compliance with a myriad of environmental laws and regulations and address the dissemination of information for multiple locations around the world.

For a multinational corporation being cognizant of where pollutant and GHG emission information is publically available and how its facilities’ pollutant and GHG emissions compare to other sources in a location is challenging because of its facilities are located in various locations around the world. However, despite any potential challenges faced by a multinational corporation, it is important that it determines all potential stakeholders and how pollutant emissions from its facilities compare with other facilities at a given location. For example, periodically reviewing online pollutant emission databases, such as Scorecard, may help a company compare itself to other companies. This comparative investigation and analysis allows a multinational corporation to determine if there is a potential positive or adverse implication for its reputation and its ability to operate efficiently.

Finally, effective analysis of PRTR data is also important given its potential role in helping a company prioritise potential source reduction activities. Companies may have a variety of options when trying to determine how they may voluntarily resource pollutant emissions and transfers. As highlighted above, information reported to TRI demonstrates that companies have used a variety of methods to identify and implement source reduction activities. An effective PRTR compliance process cannot just focus on collecting and reporting information. An effective compliance process should help a company analyse PRTR data so that it can identify processes and activities where it may be able voluntarily to invest in source reduction activities.

CONCLUSION

Multiple countries have adopted or are in the process of adopted legislation requiring facilities to report pollutant and GHG emissions. Commonly, PRTR programs require that the emission information submitted by a facility or corporation is made available to the public. However, compliance with a variety of PRTR and GHG emission reporting programs can be challenging for a corporation with facilities in multiple countries and regions because of different reporting requirements and submitting large amounts of pollutant and GHG emission data.

A multinational corporation has to consider a number of factors when trying to create an effective process to comply with PRTR programs. A company has to create and continuously evaluate whether it has an efficient process in place to comprehensively track for PRTR regulatory developments and obtain, organise, analyse and submit emission information. Additionally, in light of a growing trend of corporations being required to disclose environmental data to stakeholders and potential impacts on corporate reputation, an effective process has to integrate analysis of potential consequences of disclosure to a variety of stakeholders. An effective compliance process should consider when and how the company is communicating its environmental emissions whether as part of a PRTR or corporate financial reports to stakeholders. Finally, a company's compliance process should also analyse PRTR data to help it prioritise source reduction activities that it may initiative voluntarily to reduce releases and transfers.

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Chapter 14: DEVELOPMENT OF ALBERTA'S OIL SANDS: THE FORT MCKAY FIRST NATION'S PERSPECTIVE ON ENVIRONMENTAL MANAGEMENT

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ABSTRACT

Fort McKay is an Aboriginal community located in Alberta, Canada in the heart of one the world's largest industrial resource developments – the oil sands. The magnitude of this development and the many environmental issues associated with the exploration, extraction, and processing of this unconventional oil source, has severely challenged Alberta's and Canada's environmental management systems. An additional challenge for governments and oil sands companies has been addressing Aboriginal concerns and interests, and fulfilling the Crown's duty to consult with First Nations and safeguard their legally protected Aboriginal and Treaty rights. These rights are deeply linked to the health of the environment in which they live.

The scope of oil sands development, and its direct and significant impacts on Fort McKay, has forced the community to become a very active participant in the environmental management systems applied to oil sands developments. Fort McKay has participated in policy development, undertaken extensive technical and socio-economic reviews of proposed projects within its Traditional Territory, challenged project approvals, used the legal system, and entered into long-term sustainability agreements, including comprehensive environmental schedules, with individual companies. In this paper Fort McKay provides an overview of its experiences with, and assessment of, oil sands development environmental management systems and tools. It concludes that while Alberta and Canada have developed regulatory frameworks in an attempt to manage the environmental and social impacts of oil sands development, the frameworks largely fail to meaningfully address these impacts and in particular fail to address the environmental and cultural consequences of increased development on Fort McKay's Aboriginal and Treaty rights.

Keywords: Oil Sands, Fort McKay, Aboriginal and Treaty Rights, Environmental Management, Regulatory Systems, Public Interest

OIL SANDS DEVELOPMENT AND FORT MCKAY: CONTEXT

Fort McKay is an Aboriginal community (~850 community members with ~550 living in the community) located in the centre of one of the world's largest industrial developments:

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Alberta's oil sands. Its location, and the nature of oil sands development, has resulted in the community, for the last 30+ years, having to continually deal with, adapt to, and try to influence oil sands project development and related environmental management legislation, policy, and decision-making processes.

The oil sands represent one of the largest deposits of oil in the world (168 billion barrels of recoverable bitumen). Oil sands deposits are mainly located in the northeast corner of the Province of Alberta, Canada (Government of Alberta, 2014a; see Figure 11). This oil reserve is in the form of surface and subsurface deposits of what is referred to as "oil sands" by some and "tar sands" by others. Known and used by indigenous peoples for millennia, it was in the 18th century that these deposits became known to the west through exploration and fur trading (Kelly, 2009).

The oil sands deposits are located largely in the Boreal Forest (Regional Aquatic Monitoring Program, 2015a) in an area that has been inhabited by indigenous peoples for approximately 10,000 years (Regional Aquatic Monitoring Program, 2015b). Until commercial development of the oil sands commenced in earnest in 1967 the region was sparsely inhabited except for indigenous and Métis peoples. These peoples were able to practice, largely unfettered, all of their traditional ways (*e.g.* hunting, fishing, trapping, berry picking, traditional medicine gathering and other land-based cultural and traditional activities). (Note: Métis refers to "*people of mixed First Nation and European ancestry who identify themselves as Métis, as distinct from First Nations people, Inuit or non-Aboriginal people*" (AANDC, 2012)).

All oil sands projects (mining and *in situ*) require large amounts of energy and water since the extraction process uses hot water to liquefy and separate the bitumen from its sand-clay matrix. Mineable deposits are those that are close to the surface (< 75 m) and are typically mined using truck and shovel operations in open pits. Deeper deposits are extracted *in situ* by heating the bitumen in-place, to reduce viscosity, so that it can be pumped to the surface through wells (Alberta Energy, 2013). Figure 2 shows photographs of a typical mining operation and an *in situ* project to demonstrate the difference in surface land disturbance type and extent.

The nature and extent of land disturbance varies significantly between mining and *in situ* operations, with mining creating large areas of total surface and subsurface land disturbance. *In situ* facilities on the other hand create considerable surface fragmentation and linear disturbance associated with well pads, the pipelines between well pads, and the central processing facilities.

Figure 1 Oil Sands Regions in Northeastern Alberta with Fort McKay's Traditional Territory Represented by the Shaded Area in the Upper Right Corner of the Map

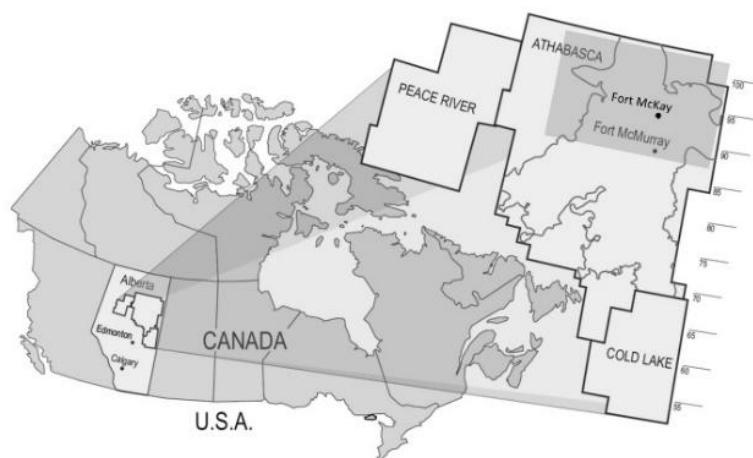


Figure 2 Photographs of Oil Sands Mining (left) and *In Situ* (right) Operations in Alberta, Canada



Water use and pollution, air contaminant and greenhouse gas emissions, endangered and threatened wildlife species, and reclamation have been high profile and controversial environmental issues associated with oil sands developments, with divergent views on the adequacy and effectiveness of the current federal and provincial environmental and regulatory management of these issues (Pembina Institute, 2013; Alberta Environment and Sustainable Development, 2014a; Canada's Oil Sands Producers, 2015).

The Royal Society of Canada examined the environmental and health impacts of oil sands development and noted that:

“...the environmental footprint of bitumen production activities is considerable with major air, water and land dimensions. Air emissions are large both absolutely and in comparison to those associated with conventional crude oil production in the province and other industrial activities.” (Royal Society of Canada Expert Panel, 2010)

and that:

“Fort McKay is the First Nations settlement located amidst several major oil sands developments and is the community most vulnerable to air quality impacts from current oil sands development.”

In addition to air impacts, Fort McKay's Traditional Territory includes almost all the mineable oil sands deposits and a large and rich portion of the region's deeper oil sands deposits only extractable by *in situ* methods. (Note: Traditional Territory refers to: "*the geographic area identified by a First Nation to be the area of land which they and/or their ancestors traditionally occupied or used*" (Joseph, 2005)).

Past, present, and projected bitumen production figures are summarized in Table 1. Based on bitumen production figures provided by Alberta's Energy Regulator (AER) and the Government of Alberta (Energy Resources Conservation Board, 2012; Government of Alberta, 2013), of the 1.9 million barrels per day (bbl/d) bitumen production in 2012 approximately 60% was from oil sands developments within Fort McKay's Traditional Territory. Of the 4.8 million bbl/d of production forecast for 2030 over 80% of this could occur within Fort McKay's Traditional Territory. Fort McKay therefore has both an existing and future interest in oil sands development and the regulation and management of its environmental impacts.

Table 1 Actual and Forecasted Bitumen Production from the Alberta Oil Sands

Year	Bitumen Production (barrels per day)
1967	32,000
1978	141,000
2004	1,000,000
2012	1,900,000
2022	3,800,000
2030	4,800,000

The economic benefits of oil sands development are significant, with annual operating and capital expenditures estimated to average roughly \$55 billion (2013 Canadian dollars) annually for the period 2013 to 2038 and beyond (Canadian Energy Research Institute, 2014).

Oil sands deposits are on Provincial Crown Land and are therefore a provincial (public) resource. The development and management of this resource, in the context of balancing economic, social, and environmental considerations, to arrive at "public interest" development decisions, is therefore almost entirely within the control of the Government of Alberta. A broad range of legislation, requirements and processes are used to guide and make these "public interest" decisions although there is no Alberta legislative or policy definition as to what exactly constitutes the "public interest" (Low, 2011). The Federal National Energy Board (NEB) defines "public interest" as "...a balance of economic, environmental and social considerations that changes as society's values and preferences evolve over time."(NEB, 2012).

OIL SANDS DEVELOPMENT: ENVIRONMENTAL CHALLENGES AND ISSUES

Oil sands development presents a number of environmental management challenges for governments, industry, and affected parties such as Fort McKay because of:

- the nature of, and the size and number of existing, approved, under construction and proposed oil sands development projects;
- the generally pristine, unique, and sensitive environment in which oil sands deposits occur;
- the lack of experience and existing environmental criteria and procedures for developments of this nature in boreal ecosystems;
- conflicting government interests and priorities *i.e.* economic development of a publicly owned, non-renewable resource versus protection of the publicly owned environment in which the resource is located;
- uncertainty and varying interpretations of Aboriginal and Treaty rights in relation to oil sands development that have led to many successful, unsuccessful and pending legal challenges by Aboriginal communities;
- polarized views and information on the environmental and cultural impacts of oil sands development particularly regarding impacts to traditional land use (and hence rights and interests); and
- associated quality of life impacts *e.g.* odours, noise, and visibility impacts, which are often difficult to quantify and address.

In general an adaptive management process is used for many of the environmental issues associated with oil sands development (Energy Resources Conservation Board, 2013). This “*learn as we go*” approach creates challenges for Aboriginal communities like Fort McKay because the long-term environmental impacts of development and their remediation are not known.

THE FIRST NATION COMMUNITY OF FORT MCKAY AND ITS INTERESTS

In 1899, Treaty 8 was signed between the Government of Canada and a number of First Nations, including Fort McKay (Aboriginal Affairs and Northern Development Canada, 2010). This Treaty promised First Nations in the region the ability to continue their traditional way of life, which involves hunting, fishing, trapping, and gathering within its Traditional Territory. Treaties also established Reserve Lands which are tracts of Crown land set aside for the inclusive use and benefit of a First Nation.

Fort McKay is a small First Nation and Métis community located approximately 60 km north of Fort McMurray in the heart of the Alberta oil sands, on the banks of the Athabasca River (see Figure 1). It has five Reserves and its Traditional Territory (see Figure 2). Cree and Dené

are still spoken in the community, with a number of Elders still speaking either Cree or Dené exclusively. When Treaty 8 was signed, trapping fur-bearing animals was an important and profitable part of the economy of Fort McKay, and had been for over 100 years. According to Tanner *et al.* (2001) “*...in the 1960s the economy of Fort McKay peoples was almost entirely derived from the natural resources of their traditional lands*” (Tanner, *et al.*, 2001). Fort McKay has traditionally harvested moose, bears, and other large animals for meat, clothes, tools, and shelter, as well as fur-bearing animals for trade. Fort McKay has also relied on its traditional lands to provide fish, waterfowl, grouse, hares, berries, and traditional medicinal plants, and continues to do so, albeit to a lesser extent than in the past. The reasons for this include the introduction of the wage economy as well as reduced availability of, and access to, the land and its resources.

Oil sands-related resource development is now at the point where almost the entire land base of Fort McKay’s Traditional Territory has been leased out to energy developers, and many of these leases have been, or are currently in the process of being, developed or explored. The extensive spatial scale of development has been a particular issue as First Nations’ culture and traditional practices, including the passing of knowledge down through generations, relies on a healthy environment, connectivity with the land, and a familiar landscape.

An additional challenge in dealing with environmental issues for Aboriginal communities like Fort McKay is that its view and understanding of the environment is different than the “western” perspective and approach, and this creates communication and understanding issues. Fort McKay’s primary environmental interests are summarized in Table 2 from two perspectives. One is the “western” perspective and its categorization of issues along media- or issue-type lines and the other is the “Aboriginal” perspective, which tends to view the environment more holistically and in terms of its productivity and health.

Table 2: Fort McKay’s Key Oil Sands-Related Environmental Issues and Concerns

The Western Looking Glass	An Aboriginal Looking Glass
<ul style="list-style-type: none"> • Land disturbance/reclamation • Habitat changes/destruction • Air quality • Health • Access Management • New/additional land and natural resource users (<i>i.e.</i> competition for finite resources) • Water use • Water quality • Energy use/GHG emissions • Need to meaningfully engage stakeholders 	<ul style="list-style-type: none"> • Loss of: <ul style="list-style-type: none"> ◦ Game (moose, bison, caribou, etc.), ◦ Fish, ◦ Berries • Earth and air are not healthy so we are not healthy • Access to cultural sites difficult (I can no longer go where I want when I want) • With change in environment we are losing our identity because our interaction with the land is being lost • Animals/fish/plants/waters are polluted and I avoid them now • Air smells and is affecting our health

- and well-being
- We keep talking but nobody listens to us because we are just "natives"

The question is whether or not current environmental management systems for oil sands development is capable of recognizing and addressing these issues and perspectives. The following analysis suggests that the general answer to this question is 'no', and that there are major deficiencies in the governments' development and environmental management processes for oil sands developments.

THE REGULATORY SYSTEM FOR OIL SANDS PROJECTS: WHAT IS AND IS NOT WORKING AND WHY

Jurisdiction and control over natural resources were transferred from the Federal government to the Province of Alberta in 1930 through the Natural Resources Transfer Agreement (Minister of Justice, 1930). Alberta is therefore responsible for resource development decisions. However in terms of environmental jurisdiction the Federal and Alberta governments, as well as the regional municipal government, have legislation, regulations, standards, directives, policies, and/or by-laws that apply to oil sands developments.

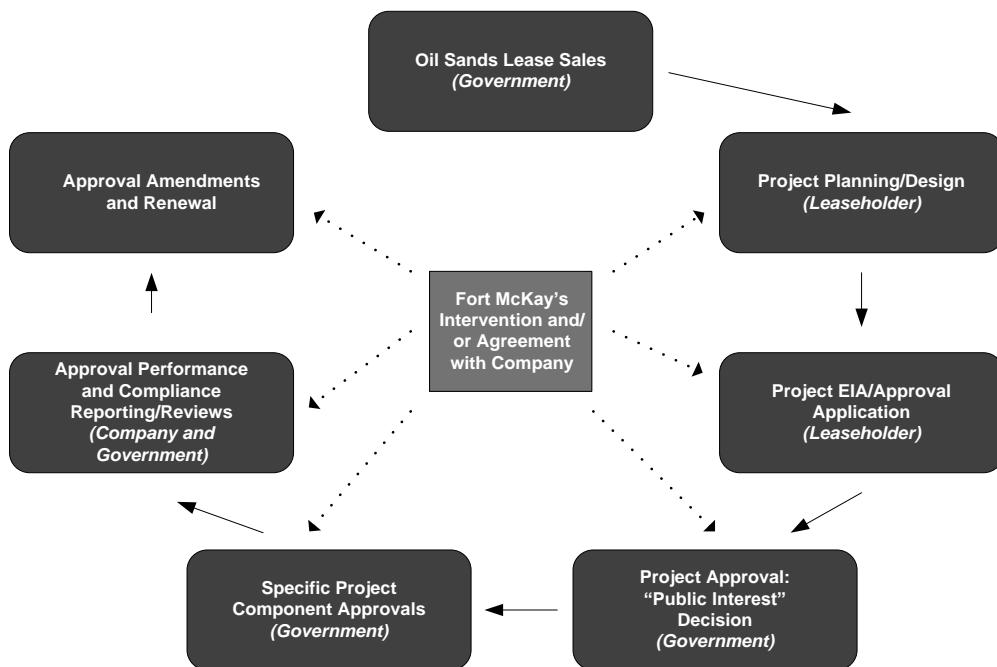
The environmental regulatory requirements and processes that apply to oil sands developments are broad in scope covering all oil sands related environmental issues e.g. emissions/releases, land disturbance, reclamation, pollution control and monitoring, from facility design, to operation through to decommissioning (see Table 3) (Alberta's Oil Sands, 2014; Alberta Energy, 2014a; Alberta Energy Regulator, 2015a; Blakes Lawyers, 2010; Government of Alberta, 2014b; and Regional Municipality of Wood Buffalo, 2015). The myriad of regulatory requirements and processes applied to oil sands developments are represented as a clear demonstration that these developments are being responsibly and stringently regulated from an environmental perspective (Energy Resources Conservation Board, 2011; Oil Sands Today, 2015; and Government of Alberta, 2015a). Rhetoric aside, the effectiveness of these regulatory requirements and processes needs to be evaluated in terms of "*...are they addressing stakeholder concerns and interests?*" and "*...are they achieving effective and responsible environmental outcomes?*"

A simplified sequential flow diagram of the key development and environment related project approval processes flowing from the above-mentioned legislation is presented on the following page in Figure 3.

Table 3: A Summary of Key Provincial and Federal Legislation Governing the Environmental Aspects of Oil Sands Development

Legislation	Jurisdiction (Federal or Provincial)	Description
Alberta Mines and Minerals Act	Provincial	Grants and regulates tenures for development of subsurface resources like oil sands.
Environmental Protection and Enhancement Act and Regulations	Provincial	Establishes an Environmental Impact Assessment process for larger projects and a regulatory and project approval process for environmental aspects of oil sands projects as well as a public participation process.
Oil Sands Conservation Act and Regulations	Provincial	Establishes an oil sands development approval and regulatory process. While focused on managing oil sands as a resource it also has an environmental management component (e.g. pollution control). Requires the government (Cabinet) to determine if major projects are in the public interest and to authorize the granting of an approval by the Alberta Energy Regulator.
Water Act and Regulations	Provincial	Governs water withdrawals and use.
Responsible Energy Development Act (REDA)	Provincial	Establishes a corporation (the Alberta Energy Regulator) under a responsible Minister to regulate all aspects of energy projects, including environmental and resource recovery and production. Sets out the application and review procedures for project approvals including who is eligible to request public hearings, provide input, and appeal approval decisions.
Canadian Environmental Assessment Act and Regulations (Overhauled in 2012)	Federal	Defines which projects require an Environmental Impact Assessment to address federal interests and the scope of the assessment.
Fisheries Act	Federal	Covers protection of certain fish and fish habitat.
Navigable Waters Act	Federal	Covers the use and protection of certain water courses for navigation.
Species at Risk Act	Federal	Protects endangered or threatened wildlife species.

Figure 3: Schematic Representation of the Key Elements of the Development and Environmental Regulatory Processes that Apply to Oil Sands in Alberta, and Fort McKay's Interactions with These Processes



OIL SANDS TENURE (THE FIRST STEPS IN OIL SANDS DEVELOPMENT)

The Government of Alberta indicates that: "...the tenure system makes it possible for individuals and companies to explore for and develop Alberta's mineral resources for the benefit of the citizens of the province" (Alberta Energy, 2015a). In this regard the *Alberta Mines and Minerals Act* and associated Oil Sands Tenure Regulation and Guidelines and the Public Offering process (Alberta Energy, 2014b) are perhaps the most important oil sands development legislation and processes as the sale of a lease or permit starts a cascade of resource development planning and project approval applications. The subsequent project exploration, development, and approval processes are largely predicated on the assumption that the lease sale represents the government's desire that the resource is developed, which is understandable since companies pay large sums for leases. For instance, over the period from 1991 to 2014, lease sales have generated approximately \$4.2 billion in government revenue (Alberta Energy, 2015b).

Oil sands leases have stipulations about resource proving and development to facilitate the timely and full development of the resource because the government receives taxes and royalties from the development of these resources. This immediately establishes a conflict between economic interests, i.e. quick and full resource recovery, and social and environmental issues and their management, particularly if the latter considerations might

limit or delay a project. Since a lease sale connotes approval for any development that meets regulatory requirements, the decision to lease essentially precludes a “*no development*” regulatory decision, and limits the likelihood of a “*restricted development*” decision by the regulator. An example of the economic development imperative associated with leases is reflected in the following excerpt from an application for a mine project located within Fort McKay’s Traditional Territory:

“Shell has made considerable investments in obtaining and defining its lease holdings in the Fort McMurray area. In doing so, it has a responsibility to its shareholders to define and advance the development of these lease holdings in economically viable ways in order to realize value from the investments. Shell businesses, in turn, create value, employment and support for the communities in which they operate. In addition to its shareholder obligations, Shell has an obligation to the people of Alberta, who own the resource, to develop it in a timely and efficient manner. To continue to fulfill these responsibilities, approval for development of the leases discussed in this application is required.” (Shell Canada Limited, 2007)

The Public Offering process for oil sands leases does not involve any prior consultation with potentially affected stakeholders and Alberta’s consultation policy for land and resource management decisions expressly excludes consultation with First Nations on “*leasing and licensing of rights to Crown minerals*” (Alberta Aboriginal Relations, 2013). This process makes it difficult to deal proactively with potential project-related land use impacts and conflicts. Fort McKay has requested, without success, that the Government of Alberta consult before granting development rights to the resource within its Traditional Territory and especially adjacent to its Reserve Lands.

Fort McKay’s Recommendations Regarding the Land Tenure System

An effective development management process needs to include consultation on the granting of resource development rights in order to proactively address stakeholder interests. This consultation should be guided by a development strategy that has itself been developed in consultation with all interested and affected parties.

PROJECT PLANNING AND DESIGN

The granting of a lease for an oil sands deposit starts the process of better defining the exact extent and nature of the deposit. This information is in turn used to start planning and designing the facilities that will be used to recover the resource. As potential oil sands development related land use issues and conflicts are not addressed at the oil sands land-tenure step, it is this project planning and design stage where discussions on these issues commence.

The Government of Alberta delegates the procedural aspects of consultation to resource developers, with the expectation that project proponents will address project-related impact issues with affected stakeholders;

“... companies must appropriately consult stakeholders to ensure that affected parties have an opportunity to understand how the project might affect them. The consultation process is extensive and companies must demonstrate that they have made every effort to address outstanding concerns. In situations where unresolved issues or conflicts exist, stakeholders may file a statement of concern to the project application with the AER, which might ultimately lead to a hearing.” (Alberta Energy Regulator, 2015b)

To assist project proponents in their consultation with Fort McKay during the project planning stage, the community has developed its own consultation process. Fort McKay also encourages companies to enter into a partnership agreement with the community under which financial support is provided to the community for it to be able to review project planning documents, but more importantly to establish some guiding principles in terms of early and meaningful consultation between Fort McKay and the project proponent.

There are four main issues associated with this step in managing oil sands impacts:

- The company’s focus is on maximizing economic return and conflicts or issues that negatively impact economic return become “outstanding concerns” that cannot be addressed.
- The majority of companies develop a near final project plan before starting discussions on issues and concerns and are then reluctant to make any substantive changes such as relocating facilities.
- What constitutes “extensive” consultation and “*every effort to address outstanding concerns*” is left to the discretion of companies and the regulator and it has been Fort McKay’s experience that consultation seldom meets these stated requirements
- Individual companies cannot address the issue of cumulative project development impacts, so often the concerns and issues most relevant to Fort McKay are something that remains outstanding at this stage of oil sands development.

Of the development planning and design stage issues, it is cumulative effects management that is the most critical and is an issue that a single project proponent cannot address. This is a major deficiency in the entire process.

Based on the above-noted issues related to project planning and consultation, it is not surprising that many of the past and pending legal actions that have been initiated by First Nations are associated with the adequacy of consultation (Supreme Court of Canada, 2005; Alberta Court of Appeal, 2013; Supreme Court of Canada, 2013; Albert Court of Queen’s Bench, 2014; Federal Court, 2014a; and Federal Court, 2014b). First Nations have had mixed success in terms of these legal challenges, with some still pending, and it is has been speculated that legal challenges will increase unless the issues of meaningful and adequate consultation with Aboriginal peoples are addressed (CBC News, 2014).

Fort McKay's Recommendations Regarding the Project Planning and Design Stage

The first step in managing individual oil sands developments is to address the potential cumulative impacts of multiple developments. Effectively managing existing and possible cumulative effects associated with multiple developments requires that governments take a proactive role in assessing cumulative impact scenarios. The next step is to establish, with the affected parties, the thresholds and benchmarks that will be used to manage cumulative effects impacts and guide development decisions. The government also needs to clearly indicate that environmental and social considerations might dictate resource development restrictions on a lease.

PUBLIC INTEREST DECISIONS

After the oil sands lease sale process, the most important stage in oil sands development is the “public interest” decision. This decision stage involves the following steps (Government of Alberta, 2014c):

- reviewing the project application;
- public notice and acceptance of statements of concern ;
- a quasi-judicial public hearing, at the regulator’s discretion if objections are received from directly and adversely affected parties;
- a public interest decision on whether or not the project should proceed.

The two most important issues for Fort McKay at this stage are:

- the right to have standing to submit statements of concern and trigger a hearing (if needed); and
- the basis for “public interest” decisions

The Right to Standing

Natural justice principles dictate that those affected by decisions have the right to be heard and that the decisions made are free from bias (Cowan and Kuttner, 2013). A recent review of the right of the public to participate in environmental and resource development decisions concluded that, while legislation and regulatory policy appears to support such public participation, the reality is that government restricts participation to only those who are very personally affected (Fluker, 2015).

The passage of the Alberta Responsible Energy Development Act (REDA) in 2012 significantly increased both regulatory restrictions and discretionary powers regarding who is eligible to participate in the regulatory process for energy projects and whether or not a hearing is required for a project. For example, “directly affected” is now “directly and adversely affected”, with the regulator deciding what constitutes adversely affected; hearings are now at the discretion of the regulator whereas previously a statement of concern by a

directly and adversely affected party automatically triggered a hearing; a hearing now precludes an appeal of the associated regulatory decision; the same regulatory body making a development decision now decides whether or not to allow a regulatory appeal; the regulator also decides if an appeal will involve a hearing or not; and the legal counsel body for the decision maker is the same as for the appeal tribunal. These and other regulatory changes, which were part of a regulatory enhancement project (Government of Alberta, 2010), have the intended effect of streamlining processes and expediting project approvals; however, this occurs at the expense of public participation and meaningful engagement with First Nations and other groups. While the Alberta Government has given direction to the energy regulator (Ministerial Order, 2014) regarding aboriginal consultation, from Fort McKay's perspective these represent administrative rather than substantive consultation requirements. Collectively the recent regulatory changes, and their current administration, are inconsistent with the principles of natural justice and establish a clear institutional bias in favour of oil sands development and against affected parties.

Having meaningful participation in the regulatory processes has very important implications and consequences for Fort McKay. Under the previous regulatory system, if Fort McKay were to file a Statement of Concern (SOC) against a project on environmental and technical grounds, and the proponent was unable to mitigate the issues and come to an understanding with the First Nation, a hearing would be forced by the energy regulator. Through the hearing process the decision-making process was forced to be transparent, and Fort McKay largely knew why its concerns were accepted or dismissed at the conclusion of a hearing. The new process has a clear focus on avoiding hearings, which are now at the discretion of the regulator. The criteria for being a "*directly and adversely affected party*" is also not clearly defined and does not include considerations of cumulative impacts on parties.

The previous regulatory system's approach of convening a hearing if concerns could not be resolved also forced industry to seriously attempt to work out the issues, as industry understood that a hearing could possibly not rule in its favour. The current system provides little incentive for companies to engage in meaningful dialogue with Fort McKay since there is a significantly reduced likelihood that industry will be subjected to a public hearing and the associated public scrutiny and a project approval is a foregone conclusion.

Public Interest Decision-making

While decisions on whether or not an energy project should proceed are based on the "public interest", the government has established no specific criteria or principles to guide such decisions, or which allow the public to fully understand and evaluate the reasons that projects are deemed to be in the public interest. It has been argued that in the absence of definition or criteria, a conclusion that a project is in the "public interest" is a convenient way to justify and legitimize a decision that is difficult to refute or challenge (Hierlmeier, 2008). It has also been noted that the Alberta Energy Regulator:

“... is required to consider public interest and to take steps to protect both common and private interests, such as controlling pollution ... the overarching legislative framework is based on a public policy that says the development of Alberta’s energy resources is in the public interest. And “... decisions that are required to be made in the public interest are not always considered by some, or even many, to be in substance, in the public interest.” (Low, 2011)

The following excerpt from the Decision Report for a large oil sands mine expansion project on Fort McKay’s Traditional Territory illustrates the general nature of “public interest” decisions. It also clearly indicates that the initial decision by the government to grant a lease for economic development purposes is the main “public interest” consideration.

“The Panel notes that the Project is in an area that is nearly surrounded by other oil sands mines and in which the government of Alberta has identified bitumen extraction as a priority use. The Panel further notes that Shell’s application is for an expansion of an existing oil sands mine project. The Project would provide significant economic benefits for the region, Alberta, and Canada. Although the Panel finds that there would be significant adverse project effects on certain wildlife and vegetation, under its authority as the AER, the Panel considers these effects to be justified and that the Project is in the public interest.” (Alberta Energy Regulator and Canadian Environmental Assessment Agency, 2013)

While a significant portion of project economic benefits extend to Alberta and Canada, significant project impact costs, by way of environmental, cultural, and social impacts, are borne locally and cumulatively by communities such as Fort McKay. Thus, honouring and protecting Aboriginal and Treaty Rights are not a significant consideration when determining “public interest” and under the current regulatory system “public interest” is a euphemism for “economic interest”.

Fort McKay’s Recommendations Regarding Public Interest Decision-making

Those directly affected by development must have a meaningful opportunity to challenge proposed projects in terms of the acceptability of the project’s impacts and the adequacy of proposed mitigation measures, as well as the project’s contribution to cumulative impacts. Such challenges need to be heard in a public forum, so that citizens can decide for themselves whether or not the public interest is being served and whether or not those directly affected by the project have been fairly heard and accommodated. The factors and criteria to be considered when determining the “public interest” should be specified in the legislation, and addressed in each decision.

APPROVAL REQUIREMENTS AND CLAUSES

Following a favourable “public interest” decision, specific approvals for various aspects of a project are issued pursuant to the relevant legislation. In terms of environmental protection and management issues, the main pieces of provincial legislation are the Environmental Protection and Enhancement Act (EPEA; Province of Alberta, 2000a), the Water Act (Province of Alberta, 2000b), and associated Regulations. EPEA is the main provincial statute dealing with the environmental aspects of the construction, operation, and reclamation of oil sands projects. The EPEA also has provisions for directly affected parties to be involved in the EPEA approval issuance process.

EPEA approvals are detailed (some can be up to 100 pages) and specify performance, monitoring and reporting requirements related to air, industrial wastewater, domestic wastewater, solid and liquid waste, hazardous waste, drinking water, product and chemical storage, and disturbance reclamation.

The following are examples of approval terms and conditions issues that Fort McKay consistently raises with the Government of Alberta:

- pollutant release limits and control requirements often do not reflect the application of “best environmental practices and controls”.
- More rigorous monitoring of all releases is required to better understand and manage potential project impacts.
- Sufficient offsite monitoring needs to be conducted to demonstrate to stakeholders that projects are not causing or contributing to any exceedances of ambient environmental objectives, guidelines and/or thresholds.
- “Continuous improvement” in environmental performance needs to be a requirement.

In efforts to streamline regulatory processes, standardized approval formats are now being used and it is becoming more difficult for stakeholders to have approval clauses added or modified. Attempting to treat all oil sands projects generically ignores the reality that each is located in a different and somewhat unique spatial environment. Each of these environments has different significance to, and use by, First Nations people, making each project significantly different from their perspective. Early experiences with the new regulatory approval approach indicates a shift from the previous “inclusive” engagement approach to an “exclusionary” approach, similar to the exclusionary approach that is being taken at the “public interest” decision stage.

Fort McKay's Recommendations Regarding Approval Requirements Process

The requirements in an approval largely determine the immediate and long-term environmental impacts with which Fort McKay has to live and how these impacts are

measured and reported. It is therefore reasonable for Fort McKay to expect that it will continue to automatically be involved in the review of all draft EPEA approvals for projects located within its Traditional Territory. In keeping with honouring the common law expectation of natural justice in Canada, Fort McKay (and other First Nations) should also have a reasonable and fair mechanism to appeal approval conditions that in their view may result in a significant adverse impact.

FORT MCKAY AGREEMENTS WITH COMPANIES

Fort McKay attempts to enter into “long term sustainability agreements” (LTSAs) with companies that are proposing, or have received approval for, a project within its Traditional Territory.

LTSAs have a number of elements e.g. long-term sustainability funding to allow the community to operate under the conditions of a changing landscape; business development and training opportunities; and environmental commitments. It is the environmental sub-agreement (ESA) element of the LTSAs that are discussed in this paper.

Negotiations related to LTSAs generally begin once Fort McKay has submitted its statement of concern (SOC) to government on the approval application for a specific project. Depending on the progress of these negotiations, Fort McKay might subsequently withdraw its SOC.

The ESAs within the LTSAs are intended to address specific project environmental issues that were identified in Fort McKay’s SOC, but which weren’t addressed to the community’s satisfaction through the government’s formal regulatory process. Priority is given to those issues which, based on the nature and location of the project, are considered to have the potential to significantly impact Fort McKay’s use and enjoyment of its traditional lands.

The types of environmental issues covered in ESAs include:

- information sharing related to project planning and changes, as well as environmental performance;
- commitments to pollution control and environmental monitoring at more stringent levels than required in government approvals;
- using Fort McKay’s environmental quality and impact criteria when assessing and verifying project impacts;
- participating in, and supporting, certain multi-stakeholder processes that Fort McKay considers are advancing environmental management in the region;
- meaningfully engaging Fort McKay in the development and implementation of the project’s environmental monitoring programs and reclamation plans;
- continuous improvement efforts in environmental performance; and

- supporting community-based environmental monitoring programs.

ESAs establish an “Environmental Committee” with representation from the company and Fort McKay. The committee meets on a regular basis to ensure the ESA commitments are being implemented, as well as identifying and managing any new environmental issues that arise. The early indication is that this approach has the potential to meet Fort McKay’s expectations regarding effective and responsible environmental management and engagement on an individual project basis. This approach, however, cannot address cumulative development and cumulative environmental management and impact issues, as these require government involvement and strong leadership.

The LTSA-ESA approach is the type of environmental tool that Alberta has identified in its “Environmental Tools Guide” that can “...act as incentives to promote levels of environmental performance beyond existing compliance obligations” and that involves “...stakeholders collaboratively working together to resolve environmental issues” (Alberta Environment and Sustainable Resource Development, 2015a).

Fort McKay’s Recommendations regarding the ESA Process

The ESA process is a non-regulatory approach for addressing environmental issues, which allows a company and Fort McKay to establish a formal “good neighbour” relationship that focuses on specific project-related environmental issues that are relevant to Fort McKay. Governments should therefore promote and support these types of agreements and the concept of “beyond regulatory requirement performance”.

PERFORMANCE REPORTING AND COMPLIANCE

The specific approvals issued for an oil sands project under the different applicable pieces of legislation generally all have some form of performance and reporting requirements. Many of these requirements relate to:

- the safe and orderly development of oil sands resources;
- reporting production for the purposes of ensuring resource recovery requirements are being met; and
- the determination of royalties by the Government of Alberta.

Environmental performance requirements are principally associated with EPEA approvals; however, some environmentally related requirements are contained within Oil Sands Conservation Act approvals.

Environmental approvals under the EPEA generally have monitoring and performance reporting requirements for air and wastewater releases associated with operations. Monthly and annual reporting of certain releases is required, and immediate reporting of

any potential exceedances of emission limits is also required. In the past environmental release information has been somewhat difficult to obtain, but the increased media attention on oil sands development, and concerns regarding the environmental performance of the industry, have resulted in the development of an internet “oil sands information portal”, which provides somewhat easier access to environmental performance data (Government of Alberta, 2015).

In terms of compliance with environmental performance requirements, there have been a number of prosecutions of oil sands operators for violations of environmental legislation (Alberta Environment and Sustainable Resource Development, 2015b). The most high profile of these was the prosecution of Syncrude under the Federal Migratory Birds Act and the EPEA over the death of 1606 migratory birds in a tailings pond, which resulted in a \$3M fine. Despite this, and a number of other prosecutions with associated large fines, there has been criticism that most violations associated with oil sands operations go unprosecuted (Timoney & Lee, 2013) and that government is not enforcing its environmental requirements. Government has a different perspective and indicates that all potential non-compliance events are reviewed and the enforcement system is working (Young, 2013).

Fort McKay supports effective oversight and enforcement of environmental requirements, but it considers that it is more important to focus on proactively managing environmental impacts and issues and to address project impacts that affect quality of life. In terms of health and well-being impacts associated with oil sands development the most critical and acute problem for Fort McKay are the adverse impacts of odours which occur both on Fort McKay's Reserve Lands, as well as on its Traditional Territory.

Regarding odour issues in Fort McKay, the Royal Society of Canada Expert Panel Report (2010) indicated that:

“...the air monitoring station in the nearby community of Fort McKay has not detected these occurrences of guidelines being exceeded, but odour is certainly recognized as a problem for this community. Although odour has often been considered a nuisance rather than a health effect, chronic odour problems become a burden on community well-being which ultimately leads to stress with the possibility of associated health effects. Resolution of the odour problems being caused by oil sands developments is clearly necessary.”
(Royal Society of Canada Expert Panel, 2010)

Fort McKay has been aggressively pursuing this issue with the regulators since the EPEA has the following provision:

“Environmental protection orders re odour

116(1) Where the Director is of the opinion that a substance or thing is causing or has caused an offensive odour, the Director may issue an environmental protection order to the person responsible for the substance or thing.” (Province of Alberta, 2000a)

At least two environmental protection orders (EPOs) have been issued under this provision. The actions required under these EPOs have helped reduce the intensity of odours, but have not solved the chronic nuisance of odours in Fort McKay which are associated with normal facility operations. It is Fort McKay's view that such recurring nuisance conditions would not be tolerated in any urban area of the province.

Fort McKay's Recommendations regarding Performance reporting and Compliance

Fort McKay recognizes the need for regulatory oversight to ensure that environmental requirements are being met. However, impacts such as the ongoing odour problems in the community show that improvements in emission and environmental management are required. In the absence of meaningful environmental requirements Fort McKay questions whether there is any real long-term environmental benefit from enforcing requirements that are not protective or meaningful. Fort McKay suggests that effort would be better spent on developing and applying, in consultation with stakeholders, requirements that meet stakeholder needs.

APPROVAL AMENDMENTS AND RENEWALS

The EPEA legislation only allows approvals to be issued for a maximum of ten years with the provision for an unlimited number of approval renewals. The approval renewal process, like the original approval issuance process, has provisions for stakeholder filing of SOCs and subsequent appeal of renewal decisions or clauses.

Approval renewals are considered by Fort McKay to be a very important regulatory process that affords the opportunity to evaluate the impacts of the project, address any unacceptable or unanticipated impacts, and improve environmental performance. In this regard the approval renewal section in the Guide to Content for Industrial Approval Applications indicates that a purpose of the approval renewal process and approval renewal applications is to (Alberta Environment and Sustainable Resource Development, 2014b):

“Assess opportunities or obligations to improve on both process and environmental performance in order to:

- mitigate potential effects, or
- opportunities for improved design and operation are identified and maximized, and
- capitalize on new opportunities to work with others.”

With a few exceptions, it has been Fort McKay's recent experience that the focus of oil sands operators in renewal applications is to justify continued operation under current approval conditions or to have certain environmental conditions relaxed if they represent financial or operational challenges. There is little to no assessment of opportunities for

improvement.

Applications for approval amendments can be made at any time and are common for oil sands projects that have long design lives (e.g. 30 to 80+ years). For example, since 2007, eight approval amendments have been made to the EPEA approval for the Syncrude Mildred Lake/Aurora North and South Mine and seven approval amendments have been made to the EPEA approval for Shell Muskeg River Oil Sands Project (Alberta Energy Regulator and Alberta Environment and Sustainable Resource Development, 2015). It has been Fort McKay's experience that approval amendments usually result in increased emissions or land disturbance with increases justified as being small relative to overall project and regional emissions and land disturbances. They are also generally approved without meaningful consideration of cumulative impacts or the application of the principles of continuous improvement and environmental impact prevention/minimization.

Whether or not Alberta's new regulatory system will take an "inclusive" approach in terms of allowing and accommodating Fort McKay's engagement in the approval amendment and renewal process remains to be determined. Based on its very limited experience to date (e.g. one project amendment and one approval renewal, and its above-noted experiences with the "public interest" decision and the EPEA approvals processes), Fort McKay is not optimistic that meaningful stakeholder engagement in the renewal and/or amendment of environmental approvals is a priority for the new energy regulator.

Fort McKay's Recommendations regarding Approval Amendments and Renewals

Regulators should, as policy, give First Nations the opportunity to review and comment on any amendment application proposed by facilities operating within their Traditional Territories or adjacent to their Reserve Lands. For applications that are expected to result in increased environmental impacts, prior consultation with affected parties should also be a requirement. Approval renewals for projects within a First Nation's Traditional Territory should require a pre-renewal application consultation process, where there is an automatic right of standing for the affected First Nation to file a SOC and appeal renewal decisions or clauses.

SUMMARY

Oil sands development in northeastern Alberta has had both significant positive and significant negative impacts on the Aboriginal peoples indigenous to this region. These impacts have perhaps been most significant on Fort McKay, which is surrounded by mining and *in situ* oil sands developments, with many additional oil sands developments proposed and planned within Fort McKay's Traditional Territory in the near future.

Governments (Alberta Energy, 2015c) and industry (Canadian Association of Petroleum Producers, 2015) promote oil sands development on the basis that it is being done with meaningful consideration to economic, social, and environmental factors. The reality is that economic development is the principal and paramount consideration in oil sands development decisions while social and environmental impacts have demonstrably been very much a secondary consideration, as has been recognizing and honouring Treaty and Aboriginal rights.

As a community with a long history of direct involvement in the environmental processes and requirements that apply to oil sands developments, Fort McKay has learned that it must aggressively and assertively pursue its interests. This includes going outside the regulatory system and negotiating directly with companies who are willing to go beyond minimum regulatory requirements, and if necessary, using the courts if its social and environmental issues are to be effectively and reasonably addressed. Fort McKay considers that it is reasonable for it, and other Aboriginal communities, to expect the federal government to ensure that its Treaty obligations are met, and for the Government of Alberta and provincial regulators to treat First Nations with the same respect and accommodation as it accords to other citizens and to the oil sands industry.

Fort McKay's specific and transformative recommendations to ensure both the application of natural justice and responsible environmental management in the development of Alberta's oil sands resources are:

- Government consultation with First Nations occur before oil sands lease sales on Traditional Territory and near Reserve Lands.
- Industry consultation with First Nations occur well before project plans are finalized.
- Government and industry ensure that project applications comprehensively address identified aboriginal concerns and issues.
- Government specify/require that First Nations be automatically granted standing in all oil sands approval, amendment and renewal processes, including appeals of decisions made as part of these processes, for developments occurring on Traditional Territory and near Reserve Lands.
- The appeal process be through a body entirely independent from the regulator.
- Public hearings be required for any oil sands project on First Nation Traditional Territory where an accommodation agreement cannot be reached between the parties.
- Government/regulators require that oil sands developments employ best environmental management practices and have continuous improvement processes which are supported by formal benchmarking processes and/or protocols.
- Government encourage, and where appropriate facilitate, the use of non-regulatory processes between First Nations and companies to address environmental issues e.g. environmental agreements.
- Government and industry establish processes that actively engage First Nations in the identification and follow-up on facility operating/impact issues that are of concern to the community.

- Government ensure that cumulative effect issues are addressed proactively through multi-stakeholder developed land use planning and impact threshold criteria.

As the Supreme Court of Canada observed:

“Our history has shown, unfortunately all too well, that Canada's Aboriginal peoples are justified in worrying about government objectives that may be superficially neutral but which constitute de facto threats to the existence of Aboriginal rights and interests.” (Supreme Court of Canada, 1990)

The existing environmental regulatory system for oil sands, if applied in a balanced, inclusive, and collaborative way, could address most of the environmental issues Fort McKay has regarding oil sands development. It could ensure that social and environmental considerations play a more important role in “public interest” determinations and decisions related to oil sands development.

In summary, Fort McKay supports the statements by a Working Group appointed by the Assembly of First Nations and Aboriginal Affairs and Northern Development Canada that (Working Group on Natural Resource Development, 2015):

“Today's governance approaches and tools to engage First Nations in natural resource development are too few and limited in scope. Often, they cast First Nations in the narrow role of respondent; that is, of responding to already defined projects as part of regulatory reviews or fixed processes for consultation and accommodation....

We learned that a strategic, long-term, and collaborative dialogue could occur and would facilitate a more principled approach, in turn leading to decision making that addresses issues early and effectively, and creates greater certainty and better outcomes for all.”

This paper attempts to provide insight and suggestions on how this could be done in the context of the environmental management of oil sands development (as well as other large projects that impact stakeholders), all within existing regulatory frameworks and processes. All that is required is a change of attitude and a shift in governments' and regulators' approach from “*dealing with*” Aboriginal peoples to meaningfully “*working with*” Aboriginal Peoples.

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Chapter 15: VERIFICATION OF EMISSION REDUCTION TARGETS IN CHINA: HAS IT IMPROVED ENVIRONMENTAL COMPLIANCE?

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ABSTRACT

Since 2007, the Chinese environmental authority has adopted a top-down verification program to monitor local implementation of its national pollution reduction targets. The primary goal was to curtail widespread data falsification and to achieve genuine compliance. Based on an analysis of official documents and interviews with environmental officials and industry representatives, this paper found that the verification program, which includes national and local inspections, is highly resource intensive but has enhanced local compliance with reduction targets, has made it more difficult for local officials to falsify emission data, and has improved local environmental monitoring and inspection capacity. The study also found that the central environmental authority exerted significant discretionary power in determining the acceptance rate of reported emission reductions. Challenges still remain as the verification program lacks transparency, third-party verifiers, and broad public participation.

KeyWords: Pollution Control, Emission Reduction, Data Falsification, Verification, Enforcement, Compliance

INTRODUCTION

In the past several decades, China's unprecedented economic growth, large population, and rapid urbanization have degraded its natural resources and environment to an alarming degree. To address these ecological problems, China has enacted numerous environmental laws and, more importantly, has relied on state planning in its environmental governance (Young et al. 2015). At the center of the state planning process are the overall five-year plans (FYPs) for social and economic development. Each FYP is released at the annual joint meeting of the National People's Congress and the Chinese People's Political Consultative Conference in March of the first year of the five-year cycle. The FYP establishes general goals and priorities and also spells out specific targets with timelines. In recent years, the key targets have increasingly included mandatory environmental protection and energy conservations.²

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² This paper examines only the emission reduction targets.

Following the release of the general FYPs, the Ministry of Environmental Protection (MEP), the highest environmental administrative body in China, develops its own environmental FYPs. The concept of total emission control was initially proposed during the 8th FYP (1991–1995) and has been translated into numerical reduction targets since the 9th FYP (Wang 2013). These targets were largely aspirational until the 11th FYP when they became binding agreements with provincial governors and managers of major state-owned enterprises (Schreifels et al. 2012).

Although emission reduction targets were officially written into the FYP and implemented during the 10th and 11th plans, the outcomes were sharply different. As part of the 10th FYP (2001–2005), the central government called on provincial governments to reduce sulfur dioxide (SO_2) emissions to an average of 10% below 2000 levels; however, during this period SO_2 emissions instead increased by approximately 28% (National Statistical Bureau 2004, 2010). In the 11th FYP (2006–2010), the government again set a goal to reduce SO_2 emissions by 10% below 2005 levels, and this time total emissions had declined by approximately 14% by the end of 2010 (National Statistical Bureau 2010). Scholars have identified several important political and economic factors contributing to the successful achievement of emission reduction targets during the 11th FYP (Schreifels et al. 2012); among them, the emission verification program introduced by MEP in 2007 played a critical role.

The verification program was created to address the pervasive falsification of emission data reported by local governments. According to a top MEP official in charge of the program's design, MEP faced great difficulties in verifying the self-reported reduction data during the first year of the 11th FYP (China Economic Weekly 2010). The central authority acknowledged that an important foundation for achieving emission reduction targets was reliable emission data. In order to ensure the authenticity of the data and to effectively curtail data falsification, MEP (then the State Environmental Protection Agency) issued a set of documents in November 2007 to introduce new statistics, monitoring, and verification methods (China Economic Weekly 2010). Since then, a verification program has been implemented from the central authority to provincial, city, and county/city-district authorities throughout the nation.

This paper examines the design and implementation of the verification program for monitoring the performance of China's emission reduction targets through an analysis of official documents and interview. The paper found that although the top-down verification process is highly resource-intensive, it has made it very difficult for local difficulties to falsify emission data. Furthermore, to certain degree, the increased frequency of national and local inspections appears to have improved local compliance with emission control requirements. The study also found that MEP exerted significant discretionary power in counting locally reported emission reductions toward the completion of local targets and that the focus of the verification system appeared to be on local environmental protection bureaus (EPBs) and not on polluters directly.

The rest of this paper describes the research method and data collected followed by a presentation of how the verification program was designed including its principles and implementing agencies. It then discusses how emission reductions were verified by the central and local environmental authorities in practice and concludes with a summary of main findings and policy suggestions for improving the program.

RESEARCH METHODS AND DATA COLLECTED

There have not been any scholarly studies on how the verification program was designed and implemented. I adopted a case study approach appropriate for addressing “how” and “why” questions (Yin 2003). A relatively developed region and another less-developed region were chosen as the two fieldwork sites in order to explore regional variations. Localities in developed and less-developed regions were expected to have different practices and to face different challenges in verifying emission reductions. I gained access to many relevant agencies in both regions. In addition, I conducted ad hoc interviews with some EPB officials from other regions for additional insights.

The primary data collection methods are reviews of relevant official documents and in-depth interviews with national and local government officials and managers of enterprises. I also interviewed several Chinese researchers. The field research took place mainly from July 9 to 23, 2010 and a follow-up field trip from December 21 to 23, 2013 in the less-developed province. During the latter trip, I had a rare opportunity to observe a national team conducting an end-of-year verification. Though interviews with the national team members were not granted, the observation itself provided useful insights. I conducted a total of 17 interviews involving 18 informants based on a set of open-ended questions.³

As the field research began, I quickly discovered that it was difficult to gain access to and obtain useful information from national officials. In the absence of access to MEP officials, I managed to interview some Chinese researchers who worked closely with MEP on designing and implementing the verification program. Moreover, I discovered that the implementation of the emission reduction target was indeed a sensitive topic, a situation I did not expect when starting the project. As a result, some interviewees were reluctant to fully share their experiences and knowledge.

DESIGN OF THE VERIFICATION PROGRAM

Key elements of the environmental FYPs are the numerical emission reduction targets.⁴ The national targets are proposed by MEP and approved by the National People’s Congress. Table

³ The interviews are on file with the author.

⁴ There are also several energy saving targets included in the FYPs. For a complete overview of the 11th and 12th FYP targets, see:

http://www.moc.gov.cn/2006/06tongjisj/06jiaotonggh/guojiagh/guojiaxg/200608/t20060815_46062.html,
http://www.china.com.cn/policy/txt/2011-03/16/content_22156007_4.htm, last accessed on March 31, 2015.

1 shows the major targets set in the 10th, 11th, and 12th FYPs. Once national targets are officially issued, the central authority negotiates with provincial governors and managers of major state-owned companies to reach mutually agreed targets. Most provinces end up with targets equivalent to the national ones while a few provinces receive notably higher or lower targets. The allocation of provincial targets to lower-level governments within a province is also a negotiating process, though they have less say in it. Some cities do not further allocate targets to counties or city districts; instead, city EPBs work directly with county EPBs and major factories to identify emission-reduction projects in order to ensure targets are met.

Table 1 Major Emission Reduction Targets of the 10th, 11th, and 12th Five Year Plans

Year	Targets
10 th FYP (2001–2005)	Discharge of sulfur dioxide reduced by 10% Discharge of chemical oxygen demand reduced by 10%
11 th FYP (2006–2010)	Discharge of sulfur dioxide reduced by 10% Discharge of chemical oxygen demand reduced by 10%
12 th FYP (2011–2015)	Discharge of sulfur dioxide reduced by 8% Discharge of nitrogen oxide reduced by 10% Discharge of chemical oxygen demand reduced by 8% Discharge of ammonia nitrogen reduced by 10% Carbon dioxide emission per 10,000 RMB of gross domestic product reduced by 20%

As previously mentioned, a verification program was established in 2007 to evaluate whether a province had truly met its targets. The principles, rules, and implementing organizations discussed in this section illustrate that the design of the verification program focused on accurate and consistent estimates of new emissions and on project-based reductions. The materials in this section are primarily drawn from official documents published in 2007 and interviews conducted in 2010. The information collected in 2013 was used to indicate the most recent development in evaluating emission reduction targets.

Principles and Supporting Rules

In the beginning of the 11th FYP, MEP faced great challenges in obtaining reliable emission data from provinces. By the end of 2006, MEP had estimated a national increase of 1.2% in the results of the chemical oxygen demand (COD) test and of 1.8% in SO₂ levels instead of the 2% reduction in both required in the FYP (China Economic Weekly 2010). However, as the Director-General of MEP's total emission control department recalled, all provinces reported a decrease in both for the same period. Some even claimed a reduction of 10%, completing the five-year target in the first year (China Economic Weekly 2010). While such high reduction rates in any given year were very unlikely, MEP could not detect deliberate fraud during on-site investigations in early 2007 as the ministry lacked effective approaches to

examine pollution statistics and to inspect the pollution control facilities of over 100,000 enterprises. If the trend continued, the 11th FYP reduction targets would not be fulfilled and would eventually become a data game.

In November 2007, MEP (with the approval of the State Council) issued three official documents that formed the backbone of the national verification program.⁵ “Statistical Methods for Total Emission Reductions of Major Pollutants” specifies the agencies, types of polluting sources, and calculating methods for preparing quarterly and annual reports. “Monitoring Methods for Total Emission Reductions of Major Pollutants” regulates how local environmental monitoring stations monitor polluting sources to ensure the data accuracy. It involves both automated and manual activities. “Evaluation Methods for Total Emission Reductions of Major Pollutants” describes the subjects, contents, methods, and procedures involved in assessing progress on meeting annual emission reduction targets. The core elements are the national verification program and cadre evaluation system that link meeting targets to promotions or dismissals. MEP also developed a set of detailed accounting and verification methods to make the three documents operational. Subsequently in the 12th FYP, the three were consolidated and revised into two main documents. The statistics and monitoring requirements provided the basis for national verification.

The general principles governing the statistics, monitoring, and verification of emission reduction targets during the 11th FYP are “downplaying the baselines,” “clearly counting new emissions,” and “accurately counting emission reductions.”⁶ First, MEP believed that the provincial 2005 emission baselines were widely over-reported. Basically, provincial governments padded annual emissions for the last year of a given FYP in order to have reduced targets that could be reached easily in the following FYP. The new statistical methods focused on clearly counting new emissions and reductions. The baselines were no longer critical.

Second, a gross domestic product (GDP)-based factor was a key concept MEP introduced to clearly measure new emissions. Among the three sets of emission data obtained from monitoring, mass balance estimates, and emission factor estimates, MEP always chose the highest number as the new emission of an enterprise and a locality for a given year. For new SO₂ emissions, MEP estimates for a province were based on increased coal consumption data that came from provincial statistical bureaus as an increase in local GDP leads to an increase in coal consumption. For COD, MEP used COD per unit of GDP and GDP increases to calculate new emissions from the industrial sector. It also adopted a COD generating factor (COD per urban resident) to calculate new emissions from residential areas. The introduction of these GDP-based emission factors was intended to link new emissions in a province to an increase in its GDP: The higher the GDP, the more new emissions produced.

⁵ The information here are drawn from the “Practical Handbook of Total Emission Reduction Management of Major Pollutants,” published by Total Emission Control Department of Ministry of Environmental Protection in 2008.

⁶ Ibid

Third, to ensure the accuracy and authenticity of reduction data, MEP established a primarily project-based accounting and verification system. Specifically, acceptable reductions were to consist of (i) project-generated reductions from specific pollution treatment projects; (ii) structural reductions by closing down small, heavy-polluting enterprises, production lines, and facilities identified by the central authority; and (iii) supervision-led reductions (e.g., those fully recognized if no violations were uncovered through inspections). Examples of reduction projects are urban wastewater treatment plants and desulphurization projects in coal-fired power plants and other enterprises. An example of supervision-led reductions is the one generated from implementing a higher pollutant discharge standard. A locality that raised its COD standard from the 100 milligrams/liter national standard to a stricter standard of 60 milligrams/liter would receive emission reductions estimated from the enhanced standard.

To increase the operational rate of pollution control facilities, MEP introduced a supervision factor during the 11th FYP and further improved the formula for determining its value for a given polluting source during the 12th FYP. In general, a supervision factor is used to estimate total “abnormal” emissions discharged by individual polluting sources. Those that originally would have been counted as reductions would then be counted as a part of total emissions. For example, all the reductions claimed by polluting sources were effectively cancelled and turned into new emissions instead if non- or faulty- operations were uncovered more than twice. In the 12th FYP, the value of supervision factors was determined by a sophisticated formula involving the compliance rate revealed by national and local monitoring and supervisory activities (Ministry of Environmental Protection 2011).

In addition, MEP issued the “Verification Methods for Total Emission Reductions of Major Pollutants During the 11th Five-Year (Trial)” and the “Detailed Accounting Rules for Total Emission Reductions of Major Pollutants” in 2007 to guide the verification of emission reductions. The documents specify how emissions are to be counted and verified and what types of emission reductions are not to be counted. For example, reductions generated from closing down small enterprises and facilities that were not in the polluting-source inventory of previous environmental statistics would not be accepted. Also, emission reductions generated from a newly established wastewater treatment plant by a local government that had failed to implement a policy for collecting wastewater treatment fees were not acceptable.

Regardless of MEP’s deliberate downplaying of emission baselines, in practice the influence of the 2005 baseline data was enormous and thus hard to ignore. Each province had agreed to reduce its COD results and its SO₂ emissions by a certain percentage of its 2005 total by 2010. The absolute reduction target was thus directly related to the 2005 baseline data. Many provincial governments found that they had to meet a large reduction target while many of their self-reported emission reductions were not recognized by the national verification program.

Implementing Agencies

Overall, the implementation of emission reduction targets primarily falls on MEP. A new department, the Total Emission Control Department (TECD), was established to draft relevant policies and to supervise their implementation. Similarly, provincial, city, and county/city-district EPBs created total emission control offices internally. MEP also has the Bureau of Environmental Supervision directing local supervisory work related to the verification of emission reductions with direct leadership over regional supervision centers.

The key implementing agencies in charge of national verification are the six regional environmental supervision centers established in 2006. They serve as representatives of MEP and enjoy the administrative status of an MEP department. A center supervises local governments and EPBs in three to seven provinces or centrally controlled municipalities (i.e., Beijing, Shanghai, Tianjin, and Chongqing). Initially, regional centers were tasked with preventing local inaction, corruption, or dereliction of duties (Moore 2011). As the national verification program was formally established in late 2007, the main task of the regional centers has become annual verification and routine supervision of provincial emission reduction targets.

NATIONAL VERIFICATION AND LOCAL INSPECTIONS⁷

The need for the verification program originated from MEP's profound mistrust of locally reported emission data and its urgent need to ensure steady and continuous compliance with emission reduction targets. The backbone of the program is the national semi-annual exercise led by MEP and the routine inspections carried out by the regional centers.

National verification focuses primarily on emission reductions generated from specific projects and has resulted in the rejection of a notable percentage of locally reported emissions. In general, counties (or cities if the targets are not further allocated to counties) chose the reduction measures. Cities, if the targets were allocated to counties, and provinces examined the construction and operation of those emission-reduction projects, and MEP verified the provincial reduction data. MEP's regional supervision centers and EPBs at and below the provincial levels conducted routine (announced and unannounced) onsite inspections.

Annual National Verification

The purpose of national verification is to review the emission data reported by provinces and to determine which reductions are acceptable. The process usually involves documentary reviews and onsite inspections. Each MEP regional supervision center investigates the provinces/municipalities located in its geographical area twice a year. In practice, the very first national verification took place in 2008 and was led by MEP's departmental directors.

⁷ The discussion in this section is primarily drawn from an analysis of the interviews.

Starting in 2009, verification has been primarily led by the directors and vice-directors of the regional supervision centers. Every round of national verification consists of approximately 20 teams. Each verification team is in charge of 1 or 2 provinces and contains 7 to 10 members. The team members include the staff of the regional supervision centers, experts from the Chinese Research Academy of Environmental Science and the Chinese Academy of Environmental Planning (two MEP-affiliated research institutes), national experts on air and water pollution control technologies, and sometimes relevant university scholars. Verification is carried out first in July and second in January; each round lasts about half a month.

The verification generally started with a national conference. For example, in July 2010, before the exercise began, MEP held a national television and telephone conference to initiate the process. The then Minister Zhou Shengxian delivered a short speech, then Vice-Minister Zhang Lijun deployed the work assignments. The lists of each verification team and detailed verification schedule were announced during the conference. Each province then started preparing for the arrival of a verification team. My field research found that some developed provinces were not always examined by the regional supervision centers located in their geographical areas. For example, MEP had arranged two regional centers on the east coast to cross check provinces under their respective jurisdictions.

When the verification team arrived, the province convened a conference. The meeting began with oral reporting by a provincial government leader (usually a vice-governor or the director of the provincial government office at that time) that usually gave an overview of emission reduction progress in the province. The national experts on the teams mentioned that many provincial leaders during the 11th FYP had become familiar with the “Manual for the Total Emission Reduction Management of Major Pollutants” published by MEP that provides detailed accounting and verification methods for emission reductions and all relevant official documents and rules.

Once the oral report was delivered, the leader of the verification team usually announced the procedures and emphasis of that particular round of verification work to all the meeting participants (most of them local EPB officials). After the meeting, the verification team started reviewing the emission-reduction project inventory and all supporting documents prepared by the province. The team needed to examine all the documents supporting every single emission-reduction project, e.g., government approval, inspection reports of the completed project, permits for trial operation, continuous emission monitoring data, and monitoring reports from local EPBs. The team also evaluated the implementing conditions of each project and the actual emission reductions. All team members participated in reviewing the documents, usually until midnight every day. The entire documentary review of a province could take two to four days to complete.

I personally observed the entire review process in 2013. Each city EPB in the province I visited sent one to three staff members to the meeting. During the review, all city EPB staff together with several provincial EPB staff waited in a big room next to the room where the national verification team members reviewed the documents, data, and any related materials.

Whenever the verification team had questions or needed additional information, the relevant local EPB staff were called in to explain and provide it. This was also a good opportunity for city EPB officials to share information and experiences regarding emission reduction work among themselves.

Once the documentary review was completed, the verification team selected some projects for onsite inspection and verification. They focused on problematic projects identified during the documentary review and the ones with large reductions. Depending on the number of projects selected, the verification team was divided into several small groups for onsite inspection, and provincial EPB staff would accompany them to the project sites. The main purpose of the onsite inspection was to further examine the problems identified in the documentary review and to uncover violations (e.g., whether a small polluting facility was truly closed). Those onsite inspection trips usually took several days to complete.

Some interviewees pointed out that some verification teams would hint at the problems they discovered during the onsite inspection while others offered no indication of any problems until the results were confirmed. When leaving, the teams would not formally inform the provinces which projects and their associated reductions had been accepted or rejected. Formal feedback on each reduction project was usually received after the verification trip along with the results. A provincial EPB official mentioned that all provincial EPBs sent staff in charge of emission reduction work to Beijing to wait for the final results and to seek informal—usually more complete—feedback from MEP officials.

In fact, the TECD at MEP (sometimes with MEP's Planning Department) convened national environmental monitoring center and other relevant experts to analyze and evaluate the provincial results submitted by the verification teams. TECD then suggested an acceptable reduction amount for each province and consulted with the related regional supervision center. The regional centers would exchange views on the TECD-proposed results with all provinces in face-to-face meetings in Beijing. It was TECD that finalized each province's emission reduction data and sent the feedback to the province. The process is intense. Many provincial EPBs felt that they had little say in the final results of annual verifications.

During the 11th FYP, the annual achievement of provincial targets primarily depended on the results of the end-of-year national verification in January. The results of the mid-year verification in July served as reference points. Since the members of the two verification teams were often different in a given year, the reductions acceptable in July might be rejected in January if new problems were identified. A provincial EPB official indicated that the mid-year verification during the 12th FYP has become more important than it was during the 11th FYP. The results are considered more or less equivalent to the results of the end-of-year verification.

Routine Local Inspections

In addition to the verification visits, there are two types of routine inspections. One is led by MEP's regional supervision centers while the other is a higher-tier EPB inspecting lower-tier EPBs within its jurisdiction. The former is oversight from the top while the latter is a type of self-assessment to ensure problems are identified and fixed before they are uncovered by the regional centers.

Routine inspections by the regional supervision centers take two forms: joint inspections with provincial EPBs and independent inspections. The joint inspection is supposed to be done at least once every six months though some regional centers did them quarterly. The regional centers and provincial EPBs jointly schedule each inspection. Independent inspections can be announced to provincial EPBs or unannounced to local EPBs. Table 2 illustrates the types of projects inspected and the required coverage of joint and independent inspections.

Table 2 Routine Inspection of Emission-Reduction Projects by Regional Environmental Supervision Centers

Types of Inspected Projects	Required Percentage of Projects Covered by Inspection Each Year	
	Joint Inspection	Independent Inspection
Newly established wastewater treatment plants and desulphurization projects of coal-fired power plants in a given year (construction and operational conditions)	100	≥ 30
Existing wastewater treatment plants and desulphurization projects of coal-fired power plants (operational conditions)	≥ 20	≥ 10
Industrial wastewater treatment and desulphurization projects of other enterprises and public service units	≥ 30	≥ 15
Closed enterprises, production lines, and facilities	≥ 20	≥ 10

Source: "Verification Methods of Total Emission Reductions of Major Pollutants During the 11th Five-Year (Trial)" (issued on August 16, 2007).

The regional centers often conduct unannounced inspections to uncover the illegal discharge of pollutants and the non-operation of pollution treatment facilities. Since the regional supervision centers are defined as "public service units" with little enforcement authority, the centers themselves cannot directly issue a penalty for a violation. They can only report confirmed violations to MEP which in turn issues an official penalty. In addition, the centers can use the number of violations uncovered to determine the value of a province's supervision factor which leads to adding emissions to the annual total emissions of the province. This effectively reduces the reductions counted toward the achievement of the provincial emission reduction targets.

The regional centers usually notify the provincial EPBs of the results after inspections. I found that many regional centers visited and inspected provinces on a monthly basis. A provincial EPB interviewee mentioned that the staff of the regional center in the area traveled nearly 200 work days on average during the 11th FYP period to inspect and verify emission reduction projects each year. Many of those visits were not announced to the provincial EPB ahead of time; the EPB official expressed concerns about the possibility of uncovering violations during those unannounced visits.

The total emission control offices established within provincial, city, and county EPBs have also carried out routine inspections of emission-reduction projects and measures. The focus of such local inspections was on the construction, operation, and maintenance of the projects. A provincial EPB claimed that it organized the inspection led by the provincial EPB director and vice-directors once every two months. Another provincial EPB indicated that it carried out inspections on a monthly basis during the heydays of meeting the reduction targets. Such inspections usually consisted of several teams; each team inspected 30–40 projects. Occasionally, the provincial EPB also initiated joint inspections in collaboration with other government agencies, e.g., the Provincial Supervision Bureau, Housing and Urban-Rural Development Bureau, Statistical Bureau, and Development and Reform Committee. Unlike the national verification and onsite inspection, provincial EPB-organized inspections did not review documents or verify emission data. Again, the main motivation for the higher-tier EPBs to inspect lower-level entities was to uncover and resolve problems with the reduction projects and to ensure the completion and proper operation of the projects before the national verification teams arrived. In other words, the provincial EPBs wanted to decrease the chance of having their reductions rejected by national verification.

Below the provincial EPB, city EPBs usually inspected the emission-reduction projects before and after the provincial inspection. They also organized regular inspections to examine the achievement of county emission-reduction targets. The director of a city EPB's total emission control office told me that his office checked wastewater treatment plants once every 10 days, inspected key polluting sources once a month, and released the inspection results to the counties in his jurisdiction once every two months. All those efforts were intended to spot and solve problems and helped the lower-tier EPBs to complete their reduction tasks.

In addition to the inspections organized by local EPB total emission control offices, EPB environmental supervision stations (a subsidiary designated for onsite inspection) also inspect emission-reduction projects as part of their routine work. Interestingly, the newly established EPB total emission control offices have developed their technical capacity for inspecting pollution control facilities and have been primarily in charge of the onsite inspections of those facilities. In fact, they claim that they have developed a higher technical capacity than the staff of environmental supervision stations.

As a result of the frequent inspections performed by the regional supervision centers, local EPBs, and EPB supervision stations, many enterprises found they were inspected by an environmental authority once every three to five days. The manager of a state-owned sugar

plant claimed that in 2009 alone he had received COD- and SO₂-related inspections twice a week on average which was significantly more than the routine inspections he received before 2009. He claimed that the frequent inspections since 2008 had effectively prevented the illegal discharge of pollutants, usually a result of the non-operation of pollution control facilities. To a certain degree, frequent inspections had increased the probability that enterprises would be caught illegally discharging and thus enhanced their compliance.

Low Acceptance Rate and Enhanced Capacity

The main outcome of national verification was a low acceptance rate of locally reported emission reductions. Many interviewees concluded from their experience that MEP had predetermined the amount of reductions that could be recognized by verification in a given year; this was correlated to each province's annually allocated targets. In their view, the annual verification did not reflect the real reductions generated by each province. Since the verification teams could easily identify problems with the reduction projects (to certain degree they had to), the percentage of self-reported reductions rejected by MEP was notably high across the regions. During my 2010 field trip, it was widely believed that a high rejection rate of 50% in a given year was not uncommon for a locality (city or county); in some localities, the rejection rate was as high as 70%. A national expert believed that MEP had used the rigorous verification methods to "offset the previous reduction bubbles," the padded 2005 emission baselines that in effect reduced the reductions needed for the 11th FYP. This suggested that some real reductions achieved during the 11th FYP might not be counted by MEP toward the achievement of the provincial reduction targets.

My field research found the following common conditions under which reported reductions might be rejected by the verification teams:

- illegal discharge of pollutants uncovered during onsite inspections;
- reductions generated from closing small enterprises because they should have been closed by 2000 under the national "Closing Fifteen Small" (enterprises) policy;
- failure to achieve continuous compliance with the emission standards discovered during national verification;
- reductions reported by enterprises that were not included in the previous environmental statistics;
- reductions generated from an enterprise whose discharge failed to meet the related national standards.

I also found that verification had not been consistently implemented across the regions. For example, some EPB interviewees mentioned that the reductions rejected in the previous year could be resubmitted for consideration and verification in the following year while others complained that those reductions could not be resubmitted. The interviewees in one region complained that MEP merely recognized the reductions generated from the enterprises that were already in compliance while the interviewees in another region said MEP had accepted the reductions from many enterprises whose emissions exceeded the discharge standards.

The low acceptance rate raises an interesting question: Why has MEP been so strict and selective in accepting emission reductions? As the Director-General of MEP's TECD explained, the sophisticated accounting and verification methods were designed to accurately quantify genuine reductions and to reduce data falsification (China Economic Weekly 2010). MEP had encountered enormous difficulties in verifying and ensuring the authenticity of local emission data in 2006 and was truly concerned about the over-reporting problems and the real effects of local reduction efforts. Many local EPB officials I interviewed repeatedly complained that MEP had deliberately made it difficult for local governments to meet the targets.

Another probable explanation of why MEP has no incentive to accept more reported reductions might be related to the accountability of the target system. MEP is the implementing agency for the FYP reduction targets but is not held directly responsible for the failure to meet the targets by end of an FYP cycle. Instead, local government leaders and managers of key national enterprises are held accountable for meeting those targets, so compliance is thus a key component of their comprehensive performance evaluations. They risk losing promotion opportunities, rewards and/or bonuses, or even their jobs if they fail to meet the targets. MEP plays primarily a supervisory role.

Intensive verification has greatly enhanced local monitoring and supervisory capacity building. MEP has organized a number of national training workshops for the regional supervision centers and provincial EPBs focusing primarily on the technical aspects of verification and supervision. A provincial EPB official interviewed in 2010 reported that approximately 500 staff members attended the workshops each year. When there were seats available, some provincial EPBs asked MEP permission to bring EPB staff from their key cities. Many provincial EPBs had also organized similar training workshops for the city and county EPBs staff within their jurisdictions. Many interviewees mentioned that the technical capacity of EPB staff in charge of implementing the emission reduction targets had improved as a result of the intensive training and onsite supervision. Some pointed out that technical training was still badly needed for the operators of pollution treatment plants and the continuous emission monitoring systems installed at the facilities.

Both the central and local governments made a notable financial investment in improving local environmental monitoring and supervisory capacity. A national expert I interviewed mentioned that approximately 7 billion RMB had been allocated to local EPBs since 2006 for the 11th FYP period. Starting in 2009, the central government permitted each province to use the local environmental special funds (based on pollution levies collected) primarily for environmental monitoring and supervision. In recent years, the utilization of state-appropriated funds has usually required local matching funds. As a rule of thumb, the ratio of central to local funds was 1:1.5 for the eastern region during the 11th FYP, 1:1 for the central region, and 1:0.5 for the western region. In reality, local matching funds provided by provinces varied greatly across the regions. The EPB officials believed that the financial

support was necessary and critical for improving local monitoring and supervision capabilities to meet emission-reduction targets.

Central and local financial support for capacity building for environmental monitoring and supervision primarily focused on the purchase of monitoring tools and vehicles as well as on staff training. The financial support also allowed local EPBs to recruit additional staff and to cover the costs associated with implementing the targets. A city EPB reported that it had received about 26 million RMB for improving its oceanic monitoring capacity in 2009 alone. A provincial EPB was given six new official positions that were covered by government funding for the newly established total emission control office. Some city EPBs were able to obtain three or four official positions for managing emission-reduction work. These increases in the number of official positions were significant given the overall national policy of downsizing local bureaucracies.

CONCLUSIONS

China made remarkable achievements in meeting emission reduction targets during the 11th FYP period; the top-down national verification program introduced in 2007 played a vital role. My analysis found that the verification process is highly resource intensive. The semi-annual national verifications and routine inspections have become the main task of MEP's six regional supervision centers. All local EPBs at and below the provincial level devoted a significant amount of human resources and time to cope with national verification. Extensive technical training and a substantial amount of central and local financial resources were devoted to improving local environmental monitoring and supervisory capacity. As a result of the increased frequency and quality of national and local inspections, the chance to uncover violations increased and, to a certain degree, compliance improved.

National verification also made it much more difficult for local officials to falsify emission data and might have enhanced the authenticity and consistency of emission data reporting. MEP has established a set of sophisticated accounting methods for calculating new emissions and reductions. A GDP-based emission factor was introduced to estimate new emissions while the verification of reductions primarily focused on specific reduction projects. My study found that MEP exerted significant discretionary power in determining the amount of new emissions and what part of reductions were acceptable and could be counted toward meeting targets. The exercise of such discretionary power raises questions about the consistency of national verification across regions throughout the nation. The focus of the newly established verification system appeared to be local EPBs, not polluting sources directly.

Significant challenges remain with the verification program. There is little public involvement in the supervision and inspection of the emission reduction targets. The existing verification and examination of emission targets are largely internal checks that have taken place in the absence of meaningful public participation. MEP has enjoyed great discretionary power in verifying local emissions without much external supervision of that power. Moreover, the

heavy reliance on extensive top-down verification for achieving emission-reduction targets raises doubts about long-term effects. Whether the continued implementation of national verification during the 12th FYP has created a long-term, sustainable enforcement mechanism for China's pollution control efforts remains to be seen. There is already an indication that many localities have gradually developed strategies to cope with verification to meet their targets; data falsification problems still persist as was openly acknowledged by the Vice-Minister of MEP on April 2, 2015 (China Atmospheric Environmental Network 2015).

The Chinese government has recognized the limits of administrative enforcement, particularly at the local level. The effectiveness of the emission target-based approach in pollution control depends not only on traditional, top-down government implementation but also on broad local public participation. The longstanding "principle-agent" problem clearly penetrates the effectiveness of China's pollution control policies. The Chinese government will need to develop a set of effective bottom-up institutional channels for third-party verification and meaningful public oversight. Engaging the hundreds of millions of Chinese people to act as watchdogs over local leaders and polluters is the key to achieving genuine and sustained improvement in the quality of emission data and of the environment. Chinese environmental non-government organizations, although they are nascent, can play an important role.

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Chapter 16: DESTABILIZING A DAMAGING STATUS QUO: THE VALUE OF ENVIRONMENTAL INFORMATION IN ARGENTINA

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ABSTRACT

This paper poses the question whether the disclosure of environmental information contributes to the improvement of the environment in Argentina. The paper assesses a Supreme Court case that tackles the environmental damage of one of the most polluted sites in the World (case Mendoza v. Federal Government). After the filling of a citizen suit against the government and several companies, the court decided to order the defendant governments to remediate the pollution of the “Matanza Riachuelo” river basin.

This paper argues that pollution is due to the entrenchment of failing institutional arrangements as that river basin has been polluted for more than 200 years and several attempts to clean it up have failed. I argue that it was required an outstanding court decision to modify those strongly entrenched institutional arrangements.

Moreover, the court made other decisions on procedural matters that depict its commitment with public participation, transparency and accountability. The court took several innovative decisions regarding disclosure, management and communication of information. Information was also made available in several websites run by the government and NGOs, which allowed stakeholders to be involved in the control of the remediation plan.

By making environmental information public, government institutions were opened up to the participation of stakeholders and opportunities for collaborative learning were created. This paper concludes that these court decisions depict a commitment to environmental protection, participation, accountability and transparency. These decisions do not only tackled a longstanding environmental problem, but also improved democracy, the rule of law and governance in Argentina.

Key words: Environmental information, remediation, participation, destabilization, experimentalism

INTRODUCTION

This paper poses the question whether the disclosure of environmental information contributes to the improvement of the environment in Argentina. The paper assesses a Supreme Court of Argentina (“SC”) case that tackles the environmental damage of the

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“Matanza-Riachuelo” River Basin (hereinafter “CMR”), which is one of the most polluted sites in the World.

After the filling of a citizen suit against the government and several companies, the SC decided to order the defendant governments to remediate the pollution of the CMR. The court decision was not a simple one. It was exceptional in both a procedural and a substantive way. This paper argues that the pollution of the CMR is due to the entrenchment of failing institutional arrangements as that river basin has been polluted for more than 200 years and several attempts to clean it up have failed. That is why, I argue that it was required an outstanding court decision to modify those strongly entrenched institutional arrangements.

Apart from this exceptional ruling, the court made other decisions on substantive and procedural matters that depict its commitment with public participation, transparency and accountability. The SC took several innovative decisions regarding disclosure, management and communication of information, which included, for instance, public hearings and the arrangement of a public information system. Moreover, public information was also made available in several websites run by the federal environmental agency and by NGOs, in order to let stakeholders to be involved in the control of the remediation plan.

By making environmental information public, government institutions were opened up to the participation of stakeholders and, additionally, opportunities for collaborative learning were created. This paper concludes that these court decisions depict a commitment to environmental protection, public participation, accountability and transparency. These decisions do not only tackled a longstanding environmental problem, but also improved democracy, the rule of law and governance in Argentina.

First, this paper explains some facts about the CMR and then, it recounts the main issues of the SC case. Then, it analyzes this case under a theory that explains how citizen suits can force a change in failing institutional arrangements. Afterward, the paper focuses on the role of the management and communication of information and public participation in this case.

THE “MATANZA-RIACHUELO” RIVER BASIN

The “Matanza-Riachuelo” River Basin (“CMR”) is a river basin in Argentina. It is located in 3 jurisdictions: (i) Federal government; (ii) Province of Buenos Aires; (iii) City of Buenos Aires; and there are more than 14 municipalities. The CMR has an area of 2.338 square kilometers² and there are more than 5 million inhabitants living there (year 2008)³. This means that 14% of the total population of Argentina lives there.

² Remediation Plan for the CMR, 34 (2010),
http://www.acumar.gov.ar/pdf/PLAN_INTEGRAL_DE_SANEAMIENTO_AMBIENTAL_DE_LA_CUENCA_MATANZA_RIACHUELO_MARZO_2010.pdf (Accessed: Mar. 28, 2015)

³ *Id.* at 44

Most of the CMR inhabitants are poor and live in unhealthy conditions⁴. Some areas of the CMR are characterized as low income areas (or slums), and about 25% of the inhabitants does not have drinking water provision, and 43% of them does not have sewage collection. Moreover, there are more than 10.000 industrial facilities in the CMR.⁵

According to the federal government, the CMR pollution has been caused by the combination of inadequate public policy, mistakes, negligence, and political and social deficiencies by public and private actions for more than 200 years⁶. The failure to control and prevent the damage and the private misconduct goes on until the present days. For many years, the federal government has tried to remediate the CMR, but it repeatedly failed.

THE RIACHUELO CASE

In 2004, a citizen lawsuit was filed against the government and some companies claiming for the remediation of the CMR, among other things. This case was decided by the SC. It decided to order the defendant governments to submit a remediation plan and then to implement it. Moreover, it also decided that, in the future, it will make a decision about the liability of the defendant companies.

After the holding, the defendant governments submitted to the Congress a bill to create an interjurisdictional agency to address the clean-up. The Congress passed that statute that, apart from establishing the duty to remediate, created a public fund to finance the remedial actions.

In this chapter, I will briefly describe the several stages of the SC case: “*Mendoza Beatriz Silvia et al v. Federal Government et al – about damages (Environmental damage of the Matanza-Riachuelo River)*”⁷ (“Riachuelo case”).

On July 14, 2004, a lawsuit was filed by 17 citizens against the Federal Government, the Province of Buenos Aires and the City of Buenos Aires (altogether “defendant governments”), and against 44 companies (“defendant companies”). They claimed for: (i) monetary compensation (due to damage to the plaintiffs’ assets and health); (ii) the remediation of the environmental damage of the CMR and to protect the health of the inhabitant of the CMR.

The allegations were different depending on each defendant. The plaintiff claimed that the Federal government was liable for omitting to impede the pollution of navigable and

⁴ *Id.*

⁵ *Id.* at 7

⁶ *Id.* at 6.

⁷ Corte Suprema de Justicia de la Nación [CSJN], 06/20/2006, “Mendoza, Beatriz Silvia y otros c/ Estado Nacional y otros s/ daños y perjuicios / daños y perjuicios (daños derivados de la contaminación ambiental del Río Matanza -Riachuelo),” M.1569. XL. (Arg.).

interjurisdictional waters. They claimed that the federal government is empowered to regulate those matters under the Argentine Constitution.⁸

As regards to the Province of Buenos Aires, they claimed that it had “original dominion” over the natural resources in its territory, according to the Argentine Constitution⁹ and the Constitution of the Province of Buenos Aires¹⁰. They also claimed that the City of Buenos Aires is liable as a proprietor of the Riachuelo river (as a public domain resource), according to the Rio de la Plata Treaty and the Constitution of the City¹¹. The 44 companies are alleged to be liable because of discharging hazardous waste to the river, failing to use a waste treatment plant, failing to adopt new technologies and failing to minimize the risks of their activity.

On June 20, 2006, the SC took the first core decision. It decided: (i) to split the complaint in 2 parts. It declined its original jurisdiction to handle the damages claim, and accepted its jurisdiction for the prevention and remediation of the environmental damage¹²; (ii) to request to the defendant governments to submit a remediation plan (including a zoning plan, an environmental control plan over industrial facilities, an environmental assessment of the defendant companies’ facilities, an environmental educational program and a public information program)¹³; (iii) to request to the defendant companies to submit information about their water discharges, water treatment system, and their environmental insurance coverage¹⁴; (iv) to request to the plaintiff to submit a new complaint in 30 days with certain

⁸ Const. Arg. § 75.10 (Congress is empowered:...to regulate the free navigation of inland rivers, to authorize the operation of such ports as it shall consider necessary, and to set up or suppress customs...); Const. Arg. § 75.13 (Congress is empowered... to regulate trade with foreign nations, and of the provinces among themselves); Const. Arg. § 41 (All inhabitants are entitled to the right to a healthy and balanced environment fit for human development in order that productive activities shall meet present needs without endangering those of future generations; and shall have the duty to preserve it. As a first priority, environmental damage shall bring about the obligation to repair it according to law. The authorities shall provide for the protection of this right, the rational use of natural resources, the reservation of the natural and cultural heritage and of the biological diversity, and shall also provide for environmental information and education. The Nation shall regulate the minimum protection standards, and the provinces those necessary to reinforce them, without altering their local jurisdictions...).

⁹ Const. Arg. § 121 (The provinces reserve to themselves all the powers not delegated to the Federal Government by this Constitution, as well as those powers expressly reserved to themselves by special pacts at the time of their incorporation); Const. Arg. § 124 (the provinces have the original dominion over the natural resources existing in their territory).

¹⁰ Const. Prov. of Buenos Aires § 28 (The Province has the original dominion over the environment and natural resources existing in their territory... it must preserve, remediate and conserve the natural resources, manage them rationally, control polluting activities, prevent the pollution of the air, water and soil...)

¹¹ Const. City of Buenos Aires § 8 (The City has original dominion over the Riachuelo... and its natural resources...)

¹² Mendoza, decision on 06/20/2006 at points I, II and III.

¹³ *Id.* at point V.

¹⁴ *Id.* at point point IV.

information required to decide the case¹⁵; (v) not to grant injunctive relief as a preliminary measure¹⁶; (vi) to call for a public hearing to let the defendant governments explain the Remediation Plan.¹⁷

On August 24, 2006, the “*Defensor del Pueblo*” (federal ombudsman) is accepted as a third party to the process. Moreover, the defendant governments submitted the Remediation Plan. Then, on August 30, 2006, four NGOs are accepted as third parties to the process, while other three were rejected due to lack of standing. The SC decided not to accept these NGOs as the protection of the environment was not mentioned in their charters.¹⁸

On September 5 to 12, 2006, the first public hearing took place. On November 15, 2006, the Congress enacted the ACUMAR Statute¹⁹. It created an interjurisdictional agency (“ACUMAR”) to address the prevention and remediation on the environmental damage of the CMR. Afterward, the Province of Buenos Aires and the City of Buenos Aires enacted their own statutes endorsing ACUMAR Statute.

On February 6, 2007, the SC requested to the defendant governments to submit a report on the measures adopted related to the Remediation Plan and information about the environmental impact assessment of the defendant companies. Then, on February 20, 2007, a second public hearing took place. The Federal Environmental Secretariat submitted a report about the implementation of the Remediation Plan. On February 23, the SC ordered the “*Universidad de Buenos Aires*” to assess the feasibility of the Remediation Plan.

On March 20, 2007, the SC admitted another NGO and other citizens as third parties to the process, and decided not to admit any more plaintiffs or third parties to the process. Afterward, on July 4, 2007, a third public hearing took place, where the parties expressed their opinion about the Remediation Plan and the “*Universidad de Buenos Aires*” submitted its report.

On August 22, 2007, the SC requested to the ACUMAR and the defendant governments: (I) to submit an updated assessment on the quality of the air, water and underground water on the CMR²⁰; (II) to submit a list of all the facilities that undertake potentially polluting activities in the CMR²¹; (III) to submit the minutes of ACUMAR’s meetings, environmental assessment studies, studies on the relocation of residents and facilities²²; (IV) to submit information on the development of the following activities: the remediation of illegal dumps, the cleanup of the river banks, the expansion of the drinking water network, the infrastructure

¹⁵ *Id.* at point point VII.

¹⁶ *Id.* at point VIII.

¹⁷ *Id.* at point VI.

¹⁸ Mendoza, decision on 08/30/2006 para. 3)

¹⁹ Law No. 26168, Dec. 5, 2006, [31047], B.O. 1 (ACUMAR Statute)

²⁰ Mendoza, decision on 08/22/2007 point I.1.

²¹ *Id.* at point I.2

²² *Id.* at point I.3

to control pluvial water discharges and sewage system²³. Moreover, the SC ordered that the complaint must be served, and it established some innovative procedural norms for the answer to the complaint.²⁴

On November 28, 2007, all the defendants submitted their answer to the complaint. Then, from November 28 to 30, the fourth public hearing took place, where all the defendants provided an oral answer to the complaint.

On July 8, 2008, the SC held the following holding: (I) that this decision is exclusively deciding on the remediation and prevention of the environmental damage²⁵; (II) that afterward, it will decide on the liability of the defendant companies²⁶; (III) It specified that the defendant governments (through the ACUMAR) have to accomplish the following main goals: the remediation and the prevention of the environmental damage of the CMR and the improvement of the life conditions of the inhabitants of the CMR²⁷. It ordered them to implement the Remediation Plan. It also stated that they have to comply with certain parts of their Plan (clean-up of the dumps and the river banks, the expansion of the drinking water utility net, the control of pluvial water discharges, sewage system, among others); (IV) following the “Universidad de Buenos Aires” report, the SC ordered them to design and implement a sanitary program for the inhabitants of the CMR²⁸; (V) it ordered the defendant governments to organize a public environmental information system, to organize a system of environmental assessment of the facilities, and to submit information about the air and water quality; (VI) it ordered that the control and supervision of the plan must be done by a federal court of first instance²⁹; (VII) it ordered that the implementation of the Plan must be controlled by the Federal Audit Agency³⁰ and by the NGOs that were admitted as third parties to the process.³¹

Later on, there were many other decisions of the SC and the first circuit court related to the control of the implementation of the Remediation Plan. Various penalties have been imposed to the head of the ACUMAR due to the delay on the implementation of the Plan. The last decision of the SC was released on April 6, 2010, ordering the ACUMAR and the defendant governments to submit a report with information about the implementation of the Plan.

The disentrenchment of failing institutional arrangements

²³ *Id.* at point I.4, I.5, I.6, I.7, I.8.

²⁴ *Id.* at point II.

²⁵ Mendoza, decision on 07/08/2008 point I

²⁶ *Id.* at para. 15

²⁷ *Id.* at para. 17.1

²⁸ *Id.* at para. 17.IX.2

²⁹ *Id.* at point VII

³⁰ *Id.* at point 4

³¹ *Id.* at para. 19

Now that I have explained the main facts of the Riachuelo case, I will analyze it under the theoretical framework of the “destabilization theory”. This theory was developed by Sabel and Simon.³²

The Riachuelo case, which is a public law litigation case, can be understood as an attempt to disentrench and reconfigure an underperforming institutional arrangement (the longstanding pollution of the CMR). These authors understand public law cases as core instances of “destabilization rights”, which are the rights to disentrench an institution that has systematically failed to meet its obligations and remained immune to traditional political forces of correction.³³

I will briefly explain the main characteristics of this theory, and then, show how it can be applied to the Riachuelo case. Next, I will analyze the SC decision under this theory.

Destabilization theory

Sabel and Simon state the following:

“A public law destabilization right is a right to disentrench or unsettle a public institution when, first, it is failing to satisfy minimum standards of adequate performance and, second, it is substantially immune from conventional political mechanisms of correction. In the typical pattern of the new public law suit, a finding or concession of liability triggers a process of supervised negotiation and deliberation among the parties and other stakeholders. The characteristic result of this process is a regime of rolling or sectional rules that are periodically revised in light of transparent evaluations of their implementation.”³⁴

The core of this theory consists of “legal standards and mechanisms that allow interested parties to intervene and disentrench failing institutional arrangements.”³⁵ Those authors explain that, in some public law litigation cases, courts are not willing to impose a comprehensive institutional reform plan on an unwilling governmental defendant. They propose that it is more promising for the court to adopt a remedy that disentrenches the existing failed institutional arrangement and sets out broad performance goals, leaving the institutional design to the defendant. This proposal shifts the burden of designing the remedy to the defendant. Moreover, to ensure accountability the court remains jurisdiction and establishes mechanism to monitor the performance.³⁶

³² Sabel, C. and Simon, W. (2004) “Destabilization rights: How public law litigation succeeds”, Harv. L. Rev., 117, p. 1015.

³³ *Id.* at 1016

³⁴ *Id.* at 1062

³⁵ Karkkainen, B. (2006) “Information-forcing Environmental Regulation”, Fla. St. U. L. Rev., 33, pp 861-866

³⁶ *Id.*

Additionally, they propose that this process sets “new governance-style collaboration among all interested parties in an open-ended, experimental process of institutional redesign, implementation, reevaluation and readjustment.”³⁷ Overall, citizen suits can operate as destabilization rights, forcing the disentrenchment and reconfiguration of underperforming public institutions.³⁸

The Riachuelo case as a public law destabilization case

It is my proposal that the Riachuelo case is a public law destabilization case, as explained by Sabel and Simon. It can be argued that it has many of the characteristics of that theory. In this section, I will illustrate how most of its characteristics are present in our case.

The Riachuelo case consists on a citizen suit aimed to modify an ongoing underperforming institutional arrangement (the environmental damage of the CMR). Conventional institutional arrangements have failed³⁹ in the Riachuelo case. The river basin has been polluted for more than 2 centuries and former and current governmental administrations have failed to remediate it.

This case was initiated by a citizen suit intended to change the status quo, characterized by the failure of the government. Subsequently, the SC incentivized the disentrenchment and reconfiguration of those failed institutions. It facilitated the change and the establishment of a new arrangement by facilitating the discussion and negotiation among parties and other stakeholders.

The SC did not adopt a command-and-control approach. Instead of ordering the defendant governments to comply with a certain obligations, it set some goals⁴⁰ and ordered them to comply with those objectives⁴¹, leaving the design of the remediation plan to them. That is also another feature of Sabel and Simon’s theory. That deference to the administration’s expertise is explicitly mentioned in the SC holding⁴².

The SC only set some goals, and let the parties design the solution. Those goals are the remediation and prevention of the environmental damage of the CMR. The SC applied the principles and objectives established in the General Environmental Act⁴³ (GEA), which is a federal statute that set broad goals and principles of environmental protection, as well as environmental liability rules and broad procedural norms that permit a proactive judicial behavior.

³⁷ Sabel & Simon, *supra*, at 1016-21

³⁸ Karkkainen, *supra*, at 867

³⁹ Karkkainen, *supra* 49, at 867

⁴⁰ Mendoza, decision on 06/20/2006 point V.

⁴¹ Mendoza, decision on 07/08/2008 para. 17.1

⁴² *Id.* at para. 15

⁴³ Law No.25675, Nov. 28, 2002, [30036], B.O.2 (GEA)

Moreover, matching with another feature of this theory, the SC set a procedure to monitor and assess the fulfillment of those goals, and gives at the same time a broad monitoring role to stakeholders. This process deepens the SC commitment to transparency and accountability.

Sabel and Simon cited Abram Chayes who has also written about public law cases. He noted that public law cases involved “*amorphous, sprawling party structures; allegations broadly implicating the operations of large public institutions ... and remedies requiring long-term restructuring and monitoring of these institutions.*”⁴⁴ All of these features can also be found in the Riachuelo case.

As regards to the party structure, the formation of the plaintiff “class” was not an easy task for the SC. As already mentioned, a group of citizens filed the lawsuit, and then, many NGOs and even the “*Defensor del Pueblo*” requested to be admitted as thirds parties to the process. The SC accepted some of them, but rejected other ones due to lack of standing.

Regarding the implication of the operation of large public institutions, this case involves multiple jurisdictions (the federal government, the Province and the City of Buenos Aires, and 14 municipalities). Another relevant element is that the remedy in the Riachuelo case requires a long-term restructuring and monitoring of the public institutions. The Remediation Plan submitted by the defendant governments not only includes remediation and prevention actions, but also measures relating to sanitation, utilities, public health, relocalization of facilities and neighborhoods, zoning, among others.

The Riachuelo case can be study as a citizen suit that caused an institutional change. Facing a persistent underperformance plus a political blockage, the citizen suit was filed. They requested for a change in the status quo. The SC, instead of managing this case as a typical private interest case, decided to open the process to new ideas. For instance, it called for various public hearings⁴⁵, and even had to establish a special procedure for these hearings⁴⁶ and for the answer to the complaint⁴⁷. A remarkable point is that the SC called for the first public hearing even before the service of the complaint. The SC decided to open the discussion about the remediation of the CMR from the first moment.

The SC noted the leading role that it was taking several times. The GEA⁴⁸ explicitly allows courts, in order to protect the collective interest, to manage the case in a proactive manner. Furthermore, the SC also mentioned that this case was an exceptional process⁴⁹ and not a

⁴⁴ Sabel & Simon, *supra* 46, at 1016

⁴⁵ There were 4 public hearing before the 2008 holding (the first one from 09/05/2006 to 09/12/2006, the second one on 02/20/2007, the third one on 07/04/2007, and the fourth one from 11/28/2007 to 11/30/2007).

⁴⁶ Mendoza, decision on 08/30/2006 at Annex.

⁴⁷ Mendoza, decision on 08/22/2007 at point II.

⁴⁸ GEA § 32

⁴⁹ Mendoza, decision on 08/22/2007 para. 3; Mendoza, decision 03/20/2007 at Minority opinion para. 1

common adversarial civil case, and that many procedural norms have been amended to be applied to this case.⁵⁰

In that way, the SC managed this case in order to make the institutional change happen. With the aim of disentrenching the failing institutional arrangements, it conducted the process focusing on the creation of a fresh start under new institutional arrangements. That new set up is not prescribed in detail from above, but instead is fashioned by participants themselves.⁵¹

Another issue that Sabel and Simon focus is the fact that this kind of process is initiated by citizen lawsuits. Similarly, the SC decision that produced the institutional change was driven by a citizen lawsuit. As most U.S. environmental statutes authorize citizen suits⁵², Argentine environmental legal scheme authorizes that as well. Not only the GEA⁵³, but also the Argentine Constitution⁵⁴ authorizes citizens and other constituencies to sue to request for the prevention and remediation of environmental damage.

According to Sabel and Simon's theory, there are two core elements in a public law destabilization case: (I) failing to satisfy minimum standards of adequate performance, (II) political blockage. I will explain how these 2 elements are present in our case.

As regards to the first one, the CMR has been polluted since the 19th century. Many administrations have not been complying with minimum standards of adequate performance for many years. They constantly failed to guarantee a safe environment, failing to comply with several Argentine statutes and the Constitution⁵⁵.

The second element, political blockage, is also present in our case. For more than a century, there have been failed attempts to remediate the CMR. This conflict appears to be immune from conventional political mechanisms of correction.

Another subject addressed by these authors is the concession of liability by defendants in this kind of cases.⁵⁶ Not surprisingly, in the Riachuelo case, the government defendants admitted the fact of the environmental damage of the CMR and they did not deny their liability. Those were undisputed facts. In their answer to the complaint⁵⁷, they argued that the enactment of the ACUMAR Statute by the Congress fulfilled the object of the process (remediation and prevention of the environmental damage of the CMR⁵⁸). That statute establishes that the

⁵⁰ Mendoza, decision on 08/24/2006 at para. 4

⁵¹ Karkkainen, *supra* 49, at 896

⁵² *Id.* at 897

⁵³ GEA § 30

⁵⁴ Const. Arg. § 43

⁵⁵ Const. Arg. § 41

⁵⁶ Sabel & Simon, *supra* 46, at 1062

⁵⁷ Answer to the complaint by the defendant governments at 14, Mendoza.

⁵⁸ In accordance to the SC decision on 06/20/2006 para. 18

ACUMAR is entitled to implement a remediation plan for the CMR⁵⁹ and to manage a public fund for that remediation⁶⁰.

Overall, the Riachuelo case appears to be a good example of a destabilization rights' case.

Analysis of the court's remedy: an experimentalist approach

Under the theory of destabilization rights, courts have an experimentalist approach. I will analyze the SC decisions to demonstrate that the same approach was taken by the SC.

Sabel and Simon explain that there is a tendency to move away from command-and-control judicial remedies toward an experimentalist approach.⁶¹ This approach is typified as having flexible and sectional norms, with stakeholder participation and procedures for accountability. In addition, court decisions set general goals and it is left to the parties how to achieve those goals. It also includes procedures to measure performance by parties.⁶²

Most of the features of the experimentalist approach can also be found in the Riachuelo case. These authors note that the experimentalist trend is captured in a model with 3 features: (I) stakeholder negotiation, (II) rolling-rule regime and (III) transparency. I will illustrate how these features are found in the SC decision.

With respect to "stakeholder negotiation", the authors explain that under this approach, parties negotiate a remedial plan and other interested parties join under liberal intervention standards.⁶³ The SC followed this direction in the following occasions: (I) it requested a plan to the defendant governments⁶⁴ and let the other parties comment it⁶⁵; (II) it accepted the participation of several stakeholders (various NGOs and the "*Defensor del Pueblo*")⁶⁶; (III) It mandated public participation in the control of the implementation of the Remediation Plan and ordered the "*Defensor del Pueblo*" to set up a committee formed by NGOs to oversee that implementation.⁶⁷

Moreover, the stakeholder participation was also encouraged by the Congress in the ACUMAR statute. It establishes the creation of a "Social Participation Commission" in order to promote public participation in the designing and implementation of the Remediation Plan.⁶⁸

As regards to the "rolling-rule regime", Sabel and Simon explain that the outcome of the remedial negotiation is provisional and subject to reassessment and revision with continuing

⁵⁹ ACUMAR Statute §5

⁶⁰ ACUMAR Statute § 9

⁶¹ Sabel & Simon, *supra* 46, at 1067

⁶² *Id.* at 1019

⁶³ *Id.* at 1067

⁶⁴ Mendoza, decision on 06/20/2006 at para. V

⁶⁵ The parties were allowed to comment the Remediation Plan on the third public hearing on 07/04/2007.

⁶⁶ Mendoza, decision on 08/30/2006

⁶⁷ Mendoza, decision on 07/08/2008 at point 5 and 6

⁶⁸ ACUMAR Statute § 4

stakeholder participation⁶⁹. The Remediation Plan submitted by the defendant governments was subject to various assessments. For instance, (I) the SC ordered the “Universidad de Buenos Aires” to assess the feasibility of the plan⁷⁰; (II) the SC called for a public hearing to let the parties express their opinion⁷¹; (III) it ordered that the monitoring of the implementation of the plan will be done by a court of first instance, which will have jurisdiction to decide on the challenges to the ACUMAR’s decisions⁷²; (IV) the ACUMAR submitted a revised version of the Remediation Plan to the court.⁷³

The third element is transparency. It mandates that policies and operating norms of the regime must be explicit and public. Moreover, there must be measures and procedures for assessing compliance and the results must be made public.⁷⁴ The Riachuelo case also includes this element: (I): the SC decided to hold various public hearings; (II) it ordered the defendant governments to establish a public information system⁷⁵; (III) it ordered the defendant governments to adopt an international standard to measure the fulfillment of the holding’s goals⁷⁶; (IV) it requested the defendant governments to submit information about the implementation of the Plan, and about the assessment on air, water and underground water quality, and a list of facilities that undertake potentially polluting activities, among other reports⁷⁷; (V) the SC ordered that the implementation of the Plan must be controlled by the Federal Audit Agency⁷⁸; (VI) The ACUMAR set a public registry on “polluting” facilities on the CMR.⁷⁹

The SC decision can be construed as a judgement with an experimentalist approach as it fulfills with many of the elements described by Sabel and Simon’s theory. Overall, the Riachuelo case has many of the characteristics of a public law litigation that produces the effect of “destabilization rights”.

Public environmental information and participation

As explained above, the SC took several innovative decisions that lead to the disentrenchment of failing institutional arrangement. One of the most radical policies of the SC in this case was the decision to make information public and promote civil participation.

The Riachuelo case has introduced a novel approach to these matters. Nevertheless, disclosure of environmental information and public participation had already been widely legislated in

⁶⁹ Sabel & Simon, *supra* 46, at 1069

⁷⁰ Mendoza, decision on 02/23/2007

⁷¹ Public hearing held on 07/04/2007

⁷² Mendoza, decision on 07/08/2008 at point VII

⁷³ Comprehensive Remediation Plan for the CMR, ACUMAR, Dic. 2009

⁷⁴ Sabel & Simon, *supra* 46, at 1071

⁷⁵ Mendoza, decision on 07/08/2008 at para.17 apt. II

⁷⁶ Mendoza, decision on 07/08/2008 at para. 17 apt. 1

⁷⁷ Mendoza, decision on 08/22/2007

⁷⁸ Mendoza, decision on 07/08/2008 at point 4

⁷⁹ Resolution ACUMAR No. 76, Dec. 7, 2009, [31796], B.O. 10; Resolution ACUMAR No. 1/2008, Mar. 31, 2009, [31625], B.O. 4; Resolution ACUMAR No. 7/2009, Feb. 26, 2010, [31852], B.O. 35

Argentina. As regards to environmental information, the Argentine Constitution sets forth that the government is obliged to provide for environmental information and education.⁸⁰ Citizens have the right to acquire environmental information from the government and it has the duty to provide information related to the environmental impact of its activities, as established by GEA.⁸¹

Furthermore, in 2004 the Congress passed the “Open access to public environmental information Act”⁸², which sets forth the right to access to public environmental information held by government agencies or public utilities. The information which ought to be disclosed is information related to the environment, natural and cultural resources and sustainable development. The request is free and there is no requirement to express any reason or special interest to exercise this right.

As regards to public participation, any person has the right to give its opinion in administrative proceedings related to the protection of the environment, as established by GEA. While this opinion is non-binding, in case the administration decides against the public opinion, a rational explanation must be provided to the public.⁸³ In addition, indigenous people have the constitutional right to participate in the management of the natural resources on their lands.⁸⁴

By applying these statutes, the SC in the Riachuelo case took several decisions to promote the disclosure and access to environmental information and public participation. The promotion of those matters supported the disentrenchment of the failing institutional arrangements.

In the Riachuelo case, the SC instead of managing this case as a typical private interest one, decided to open the process to new ideas. Calling for various public hearings was an exceptional decision. Civil participation was also encouraged by allowing the negotiation between parties of the remedial plan (and other interested parties joined as well, under liberal intervention standards). The court requested a plan to the defendant governments,⁸⁵ which was later on commented by other parties.⁸⁶ Moreover, the participation of several stakeholders was accepted⁸⁷ and public participation was ordered in the control of the implementation of the Remediation Plan.⁸⁸

Similarly, the disclosure of information was the rule in this case. The SC held public hearings and it ordered the defendant governments to establish a public information system,⁸⁹ to adopt

⁸⁰ Const. Arg. § 41

⁸¹ GEA § 16

⁸² Law No. 25.831, Jan. 7, 2004, [30312], B.O.1

⁸³ GEA § 19 and 20

⁸⁴ Const. Arg. § 75.17

⁸⁵ Mendoza, decision on 06/20/2006 at para. V

⁸⁶ The parties were allowed to comment the Remediation Plan on the third public hearing on 07/04/2007.

⁸⁷ Mendoza, decision on 08/30/2006

⁸⁸ Mendoza, decision on 07/08/2008 at point 5 and 6

⁸⁹ Mendoza, decision on 07/08/2008 at para. 17 apt. II

an international standard to measure the fulfillment of the holding's goals⁹⁰ and to submit a list of facilities that undertake potentially polluting activities, among other measures. In order to promote transparency and accountability, the SC ordered the Federal Audit Agency to control the implementation of the Plan.⁹¹

Furthermore, the Riachuelo case contributed to the openness and enrichment of public institutions when it promoted the creation of several websites that enhanced public participation and the access to environmental information. As explained above, the ACUMAR is the interjurisdictional agency created to address the prevention and remediation on the environmental damage of the CMR. The ACUMAR's website provides information regarding the Riachuelo case, industrial control, public health, environmental education and infrastructure development.

Moreover, the outcome of ACUMAR's inspections, closures of industrial facilities and other decisions are regularly published in its website. For instance, it publishes the list of the industrial facilities that have been declared as "polluting agents" (with geo-referenced information)⁹². This information is not only useful to the neighbors of those industries, but also to the general public, as it contributes to improve transparency and accountability.

Environmental information regarding the CMR is also publicly available due to another website managed by the third sector. The website is called "*QuePasaRiachuelo*"⁹³ and it was launched by several NGOs in order to monitor the environmental pollution in this river basin. It mainly provides geo-referenced information by tagging industries, slums, illegal dumpsites, etc. Citizens are able to monitor the fulfillment of the Remediation Plan, keep track of the status of the industries of their area and report the occurrence of any event of contamination.

CONCLUSIONS

The CMR is the most polluted river basin in Argentina. After the filling of a citizen suit, the SC decided to order to the government to remediate it. Apart from this outstanding decision, the SC made other decisions on procedural matters that show its commitment with public participation, transparency and accountability.

The SC decided in an innovative way. It ordered to the government to remediate, and then, it is going to decide on the liability of the defendant companies. The SC decided in this manner in order to overcome the institutional failure. It aimed to modify the entrenchment of the failing institutional arrangement. That river basin has been polluted for more than 200 years. Thus, the holding was aimed to break the status quo.

⁹⁰ Mendoza, decision on 07/08/2008 at para. 17 apt. 1

⁹¹ Mendoza, decision on 07/08/2008 at point 4

⁹² List of Polluting Agents of the CMR issued by ACUMAR,

<http://www.acumar.gov.ar/content/documents/6/3716.pdf> (Accessed: Mar. 28, 2015)

⁹³ <http://quepasariachuelo.org.ar/>

As regards to the procedural matters, the change of the underperforming institutions was joined by wide stakeholder participation. It permitted to deepen accountability and transparency. Public law cases, such as the one in this case, enrich democracy.

Sabel and Simon write: “*The court's principal contribution is to indicate publicly that the status quo is illegitimate and cannot continue.*” This is exactly what has happened in the Riachuelo case. In relation to this case, the president of the SC stated: “*The function of the court is to make noise.*” The SC forced the government to tackle a longstanding problem that was caused by failing institutional arrangements. The court’s order to remediate accomplished that objective: the status quo was characterized as illegitimate, and thus, the defendant governments have to modify their behavior and remediate the environmental damage.

The court intervention, by provoking “destabilization rights”, opens the defendant’s institution up to the participation of stakeholders. The “destabilization” creates opportunities for collaborative learning and democratic accountability. By upsetting established but failing institutions, destabilization rights encourage a fresh start for novel solution. This case demonstrates how a proactive judiciary can make change happen. The holding permitted to break the underperformance of the government.

The ruling mandates to the government to fulfill certain goals, and let it to decide on how to implement those goals under a rolling-rule regime. This experimentalist approach incentives novel solutions and encourages public participation.

The SC decisions depict a commitment to environmental protection, public participation, accountability and transparency. These decisions do not only tackle a longstanding environmental problem, but also improves democracy, the rule of law and governance in Argentina. The court reached to a novel solution that brought to an end the governmental underperformance and forced the improvement of the environment of the CMR and the health of millions of people in Argentina.

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Chapter 17: NEXT GENERATION COMPLIANCE TOOLS, THEORY AND PRACTICE

Martin de Bree and Henk Ruessink

INTRODUCTION

In this concluding chapter we are looking back on the conference, we abstract some notions about lessons learned and look ahead.

Most notably, the time seems to have come to seriously question some traditional notions and beliefs about supervision policies. On the conference several problems have been presented which are mainly due to oversimplified convictions. Simply put, about everything one can say about supervision is true but only in specific situations. In other words, whatever works in one particular situation (e.g. a cooperation based approach or a deterrence based approach) may be ineffective or even counterproductive in another. Supervision appears to be more complex than a one-size-fits-all set of notions, strategies and instruments.

It seems to make more sense to focus research on the conditions under which certain approaches are effective than to focus on the question whether or not an approach is effective in general.

CHALLENGES

Legal requirements

First of all, we have to be aware that – even if we consider just environmental legislation – the requirements may be quite complex. There are many sources of environmental legislation. Knowing, understanding and interpreting legal requirements for specific situation requires technical and legal skills and competencies. This is a challenge for public supervisors because it may cause law enforcement to be very resource intensive.¹ But it is not only a challenge for public bodies. Multinational companies are faced with a vast amount of legal requirements stemming from all kinds of public bodies which they somehow have to cope with.²

Black box

If one thing is clear, it is that for supervision and enforcement strategies in a modern complex and dynamic society to be effective, supervisors should understand how compliance is created. Going by the book in a formal way and simply considering the regulated community as a black box and reacting on non-compliances is often a suboptimal strategy. In such an

¹ Zhang, chapter 15

² Nwagbaraocha, chapter 13

approach, supervisors take the risk of being too late to prevent damage to the public interests they should seek to protect. Also, they can hardly defend themselves for not having prevented incidents vis-a-vis their political superiors by declaring to have just checked regulatory compliance.

As a consequence, knowing the formal regulations and just checking compliance is just not good enough. Supervisors need to understand how regulated institutions and companies create compliance (or non-compliance) if they want to intervene in a more preventive and proactive way.³ This might be not as easy as it seems. Private certification has serious limitations in distinguishing well from poorly implemented management systems. Furthermore, analysing the risks that companies will cause any harm to the environment requires specific competencies not usually richly available.

The problem is that, generally speaking, supervisors do not sufficiently understand the dynamics within companies resulting in compliance or non-compliance. This implies that supervisors are at risk to be overtaken by events and adopt an incident-driven attitude.

Penalties

As Braithwaite⁴ has made us clear, intervention strategies which are too unilaterally based on penalties might not be effective for significant groups of regulated companies. It must be noticed however, that sometimes public bodies do not act appropriately. Crimers paper shows an example of a Supreme Court ‘making noise’ and forcing to tackle a longstanding problem that was caused by failing institutional arrangements.⁵

Although opinions about this subject vary, evidence and consensus are growing that for responsive companies, this deterrence based approach is way too simple to be effective on the total population of regulatees with this variety of cultures, competencies and motivation.⁶

What Braithwaite did not yet clearly explain, is how we can choose an approach or intervention which is effective right away without the process of escalation.

Splendid isolation?

Although recent European legal requirements demand that inspection outcomes are being published, public supervisors still seem to be reluctant to communicate with regulated companies and the general public. The fear is that communication may lead to capture in the game between regulator and regulated. How legitimate this fear and distrust may be, by isolating themselves from the regulated, supervisors thus risk to further increase the information asymmetry which is already a serious problem. Poorly communicating with a regulated company implies that supervisors know little about the regulated object. This makes it even harder to judge the situation and to choose an effective response.

³ Meerman, chapter 12 and Van Dorp, chapter 5

⁴ Responsive Regulation

⁵ Crimer, chapter 16

⁶ Van Dorp chapter 5 and De Haas, chapter 4

THE WAY AHEAD

The conference has given various clues and directions for new ways to make environmental regulation more effective. Several suggestions are related to increase the ability of regulators to grasp the complexity and dynamics of regulated organizations and communities and how to create a learning regulation process.

From linear tot cyclic

Traditional regulation processes are usually linear and relatively closed. The underlying design principle of this process is that the lawmaker knows what legal requirements have to be set to solve the problem and that, after these requirements have been formulated and formalized, implementation and compliance is all it takes. From that perspective, the focus of public supervision is understandably limited to assuring compliance. However, in this complex and rapidly changing world, the assumption that this linear process will yield the desired results, is questionable. There are good reasons to believe that the process of making and applying rules should be more cyclic and open. The Dutch Scientific Council for Government Policy has recently concluded that public supervisors should not only focus on compliance, but also on harmful behaviour and be more reflective in signalling and giving feedback on identified flaws in laws and policy.⁷

From end-of-pipe to leverage

If regulators focus their monitoring efforts mainly on the output of processes, they are often too late to prevent damage. Once they observe it, the incident has already been manifested. Focusing on risks and causes of (non-)compliance is necessary to be able to anticipate problems before they may lead to damage. Also if root causes of incidents and non-compliances can be taken away, much more problems may be prevented, thus creating a leverage for systematic improvements. The challenge here is how to induce a better assurance of compliance and risk control.

Several authors contribute to this notion with suggestions how to improve the regulators ability to analyse and influence causes for non-compliances. Among them are the focus on safety managements systems⁸ and safety performance⁹, the use of moral messages¹⁰ or dialogue, third party verification¹¹ and meta or system based supervision.¹²

From one-size-fits-all to differentiated strategies

Another clear notion of this conference is that there is no such thing as a one-size-fits-all strategy. It is almost the other way around: one-size-fits-no-one.¹³ Although a uniform

⁷ Dutch Scientific Council for Government Policy, *Supervising Public Interests*, report no. 89, 2013

⁸ Van Steen, chapter 3

⁹ Lambermont, chapter 8

¹⁰ De Haas, chapter 4

¹¹ Zhang, chapter 15

¹² Meerman, chapter 12

¹³ Thanks to Rob van Dorp for lending this expression

strategy may have advantages e.g. in terms clarity of communication and simplicity in hiring and training your supervisors, it is also likely to be rather ineffective. Different interventions have different effects on different regulatees.

It is probably wise to differentiate a supervisors strategy along the variation of cultures, intentions, degrees of professionalism within the targeted regulated population. Zwetsloot¹⁴ concludes that safety culture of regulated companies may vary significantly from one sector to another.

Some companies require a no nonsense deterrence based approach. If that is the case, a supervisor should not hesitate to apply sanctions. For other companies a more co-operation oriented approach¹⁵ or dialogue about the morality of compliance¹⁶ may be effective. There may even be some companies which are close to fully self-regulating. Supervisors should be aware of all the interventions which are to their disposal¹⁷, aware of the notion that a badly selected sanction may undermine the integrity of the whole regulatory scheme.¹⁸

From isolation to networks

As John Braithwaite stated during the back-to-back meeting in Rotterdam, supervisors should not be afraid to seek communication with the regulated community to develop effective supervision arrangements. The paper of Van Dorp and Pret shows that under certain circumstances, a targeted trust based approach might be very effective.

Giupponi stresses that a win-win situation for both the government and the public sector, striking a balance between public and private interests is essential for success. Also others¹⁹ underline the importance of joint efforts of both regulators and regulatees. Van Dorp and Pret report promising improvements of the compliance rate of transport companies due to a covenant with transport companies which were already regarded as good performers before the covenant was agreed.

The earlier conference in March 2015 in Washington made already clear that important opportunities may be found in the field of participation of general public helping public law enforcers. Keehrti shows that the citizen's knowledge may be used to identify the defaulting firms to overcome the monitoring constraints and points at the importance to express civil complaints into the severity of the enforcement sanctions²⁰. Spink & Abel, in their case of oil sands in Alberta Canada suggest a change of attitude and a shift in governments' and regulators' approach from "*dealing with*" Aboriginal peoples to meaningfully "*working with*" Aboriginal peoples²¹. Zhang advocates the participation of civilians, non-governmental

¹⁴ Zwetsloot, chapter 6

¹⁵ Olmos Giupponi, chapter 2 and Van Dorp, chapter 5

¹⁶ De Haas, chapter 4

¹⁷ Pink, chapter 7

¹⁸ idem

¹⁹ Zwetsloot, chapter 1, Van Steen, chapter 3 and Meerman, chapter 12

²⁰ Keehrti, chapter 10

²¹ Spink, chapter 14

organisations and third party verification to reduce the workload of public supervisors which was a consequence of a traditional principle-agent approach.²²

Form formal to risk based

Obviously, to make public supervision and enforcement more effective, more understanding is necessary about how regulated companies produce (non-)compliance.²³ When Ayres and Braithwaite wrote their famous publications about responsive regulation, they proposed a tit-for-tat strategy escalating enforcement interventions to the level that appeared to be effective. These trial and error approaches have proven to be ineffective and inefficient. The good thing about responsive regulation is that it points at the notion that law enforcers should be aware of the fact that not every regulated person or company responds in the same way. However, just escalating interventions until they are effective is not necessary if one is able to anticipate the response of the regulated entity. What is needed is a typology of different kinds of companies which is organised in a way that the supervisor can more reliably predict the effects of its actions and tailor his interventions to the specific situation. Such a typology would obviously support a risk-based strategy.

CONCLUSION

It is clear that there is still a lot to learn as it comes to how compliance is generated, how we should seek the balance between compliance and risk control, what options regulators have to influence processes leading to risk control and compliance. The challenges are not limited to supervision and law enforcement, but reach to the way how we design regulations as well.²⁴

Regulation and public supervision should be seen as multi-disciplinary fields requiring not only input from legal and economic discourses, but certainly from social sciences as well.

Finally, a remark from a somewhat different angle. The complexity, dynamics and variation observed in the regulated community, seems to bounce back to regulators and public supervisors. If they desire regulatees to behave ethically, consistently, and professionally, they better be sure to give the right example with regard to their own behaviour. Maybe the most effective thing to do (but probably not the easiest) if a regulator is perceiving a calculating, cheating and dishonest population of regulated companies, is to look at its own behaviour. Is the supervisors approach too formal or calculating? Does the supervisor act consistently with its own policy? An honest and self-critical supervisor may well find evidence of the undesired behaviour within its own agency.

²² Zhang, chapter 15

²³ Zwetsloot, chapter 1 and Van Steen, chapter 3

²⁴ Van Bellen-Weijnen, chapter 9

ANNEX CONFERENCE PROGRAM

Improving Environmental Performance: Next Generation Compliance Tools, Theory, and Practice

Innovating environmental compliance assurance
Novel insights and approaches from social sciences

April 21 & 22, 2015

Location: Erasmus University

Burgemeester Oudlaan 50

3062 PA Rotterdam, the Netherlands

Sponsors:

- Human Environment and Transport Inspectorate, the Netherlands
- Rotterdam School of Management, Erasmus University Rotterdam

Cosponsors:

- George Washington University Law School Environment and Energy Law Program
- US Environmental Inspection Agency
- VIDE
- International Network for Environmental Compliance and Enforcement INECE

Tuesday April 21

2:00 – 3:00 pm Registration

3:00 – 5:00 pm **Workshop one: Regulation as a learning system**

Moderator: *Chris Dijkens, Human Environment and Transport Inspectorate*

Papers presentations: Reviewing the value of mandatory certification and testing arrangements for safety and health, *Linda Drupsteen, TNO*

Learning in regulation, *Ernst van Bemmelen van Gent, Haagse Hogeschool*

Assessing Climate Change MRV initiatives in Latin America: Bridging theory and practice, *Belen Olmos Giupponi, University of Stirling*

5:30 – 6:30 pm Walking network dinner

6:30 – 8:30 pm**Key note session: Compliance and enforcement across borders**

Moderator:

Campbell Gemmell, University of South Australia, University of Glasgow

Key note speakers:

*Michael Faure, University of Maastricht**Lee Paddock, George Washington University, Washington DC**Annetje Ottow, University of Utrecht***Wednesday April 22****9:00 – 9:30 am** Registration**9:30 – 10:30 am** Welcome and plenary opening addresses*Campbell Gemmell, University of South Australia, University of Glasgow, Day Chair**Roeland Nieuwenboer, Human Environment and Transport Inspectorate**Martin de Bree, Erasmus University**Chris Dijkens, co-chair of INECE*

Concise evaluation of yesterday's workshop & preview coming workshops

*Campbell Gemmell, Canopus Consulting, University of South Australia, University of Glasgow***10:30 – 12:30 am** **Parallel workshop two: Ethical behaviour**

Moderator:

*Niek Hogervorst, RSM Erasmus University*Papers presentations: Improving industrial safety culture, *Maarten de Hoog, DCMR Milieudienst Rijnmond*Moral messages, compliance by fairness, *Han de Haas, Provincie Noord-Brabant*Trust based supervision, *Rob van Dorp, Human Environment and Transport Inspectorate*Exploring the value of process safety culture for law enforcement in major hazards industries, *Robert Bezemer, TNO***10:30 – 12:30 am** **Parallel workshop three: Interventions**

Moderator:

Karin van Wingerde, Erasmus University Law School

Papers presentations: Sanction Mapping: A tool for fine-tuning regulatory intervention strategies, *Grant Pink, University of New England, Armidale*

Developing the quality of new safety legislation in the Netherlands, *Robert Mout, DCMR Milieudienst Rijnmond*

How companies govern and comply with a diversity of public and private rules, including self-regulation, *Edith van Bellen-Weijnen, University of Utrecht*

The Influence of Citizen Environmental Complaints on Regulatory Administrative Sanctions for Industrial Pollution Control in India, *Keerthi Kiran Bandru, Humboldt University Berlin*

12:30 – 1:30 pm Lunchbreak

1:30 – 3:30 pm **Parallel workshop four: Self-regulation and self-policing**

Moderator: *Sharon Oded, De Brauw Blackstone Westbroek*

Papers presentations: Gathering information under compliance mechanisms, *Zerrin Savasan, Selcuk University, Selçuklu, Konya, Turkey*

Supervision; dare to change, *Paul Meerman Omgevingsdienst Midden- en West Brabant*

Global Pollutant and Greenhouse Gas Emissions Reporting— Complexity and Implications for Multinational Corporations, *Jonathan Nwagbaraocha, Xerox Corporation*

Development of Alberta's oil sands: The Fort McKay First Nation's perspective on environmental management, *Ryan Abel, Fort McKay Sustainability Department and David Spink, Pravid Environmental Inc.*

1:30 – 3:30 pm **Parallel workshop five: Smart Instruments for Public Law Enforcers**

Moderator: *Grant Pink, University of New England, Armidale*

Papers presentations: Wrangling The Human Right to Water Compliance in Ghana, *Benjamin Asante, University of Utrecht*

Evidence by sampling and analyzing in criminal cases of transboundary shipments of ordinary wastes. *Sijmen Roosma, Human Environment and Transport Inspectorate*

Improving Environmental Compliance in China through Intensive Top-Down Verification of Emission Reductions, *Xuehua Zhang, Sichuan University Chengdu, China*

Consolidation and unification of environmental risk management plans in unconventional gas, *Chris Cuff, C&R Consulting*

3:30 – 4:00 pm Plenary conclusions and closure – Day Chair

4:00 – 5:00 pm Refreshments



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