Internal quality assurance in environmental agencies

Karin Andersson

Internal quality assurance in environmental agencies

Karin Andersson

Supervisor: Philip Longhurst, Cranfield University,
                              Environmental Science and Technology Department

Assistant supervisor: Cecilia Mark-Herbert, Swedish University of Agricultural Sciences
                              Department of Economics

Examiner at SLU: Karin Hakelius, Swedish University of Agricultural Sciences
                              Department of Economics

Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Department of Economics

Cranfield UNIVERSITY

CRANFIELD UNIVERSITY

Karin Andersson

Internal quality assurance in environmental agencies

Cranfield University
Environmental Management for Business

MSc
Academic Year: 2010-2011

Supervisor: Dr. Philip Longhurst
Co-supervisor: Dr. Cecilia Mark-Herbert
September 2011

CRANFIELD UNIVERSITY

Cranfield University
Environmental Management for Business

MSc

Academic Year 2010-2011

Karin Andersson

Internal quality assurance in environmental agencies

Supervisor: Dr. Philip Longhurst
Co-supervisor: Dr. Cecilia Mark-Herbert

September 2011-08-19

This thesis is submitted in partial (40%) fulfilment of the
requirements for the degree of MSc

ABSTRACT

Quality assurance is a management challenge for every institution. It is associated with a number of key decisions, some of which are related to set objectives to ensure quality assurance is achieved in an effective and efficient way. Public sector organisations are no exceptions in their new approach of implementing risk-based decision making in their operations. In this project, an environmental agency aspires to quality assurance in risk-based decision making through the development of a benchmarking tool.

An inductive approach opened up a simultaneous process of an academic literature review and a workshop among stakeholders with experience of the agency's roles. The aim of these activities was to identify areas and questions that established quality through an approach of risk-based decision making in the agency. A survey was developed and tested which gave inputs of the questions' context and the pedagogical framing of them.

The survey that was developed may offer guidance for continued development and quality management. It may also offer guidance and awareness about the agency's values, mission, vision and objectives as well as perceptions of knowledge, understanding, and application of certain concepts such as: best practice and maturity.

New approaches of quality assurance within environmental agencies have given rise to gaps in the academic literature. Even if benchmarking and quality assurance are well-known practices, developing benchmarking for risk-based decision making within environmental agencies is completely new.

Implementation of benchmarking in regulatory settings is a new approach for quality enhancement, in particular for environmental agencies. TQM and benchmarking have been known for decades within management literature but this new approach, could make a contribution, to improve the operation of environmental agencies and also other regulators.

Keywords:

ACKNOWLEDGEMENTS

ABBREVIATIONS

BQA – British Quality Association

BRTF – Better Regulations Task Force

EA – Environment Agency

EEA – European Environment Agency

EFQM – European Foundation of Quality Management

EMS – Environmental Management Systems

GEB – Good Environment Behaviour

GPhC – General Pharmaceutical Council

HSE – Health and Safety Executive

IA – Impact Assessment

NIEA – Northern Ireland Environment Agency

OPRA – Operational Risk Appraisal

RIA – Risk Impact Assessment

RPA – Rural Payments Agency

SEPA – Scottish Environment Protection Agency

TQM – Total Quality Management

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 Introduction

This thesis details the development of an evidence-based design process for a benchmarking tool to be used by an environmental agency. To date, there have been several recommendations from numerous governmental reviews to benchmark the capability of regulators to apply risk-based regulation in order to manage operators. In the environmental sector, risk-based regulation is seen as a good practice and an effective way of dealing with limited resources. Despite these recommendations, there are no benchmarking processes in place and in use. Therefore, three stages need to be undertaken: 1) a benchmarking tool needs to be designed using evidence from current research, 2) the tool must be designed to be used in practice, and 3) then once completed - the tool must be tried and evaluated. This project completes the first two stages. The time required to complete the final stage restricted further development. However, this research will directly contribute to a wider research project to carry out field trials that will be completed in one year.

2 Literature review

This chapter offers a literature study of some of the most important areas that affect quality management within a regulatory setting, e.g. good environmental behaviour and risk-based decision making. It also offers a definition of what a benchmarking tool is, how it is built and how the tool can provide meaning for an agency. These cornerstones should be seen as a foundation and a framework to benchmarking regulators operation as there is currently a lack of literature which has references to the core subject.

2.1 Regulating effectiveness

This section brings up the obstacles with regulating operators. This is a versatile area which must be put in UK's settings. The section starts with definitions of fundamental concepts, such as effectiveness and continues with UK's approach toward regulation and its effectiveness.

2.1.1 Definition of regulation and effectiveness

The terms *regulation* and *legal effectiveness* are used in a variety of different ways. One of the applied interpretations of *regulations* is one in which wide scales of interventions are included. The interpretation included 'all mechanism of social control – including unintentional and non-state processes' (Gibson *et al.,* 2010, p. 9). This paper uses a definition that is less focused on a particular intervention, but emphasises the broader view which reflects renewal and the more flexible sets of regulations:

"A rule individuals or firms are obliged to follow; or the procedures for deciding and enforcing such rules." – "Regulations may be set and enforced by government bodies, or by quasi-autonomous non-government organisations proportion of effective regulation is done by the regulators setting standards which organisations then try to comply with as a matter of self-discipline."

(Black *et al.*, 2009, p. 384)

Effectiveness has a wider range of definitions, however both the EEA (European Environment Agency) (EEA, 2005) and the Department of the Taoiseach, Ireland (Department of the Taoiseach, 2004) defines effectiveness in regulation as clear and achievable throughout all processes, but also in regard to how well the agencies´ objectives are met. The Department of the Taoiseach, Ireland emphasises the need to minimise unintended and unwanted outcomes. The EEA states that effectiveness is dependent upon five factors:

- relevance (where the outcome must give an account of the concerns of users);
- target products/services must be developed for specific operators to meet their requirements;
- reliability (based on since);
- patness (delivering results in a relevant time period where they can influence outcomes the most)and
- the factor of impact.

The factor of impact refers to how well the objectives are met (EEA, 2005). It should be clear if the discussion is about the effectiveness of an organisation's operation or the effectiveness of the operating structure. It is after all, in spite of the many different definitions of effectiveness, very important to distinguish between the modes of effectiveness and efficiency. Effectiveness describes the way in which the objectives were achieved, while efficiency states whether or not the objectives were achieved in the best way, e.g. with the smallest amount of resources.

2.1.2 The approach of effectiveness within regulating operation

Regulators have several different approaches to interact with operators. The main approaches are legal enforcement and advice. It is possible to observe how legal enforcement of the more traditional approach (inspection-based regulating) has turned to a more flexible and effective method of regulating in the last 30 years. New methods of regulating include interventions such as self-reporting, extended resources for advice and guidance, involvement in boardrooms of the regulated, third-parties' action and how to regulate operators that already have "good behaviour" (Gibson, *et al.,* 2010).

2.1.3 Philip Hampton's five principles

The views of regulation have changed during the last 30 years from inspection based towards a more self-regulating view. One of the contributions that has popularised this approach is the work from BRTF (Better Regulation Task Force) 1997 which aimed for better regulation (Yapp, 2006). In the 2004 Budget, Philip Hampton was assigned to regard the scope of administrative burdens. This was following BRTF's work. From that report, five established principles were drawn and used throughout several institutions and regulators, e.g. HSE (Health and Safety Executive) (HSE, approx. 2011), GPhC (General Pharmaceutical Council) (GPhC, 2011) and RPA (Rural Payment Agency) (RPA, 2008). In some cases, the institution or/and the regulator added some principles or changed them slightly. The basic principles state (BIS, 2005a):

- **targeted/out-come focused** – the whole process within the agency must be organised and developed from the core of the environmental outcome;

- **consistent** – the same approach must be taken independent of sector, geographical area and over time;

- **accountable** – the ability to measure processes, approaches and outcomes must exist;

- **proportionate/risk-based** – resources of all kind must be allocated proportionally according to the risk level and desired outcomes;

- **transparent** – processes and rules must be clear, concise and understandable for stakeholders.

These principles together with the Hampton report call for regulators' consideration regarding where they put their efforts and resources. However, as Yapp (2006) noticed, empirical evidence has shown that non-specific and untargeted information, such as brochures and branch meetings, is the most preferred approach for enforcement institutions towards operators, yet it is the least effective method. More resource intensive yet effective methods are inspections and personal meetings (meeting in reality and not through mediums such as telephones or computers). *Ibid* continues to notice how important these 'less cost effective' inspections are for the operations. Inspections act both as a motivating cause and as a factor to secure employees' health and safety as well as their well-being. This would probably be a neglected area with fewer inspections.

From this point, could the principles also be scrutinised from a perspective of judicial review? As Minogue and Cariño (2006) observe, these principles of good regulation could give more scope for interpretation. The House of Lords (2004, § 44) stated declares in a report:

"Government does not believe it is necessary to enshrine the principles of good regulation in statute, as a general rule for all sector regulators. Whilst the Government is entirely supportive of the 5 principles of good regulation, as noted in response to the BRTF's Independent Regulators Report, the principles are not defined in law, so are open to interpretation and potential challenge by judicial review. However, where Government Departments taking forward amendments to sector legislation consider it appropriate, in particular circumstances, to enshrine the principles within legislation, they will be free to do so."

A well-founded question would be to ask what divergence this gives rise to in judicial circumstances. Minogue and Cariño (2006) argue that this is a weak argument against the principles. It should be kept in mind that this only applies to recognised principles that are not well defined. Individual institutions need to implement the principles in their own context.

White *et al.* (2010) observes that risk-based approaches have taken an important role in regulatory settings. In affected regulated areas, where a more effective regulation is supposed to be implemented, a risk-based approach will be one of the corner-stones. In this paper, risk will be explained as the possibility that human actions harm aspects of things that human beings appreciates. This possibility needs to be evaluated and managed through different risk-based approaches (Klinke and Renn, 2002). From a regulatory point of view, the regulator needs e.g. to manage the level of risks in relation to constrained resources. Yapp (2006) notice how the risk-based approach will have elements of risk-based decision making and risk assessments. *Ibid* continues to raise some issues that could arise for a regulating institution, e.g. institutions are not only supposed to implement risk-based inspections. They are also supposed to overcome the issues of implementing enforcement structure with guidance from principles and a risk-based approach.

2.1.4 The UK's' three environmental regulators

The UK has three environmental regulators with different geographical jurisdictions. SEPA (Scottish Environment Protection Agency) acts in Scotland,

NIEA (Northern Ireland Environment Agency) acts in Northern Ireland while the EA (Environment Agency) operates in England and Wales. All are non-departmental agencies with responsibility for implementation and compliance of environmental regulations. This project is concerned with the EA, but since the three regulators have similar structures and operations, SEPA and NIEA could very well benefit from the outcomes of this project.

The scope of Philip Hamptons report 2005, *Reducing Administrative burdens: effective inspections and enforcement*, was 'promoting more efficient approaches to regulatory inspections and enforcement, without comprising regulatory standards or outcome' (BIS, 2005b, p.1). The Government accepted the report's recommendations fully.

To meet the scope of Philip Hampton's review, the EA have approached a wide range of areas in a totally new way. Effectiveness has become a keyword and the need to implement it in several ways has grown. Enlarged civil powers contribute to new ways of operating. Means such as fixed monetary penalty notices, stop notices, discretionary requirements and enforcements can now be used. These incentives will reduce time consuming and costly processes to bring operators to court (EA, 2011a).

One of NIEA's moves towards compliance and fulfilment of the Hampton report was to conduct a study of how implementation of an EMS (Environmental Management Systems) within regulated operations would affect the effectiveness of the regulator (DOE, 2009). Whatever action NIEA takes, indicators show that an EMS would have a positive impact on improved environmental performance but it would not necessarily lead to improved regulatory compliance, which would place NIEA in *status quo*. This is an area where the EA have implemented the OPRA (Operational Risk Appraisal) system (*ibid*).

SEPA has implemented the Hampton report through their AOP (Annual Operating Plan) and Corporate Plan (SEPA, 2010a). The AOP 2010/2011

provided SEPA with a toolkit of approaches to deliver better regulation. Figure 1 provides the context for the toolkit.
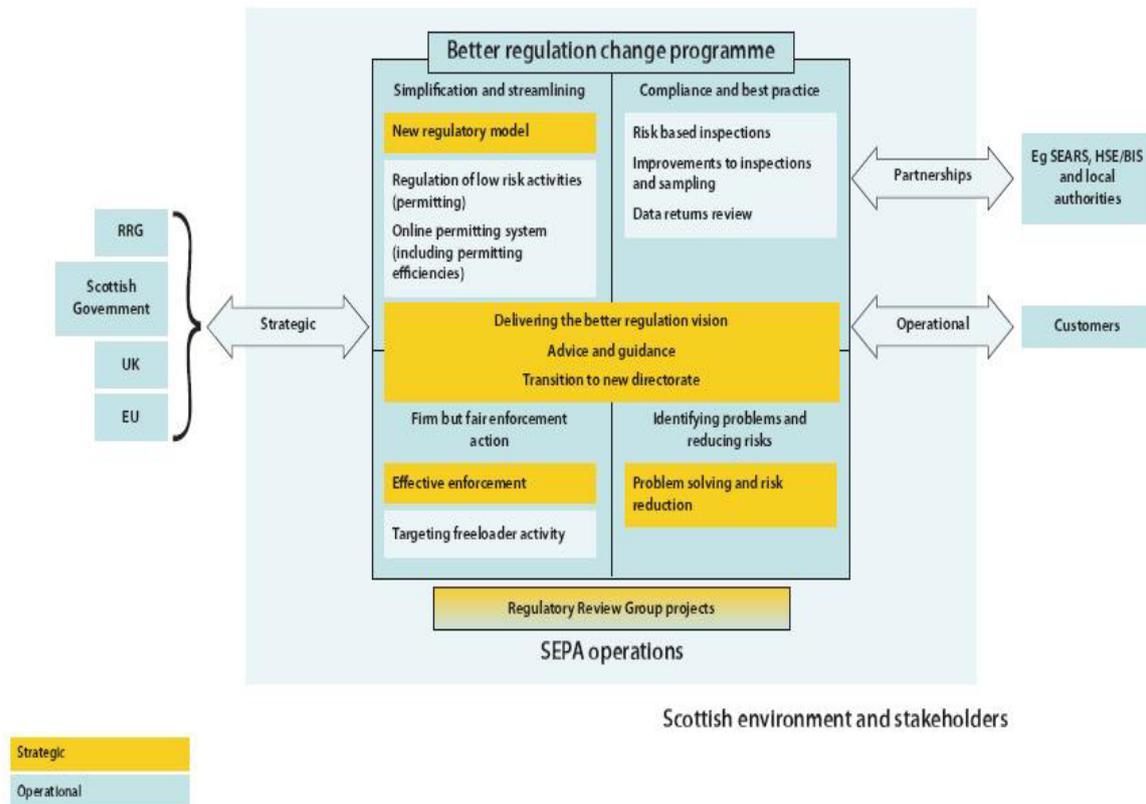
Figure 1. *SEPA's toolkit for Better Regulation*

(SEPA, 2010b, p. 47)*.*

The toolkit is developed from Philip Hampton's five principles:

-   simplification and streamlining;

-   compliance and best practice;

-   firm but fair enforcement action;

-   identifying problems and reducing risks;

-   advice and guidance.

The colours in *Figure 1* show where the toolkit affects the strategic, operational or a combination of both arenas and the most important and affected stakeholders are included to give a comprehensive and simple overview. The tool is developed and implemented to support and encourage operators who are doing well and to act against environmental offences.

2.1.5 Evaluation of effectiveness

Evaluation of the effectiveness of a policy is often done in using quantitative approach where statisticians have a vital part to play in the process (Scott, 2007). But when regulators open up their tool box and use tools such as IAs (Impact Assessments) and RIAs (Risk Impact Assessments), a more qualitative approach can be achieved (UK Parliament, 2007). EEA recognised that evaluation of their effectiveness could enhance the support of policies and give support to their clients where it was needed. The evaluation's feedback mechanism is an essential part as it is provides the regulator with the result of the policies which is compared and evaluated against the objectives. Evaluation of the feedback is one step of a continuous process of measuring the effectiveness policies, where knowledge, information and data are shared cross all the steps in the process (EEA, 2005).

2.2 Evidence-based environmental policy

Policy-making is ideally simple, effective, relevant and high quality. It is believed that good policies and good regulation need to have evidence-based qualifiers as a foundation. The required evidence could be gained from different sources such as stakeholder discussions, monitoring, reports and expert knowledge (Scott, 2007). Some organisations have become satisfied with evaluating only to comply with policies and regulation and go no further (EEA, 2005).

Regulators and especially inspectors get subjected of situations where they need to decide how they are going to deal with a situation and with what tools they are going to operate with. A cost and benefit analysis is one of the tools for

regulators to use as a basis for risk-based decision making. Scott (2007) highlights a circumstance where an inspector needs to act immediately. *The precautionary principle* (adopted after the Rio convention), states that if there are concerns of great irreversible harm and there exist a shortness of scientific evidence, it shall not be used as an argument to delay cost-effective measures to prevent environmental degradation. This principle requires a high level of good judgement and individual responsibility. Risk-based decision making could in this circumstance be a good involvement to maintain and enhance the quality of decisions in the same time as regulators' resource is limited. This principle is also brought up in the *Embracing Uncertainty, Complexity and Change: An Eco-Pragmatic Reinvention of a First Generation Environmental Law* where the author notices how opponents wind up the principle as 'based on vague and baseless fears regarding environmental risks' (Angelo, 2005, p. 32). Scott (2005) continues to emphases that decision making needs to have a systematic scrutiny of proofs, but also distinct levels of the term. The awareness of terms and their definitions such as 'giving reasonable grounds for concerns' and 'beyond reasonable doubt', must be uniform throughout the regulator's organisation.

2.3 Good environmental behaviour

Gouldson *et al.* (2009) brought up concerns with public sectors expenditures, while Gunningham and Grabosky (1998) precised how regulators are not effective in delivering their goals or delivering their goals at least cost. The UK government produced 1997, BRTF, which has influenced regulators to enhance their quality of management (Gouldson *et al.*, 2009). A risk-based approach towards high risk areas is one method of achieving this. When institutions are limited in their resource use, they may be forced to weight the benefits against the costs. Constraints in resource use could lead to incidents where the regulators are blamed for a lack of regulation. To avoid this kind of occasion, the regulators need to show that their decisions are strongly based on risk awareness.

Substantial research has been done over the last 10 years within the areas related to driving forces, judgement, strategies and attitudes towards environmental regulation (Gibson *et al.*, 2010).

Laws, regulations and policies are developed to guide, impose and force operators' behaviour. This is not a binary circumstance where operators either comply or not. A compliance and spectrum model offers a spectrum of judgement that runs from 'criminal' to 'champion' with four steps in between. Figure 2 shows how SEPA has viewed and labelled the spectrum.
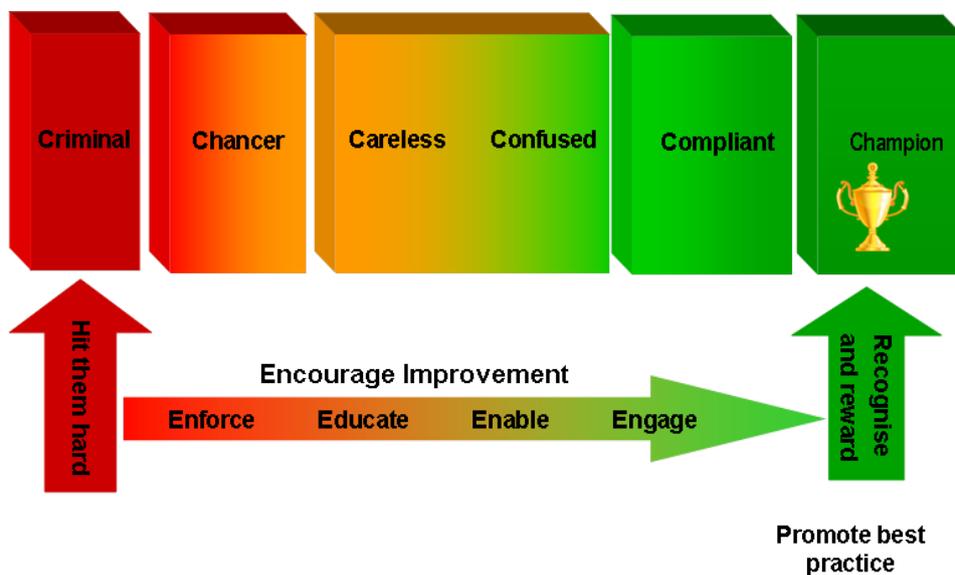
Figure 2. *SEPA's compliance and engagement spectrum*

(SEPA, 2010c, p. 9)

Several research papers have discussed the factors that enable and support compliance, while others have examined which variables motivate the actor to go beyond compliance with the law. A whole range of different regulatory approaches distinguish between direct regulation and alternative approaches (Gibson *et al.*, 2010). Regardless of where in the UK agencies act, there is a need for consistent behaviour and the evaluation of where operators act on the compliance and engagement scale becomes harder the more graded the scale is.

The Hampton report (BIS, 2005b) recommends regulators to utilise incentives for good behaviour among operators. As the report noticed, award schemes have been successful in other regulatory areas and are seen as a possible tool to the future. However, no evidence or settings were provided of what good environmental behaviour is. One other aspect that should be considered is if the regulator can trust the operators' willingness to put the environmental practices into the heart of their policy (Rutherfoord *et al.*, 2000).

2.4 Regulators' risk-based decision making

A regulator needs to implement risk-based decision making through the whole institution, e.g. when Kemp and Munch-Andersen (2004) discussed how self-regulation could be a reward for good behaviour instead of a trade off against regulation, the regulator needs to have a good foundation why or why not it implements self-regulation for some operators.

White *et al.* (2010) assume that risk-based decision making is a cornerstone of the success of operating as a more effective and efficient regulator. At the same time, *Embracing Uncertainty, Complexity and Change: An Eco-Pragmatic Reinvention of a First Generation Environmental Law,* Angelo (2005) highlights how opponents to risk-based decision making oppose this form of regulation by arguing for a zero risk approach, disregarding costs, but strangely most of the regulations require the inclusion of other factors such as economic. The other extreme is when economic efficiency is promoted above all other concerns. A cost/benefit tool is widely used. The tool tries to balance social benefits against society's costs of legal compliance. However, the author concludes how cost/benefit analysis should assist rather than controls the risk-based decision process due to how the analysis contains 'many assumptions, judgment calls, values and unquantifiable factors' (Angelo, 2005, p. 22). Eco-pragmatism propagates a middle-way between cost/benefit versus a risk-based decision making approach, a path where regulators are allowed to make incremental modification in the regulation when new information is taken into account as well as correcting old mistakes. Societies today are changing at a fast pace, as

are their values. A situation where there is a lack of information is not a legitimate reason to panic. The theory argues that actions should be decentralised to local levels justified by quicker implementation of new knowledge and faster reactions.

2.4.1 Risk-based decision making from a regulators view

Scotland's main environmental regulator, SEPA, has reacted against the Government's requirement for better regulations, where it wants to strike a balance between social, economic and environmental constraints through efficient and proportionate regulation. SEPA has implemented risk-based decision making to ensure that decisions are considered with an approach of balanced environmental and economical costs and benefits (SEPA, 2005).

On its home page, the EA highlights that it underpins its daily operation, risk assessment and management activity with risk-based decision making. This is managed through expertise within risk-based decision making and in analysis of environmental risk. The EA operates within most of its areas of responsibility using risk screening and prioritisation, generic risk analysis and quantitative (tailored) risk analysis. Risk screening and prioritisation is an important stage in the effective management of risk. Methods and tools are developed for discovery of risk. The risks must be put in a context and prioritised to be managed in the correct way. The risks are analysed and defined with a toolkit containing, for example, software such as Crystal Ball(TM) and @Risk(TM): risk-rating schemes and decision trees. If it is a high level risk, specific and tailored risk analysis could be carried out (EA, 2011b).

NIEA have implemented the importance of Better Regulation and Hampton's Review to the same degree as SEPA and the EA, but it has taken a slightly different and interesting approach towards risk-based decision making and its operators' EMS. The EA has explored the same opportunity as NIEA in assessing how effective EMS can be as a measurement of environmental compliance and performance to see if it is possible to encourage and champion

their operators to implement risk-based decision making as a part of their EMS (NIEA, 2009).

2.5 Benchmarking

This section will provide an insight of what benchmarking is and how it is used. It will provide basic information about the three most public and well-known benchmarking models which in some circumstances acted as a foundation to this project's development of a benchmarking tool.

2.5.1 Benchmarking and benchmarking tools

Benchmarking is an accountability technique which is developed within the TMQ (Total Quality Management) movement (Sommerville and Robertson, 2000). Comparing one's own operation with another's has happened for a long time, but it was not until the late 1980s that Xerox started to use the technique on a larger scale. In spite of the fact that TQM is a well established quality tool, the literature only offers a few academic articles within legal authority settings. One of the few articles that contains research of TQM in a regulatory setting highlights the enhanced quality with which an operator with implemented TQM acts. Operators then often comply above and beyond the regulator's requirements (McAdam and O'Neill, 1999).

A benchmarking tool is seen as an effective approach for enhanced outcomes (Green and McCann, 2011). The benchmarking technique is a systematic comparison between and within pre-decided parameters (Achtemeier and Simpson, 2005). When a technique is stated as a systematic event, it becomes a process and this is also revealed in some of the definitions (Achtemeier and Simpson, 2005). In 1992, 49 different definitions of benchmarking existed (Anand and Kodali, 2008).

Andersen and Pettersen (1996, p.3) define benchmarking as:

'A predefined position, used as a reference point for taking measures against'

Spendolini (1992) provides a benchmarking menu that is composed of empirical evidence. After collecting 49 different definitions, linguistic patterns were found and a list - a benchmarking menu - was generated. The menu defines this project's definition of benchmarking as follows (*ibid*, p. 10):

> 'a continuous systematic process for evaluating the functions, services, operations and work processes of organisations that are recognised as representing the best practice for the purposes of organisational improvement and establishing priorities, targets and goals'

2.5.2 Different types of benchmarking

Anand and Kodali's (2008) article, *Benchmarking the benchmarking models*, reveals that a broad range in benchmarking tools exists' with a numbers of steps involved (varying from 5 to 21), a number of phases (varying from 2 to 7) and types. The most usable model is a general model, 'comparing with an organisation which extends beyond industry boundaries' (Anand and Kodali, 2008, p. 261), closely followed by process and functional benchmarking models.

Hindle (2003) presents four different types of benchmarking models as follows.

a) Internal benchmarking – the process where quality management is being benchmarked. It occurs through an internal checking of the organisation's standards to scrutinise whether or not opportunities to improvement exist.

b) Competitive benchmarking – the organisation compares its standards against a competitor's score of standards.

c) Industry benchmarking – this scenario gives a score which is compared with companies in the same industry.

d) Best-in-class benchmarking – the subject is here comparing itself with other organisations, regardless of type of business, geographical areas or national market.

The most relevant type of benchmarking tool for an environmental agency within this project's scope would be internal benchmarking. This project intends to benchmark risk-based decision making for internal quality enhancement. Using an internal benchmarking approach, best practice can be found, units can learn from each other and the same level of quality can be aimed for throughout the whole agency. Codling (1992) argues that internal benchmarking can be seen as a 'nursery for developing the approach' (Codling, 1992, p. 14). This could be closely linked to the new approach the UK's environmental agencies must develop towards better and more effective regulations. Codling defines 'nursery' to be an environment where questions can be asked, processes and procedures analysed and mistakes made which lead to an environment that is far removed from a blaming culture.

Internal benchmarking is closely connected with best practice which will be reviewed in section *2.5.3*.

2.5.3 Best practice in benchmarking

Best practice is an awkward expression to use. It is hard to define and its implementation is not always. Hyland and Beckett (2002) note that best practice found in one institution was not easy to replicate in similar institutions. Communication and culture were seen as the barriers. In some larger institutions, best practice may already be in place in a small number of units. An expression such as 'if only we knew what we know' (Hyland and Beckett, 2002, p. 294), is highly applicable in these kind of circumstances. Codling (2003) gives a relevant example of how difficult best practice could be to define. Staff following best practice processes are often unaware of their awarded outcomes and deliveries because for them it is simply 'business as usual'. This gives the benchmarking tool a superb role to play. Without the benchmarking tool and its measuring process, best practice would never be recognised. The practice of trying to define and identify best practice is not a passive process and even if it is a step in the right direction, will not assure the implementation of best practice benchmarking and the delivery of higher quality.

In the UK, BQA (British Quality Association) offers guidance and information for various industries. They propose that a benchmarking tool serves as a tool in best practice management. In 1991, EFQM (European Foundation of Quality Management) launched a benchmarking tool trying to recognise best practice through offering 'Company Award'. The award ensures that institutions have performed above and beyond the awareness of best practice and instead are dealing with it on a much deeper level. The award seeks institutions where best practice impels the institution to excellence through appropriate values and procedures (Codling, 1992).

Instead of perceiving benchmarking in the four traditional types, *ibid* has taken an approach of viewing them from three perspectives: internal, external and best practice benchmarking. It is clear that benchmarking with reference to best practice could be problematic and a definition of best practice should be considered, both to find best practice and to define what it means in terms of the specific process or procedure.

2.5.4 The benchmarking process

The overall benchmarking methodology process is a process that has not changed much over the years. Codling (2003) presents a benchmarking methodology that covers the same stages that Boxwell (1994) presented and referred back to Xerox's development year 1989. Figure 3 gives an overview of the benchmarking process.

As Figure 3 shows, benchmarking is a process that gives feedback information. Neglecting to analyse the benchmarking data would make benchmarking efforts a waste of resources. For example, the data could give valuable insight into how the institution performs against similar units, strengths and weaknesses, and how well fits the target.
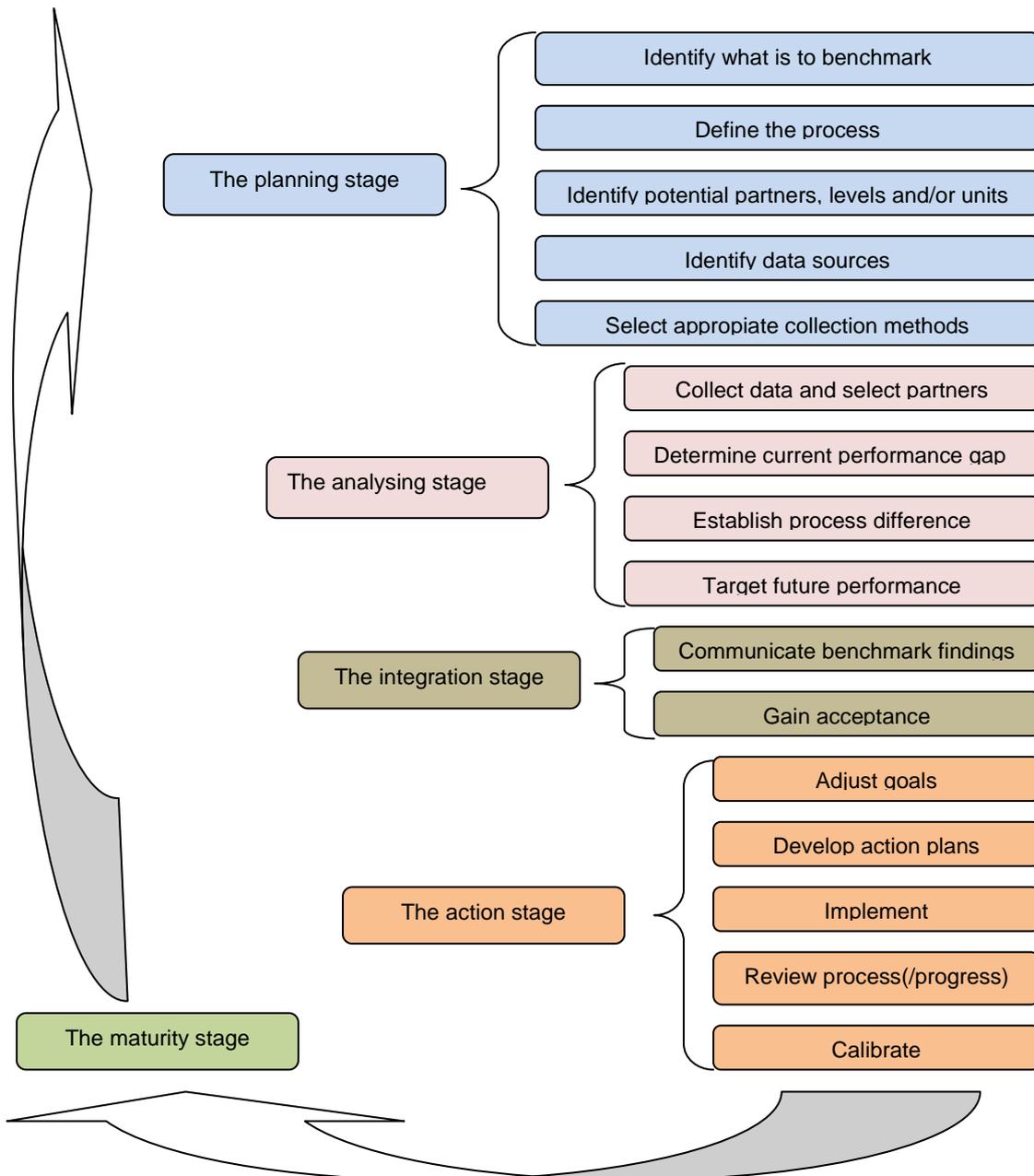
Figure 3. *A model of the benchmarking process*

Remodelled by Karin Andersson. Source: Boxwell, 1994, p. 23, and Codling, 2003, p. 12.

The model shows a feedback process which starts with a planning step. The planning step is extremely important and it is crucial that the correct areas are chosen to be benchmarked. If wrong aspects are chosen at this stage, the process will benchmark less relevant areas and the outcomes will therefore be

less relevant. The process continues with analysing, integration and an action stage. During the action stage, the benchmarking data is analysed and conclusion are drawn for future improvement.

2.5.5 Maturity levels

Boxwell (1994) used a stage which he called 'maturity' (see Figure 3). He defines maturity as a stage where practices were fully integrated in the institution, practices are fully integrated into the processes and where leadership positions are attained. Beatty and Ulrich (1991) notice that increasing globalisation has pushed institutions, which previously had long-established norms of security, into life cycles that change at a fast rate. Institutions need new values such as speed and simplicity and have employees with a greater self-confidence and who are more empowered. The definition and content of the term 'mature' in an organisational setting is widely debated, but Andersen and Jessen (2003) highlight a definition of maturity as 'being ripe or having reached the state of full natural or maximum development' (Andersen and Jessen, 2003, p. 457). They continue to notice that no institution has reached this level or ever will. The authors would rather define 'mature' as being high level of these three components: 'action (ability to act and decide), attitude (willingness to be involved), and knowledge (an understanding of the impact of willingness and action)' (Andersen and Jessen, 2003, p. 458). Marsh's benchmarking tool, which Marsh provides its clients with, has a four graded maturity scale covering risk management. Clients are seen to be at the highest level of maturity when the clients deliver excellence through fully-integrated risk management. The highest maturity level is described in Figure 4.

Value adding for the organisation

Proactive, innovative and adding value

Network of believers across organisation hierarchy

Embedded in all key business processes

Collaborative with key colleagues, partners and external suppliers

Project risk management

Better outcomes

Striving

Basic compliance

Intuitive risk management

Best practice
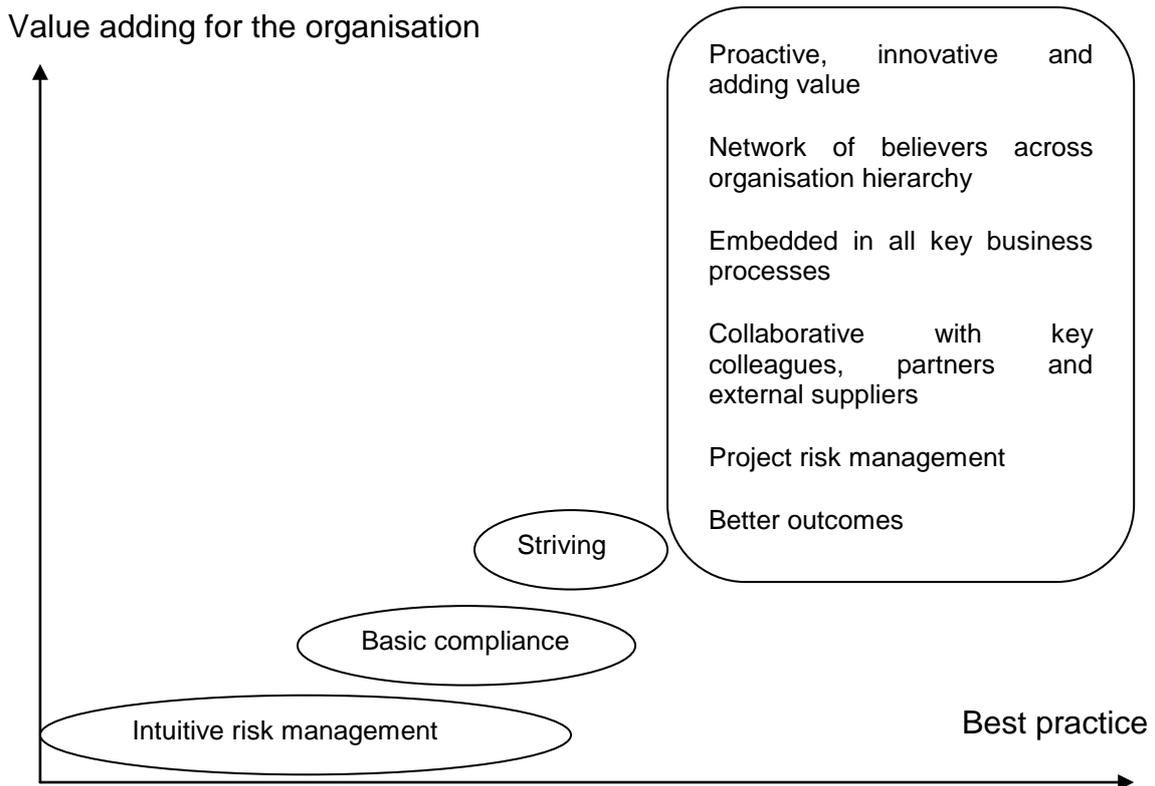
Figure 4. *Marsh's five maturity levels*

Redesigned by Karin Andersson. (Marsh, 2010, p. 2).

Figure 4 provides a scale against which institutions can validate their benchmarking outcome. The model begins at a minimum point as an institution strives towards a higher risk management maturity. Marsh gives customers detailed advice on how they will be able to implement risk management in a wider extent.

2.5.6 Review of existing benchmarking tools

After a review of the selection of free available benchmarking tools, three were found as possibly useful: Alarm, EFQM and Marsh. Each of these three systems is looked at in more detail in the following sections.

2.5.6.1 Alarm

The Alarm model (Alarm, 2010) was developed as a self-assessment questionnaire which is supposed to test present operation against Alarm's

19

framework and its performance indicators. The foundation of the framework is built to support systematic benchmarking in which operators through continuous improvement could compare their operation with other organisation's and learn from best practice. The framework has divided the operating system into seven areas (parameters).

1. Leadership and management

The key activity being measured here is whether senior management and executives support and promote risk management. The parameter is concerned with risk judgement, clear directions and risk management. Questions are raised about information and decision making, management and accountability responsibility, and reporting and escalation systems.

2. Strategy and policy

The main activity being measured here is whether comprehensible strategies and policies for risks actually exist. This parameter is concerned with the policies and strategic approaches towards risk management and increasing effectiveness. Questions are raised about strategy development and its implementation and also about risk management and risk management policy.

3. People

Core activities are culture, communication, roles and responsibilities, skills, training and guidance. This parameter is concerned with the culture of risk management, communication, responsibility and the capability of skills and guidance.

4. Partnership, shared risks and resources

Concerns within this parameter are risks in specific areas, joint registers, risks to- within- and shared with e.g. stakeholder and society, but also partnership guidance. Risk finance, information and knowledge, tools and partnership and shared risk will be examined.

5. Processes and tools

The effectiveness of the organisation's risk management to support the organisation's processes will be measured. The core concerns within this parameter are: integration-, embedding-, identification-, evaluation-, control-, planning-, and reporting of risk within executed processes. Is the organisation using risk management in both decision making and strategic planning?

6. Risk handling and assurance

This parameter is concerned whit the extent that risk is managed in an appropriate way and whether or not the institution can assures that risk management contributes to the delivery of successful outcomes and risk-taking. Risk assurance and performance and risk handling will be examined.

7. Outcomes & delivery

This parameter examines the extent to which risk management contributes to achieving outcomes. It also highlights learning from best practice and continuous improvement. The risk management contribution to both institutional and individual performance will be examined.

The first five are classified as enablers, while the latter two are defined as results. Each of the seven parameters is scrutinised with more exhaustive questions which are then judged against five different maturity levels (Alarm, 2010, p. 1);

Level 1 – Risk management is **engaging** with the organisation

Level 2 – Risk management is **happening** within the organisation

Level 3 – Risk management is **working** for the organisation

Level 4 – Risk management is **embedded and integrated** within the organisation

Level 5 – Risk management is **driving** the organisation

2.5.6.2 EFQM

EFQM is a non-profit member organisation which was founded in 1988 in Brussels (EFQM, 2011). The founders were a group of leading companies within Europe (EFQM, 2011). The main reason driving them was to advance European organisations on a world perspective. The advancement was supposed to happen through enhanced quality management towards global competitive advantages. However, the EFQM benchmarking tool does not capture areas of risk assessment to the same extent as the Alarm model. The overall structure is founded in the same way as Alarm, i.e. five enablers (leadership, management of people (employees), policy and strategy, resources, and processes) and four result areas (people satisfaction, customer satisfaction, impact on society and business result). Sub-areas and benchmarking questions are however more influenced by TQM (Bendell *et al.*, 1993). Li and Yang (2003) notice that the model has received acceptance among the public and academics, though authors like Porter and Tanner (1996) and Dale *et al.* (2001) argue that users come across issues as a result of the criteria being defined too generally.

2.5.6.3 Marsh

Marsh's benchmarking tool is a relatively unknown, closed public benchmarking tool. There is not much written about the structure of the tool, neither from an academic or public approach. Marsh has acted as consultants and advisers within risk management, and as insurance brokers (Marsh, 2011). Marsh has provided a benchmarking tool for its clients who wanted to benchmark their risk performance (Marsh, 2010). A rough overview of the tool's areas is provided in Table 1.

Table 1. *Areas of Marsh's benchmarking tool*

Source: Marsh, 2010, p. 1.

Key areas of benchmarking	Link with the risk management process
Risk management sponsorship and positioning	Strategic positioning
Managing the risk management process	
Risk identification	Risk identification and assessment
Risk prioritising	
Risk treatment/controls	Risk treatment
Risk reporting	Risk identification and assessment
Risk monitoring	
Risk implications of working with other organisations	
Risk awareness culture	Culture and communication
Risk communication	

Table 1. shows how Marsh's tool benchmarks the process of risk assessment. This approach provides information on how well the separate parts of a risk assessment is performed within the institution.

2.5.7 Benchmarking as a help for regulators' risk-based decisions

There is a wide supply of benchmarking research, but it is not easy to find research where evidence has been collected on the reasons why different models use selected areas to benchmark. As this paper has shown earlier, environmental agencies are operating in a changing environment where the ability to obtain knowledge, analyse it and make risk-based decisions on that

data, have become crucial. Organisations are supposed to learn best practice from each other but are fortunate if it is possible even to find a definition of best practice. Organisations need to analyse the term and what it means for them with the amount of information they have from other equivalent organisations.

If a benchmarking tool is going to be applicable and used as a measurement for how well managed the organisation is, certain 'supporting pillars' must exist. The supporting pillars need to reflect the core processes and procedures within the organisation. Different views on which attributes should be included in a benchmarking tool will now follow.

Philips (2003) notices 10 central areas for learning and development in organisations to achieve success: will (culture); leadership; strategic thinking and vision; communication; learning and development; innovation and decision making; change management; intellectual capital and knowledge; measurement; and reward. If the given core attributes for success are dynamic learning and a developing organisation, would it then be possible to conclude that these are some of the attributes that should be included in a benchmarking tool for environmental agencies? De Jager (1999), another author within knowledge management, proposes four enablers and one process that act as attributes within a benchmarking tool: leadership, technology, culture, measurement and processes. De Jager's reasoning for selecting the five attributes are given below but no evidence was supplied to justify why these attributes were collected.

a) Leadership – copes with a wide range of strategy problems but also defines the organisation.

b) Technology – communication and knowledge exchange. Technology also represents how and to what extent technology is used to manage processes such as the collection, storage and distribution of information.

c) Culture – reveals the views of the organisation which includes innovation, learning and encouragement of employees in different situations.

d) Measurement – clarifies the measurement practice and the quantifying process which with management can lead the organisation to achieve the mission, vision and objectives.

e) Processes – the practices the organisation uses to identify, manage, adapt and exchange the information, knowledge and tools it needs.

In experimental case studies from two Dutch rural areas, where both districts were required to execute a more reflexive environmental regulation, Glasbergen (2005) notes how one of the regulators had hardly identified any problems areas or expected costs of abatement. The same case proved that limiting levels were adjusted to fit the development of the society. The result of the experiment was that regulators felt vulnerable, limited by policy space and factors that they couldn't influence and were in need of expertise. The evaluation of the case study verifies a situation with more complexity, variation and political uncertainty, which stemmed from the lack of progress in the Government's decision making. This case study shows how important it is to manage both processes and transparency within the agency. To have similar processes and boarder lines, procedures need to be measured in a standardised way. Therefore, a benchmarking tool needs to measure how well an agency copes with its tasks and procedures. Glasbergen (2005) observes the significance of stakeholder activity. The pilot project gave evidence of a lack of working together with other agencies and stakeholders in the society, but also the validation from higher level authority.

The effectiveness of the benchmarking tool is dependent on the benchmarking context and activities. To agree on what to benchmark is a core task in itself. Magd and Curry (2003) suggest that two questions should be raised to define the attributes of the benchmarking tool (Magd and Curry, 2003, p. 270):

1) What are the critical success factors for our organisation's success?

2) Which processes cause the most trouble?

Existing and public benchmarking tools provide a good overview of what benchmarking risk-based decision making could look like. However, the content of Marsh's tool is less relevant compared to how well all the parts of a risk assessment are implemented and used. With references how far the developments of risk assessment have already taken environmental agencies already executing the whole chain of a risk assessment. Therefore, it is more appropriate to raise the objectives for a higher quality level. Benchmarking how well risk assessment and risk-based decision making are implemented and whether or not are driving the agency towards excellence is therefore more relevant. Because of this reason, Alarm and EFQM will be more applicable to be used as guidance. These models will imply a 'health check' of processes for different levels across the agency. This will also imply a whole new path for benchmarking. An environmental agency operates within service management, in addition the agency is tightly connected to the government which puts it in a monopoly market. This could both contribute and limit the deliveries and outcomes from the tool.

3 Article

The literature review and development of a benchmarking tool were aimed to be relevant as an article for an appropriate journal. This research was found to be suitable for *Benchmarking: An International Journal.* This journal approaches benchmarking from all kind of angles in all types of organisations. The journal aims to enhance the practice and quality in real projects and is therefore written for senior decision makers.

3.1 Benchmarking risk-based decision making in environmental agencies

Key words:

Benchmarking, effectiveness, risk-based decision making, regulation, quality and efficiency.

Abstract:

Purpose – Quality assurance is a management challenge for every institution. It is associated with a number of key decisions, some of which are related to set objectives and to ensure that quality assurance is achieved in an effective and efficient way. Public sector organisations in the public sector are no exceptions in their new approach of implementing risk-based decision making in their operations. In this project, an environmental agency aspires to quality assurance in risk-based decision making through the development of a benchmarking tool.

Approach – An inductive approach opened up a simultaneous process of an academic literature review and a work-shop among stakeholders with experience of the agency's roles. The aim of these was to identify areas and questions that established quality through an approach of risk-based decision making in the agency. Survey questions was developed and tested. The

questions gave insights of the context and the pedagogical framing of the survey.

Findings – The survey that was developed may offer guidance for continued development and quality management. It may also offer guidance and awareness about the agency's values, mission, vision and objectives as well as perceptions of knowledge, understanding and application of certain concepts such as best practice and maturity.

Research limitations – New approaches of quality assurance within environmental agencies have given rise to gaps in the academic literature. Even if benchmarking and quality assurance are well-known practices, developing benchmarking for risk-based decision making within environmental agencies is completely new.

Originality – Implementation of benchmarking in regulatory settings is a new approach for quality enhancement, in particular for environmental agencies. TQM and benchmarking have been known for decades within management literature but this new approach, could make a contribution, to improve the operation of environmental agencies and also other regulators.

Introduction

In 1999 the UK Government recognised in the report *Modernising Government* the need for modernisation in different sectors and agencies. One of the report's five key conclusions concerned the need to create a more future-oriented management in governmental agencies. This was supposed to happen through the evaluation of governmental departments, recognition and sharing of best practice and the introduction of joint training for authorities and their stakeholders. A more future-oriented view would also enhance the quality of risk management, where risk aversion is one aspect. The report was concerned with current behaviour of risk aversion which leads to lost opportunities (Official Documents Archive, 1999).

The concerns for better regulation increased and in 2005 two important reports were published: Philip Hampton's *Reducing administrative burdens: effective inspection and enforcement* (referred to as *the Hampton report*)*,* which he was asked to produce by the Chancellor of the Exchequer, and BRTF's (Better Regulation Task Force) *Regulation – Less is More; Reducing Burdens, Improving Outcomes* as requested by the Prime Minister.

The first report's (BIS, 2005a) approach was to examine the potential for reducing administrative burdens, e.g. implementation of more efficient inspections and upholding of regulations without jeopardising outcomes or regulatory standards. The report brought up the subject of risk assessment and the lack of it. Hampton (BIS, 2005a) stressed the importance of risk assessment as the fundamental key to effectiveness and that risk assessment should be comprehensive.

The latter report (BIS, 2005b) focused on:

- how to reduce administrative expenditure connected to regulations, incurred by businesses.
- taking an approach of 'One in – One out', when it comes to regulators' incentives to put administrative burdens on businesses. This required that the regulator prioritises and simplifies regulation. N.B. the report included deregulation, consolidation and rationalisation as sub-units of 'simplification'

A lack of well-defined responsibilities and organisational objectives creates difficulties in evaluating organisational management. These challenges are very visible in the area of risk management, where a lack of responsibility gives rise to disasters. Beinecke *et al.* (2011) highlights a recent example of such a disaster. The author points out the problems of regulating institutions' responsibility and neutrality in BP's (British Petroleum) oil disaster in the Mexican Gulf in 2005. On this occasion, the regulator had a very recent history of being concerned with regulating activities and environmental protection

aspects at the same time as national energy independence. Financial aspects such as leasing contracts and royalties from drilling companies were also processes in the same matter. Resources to oversee institutions decreased at a time while technological development of deepwater drilling continued at a fast pace.

Another recent example of a lack responsibility and risk management is in the Swedish police force. Its operation has shown evidence of a lack of responsibility in the management of multiple crimes. The investigation of many crimes takes so long that they become statute-barred. On several occasions, the Swedish Parliamentary Ombudsman has criticised the management. However, it was not until 2009 that the Swedish Government gave the police force an injunction to improve their processes. National Police Agency's Ulf Sköld asserts that the lack of management depended on too many middlemen and on old-fashioned computer systems (Hökerberg, 2010). This subject was not only considered in the news. The area of responsibility and risk management has also been scrutinised in an academic article discussing whether the fall of America's economy could be blamed on deregulation and regulators (Stiglitz, 2009). In the UK, regulatory bodies such as the EA (Environment Agency), SEPA (Scotland Environment Protection Agency) and NIEA (Northern Ireland Environment Agency) have understood the importance of the new and more modern approach towards regulation. Conventional regulations have to a great extent achieved their aims, but it is recognised that the nature of the regulations need to keep on developing at the same pace as other areas within the society. Five principles for how regulation could be reshaped and performed in a better and more effective way were generated by BRTF from the Hampton report (BIS, 2005a, p. 51). These have now become well established in the minds of several regulators (UK Parliament, 2007) and are as follow:

- **targeted/out-come focused** – the whole process within the agency must be organised and developed from the core of the environmental outcome;
- **consistent** – the same approach must be taken independent of sector, geographical area and over time;
- **accountable** – the ability to measure processes, approaches and outcomes must exist;
- **proportionate/risk-based** – resources of all kind must be allocated proportionally according to the risk level and desired outcomes;
- **transparent** – processes and rules must be clear, concise and understandable for stakeholders.

A broad spectrum of views exist with competing demands. Some would like to see total deregulation with individual liberty, self responsibility and business competitiveness as the number one priority. At the opposite end of the spectrum there are those who argue for more restrictions, inspections, applications and delimitations of 'red tape' (The EA, 2005). Risked-based decision making becomes an important element of more effective and efficient regulations, labelled as risk-informed regulation (Gouldson *et al.*, 2009).

When sectors in society are provided with an extended level of liability, a demand for more extensive risk management grows. Njå and Solberg (2010) presented an example where the Norwegian government was influenced by the Deregulation and Contracting Out Act 1994 and deregulated the aviation sector in Norway. The conclusion was that risk was not mentioned in neither accidental nor incidental contexts. There were no safety and risk assessments made prior to the deregulation. A report from Liverpool University and John Moores University stated that the HSE have a problem to enforce the applicable law. Inspections have decreased, the investigation of health and safety incidents have fallen and there has been a reduction in prosecutions (University of Liverpool, 2010).

Environmental agencies use a number of different tools, both internal and external for regulatory interventions (Gibson *et al.*, 2010). Applicable external tools have a range of actions such as advice and guidance, e.g. NetRegs, which is a web-based information site, especially for SMEs (small and medium sized enterprises) and the National Customer Contact Centre which provides a single point of contact through a call centre to inspections and progress if there is a lack of compliance. Internal tools exist such as Regulatory Scrutiny Panel and OPRA (Operational Risk Appraisal). The Regulatory Scrutiny Panel consists of senior people to help manage the agency's work and development of legislations and policies, while OPRA assesses risk in a particular activity (NAO, 2008).

A wide range of possible tools for quality control leads to numerous management challenges. As seen in both *Effective inspection and enforcement: implementing the Hampton vision in the Environment Agency* (NAO, 2008) and *The Environment Agency – A review of progress since its Hampton Implementation Review* (BIS, 2010), the EA has come a long way in its efforts to increase the effectiveness of operations. Continuous improvement requires a method of measurement, which points to a need for repeated assessments, 'What gets measured gets managed'. New methods of regulation shape procedures resulting in them becoming more precise about the risk level of both operator and operation through extended or reduced resources (measured in time and money). This new method of regulating incentivises the need for a tool which justifies regulators' risk-based decisions, procedures and quality in different situation and levels within the organisation. This new incentives provide a logical step where environmental agencies' employees, such as inspectors and line managers, could be in need of education in the new way of regulating. It is important that they feel secure in their role and in their daily work and can rely on senior management for support when complications arise and openness when mistakes have been made.

The aim of this project is to recognise and justify factors and processes that influence quality in a series of management settings and to use these for further development for a benchmarking tool of risk-based decisions making. It is a necessity for the benchmarking tool to be useful for environmental agencies, to help them maintain and enhance the quality of management. A limitation that needs to be highlighted is effectiveness' of legal enforcement in various contexts.

Approach

A commission from a company, limited by guarantee and registered charity, serves as a starting point for this thesis. The commission focused upon an investigation of internal quality management. The particular focus was benchmarking risk-based decision making in regulatory settings. The outcomes of the commission are intended to be applicable to an environmental agency in the UK. The environmental agency is closely connected with the Government and can be seen as a governmental agency. It will usually exist as the single environmental agency in a country. Since the UK is divided into three areas, and each area has its own agency, a monopoly environment is implied. Any kind of comparison will therefore need to be internal, between organisational units, of performance and procedures at different times. This explains the internal approach within the project. The external approach is viewed through the gains in societal interest of more effective regulators and better regulations.

A wide range literature specialises within the area of management (e.g. leadership management, quality management and process management). In addition numerous journals specialise in law and regulation. Together the literature contributes to a comprehensive view of the background and the problems. However, it is hard to find academic articles that discuss the problem spot on. This gives a descriptive approach to the research where earlier researches have established models and theories between factors (Patel and Davidson, 2010). This research establishes and connects some of the missing links.

The process of developing a benchmarking tool for risk-based decision making started with a solid search within the academic literature. The search approached the research area from different angles, e.g. one approach was to search for benchmarking tools in a regulatory setting, another approach was to find how a benchmarking tool was developed and a third approach was to seek evidence of the need for the tool. This is a deductive approach which uses what is known in the specific domain and puts it in relation to theoretical aspects and from that point creates a hypothesis to be subjected to an empirical breakdown (Bryman and Bell, 2007). Of particular interest was the literature about areas which the tool was going to benchmark in the environmental agency. The most relevant literature suggested which parameters and attributes should be included in the benchmarking tool.

Because of the major gaps in the academic literature, the deductive approach turned to an inductive approach. An inductive mind-set will approve analysis of collected data from the subject and object and then present a theory (Saunders *et al.*, 2007*)*.

On that basis it was possible to develop benchmarking parameters, attributes and questions that the tool would include. A review was made of existing benchmarking tools, such as Alarm, EFQM and Marsh, to examine how these could contribute to the development of a fair and applicable tool.

When suggestions of appropriate areas were made, a proofing workshop was performed. The workshop invited 20 people with appropriate roles such as area managers, consultants and employed scientists, 18 of the invited 20 participated. The reasoning was to involve employees in a discussion about the pros and cons of using the existing Alarm model, how useful the chosen areas were and how meaningful the behavioural performance levels were. The employees were from the EA and SEPA. Respondents had the opportunity, using post-it notes, to contribute their thoughts. Using the feedback from the employees, areas were verified and benchmarking questions were developed.

The post-it notes were inputted into an Excel format where the comments were connected to the corresponding area. Unfortunately, the number of employees in the proofing workshop was too small to give any major relevance to the research. In these circumstances, the potential for bias is too great. The developing research process continued to refine the benchmarking questions to a state where they were ready for test trial in an agency. The absence of academic literature and the limitation of the results from the proofing workshop, suggest a greater need for trials in an environmental agency. The questions need to be scrutinised both from a context and framing point of view.

Findings and discussion

The development process of a benchmarking tool for environmental regulators was affected by the limitations of resources of published academic research within the area. This became especially obvious in certain parts of the process of developing the benchmarking tool where evidence-based themes and attributes were required to be found. An intended deductive process transformed to an inductive process.

A benchmarking tool can among other things contribute to reduction in errors and impediments (Magd and Curry, 2003) and therefore it is required to have a benchmarking tool which is accurate, easy to use and as Hyland and Beckett (2002) argued, the data collection process needs to be performed in a meaningful way. A 'meaningful way' is defined as being when the stakeholders involved understand and accept the processes. The compiled data were also supposed to be used in changing of the existing processes and procedures in order that quality, effectiveness and efficiency would be enhanced.

It was a complicated process to assemble a group of areas that affect the environmental agency. There is no clear evidence in the literature giving guidance on which parameter to chose. Instead, contributed the academically literature with characteristics of the areas. Andersen and Pettersen (1996) defined the appropriate areas as the processes that were based on the

institution's strategy. *Ibid* continues to define the areas as the institution's crucial success factors and the procedures and processes that have the biggest impact on the crucial success factors. Magd and Curry (2003) added the institution's most problematic processes to those characteristics. Sarkis (2001) also agrees that processes and procedures that link to the institution's strategy are the correct areas to measure.

However, it is understandable to some extent why there is a lack of academic literature in this area when it applies to the relation between benchmarking areas and environmental agencies. First, benchmarking is a recently new development within the public sector and for regulators. Secondly, there is the globalisation. As Beatty and Ulrich (1991) highlight, the lifecycles of mindsets, services and material items are changing at an ever increasing speed. Even if environmental agencies are not directly affected, there is a need for them to keep up with the pace of their operators. In a constantly changing environment, it could be less important to identify the specific procedure or process with academic evidence, which might even differ between the most similar institutions. In circumstances like this, it might be more applicable to explore the characteristics of the processes and procedures - which is the theory behind benchmarking.

Existing and publicly available benchmarking tools such as Alarm (Alarm, 2011), EFQM (EFQM, 2011) and Marsh (Marsh, 2011) gave a small piece of guidance on which areas that are applicable to benchmark. However, all information about them is still not in the public domain because of the intention to share benchmarking results only within an affinity group.

With guidance from publicly available information from the environmental agency and inputs from existing benchmarking tools, it was assumed that the core processes are the correct processes to include in the benchmarking tool. According to Magd and Curry (2003), the parameter should have characteristics such as:

- the most significant accomplishment factors;
- the most troublesome processes;
- the processes that contributes to stakeholder satisfaction;
- the processes that do not deliver expectations.

There is also a need for commitment to continuous improvement and management to implement this kind of processes.

In case study provided by Magd and Curry (2003), TCS used a BEM which resulted in some improvements but no significant quality improvements. TCS changed to a more specified benchmarking process, which provided what to benchmark, recognition of gaps in performance, action plans for enhanced quality and incorporation of these in the daily work.

Several authors (Coombs *et al.*, 1998; Vorhies and Morgan, 2005) agreed that irrespective of what branch they are dealing with or the location within the institution they are examining, the benchmarking process should refer back to the 'core processes' and the processes that enable superior outcomes of the institution. With guidance five areas were indentified: leadership, people, processes, policy and, outcome and delivery. Table 1 provides what parameters the three public benchmarking tools could contribute with and what parameters the development process set out in the new benchmarking tool. As seen in Table 1, Marsh's benchmarking tool contains most of the steps that contribute to a risk assessment. As seen in DETR *et al.* (2001), Marsh's benchmarking tool secures that a fulfilled risk assessment process is implemented in undefined areas. The Alarm and EFQM are developed to be implemented in predefined areas and at the same time they include the importance of the risk assessment's stages.

To be able to continue the development process and establish an accepted view of the compiled areas, a proofing workshop was performed, where approximately eight employees from different levels of the institution contributed, giving scattered comments linked to the five areas. However, these

comments could not be considered fully and progressed into the new benchmarking tool. Eight employees are, however, not statistically significant for the institution's view of the developed areas and the result should be taken lightly. The results could also be affected by the culture and personal reflections of the individual.

To construct a survey where respondents contribute with accurate answers, a couple of influencing factors needs to be considered. Foddy (1993) highlighted a four step process: the interviewer encodes the questions, the respondent decodes the questions, the respondent encodes the answers and finally how the interviewer decodes the respondent's answers. There are several troublesome areas which need to be kept in mind during the development process. *Ibid* continues to highlight how respondents could be influenced for example by earlier questions, the possibility of low coalition between what the respondent says and does, and how the answers will decrease in credibility the more complex, threatening and less unknown area the questions deal with.

The survey is developed with closed questions but with two lines after every question for additional comments. There is wide debate concerning whether closed or open questions are the most effective method of obtaining information from respondents. There are also contributions to the research that advocate a combination whit closed questions being asked at the beginning of the survey followed by open questions. Closed questions constrain the respondents to limited alternatives which could distort the answers but may also decrease the wide range of material that can prove to be variable and hard to interpret in the survey (*ibid*). Payne (1965) argues that open-ended questions are a highly inefficient method in large scale surveys. With the chosen approach of closed questions and the option for additional comments in this survey, the respondent will be forced to translate reality into the most applicable choice and can also enhance the quality of an answer through the valuable input of additional comments on the two available lines. This approach is also taken with the environmental agency's number of employees in mind.

A total of 42 benchmarking questions were developed. To ensure each questions was logical, well-reasoned and credible, each one had an internal context provided. The number of questions was developed by logically reasoning that the applicable number of questions must not be too great. Too many questions could contribute to a state where respondents view the survey as too time consuming or too complicated, which decrease their willingness to respond or give accurate responses.

Every question has a five point scale, ranging from a state of poor implementation and usage of risk-based decision making, to a state where the use of risk-based decision making is driving the institution to excellence. This spectrum shows a situation where circumstances of 'good - better – best' are to be shown. The tool is supposed to show weaknesses and not the absence of risk-based decision making. Continually, every level should gradually show what the agency does or what tools it uses, e.g. we do/use x, we do/use x +y, we do/use x +y +z. It is very important to develop these levels from a standpoint where the agency is not giving itself any negative answers about its performance. Foddy (1993) notices how negative questions can suggest an underlying expectation for a negative answer.

The culture where the use of the tool is included needs to be honest without any trace of blame. Therefore there is a need of training and education for the organisation's internal operation. The tool's levels and responses must be backed up with evidence and indicators. The levels could include the most 'plausible' case for every dimension and the range could also be filled with examples about the 'worst' case. This is an aspect that has not been utilised in this process because of the limited insight into the environmental agency's daily operation.

The tool was provided with five different rating scales. The scale started at the lowest state at level one which was the lowest level of maturity and peaks at the highest level five, the highest level of maturity. The number of levels was decided with support from Foddy (1993). *Ibid* discussed different views of how

many levels the human mind can consider and give an accurate response to. The most highlighted number was a scale with seven levels (plus or minus two). However, *ibid* recommends having at least six substantive rating scales. Middle and filter categories are excluded in these six levels. This would suggest that this project's developed benchmarking tool has too few categories. Only using five levels is a common and well-discussed subject. It must be remembered that this tool is still going through a development process and has not yet been tested in real life. It would be possible to increase the number of levels after the test is completed.

The highest level suggests a state of best practice. The term best practice has been used since Philip Hampton's report (BIS, 2005b) and continues to appear in reports and guidance. Throughout the document, Philip Hampton's report (BIS, 2005b) suggests what best practice includes and stands for. For example, EA's OPRA system and risk management is based on the HACCP (Hazard Analysis and Critical Control Point) principles recognised as best practice, but other sections of the report, for instance where a review of NRF (National Regulatory Forum) has been done, Hampton only recommended how best practice should be spread.

Balance and Taylor (2001) highlight in their report, *The principles of best practice economic regulation*, commissioned by water companies in England and Wales, the difficult task to define best practice for an operation. However, *ibid* recognised several principles for best practice (Balance and Taylor, 2001, p. 4):

- transparency;
- accountability;
- targeting;
- consistency (and predictability);
- proportionality;
- (a clear) legislative mandate;
- efficiency;
- expertise.

The principles are supposed to be applicable to other sectors as well, with only slight changes.

SEPA published a guide to best practice within management of river habitats for fisheries. The document could only state some key principles for best practice, and contains an unclear definition of what best practice is (SEPA, 2002, p. 11):

'As river channel behaviour is complex and any intervention in natural processes may result in unexpected, adverse impacts, management needs careful judgement.

The motivation for any planned intervention requires clear identification of the problem or issue to be addressed and its underlying causes.

The options for intervention need to be carefully considered, often with professional assistance, and the possible risk of adverse impacts needs to be assessed. The implications for other river users needs to be considered and they need to be consulted.

In many cases, intervention should be a last resort or may not be required at all.'

At a later phase, these are divided into the following questions for further consideration (SEPA, 2002, p. 12):

- 'What is the problem or issue of concern?
- What are the causes of the problem?
- What are the aims of the planned intervention?
- Are they realistic?
- Are they legal?
- Have they been approved by the appropriate bodies?
- What are the likely negative impacts of the proposed intervention?
- What are the chances of the aims being successfully achieved with minimal additional impacts?
- After consideration of the above questions, is the intervention still necessary and/or desirable?
- If so, how can management maximise benefits to other river users?'

Better Regulations (2004) raises the questions of how consistency of best practice can be achieved while it is being developed in one area and regulated in others. The same document considers several areas where best practice

should be used as praxis, e.g. consolidation of statutory instruments that have been amended more than three times. Both RIA and IA are seen as best practice.

As the earlier paragraphs have reviewed, none of the references give any clear definitions of best practice, nor where further guidance of what best practice is and can be found. Questions remain such as: *Best practice correlated with what? Where are the boundaries? Governmental agencies versus non-governmental? International versus national ways of operating? And if the standards for best practice are known, is there evidence that those standards truly are best practice?*

The concept of best practice is closely connected with maturity - the higher the maturity level, the closer the institution will be operating to best practice. To state the maturity level at which the institution is currently operating, could be a method of depicting how well it is performing. However, the levels should be defined at every step. This would support the intention to enhance quality because what is required to enter next step will become visible. It should be emphasised that the levels and their description cannot be compared with a check-list. Enhanced performance which results in higher maturity can only be reached in a genuine way. Improvements need to be implemented through the culture and the values of the agency.

Boxwell (1994) used a stage which he called 'maturity'. He defines 'mature' as a stage where practices were fully integrated in the institution, where practices are fully integrated into the processes and where leadership positions are attained. This definition defines a state of the institution, where it has come to a point of maturity and best practice, but there is no continuously improvement or aim for an unknown higher state which could further increase the institution's outcomes. Only using 'mature' as a stage may appeal to an institution that has become old and unwilling to change. Beatty and Ulrich (1991) notice that increasing globalisation has pushed institutions with long-established norms of security into life cycles that change at a fast pace. Institutions need new values

such as speed, simplicity and employees with greater self-confidence and more empowerment. The definition and content of the term 'mature' in an organisational setting is widely debated, but Andersen and Jessen (2003) highlight a definition of maturity 'as being ripe or having reached the state of full natural or maximum development' (Andersen and Jessen, 2003, p. 457). This definition gives a clear view of how 'mature' could be seen in a state of continuous improvement. Following the Government's requirement for better regulations, the benchmarking tool for risk-based decision is one direction that environmental agencies could take. If the tool is implemented and the effort is weighted up against the advantages, the tool should not be seen as best practice in a mature institution, rather as a milestone aiming for even better performance. *Ibid* continue to notice that no institution has reached that level or ever will. The authors would rather define 'mature' as a high level of these three components: 'action (ability to act and decide), attitude (willingness to be involved), and knowledge (an understanding of the impact of willingness and action)' (Andersen and Jessen, 2003, p. 458).

The benchmarking tool was created with a specific environmental agency in mind but since the other environmental agencies operate in similar ways in the UK (SEPA, 2007), the tool could, with slight modification, be applicable to other agencies. This tool could also easily be changed to fit other branches beside environmental agencies. The core part of the tool and the approach that is going to be benchmarked (risk-based decision making) is the corner-stone that could be applied in several circumstances where internal quality assurance is needed.

It could create confusion among the agencies with inconsistent wording. It is very difficult to examine what best practice really includes and how to know when it is reached. A situation like this could be compared to a fishing boat that operates in a well-known area. The crew knows the capacity of that part of the ocean and with that knowledge is able to maximise both the effectiveness and efficiency of their operation. But if the crew of the fishing boat operated in a new

part of the ocean, how would they know if they were operating according to best practice?

Another way of phrasing best practice is to use best value, but as Magd and Curry (2003) observed, best value is just as hard to identify as best practice by the agency.

Six biases must be considered in order to be able to develop an accurate internal quality assurance benchmarking tool that gives trustworthy and reliable responses to the most feasible extent.

Awareness of objectives and goals

If the benchmarking survey is going to deliver an accurate result, an assumption must be made that the organisation is aware of the goals, but also has common goals. The development of this benchmarking tool assumes the awareness of the goals of the agency. Since the agency is in the front line of developing the regulatory framework for several years ahead, the goals could become diffuse and in the worst case they could even be the wrong goals. There is a need to differentiate between different types of goals and to scrutinise for whom the goals are developed. To be able to evaluate the operation's effectiveness and efficiency with a benchmarking tool, evaluation criteria will be needed (Mohr, 1973). If the organisation's stakeholders do not have the same goals, the benchmarking tool will benchmark different objectives. Mohr (1973, p.471) highlights individual goals: goals for the individual in the group and the collective group goal. Mohr continues to notice how Etzioni likes to abandon the concept of organisational goals and adopt instead a model, which uses:

- 'optimum or balanced allocation of resources'
- 'a pattern of interrelations among the elements of the system which would make it most effective in the services of a given goal'

Do the stakeholders know if they are benchmarking criteria connected to goals in terms of: intent and/or outcome, support- and/or output goals or transitive- and/or reflexive goals?

Distinctions between effectiveness and efficiency

The benchmarking tool was developed as a response to pressure from the Government for better and more effective regulations and as a consequence the institution implemented risk-based decision making to secure the internal quality for this regulation. To be able to enhance effectiveness, the institution's employees and experts must have an understanding of the distinction between effectiveness and efficiency in their environment.

The distinction between effectiveness and efficiency could be troublesome. Some languages do not even have an appropriate translation for both words. The benchmarking tool assumes that present knowledge about definition, differentials and the expressions in relation to both internal and external objectives, exist throughout the whole agency to contribute to the most accurate benchmarking result.

Stakeholders

To develop a benchmarking tool that will be used in appropriate time periods during the institution's continuously operating practice, the tool's performance needs to be easy to understand and analyse. The survey can't be too broad as well as too narrow. A too narrow survey will not contribute to quality enhancement and will not find the weaker areas within the institution. At the same time, a too broad survey will not be focused enough to present a qualitative result. It has been noticed earlier that the institution is supposed to benchmark its core processes. The core processes are the ones that create internal and external value for the institution. An environmental institution is operating with a contribution from experts, consultants and its own staff. The Government's requirements for better and more effective regulations have developed an approach towards more joint working. Stakeholders most have

implemented the values and the framework of the institution to be able to contribute for the institution's best interest. The Hampton report (BIS, 2005a) promoted joint working through for example joint inspections and programmes. The gains are expected to be less overlapping and a higher level of effectiveness.

The culture of the agency

To succeed with a benchmarking tool the organisation assumes it already has a stabilised culture and a flexible and reflective environment. Barriers must be identified and an action plan must be in place to manage the results from the benchmarking tool. Magd and Curry (2003) notice that the cost of benchmarking may not outweigh the returns gained.

Management commitment

The development process and result of the benchmarking tool require the management team's full support. There is clear evidence of the EA management team's support, both during the development process (to set out the correct objectives), in the implementation and follow-up. Sarkis (2001) outlines a situation where management commitment is very important, particularly the focus on processes.

Contradiction in the accountability versus reporting/escalation system

Dodds and Kodate (2011) discuss the contradiction of accountability and responsibility and a learning organisation. With negligible evidence from the proofing workshop, a contradiction remains in the way the agency is managed. If the agency wants a well-developed and well-used escalation and reporting system, it cannot allow a blame culture to exist.

Conclusions

To benchmark risk-based decision making in a regulatory setting reveals several biases. If the agency wants to acquaint itself with the outcomes and use

them to improve internal quality it needs to implement them as a continuous improvement process, such as the PDCA cycle (plan-do-check-act). Minds also need to be open regarding improvement in the benchmarking tool.

Benchmarking tools maximise the benefits if the agency has established a culture where key expressions are well known. Mission, vision, objectives and goals provide the agency's foundation and should be known by everyone within the agency.

The development process has made assumptions in areas where the academic literature lacks a relevant contribution, e.g. there are assumptions that the correct areas were benchmarked. There is a need for research within the area of internal quality assurance within environmental agencies.

Unfortunately, greater parts of this project lie in an area where there is a lack of academic articles. Even if a proofing workshop was performed and a great deal of input and feedback obtained, the data should still be treated with care, and awareness of personal values and perception must be factored in.

Expressions of best practice and maturity should be used with agreed definitions and in the correct context. There will still be a need to determine what the agency is benchmarking against, what the ultimate goal is and what the agency is trying to achieve with the help of the tool.

Further research

Further research within the subject would be a test of where the benchmarking questions are supposed to be tried out and scrutinised, preferably with an employees from an environmental agency. This would lead to better quality and more relevant questions.

To ensure the quality of the tool in the most comprehensive way for an environmental agency, it would be appropriate to carry out the survey at the three different levels at which the tool is expected to be implemented: top level

(policy plan/strategy), middle level (line management) and bottom level (operational).

Following this approach should ensure that mistakes are eliminated and quality and relevance enhanced to a level where environmental agencies recognise the ease of use and usefulness of the tool for the management of risk-based decision making and scrutiny of the success of implementation they have achieved towards better regulations.

References

Alarm (2009), *The Alarm National Performance Model for Risk Management in the Public Services*, available at: http://www.alarm-uk.org/PDF/Alarm%20National%20Performance%20Model.pdf (accessed 14th August 2011).

Alarm (2011), *Alarm -The Public Risk Management Association*, available at: http://www.alarm-uk.org/default.aspx (accessed 14th August 2011).

Andersen, B. and Pettersen, P-G. (1996), *The Benchmarking Handbook – Step-by-step instructions*, Chapman & Hall, London, UK.

Andersen, E.S. and Jessen, S.A. (2003), *Project maturity in organisations*, International Journal of Project Management, Vol. 21, pp. 457–461.

Balance, T. and Taylor, A. (2001), *The principles of best practice economic regulation - Strategic aims, objectives and best practice principles of economic regulation*, available at: http://www.water.org.uk/static/files_archive/0Tony_Ballance_report.pdf (accessed 18th June 2011).

Beatty, R.W. and Ulrich D.O. (1991), *Re-Energizing the Mature Organization*, Organizational Dynamics, Vol. 20, Issue 1, pp. 16-30.

Beinecke, F., Boesch, D.F., Garcia, T.D., Graham, B., Murray, C.A., Reilly, W.K. and Ulmer, F. (2011). *Deep Water – The Gulf Oil Disaster and the Future of Offshore Drilling - Report to the President*, National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, USA.

Better regulations (2004), *Regulating Better - Government White Paper setting out six principles of Better Regulation*, available at: http://www.betterregulation.ie/eng/Developments_in_Better_Regulation_Policy/White_Paper_Regulating_Better.pdf (accessed 18th June 2011).

BIS (Department for Business, Innovation & Skills) (2005),

a) Philip Hampton's *Reducing administrative burdens: effective inspection and enforcement*, available at: http://www.berr.gov.uk/files/file22988.pdf (accessed 18th April 2011).
b) BRTF's *Regulation – Less is More; Reducing Burdens, Improving Outcomes,* available at: http://www.bis.gov.uk/files/file22967.pdf (accessed 18th April 2011).

BIS (Department for Business, Innovation & Skills) (2010), Hampton Implementation Review Reports – *The Environment Agency; A review of progress since its Hampton Implementation Review*, available at: http://www.bis.gov.uk/assets/biscore/better-regulation/docs/10-564-environment-agency-progress-since-hampton-implementation-review.pdf (accessed 3rd June 2011).

Boxwell Jr., R.J (1994), *Benchmarking for competitive advantage*, McGraw-Hill Inc., USA.

Bryman, A. and Bell, E. (2007), *Business Research Methods* (2nd ed.), Oxford University Press, Oxford, UK (2007), *Business Research Methods* (2nd ed.), Oxford University Press, Oxford, UK.

Coombs, R., McMeekin, A. and Pybus, R. (1998), *Toward the development of benchmarking tools for R&D project management*, R&D Management, Vol. 28, No. 3, pp. 175-186.

DETR, Environment Agency and Institute for Environment and Health (2001), *Guidelines for Environmental Risk Assessment and Management*, The Stationery Office, Norwich, Great Britain.

Dodds, A. and Kodate, N. (2011), *Accountability, organisational learning and risks to patient safety in England: Conflict or compromise?*, Health, Risk & Society, Vol. 13, No. 4, pp. 327–346.

EA (2005), *Delivering for the Environment*, available at

http://publications.environment-agency.gov.uk/pdf/GEHO0105BIMF-b-e.pdf
(accessed 21nd April 2011).

EFQM (2011), *EFQM – Excellence one*, available at: http://www.alarm-uk.org/default.aspx (accessed 14th August 2011).

EFQM (approx. 2011), *The 9 criteria*, available at: http://www.efqm.org/en/tabid/392/default.aspx (accessed 14th August 2011).

Foddy, W. (1993), *Constructing questions for interviews and questionnaires – Theory and practice in social research*, Cambridge University Press, Cambridge, UK.

Gibson, E., Howsam, P., Kibblewhite, M., Pollard, S. & Rees, Y. (2010), *Effectiveness of Regulation: Literature Review and Analysis*, Final Report SC090028, Environment Agency, Bristol, UK, Pending publication.

Gouldson, A., Morton, A. and Pollard, S.J.T. (2009), *Better environmental regulations – contribution from risk-based decisions-making*, Science of the Total Environment, Vol. 407, pp. 5283-5288.

Hyland, P. and Beckett, R. (2002), *Learning to compete: the value of internal benchmarking*, Benchmarking: An International Journal, Vol. 9, No. 3, pp. 293-304.

Hökerberg, J. (2010), '*Polisen utreder betydligt snabbare med ny metod*', Dagen Nyheter (The police force investigate considerably faster with a new method, Daily News), June 6th 2010, available at: http://www.dn.se/nyheter/sverige/polisen-utreder-betydligt-snabbare-med-ny-metod (accessed 5th July 2011).

Magd, H. and Curry, A. (2003), *Benchmarking: Achieving the best value in public-sector organisations*, Benchmarking: An international Journal, Vol. 10, No. 3, pp. 261-286.

Marsh (2010), *Benchmarking risk management performance*, Marsh Ltd., London, UK.

Marsh (2011), *Welcome to Marsh*, available at: http://usa.marsh.com/ (accessed 14th August 2011).

Mohr, L.B. (1973), *The Concept of Organizational Goal*, American Political Science Review, Vol. 67, No. 2, pp. 470-481.

NAO (2008), *Effective inspection and enforcement: implementing the Hampton vision in the Environment Agency,* available at: http://www.nao.org.uk/publications/0708/hampton_environment_agency.aspx (accessed 22nd April 2011).

Njå, O and Solberg, Ø. (2010), *Safety Consideration in Political Decisions: A Case Study of Changes to the Norwegian Aviation System*, Review of Policy Research, Vol. 27, Issue 5, pp. 595-619.

Official Documents Archive (1999), *Modernising Government*, available at:

http://www.archive.official-documents.co.uk/document/cm43/4310/4310.htm (accessed 18th April 2011).

Patel, R. and Davidson, B. (2010), '*Forskningsmetodikens grunder – Att planera, genomföra och rapportera en undersökning'* (3rd ed.) (The bases of research methods - To plan, implement and report a research), Studentlitteratur AB, Lund, Sweden (in Swedish).

Payne, S.L. (1965), *Are Open-ended Questions Worth the Effort?*, Journal of Marketing Research, Vol. 2, pp. 417-19.

Sarkis, J. (2001), *Benchmarking for agility*, Benchmarking: An International Journal, Vol. 8, No. 2, pp. 88-107.

Saunders, M., Lewis, P., and Thornhill, A. (2007), *Research Methods for Business Students (4th ed.),* Pearson Education Limited, Essex, UK.

SEPA (2002), *Managing River Habitats for Fisheries - a guide to best practice*, SEPA, Sterling, UK.

SEPA (2007), *Benchmarking Report - A Review of Scottish Environment Protection Agency and Environment Agency Charging Schemes for 2005/2006* available at: www.sepa.org.uk/water/water_regulation/idoc.ashx?docid=ffc1de35-e6a4-4f00-9b68-be70ce2dd536&version=-1 (accessed 29th August 2011).

Stiglitz, J.E., (2009), *The Anatomy of a Murderer: Who Killed Americas Economy?*, Critical Review: A Journal of Politics and Society, Vol. 21, Issue 2 & 3, pp. 329-339.

UK Parliament (2007), *UK Economic Regulators*, 1st Report of Session 2006–07, HL Paper 189-I, available at: http://www.publications.parliament.uk/pa/ld200607/ldselect/ldrgltrs/189/189i.pdf (accessed 10th June 2011).

University of Liverpool (2010), Press releases – *Workplace safety at risk due to deregulation of health and safety policies*, July 13th available at: http://www.liv.ac.uk/news/press_releases/2010/07/workplace_at_risk_due_to_dereguation_policies.htm (accessed 7th April 2011).

Vorhies, D.W. and Morgan, N.A. (2005), *Benchmarking Marketing Capabilities for Sustainable Competitive Advantage*, Journal of Marketing, Vol. 69, pp. 80-94.

White, M., Pollard, S. and Lemon, M. (2010), *Using Risk Based Decision Making to Create a Better* Place, Science Report SC070055/SR, Environment Agency, Bristol, UK, Pending publication.

Table

*Table 1. The contribution of parameters from Alarm, EFQM and Marsh. Source:
Alarm (2009), EFQM (approx. 2011) and Marsh (2010).*

Specific reference/ benchmarking tool:	Does the reference provide parameters/areas?	What parameters does the reference provide?	Are the parameters based on academic evidence?
Alarm	Yes	Leader/ Membership People Strategy &Policy Partnership, shared risks and resources Processes & tools Risk handling and assurance Outcomes and delivery	No
EFQM	Yes	Leadership People Strategy Partnership and resources Processes, products and Services People result Customer result Society result Key results	No
MARSH	Yes	Risk management sponsorship and positioning Managing the risk management process Risk identification	There is not enough publicly available information to be able to determine whether it is or is not based upon academic evidence.

	Risk prioritising		
	Risk treatment/controls		
	Risk reporting		
	Risk monitoring		
	Risk implications of working with other organisations		
	Risk awareness culture		
	Risk communication		
The newly developed **benchmarking tool**	Leadership People Policy Processes Outcome & delivery	No, a lack of literature made the development an inductive process.	

REFERENCES

Achtemeier, S.D. and Simpson, R.D. (2005), *Practical Considerations When Using Benchmarking for Accountability in Higher Education*, Innovative Higher Education, Vol. 30, No. 2, pp. 117-128.

Alarm (2010), *Report of the outcomes of the Alarm/CIPFA Risk Management Benchmarking Club 2010*, available at: http://www.alarm-uk.org/members/benchmarking/2010_benchmarking_report.aspx (accessed 17th August 2011).

Anand, G. and Kodali, R. (2008), *Benchmarking the benchmarking models,* Benchmarking: An international Journal, Vol. 15, No. 3, pp. 257-291.

Andersen, B. and Pettersen, P-G. (1996), *The Benchmarking Handbook – Step-by-step instructions*, Chapman & Hall, London, UK.

Andersen, E.S. and Jessen, S.A. (2003), *Project maturity in organisations*, International Journal of Project Management, Vol. 21, pp. 457–461.

Angelo, M.J. (2005), *Embracing Uncertainty, Complexity and Change: An Eco-Pragmatic Reintervention a First Generation Environmental Law*, Paper 673, University of Florida, available at Bepress: http://law.bepress.com/cgi/viewcontent.cgi?article=3581&context=expresso (accessed 9th June 2011).

Beatty, R.W. and Ulrich D.O. (1991), *Re-Energizing the Mature Organization*, Organizational Dynamics, Vol. 20, Issue 1, pp. 16-30.

Bendell, T., Boulter, L. and Kelly, J. (1993), *Benchmarking for Competitive Advantage*, Pitman Publishing, London, UK.

BIS (Department for Business, Innovation & Skills) (2005),

a. *Philip Hampton's Reducing administrative burdens: effective inspection and enforcement*, available at: http://www.berr.gov.uk/files/file22988.pdf (accessed 18th April 2011).

b. *BRTF's Regulation – Less is More; Reducing Burdens, Improving Outcomes,* available at: http://www.bis.gov.uk/files/file22967.pdf (accessed 18th April 2011).

Black, J., Hashimzade, N. and Myles, G. (2009), *Oxford Dictionary of Economics*, Oxford University Press Inc., New York, USA.

Boxwell Jr., R.J (1994), *Benchmarking for competitive advantage*, McGraw-Hill Inc., USA.

Codling, S. (1992), *Best Practice Benchmarking. The Management Guide to successful implementation*, Uniskill Ltd., Oxford, UK.

Codling, S. (2003), *Benchmarking*, Gower Publishing Limited, Hampshire, UK.

de Jager, M. (1999), *The KMAT: benchmarking knowledge management*, Library management, Vol. 20, No. 7, pp. 367-372.

Department of the Taoiseach (2004), Developments in Better Regulation - *White Paper – Better Regulations,* available at: http://www.betterregulation.ie/eng/Developments_in_Better_Regulation_Policy/White_Paper_Regulating_Better.pdf (accessed 3rd June 2011).

DOE (2009), *Measuring the effectiveness of Environmental Management Systems - Phase 1: Desktop Report*, available at: http://www.doeni.gov.uk/niea/measuring_the_effectiveness_of_ems_phase_1-2.pdf (accessed Viewed 3rd June 2011).

EA (2011),

a. *New civil powers will mean greater environmental protection at lower cost to business*, available at: http://www.environment-agency.gov.uk/news/115517.aspx (accessed 3rd June 2011).

b. *Environmental Risk Assessment and Management*, available at: http://www.environment-agency.gov.uk/research/policy/40179.aspx (accessed 14th August 2011).

EEA (2005), *Policy effectiveness evaluation – The effectiveness of urban wastewater treatment and packaging waste management systems*, Brochure No 3/2005.

EFQM (2011), *Introducing the EFQM Excellence Model*, available at: http://www.efqm.org/en/PdfResources/Introducing%20the%20EFQM%20Model%20(public).pdf (accessed 17th August 2011).

Gibson, E., Howsam, P., Kibblewhite, M., Pollard, S. and Rees, Y. (2010), *Effectiveness of Regulation: Literature Review and Analysis*, Final Report SC090028, Environment Agency, Bristol, UK, Pending publication.

Glasbergen, P. (2005), *Decentralized reflexive environmental regulation: Opportunities and risks based on an evaluation of Dutch experiments*, Environmental Science, Vol. 2, Issue 4, pp. 427-442.

Gouldson, A., Morton, A. and Pollard, S.J.T. (2009)*, Better environmental regulations – contribution from risk-based decisions-making*, Science of the Total Environment, Vol. 407, pp. 5283-5288.

GPhC (2011), *Policy and Guidance*, available at: http://www.pharmacyregulation.org/aboutus/whatwedo/policyandguidance/index.aspx (accessed 11th August 2011).

Green, D.D and McCann, J. (2011),*Benchmarking a leadership model for the green economy*, Benchmarking: An International Journal, Vol. 18, No. 3, pp. 445-465.

Gunningham, N. & Grabosky, P. (1998), *SMART REGULATION – Designing environmental policy*, Oxford University Press, Oxford.

Hindle, T. (2003), *Guide to Management Ideas*, 'The Economist', EIU: Economist Intelligence Unit, New York, USA.

House of Lords (2006), *Constitution – Twelfth Report,* available at: http://www.publications.parliament.uk/pa/ld200304/ldselect/ldconst/150/15002.htm (accessed 12th August 2011).

HSE (approx. 2011), *How HSE meets the obligations in the statutory Regulators' Compliance Code*, available at: http://www.hse.gov.uk/regulation/compliancecode/ (accessed 11th August 2911).

Hyland, P. and Beckett, R. (2002), *Learning to compete: the value of internal benchmarking*, Benchmarking: An International Journal, Vol. 9, No. 3, pp. 293-304.

Kemp, R and Andersen, M. M. (2004), *Strategies for eco-efficiency innovation, Strategy*, Paper for the EU Informal Environmental Council Meeting, July 16-18 Maastricht, VROM, Den Haag, The Netherlands.

Klinke, A. and Renn, O. (2002), *A New Approach to Risk and Management: Risk-Based, Precaution-Based, and Discourse-Based Strategies*, Risk Analysis: An International Journal, Vol. 22, Issue 6, pp. 1071-1094.

Li, M and Yang, J.B. (2003), *A decision model for self-assessment of business process based on the EFQM excellence model*, International Journal of Quality & Reliability Management, Vol. 20, No. 2, pp. 164-188.

Magd, H. and Curry, A. (2003), *Benchmarking: Achieving the best value in public-sector organisations*, Benchmarking: An international Journal, Vol. 10, No. 3, pp. 261-286.

Marsh (2010), *Benchmarking risk management performance*, Marsh Ltd., London, UK.

Marsh (2011), *About Marsh*, available at: http://uk.marsh.com/AboutUs/AboutMarsh.aspx (accessed 17th August 2011).

McAdam, R and O'Neill, E. (1999), *Taking a critical perspective to the European Business Excellence Model using a balanced scorecard approach: a case study in the service sector*, Managing Service Quality, Vol. 9, No. 3, pp. 191–197.

Minogue, M. and Cariño, L.V. (2006), *Regulatory governance in developing countries*, Edward Elgar Publishing Ltd, Cheltenham, UK.

NIEA (2009), *Measuring the effectiveness of Environmental Management Systems Phase 2: Final Report Including Data & Statistical Analysis*, available at: http://www.doeni.gov.uk/niea/measuring_the_effectiveness_of_ems_phase_2.pdf (accessed 25th August 2011).

Philips, B.T (2003), *A four-level learning organisation benchmark implementation model*, The Learning Organisation, Vol. 10, No. 2, pp. 98-105.

Porter, L.J. and Tanner, S.J. (1996), *Assessing Business Excellence – A guide to self-assessment*, Butterworth-Heinemann, Oxford, UK.

RPA (2008), *RPA Compliance Code*, available at: http://rpa.gov.uk/rpa/index.nsf/vContentByTaxonomy/About%20RPA**Plans,%20reports%20and%20other%20key%20documents**RPA%20Compliance%20Code**?OpenDocument (accessed 11th August 2011).

Rutherfoord, R., Blackburn, R.A. and Spence, L.J. (2000), *Environmental management and the small firm; An international comparison*, International Journal of Entrepreneurial Behaviour and Research, Vol. 6, No. 6, pp. 310-325.

Scott, E.M. (2007), *Setting, and evaluating the effectiveness of, environmental policy*, Envirometrics, Vol. 18, pp. 333-343.

SEPA (2005), *Protecting and improving the environment through regulation; SEPAS`s Vision for Regulation*, available at: http://www.sepa.org.uk/about_us/publications/better_regulation.aspx (accessed 6th June 2011).

SEPA (2010),

a. *Agency Board Meeting 9 November 2010*, Board Report Number: SEPA 49/10, Scottish Environment Protection Agency, Stirling, UK.
b. SEPA; Scottish Environment Protection Agency Annual Operating Plan 2010-2011, Scottish Environment Protection Agency, Stirling, UK.
c. *Better environmental regulation – SEPA's change proposals*, available at: www.sepa.org.uk/about_us/consultations/idoc.ashx?docid=1effdde6-6b9d-4792-9f2a-aac3dc3adf41&version=-1 (accessed 31th August 2011).

Siow, C.H.R., Yang, J.B. and Dale, B.G. (2001), *A new modelling framework for organizational self-assessment: development and application*, Quality Management Journal, Vol. 8, No. 4, pp. 34-47.

Sommerville, J. and Robertson, H.W. (2000), *A scorecard approach to benchmarking for total quality construction*, International Journal of Quality & Reliability Management, Vol. 17, Nos 4/5, pp. 453-466.

Spendolini, M.J. (1992), *The Benchmarking Book*, AMACOM, New York, USA.

UK Parliament (2007), UK Economic Regulators, 1st Report of Session 2006–07, HL Paper 189-I, available at: http://www.publications.parliament.uk/pa/ld200607/ldselect/ldrgltrs/189/189i.pdf (accessed 10th June 2011).

White, M., Pollard, S. and Lemon, M. (2010), *Using Risk-based Decision Making to Create a Better Place*, Science report: SC070055/SR, Environment Agency, Bristol, UK, Pending publication.

Yapp, C. (2006), *A Comment on the Hampton Review,* Environmental Law Review, Vol. 8 Issue 1, pp. 1-5.

APPENDICES

Appendix A - The Benchmarking tool

A.1 Guidance to the benchmarking survey

The new millennium sees ever-increasing expectations, where outcomes and deliverables are supposed to reach higher levels in every dimension. These expectations need to be fulfilled. For example the requirements for enhanced quality means that benchmarking is an excellent method of developing procedures and processes to help an institution analyse areas of improvement and areas where the institution already has a high level of satisfaction (Antony *et al.*, 2006). This survey will cover five important and relevant areas to the institution;

1) leadership;
2) people;
3) processes;
4) policy;
5) outcome and delivery.

These five areas will be numbered according to the above list in the survey, e.g. questions numbered **1.X** will deal with area of leadership.

Both areas and key words such as 'knowledge' and understanding should be defined before continuing with the survey in order to get as accurate an answer as possible from as many respondents as achievable.

Leadership will in this survey be defined as the individuals that have a management role, including the executive board. Leadership can be found on several different levels with a wide range of different visions, missions, objectives and goals. Patching (2011) notices that a person in a leadership position has the ability to analyse and learn lessons from others leaders and from failures. The leadership have the ability to take advantages of other people's strengths, both leaders and employees.

People include all employees, managers, consultants and specialists that operate within or for the institution. In those instances where the survey has used 'stakeholder', stakeholders should be seen as that narrow group of employees, managers, consultants and specialist.

Processes refer to all processes, methods and procedures that the institution uses or takes advantage of to achieve its vision, missions, objectives and goals. This survey considers how well risk-based decision making is managed, and will therefore relate to all possible situations where risk assessment is relevant.

Policy refers to the institution's rules, principles and codes which the institutions are supposed to act upon in more or less restricted way. Policies contribute to guidance in decision making and lead to more rational and logical actions. There should be obvious connections between the institution's policies and vision, missions, objectives and goals.

Outcomes and deliverables refer to results of the processes and procedures that people execute according to prevailing policy. The survey will examine how well outcomes and deliverables are managed.

The following benchmarking questions will also refer to key words such as 'knowledge' and 'understanding', where differences should be kept in mind. Knowledge could be defined as 'justified true belief' (Byosiere *et al.*, 2001, p. 493). Knowledge is needed to understand concepts, situations or behaviours. The management concept is a key term which can have wide or narrow definitions applied. Brown *et al.* (2009) discussed how risk management from the start is an area for the board and corporate governance, but the area is not manageable in this tight approach. He continues to emphasise the importance of interdependent involvement of 'directors, senior management, internal and external auditors, and risk owners' (Brown *et al.*, 2009, p. 547). Even this definition should be broadened. This survey will define management as people who have any kind of overall responsibility for areas that connect to and include risk assessment.

Another expression that needs clarification is 'joint working'. The Hampton report (Hampton, 2005) emphasised the importance of joint programmes with other institutions. Joint working could be implemented through joint programmes where joint inspections could be one way of dealing with the area.

Each area has an average of eight questions. The questions have five different possible answers, and the most applicable one is meant to be chosen. There is **no** option to choose more than one answer. At the end of every question, there are lines that are supposed to **complement** the answer. Use these lines if there is something you want to add or clarify in your answer. They are **not** meant to be used for the answer itself.

Some questions refer to the missions, visions, goals and objectives of your institution. These could be referred to both on an operational and institutional level, therefore please read carefully. If there is any confusion between missions, visions, goals and objectives of your operation, unit and/or institution, please see the website (http://www.environment-agency.gov.uk/) or ask for an informative meeting with your manager before your answer this survey.

Answers to the survey will remain anonymous and will be performed once a year. The survey will be implemented in the same period each year and the results analysed and reflections on to examine the institution's experience.

A.2 Benchmarking questions with internal context

Internal context:

1.1 To what extent is the culture relevant in a risk assessment perspective?

Because with evidence of the amount of academic articles that notice the importance of culture in different branches and from different views (e.g.: 1) Brandt *et al.* (2011) – discussed culture from a view of success in universities, 2) Friedli *et al.* (2006), argue about culture as a success factor for collaboration). Culture operates as an enabler for success in many ways. Awareness and knowledge of culture are enablers for the stakeholders to do risk-based decision making. Stakeholder needs to be at the same altitude or at least be able to view the objectives from the same perspective. Baldwin *et al.* (2000), highlights the influence of culture biases when it comes to risk-based decision making.

What processes, procedures and tools are implemented and embedded in the daily operations to highlight and ensure that:

- awareness and knowledge of different culture versus existing culture?
- advantages and disadvantages within the agency and its risk-based decision making process?

BM – Question 1.1		
Do you use any tools, methods, procedures or processes to help you enhance your knowledge and awareness of the agency's culture which assist you with risk-based decision making in your daily work of operating and regulating?		
Scale		
Low	☐	1. Senior management are aware of the need to manage knowledge and awareness of the agency's culture whit a perspective of risk assessment and risk-based decision making, and have also made resources available to improve the area.
	☐	2. Board/Directors, senior managers, line managers, and managers take the lead to ensure that approaches of addressing risk and risk assessment are being developed and implemented within the culture.
↓	☐	3. Senior managers take the lead to apply risk management deep and thoroughly within the culture across the organisation.
High	☐	4. The culture of risk management is championed by the CEO. The Board and senior managers are driven by the objective to integrate risk assessment in the culture as a succeeding factor of the organisation.
	☐	5. Every manager provides their staff with several different processes and procedures which enhance the knowledge, awareness and the integration of risk assessment in the culture. The outcomes of this integration drive excellence through the business.
Please write additional comments below: _____ _____		

Internal context:

1.2-6 How important is risk management for the management (in terms of the culture of the organisation)?

We expect that the management manage the agency at all levels of the organisation in a comprehensive way. Understanding of the operation's daily operating processes is a key element when it comes to managing development within the agency. To meet expectations from stakeholders assigning effectiveness and efficiency success factors becomes critical where management is one of them. Evidence of the need and importance of successful management is found in academic literature and from the proofing workshop. The proofing workshop found that the management (leadership) did not have enough insight into daily operation and how they operated.

Is there any evidence (tools or methods) of how managers use risk-based decision making in their leadership? This could be related to the involvement of stakeholders in decision making, how and what they communicate, responsibility development/roles, feedback systems, implementation and development, and improvement.

BM – Question 1.2		
Are the managers using their leadership to manage responsibility, feedback, roles and trust in such a way that they are supporting the stakeholders and facilitating risks and uncertainty through risk-based decision making?		
Scale		
Low	☐	1. The management is aware that the need for full support of the staff in their roles, responsibilities, feedback and trust to manage uncertainty and risk. Managers have high incentives to make resources available for the improvement of management, tool boxes and the implementation of them.
	☐	2. Board/Directors and senior managers take the lead to ensure that approaches for addressing gaps in roles, responsibilities, feedback and trust will be implemented.
↓	☐	3. Senior managers take the lead to apply a view where roles, responsibilities, feedback and trust are seen as objectives to succeed through people.
	☐	4. The management of roles, responsibilities, feedback and trust is championed by the CEO. The Board and senior management have a strong view that the success of organisational objectives comes through good management of roles and responsibilities, and feedback and trust. These enhance the quality and implementation of risk assessments and risk-based decision making.
High	☐	5. Senior management are always seeking approaches to enhance the quality and integration of roles and responsibilities, and feedback and trust within the organisation. These drive excellence in the organisation with strong support and rewards for well-managed risk-taking.
Please write additional comments below: _____ _____		

BM – Question 1.3		
To what level are the vision, missions and objectives clearly stated and integrated within the framework of risk-based decision making and risk assessment in affected units?		
Scale		
Low	☐	1. Awareness and knowledge exist in some areas and/or levels that support clearly stated vision, mission and objectives which ease up the risk management.
	☐	2. Risk assessment is supported by the organisation's vision, mission and objectives to the extent that it is mostly integrated in the daily work of regulating operators.
↓	☐	3. The management develops and reviews vision, missions and objectives in such a way that it invites and enables risk assessment and risk-based decision making in to the regulators' daily work.
	☐	4. The vision, mission and objective are championed by the CEO. The Board and senior managers challenge the opportunities to enhance the support that vision, mission and objectives provide to risk assessment.
High	☐	5. The organisation has a view where risk assessments are integrated within vision, missions and objectives and drive the organisation's excellent outcome.
Please write additional comments below: _____ _____		

BM – Question 1.4
If the vision, missions and objectives are stated and integrated within the framework of risk-based decision making and risk assessment for affected units, are they then fully supported by the management?
Scale

Low	☐	1. There is some awareness, knowledge and support in some areas and/or levels of the organisation, that support the clearly stated vision, mission and objectives that ease up the management of risk.
	☐	2. Risk assessment is supported by the organisation's vision, mission and objectives to the extent that it is mostly integrated in the daily work of regulating operators.
↓	☐	3. The management develops and reviews vision, missions and objectives in such a way that it invites and enables risk assessment and risk-based decision making in the regulators' daily work.
High	☐	4. The vision, mission and objectives are championed by the CEO. The Board and senior managers challenge the opportunities to enhance the support that vision, mission and objectives provide to risk assessment.
	☐	5. The organisation has a view where risk assessments are integrated within vision, missions and objectives and drive the organisation's excellent outcome.

Please write additional comments below:

_____

_____

BM – Question 1.5		
Are there any tools or processes, such as risk assessments, that helps you in your daily work and also to develop effective policies? The tools should include factors such as risk appetite, key risks, levels of risk acceptance and risk judgement.		
Scale		
Low	☐	1. There is support from some tools and/or processes which help me within some areas of regulating.
	☐	2. A toolbox with a range of different tools exists. The tools are applicable to a wide range of different occasions within risk-based policy making.
↓	☐	3. The management are approaching development, implementation and use of the toolbox with a great confidence. They acknowledge to what extent the toolbox helps to improve effective policy making with risk-based decision making.
High	☐	4. Methods, such as toolboxes for effective policy making, through risk-based decision making and risk management, are championed by the CEO. The Board and senior managers promote the use and the capture of new opportunities which could enhance effective policy making.
	☐	5. The management culture, throughout the whole organisation, helps staff to make effective policy making as a way to drive excellence through the organisation. Strong support and rewards for well-managed effective policy making are provided.
Please write additional comments below: _____ _____		

BM – Question 1.6
Are you using tools that develop and encourage innovation and improvement through well-managed risk taking?
Scale

Low	☐	1. I am aware of some tools that could enhance my and the organisation's objectives to succeed through well managed risk taking.
	☐	2. Senior managers take the lead to ensure that approaches for innovation and improvement, through well-managed risk taking, are being developed and implemented.
↓	☐	3. Senior managers take the lead to implement 'a culture of tools' that develops and encourages innovation and improvement through well-managed risk taking. The cultural approach is seen throughout the whole organisation and is operating as a parameter in all well-managed risk-based decision making.
High	☐	4. The CEO champions the use of tools that develop and encourage innovation and improvement through well-managed risk-based decision making. The Board and senior managers understand and strive towards a state where the organisation is succeeding through that state.
	☐	5. The culture and especially the management promote tools that develop and encourage innovation and improvement through well-managed risk taking. The use of the tools drives excellence through the operating system and strives to achieve continuously quality enhancements.

Please write additional comments below:

_____

_____

Internal context:

1.7 To what degree would accountability be relevant in a cultural aspect?

We expect, even though Dodds, A. and Kodate, N. (2011) notice the contradiction between organisational responsibility and accountability (a culture of blame), and a learning organisation (non-blaming culture) that the agency is able to find the middle way. Some evidence exists from the Proofing workshop that there is no space for failures and that failure could be followed with some kind poorer consequence.

BM – Question 1.7
To what extent do you have access to and use any kind of resources that helps you to perform risk-based decision making with a fair and supporting culture of accountability?

		Scale
Low	☐	1. Awareness of the importance of resources that enables risk-based decision making and risk assessment with accountability support exists. Tools such as OPRA are used. However, both the usage and the tools could be improved.
	☐	2. The integration of resources, which enables risk-based decision making and risk assessment with accountability support, are made to some extent. Managers promote the access and the use of such tools with no trace of a blame culture.
↓	☐	3. The organisational culture acknowledges resources that enable risk-based decision making and risk assessment - with support of accountability systems as a learning organisation and with no trace of a blaming culture. The management promotes the development of new tools and the improvement of existing ones, as a way of improving accountability.
High	☐	4. The CEO, the Board and senior managers challenge existing tools with accountability support, to improve the organisation's outcomes and deliverables in a more effective way. The management have a culture where the best available tools, which are supported of accountability, are used.
	☐	5. The management have a culture where resources that help you to do risk-based decision making with a fair and supporting culture of accountability which drives excellence within the organisation. Support and rewards for well-managed risk-taking through an accountability system, are a self-explanatory part of the culture.

Please write additional comments below:

_____

_____

Internal context:

1.8-9 To what level are escalation and the reporting system a relevant aspect?

We expect that the organisation is well aware of the important connection accountability has with escalation and reporting systems because of the well-known expression 'what gets measured get managed' and due to a consideration of the issues of accountability.

Following the reasoning above there should be evidence in the form of tools, systems and processes that provide an integrated system which is easy to use and follows the framework of risk-based decision making. This helps the organisation to reach its objectives in an effective way.

BM – Question 1.8		
Are the report and escalation systems arranged in such a way that risk-based decision making is promoted?		
Scale		
Low	☐	1. The report and escalation systems are arranged in such a way that they promote risk-based decision making. They are also integrated and work towards the same objectives as the rest of the organisation.
	☐	2. Managers take the lead to ensure that report and escalation systems are arranged in such a way that they promote risk-based decision making and are integrated and working towards the same objectives as the rest of the organisation. The management are also open to improvements to remove weaknesses in systems.
↓	☐	3. The management takes the lead to apply report and escalation systems that are arranged in such a way that they promote risk-based decision making. These are integrated and working towards the same objectives as the rest of the organisation. The support is implemented thoroughly across the organisation.
High	☐	4. Report and escalation systems are arranged in such a way that they promote risk-based decision making and are integrated and working towards the same objectives as the rest of the organisation. This method of operating is championed by the CEO. The Board and senior managers challenge the existing systems to develop and improve.
	☐	5. The report and escalation systems are arranged in such a way that they promote risk-based decision making and drive excellence through the organisation. A genuine effort to reach better outcomes from the system is always an objective for the organisation.

BM – Question 1.9

Please write additional comments below:

_____

Are the _____ the same
obj _____

Internal context:

2.1-2 How important is knowledge in a view of risk assessment and risk-based decision making?

We expect that the required knowledge exists and that management obtains new knowledge when possible. Stakeholders are expected to be equipped and supported to be able to make risk-based decision making in its context. A 'mature' organisation needs to provide appropriate training and guidance for concerned staff. With the right knowledge, guidance and training it is possible for staff to make better analyses of risk and risk assessments which provide a more accurate and qualitative approach towards risk-based decision making. This expectation would also decrease 'a blame culture' and it would be easier for the management to trust the staff's risk-based decisions. Effectiveness and efficiency would increase.

We would like to see evidence of how well the agency could implement knowledge and also how well different units are to communicate their increased need for knowledge. We would like to see evidence of working tools and processes to enhance the competence of staff. Providing procedures to identify and addressing knowledge gaps is preferable.

Plea

_____

_____

BM – Question 2.1		
Do you use any tools and/or are you included in processes/procedures aiming to map knowledge gaps, knowledge improvements, stakeholders' views of required knowledge?		
Scale		
Low	☐	1. Key people are aware of the need for knowledge in all aspects. There are some mapping activities, the purpose of which is to highlight gaps, knowledge improvements and to what extent staffs are succeeding through their existing knowledge. A group of people have the skills and knowledge to manage risk effectively and implement the risk management framework.
	☐	2. Suitable guidance is available and a training programme has been implemented to develop the required knowledge. The management has also put effort into the area of developing and improving systems for the identification of knowledge.
↓	☐	3. The management acknowledge the importance of charting the knowledge base for risk assessment and risk-based decision making. The core management's awareness of how knowledge mapping affects the organisational outcomes and deliverables could be increased.
High	☐	4. The CEO support and promotes the importance of managing the need for knowledge, expected knowledge and any gaps. The CEO has implemented the view throughout the organisation's systems and within its culture.
	☐	5. The value of individuals and the implemented culture of the organisation are crucial contributions to how processes/procedures aiming to map knowledge gaps, knowledge improvement, stakeholders' views of required knowledge, are driving excellence within the organisation.

Please write additional comments below:

_____

_____

BM – Question 2.2		
Is the agency aware of the importance of knowledge for creating the capability for risk-based decision making?		
Scale		
Low	☐	1. Key people are aware of the need of knowledge in all of its aspects. There are some mapping activities, the purpose of which is to present gaps, knowledge improvement and to what extent the staff are succeeding through their existing knowledge. A group of people have the skills and knowledge to manage risk effectively and implement the risk management framework.
	☐	2. Suitable guidance is available and a training programme has been implemented to develop the required knowledge. The management has also put effort into the area of developing and improving systems for the identification of knowledge.
↓	☐	3. The management acknowledge the importance of charting the knowledge base for risk assessment and risk-based decision making. The core management's awareness of how knowledge mapping affects the organisational outcomes and deliverables could be increased.
High	☐	4. The CEO supports and promotes the importance of managing the need for knowledge, expected knowledge and any gaps. The CEO has implemented the view throughout the organisation's systems and within its culture.
	☐	5. The value of individuals and the implemented culture of the organisation are crucial contributions to how processes/procedures, aiming to map knowledge gaps, knowledge improvement, stakeholders' views of needed knowledge, are driving excellence within the organisation.

Please write additional comments below:

_____

_____

Internal context:

2.3 How important is knowledge in a view of risk assessment and risk-based decision making?

We expect that the required knowledge exists and that the management obtains new knowledge when possible. Stakeholders are expected to be equipped and supported to be able to make risk-based decision making in its context. A 'mature' organisation needs to provide appropriate training and guidance for concerned staff. With the right knowledge, guidance and training it is possible for the staff to make better analyses of risk and risk assessments which provide a more accurate and qualitative approach towards risk-based decision making. This expectation would also decrease 'a blame culture' and it would be easier for the management to trust the staff's risk-based decisions. Effectiveness and efficiency would increase.

We would like to see evidence of how well the agency could implement knowledge and also how well different units are to communicate their increased need for knowledge. We would like to see evidence of working tools and processes to enhance the competence of the staff. Providing procedures to identify and addressing knowledge gaps is preferable.

BM – Question 2.3		
Please, provide information of how the management takes responsibility for increased knowledge and lack of training.		
Scale		
Low	☐	1. There is some support, such as results from staff performance reviews, that shows how key people within the organisation take responsibility for knowledge, knowledge enhancement and training.
	☐	2. Suitable guidance and training are acknowledged at management levels as a natural requirement for the staff of the organisation to carry out well-managed risk assessments and risk-based decision making. There are several programmes and processes to explore areas and staff in need of support and training to be able to reach the organisational objectives.
↓	☐	3. The management provides evidence that they are taking full responsibility to provide staffs with enough knowledge, guidance and training to do effective risk-based decision making and risk assessment during their daily work.
High	☐	4. The CEO and the Board are supporting and have fully implemented a culture that is dominated by responsibility to provide staffs with enough knowledge, guidance and training to do effective risk-based decision making and risk assessment during their daily work.
	☐	5. The culture of responsibility for enhancement of knowledge and training drives the organisation towards excellence.
Please write additional comments below: _____ _____		

Internal context:

2.4 How important is knowledge in a view of risk assessment and risk-based decision making?

Since we expect that the required knowledge exists and that the management is working, that includes obtaining new knowledge. Stakeholders are expected to be equipped and supported, to be able to make risk-based decision making in its context. A "mature" organisation needs to provide appropriate training and guidance for concerned staff. With right knowledge, guidance and training it is possible for the staff to make better analysis of risk and risk assessments. This provides a more accurate and qualitative approach towards risk-based decision making. The expectations would also decrease "a blame culture" and it would be easier for the management to trust the staffs' risk-based decision. Effectiveness and efficiency would increase.

We would like to be provided with evidence of how well the agency could implement knowledge and to what extent different units communicate of their need for knowledge. We would like to see evidence of working tools and processes to enhance the competence of the staff. Providing of procedures to identify and addressing knowledge gaps is preferable.

BM – Question 2.4

Are you aware of/or are included in training and/or education which is an attempt to decrease knowledge gaps within risk assessment, as you see it?

	Scale	
Low	☐	1. There is some support, such as results from staff performance reviews, that shows how key people within the organisation take responsibility of knowledge, knowledge enhancement and training.
	☐	2. Suitable guidance and training are acknowledged at management levels as a natural requirement for the staff of the organisation to carry out well-managed risk assessments and risk-based decision making. There are several programmes and processes to explore areas and staff in need of support and training to be able to reach the organisational objectives.
↓	☐	3. The management has created a culture where they provides evidence that they are taking full responsibility to provide staffs with enough knowledge, guidance and training to do effective risk-based decision making and risk assessment during their daily work.
High	☐	4. The management have created a culture where they provide evidence to a great extent, that they are taking fully responsibility to provide staffs with enough knowledge, guidance and training to do effective risk-based decision making and risk assessment during their daily work.
	☐	5. The culture of responsibility for enhancement of knowledge within risk assessments drives the organisation towards excellence.

Please write additional comments below:

_____

_____

Internal context:

2.5 How important is knowledge in a view of risk assessment and risk-based decision making?

We expect that the required knowledge exist and that the management is working which including obtaining new knowledge. Stakeholders are expected to be equipped and supported to be able to make risk-based decision making in its context. A "mature" organisation needs to provide appropriate training and guidance for concerned staff. With right knowledge, guidance and training is it possible for the staff to make better analysis of risk and risk assessments which provide a more accurate and qualitative approach towards risk-based decision making. These expectations would also reduce the risk of "a blame culture" and it would be easier for the management to trust the staffs' risk-based decision. Effectiveness and efficiency would increase.

We would like to see evidence of how well the agency could implement knowledge and how well the different units communicate of the need of knowledge. We would like to see evidence of working tools and processes to enhance the competence of the staff. Providing of procedures to identify and addressing knowledge gaps is preferable.

		BM – Question 2.5

Do you use procedures and processes which are meant to ease risk-based decision making and risk assessment when a complicated situation arises and core expertise is needed?

		Scale
Low	☐	1. I have access to and knowledge of processes and procedures which ease risk assessment and risk-based decision making when complicated circumstances arise.
	☐	2. Suitable guidance and methods are available which are meant to ease my work in exceptional circumstances and enhance my quality of regulating operators. This helps me judge when and where I need to bring specialist knowledge into my case, when I need to consult colleagues and when I can make risk-based decisions and risk assessment on my own.
↓	☐	3. The core management provide support and emphasise the importance of applicable procedures and processes, which maintain or enhance the quality of risk-based decision making and risk assessment in exceptional circumstances. This view is integrated throughout the organisation and it is part of the culture.
	☐	4. The management champions the development, improvement and implementation of procedures and processes which secure the achievement of organisational objectives. There are suitable training tools which enable staff to deal with their daily operations.
High	☐	5. The organisation's excellence is driven by a culture where risk assessment and risk-based decision making are the core concerns within every aspect. This culture provides the staff with methods that are based on quality and the knowledge which to use on different occasions.

Please write additional comments below:

_____

Internal context:

2.6-7 How important are the views of goals and objectives?

We expect that the management have to provide objectives, scopes and goals (which are both common and group specific) to secure the absence of personal actions (or personal actions within a group). The objectives, scopes and goals are expected to be provided in such a way that every individual can interpret them to their area of expertise. To have the same view or the awareness of different views of key terms secures the quality of the agency. To embed a risk-based decision making and risk assessment, both in the developing of objectives, scopes and goals and in the daily operation to reach them, will secure and enhance reliability and quality.

We would like to see evidence of how well the agency has implemented risk-based decision making within the process of developing and implementing objectives, scopes and goals and how close they are to fully utilising risk-based decision making.

BM – Question 2.6		
Do you use tools and methods in your ambitions to achieve objectives, scopes and goals that clearly support and engage risk-based decision making?		
Scale		
Low	☐	1. There is a connection in the daily procedures between regulating operations in a risk-based decision making way and the achievement of the organisation's objectives, scopes and goals.
	☐	2. Key people promote the connection between the organisation's objectives, scopes and goals and the daily operation (which are assisted by risk-based decision making and risk assessment).
↓	☐	3. The management always has risk assessment and risk-based decision making in mind in the development-, improvement- and implementation processes of objectives, scopes and goals. There is clear evidence that daily operation is based for the objectives, scopes and goals.
High	☐	4. Well-based objectives, scopes and goals are championed by the managers as a foundation of how to regulate operators. The existence of key values of risk-based decision making and risk assessment are integrated and provide a guidance of how to regulate.
	☐	5. The excellence of the organisation's outcomes and deliverables are driven by its clear objectives, scopes and goals and they are integrated in the culture and values.
Please write additional comments below: _____ _____		

BM – Question 2.7

Are there any clear signals that risk-based decision making has been involved in the developing and implementation of the objectives, scopes and goals?

Scale

Low	☐	1. There is a connection in the daily procedures between regulating operations in a risk-based decision making way and the achievement of the organisation's objectives, scopes and goals.
	☐	2. Key people promote the connection between the organisation's objectives, scopes and goals and the daily operating (with are assisted by risk-based decision making and risk assessment).
↓	☐	3. The management always has risk assessment and risk-based decision making in mind in the development-, improvement- and implementation processes of objectives, scopes and goals. There are clear evidence that daily operation is based on their objectives, scopes and goals.
	☐	4. Well-based objectives, scopes and goals are championed by the managers as a foundation of how to regulate operators. The existence of key values of risk-based decision making and risk assessment are integrated and provide a guidance for how to regulate.
High	☐	5. The excellence of the organisation's outcomes and deliverables are driven by its clear objectives, scopes and goals, and they are integrated in the culture and values.

Please write additional comments below:

_____

_____

Internal context:

2.8 How relevant is communication within the area of 'People'?

We would expect that management develops and implements a culture that facilitates communication between people and units within the agency. Even if freedom exists in individual achievements, facilitating communication would enhance the quality between front line units and the units furthest from the operating sites. It would contribute to all staff even if the operation is based on individual achievements. There is evidence from the Proofing Workshop that the quality of communication needs to be enhanced. In order that every participant is able to make risk-based decisions in their individual role, a certain level of transparency must be present. A 'mature' agency has a well-developed system of communication.

To prove the agency' efforts to promote the use of risk-based decision making, the communication system needs to be well thought through and provide clear evidence that it helps the use of risk-based decision making through the whole agency.

BM – Question 2.8
Do you use any communication tools or processes that facilitate co-operation within the agency?
Scale

Low	☐	1. Some procedures and training are provided which help individual to communicate risks, both internally and externally.
	☐	2. Procedures and training for how to communicate, both in the right way and with the right tools, are implemented through the whole organisation.
↓	☐	3. The management promotes the value of correct communication within risk-based decision making. The management tries to implement the culture of communication and its advantages.
High	☐	4. The management sees tools, guidance and training as an obvious ingredient to a successful organisation. From day one, staff are trained to communicate the 'right thing' at the 'right moment'. Within a culture of risk assessment and risk-based decision making, communication of risk is essential to succeed through achievement of objectives, scopes and goals.
	☐	5. The excellence of the organisation has clear links to internal and external communication of risk. The view, culture and ability of communication drive the organisation towards high levels of quality assurance.

Please write additional comments below:

_____

_____

Internal context:

2.9 Is a greater degree of joint working needed?

Expectations from the Hampton report highlight the importance of joint working with other agencies to deliver a more effective regulating operation. There is also some evidence that staff recognise difficulties of working with other agencies on high risk projects (is this recognised just because more is at stake and is therefore more obvious or is it always the case?). This is also involving the need of joint working within the agency, the need of view and be able to handle the tools integrated within risk-based decision making. Experience could be one of the factors that risk-based decision making is based on which makes joint working important within the organisation.

We would like to see tools and methods that identify risk-based decision making within joint working circumstances.

BM – Question 2.9

Do you use any tools or processes to make risk-based decision making in the regulating environment when it comes to joint working?

	Scale	
Low	☐	1. The regulating environment provides a toolbox containing methods and procedures for how to enhance the quality of risk-based decision making in joint working circumstances.
	☐	2. The use and importance of tools to make joint working within risk areas as effective and accurate as much as possible exist and is promoted by key people.
↓	☐	3. The management understands the importance of joint working for an effective organisation and therefore supports the development of toolboxes which help co-operation within risk-based decision making.
	☐	4. The importance of a culture that promotes and supports tools that enhance and secure quality in a joint working environment is implemented throughout the whole organisation.
High	☐	5. The organisation has a culture and values where joint working drives the organisation's excellence and where the effectiveness is maximised as much as possible.
Please write additional comments below:_____		

Internal context:

2.10 To what extent is it relevant to succeed through people?

To be able to succeed through people a well-managed organisation is needed which brings out the best qualities and efforts from staff. Risk-based decision making alone cannot ensure that an organisation is getting the best out of its staff. However, in a operation such as the Environment Agency would risk assessments, good environmental behaviour, risk-based decision making and the tools and processes that enables them be a foundation to enable staff to succeed in their daily work and enhance the operating quality This question is not appropriate to include in a survey.

BM – Question 2.10
-
Scale

Low	☐	1.
	☐	2.
↓	☐	3.
	☐	4.
High	☐	5.

Please write additional comments below:

_____

_____

Internal context:

2.11 To what extent are well defined roles and responsibilities relevant?

Since a 'mature' agency will have staff who have a consequent view of well delegated and clear responsibility of risk, risk assessment and risk-based decision making. A 'mature' agency has a system of day-to-day operating where there never/seldom arise questions of roles and/or responsibility. The definition and content of the term 'mature' in an organisational setting is widely debated, but Andersen and Jessen (2003) highlight a definition of maturity 'as being ripe or having reached the state of full natural or maximum development' (Andersen and Jessen, 2003, pp. 457). They continue to notice that no institution has reached this level or ever will. The authors would rather define mature as a high level of these three components 'action (ability to act and decide), attitude (willingness to be involved), and knowledge (an understanding of the impact of willingness and action)' (Andersen and Jessen, 2003, pp. 458). The two definitions give a good approach to the meaning of 'mature' in this survey.

What kinds of principles are set up to decrease the possibility of confusion of roles and responsibility within a risk and risk-based decision making context?

BM – Question 2.11
Please, can you provide and give a short overview of the existing principles that are in place to ensure the quality of risk-based decision making in the context of roles and responsibility?

Scale		
Low	☐	1. Key persons are aware of the need to understand risk in their areas and know to what extent competence within risk management affects responsibility in the daily work.
	☐	2. Key persons promote and support accurate principles and guidelines to define individuals' roles and adherent responsibilities. When gaps in the definition of roles and responsibility are discovered, they are immediately communicated for consideration by the management.
↓	☐	3. The management sees clearly defined roles and responsibilities as a foundation for success with an effective and well managed risk assessment. This view contributes with action plans to map any gaps and to find weaknesses that could be improved.
	☐	4. The management champions the value and culture of roles and responsibility throughout the whole organisation.
High	☐	5. Clear roles and responsibilities or an open environment where discussion of these themes are easily engaged in contributes to an environment where that drives the organisation's excellence.
Please write additional comments below: _____ _____		

Internal context:

2.12 How important is the culture for stakeholders?

Since we expect that staff operate in a cultural environment that encourages challenges to new practices, new ways of performing the regulating operation, takes advantage of opportunities that could enhance the organisation's and individuals' objectives. It is essential that staff do not feel that the agency practises any kind of blame culture. A blame culture could lead to, for example, ineffective risk-based decision making and unreported future accidents (Alarm, 2010).

We would like to see evidence that demonstrates an open and learning organisation. Applicable evidence could be procedures and processes that comply with an enhanced management of culture.

BM – Question 2.12		
Are you aware of any efforts that are ongoing and/or have been completed to enhance the agency's quality of management culture?		
Scale		
Low	☐	1. Efforts are made that are supposed to enhance the quality of management through a common culture.
	☐	2. Key individuals have paid attention to the importance of having a common and correct culture. Key individuals make efforts through processes to implement a common view of, for example, objectives, scopes and goals.
↓	☐	3. The management supports and promotes efforts and actions aimed at creating a value-based organisation where well-managed risk-based decision making and risk assessments acts as a foundation for achieving objectives.
	☐	4. Top management works actively with the culture of the organisation. The management's approach is based on how a common view of culture can enhance the way the organisations goals are perceived and how the organisation is supposed to achieve those goals.
High	☐	5. All individuals within the organisation are aware and have the knowledge and understanding of how the culture affects the organisation and its behaviour. With a common view of, for example, tools, achievement, roles, responsibility, transparency and risk, the organisation reaches levels of excellence.
Please write additional comments below: _____ _____		

Internal context:

3.1 How relevant is risk judgement within the organisation?

We expect an established behaviour that is supported by good environmental behaviour, in the practice of the risk of regulating a broad variety of operators. Factors such as sector risk, process risk, behaviour risk, risk from stakeholders, political risks and risk from society, are some of the risks that should be integrated in risk judgement.

What processes and tools are embedded in the daily procedures to ensure that risk judgements are integrated in every necessary process?

BM – Question 3.1

Do you use any tools, methods, procedures or processes (e.g. OPRA) to help you with risk judgements in your daily work of regulating stakeholders?

Scale		
Low	☐	1. There are a limited number of tools that help me to enhance the quality of risk-based decision making within my daily work.
	☐	2. Key people are promoting tools for risk judgement and are open minded to develop new and/or improve existing tools. The management are monitoring how risk judgement is working to discover gaps in, for example, communication or knowledge.
↓	☐	3. Yes, risk judgement tools and processes are integrated in every area. The management are promoting and supporting the assisting tools.
High	☐	4. The operating culture encourages the development and improvement of methods regarding risk judgement. Risk judgement and the use of the provided toolbox for risk assessment is a matter of course within the organisation.
	☐	5. The operating culture encourages the development and improvement of methods regarding risk judgement and the framework of risk judgment has become a key driver of the operation. The organisation's application of risk judgement drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

3.2 Is the level and clarity of risk appetite/aversion relevant?

Yes, because we expect that an operating agency will act with good environmental behaviour, which includes a consciousness and management of risk appetite and risk aversion against the operated and as guidance for employed, such as inspectors. The level of risk appetite could be interpreted as the willingness to pay to get rid of risk. An example of a risk appetite tool is a risk register that could be developed on different levels depending on the risk of the sector or process. It is possible to believe that appetite and aversion are antonyms but according to Danielsson *et al.* (2009) there is an even bigger difference between appetite and aversion than this. Appetite is the motivation for operators, while risk aversion is the in-built preferences parameter of the operator. The appetite for risk may change, yet it could still have the same risk aversion. That depends on what restrictions the operator operates under. They also argue that the longer the period for high risk appetite, the higher the level of vulnerability. Gai & Vause (2005) argues that risk appetite is the willingness to bear risk. The willingness to bear risk depends on two variables: the operators aversion to such uncertainty and the level of that specific uncertainty.

What processes and tools are embedded in the daily procedures to ensure that awareness and judgement of risk appetite and risk aversion are integrated in necessary processes?

BM – Question 3.2		
Do you have access to tools, methods, procedures or processes to help you with risk judgement regarding risk appetite and risk aversion in your daily work of regulating stakeholders?		
Scale		
Low	☐	1. There are a limited number of tools that help me to enhance the quality of risk-based decision making within my daily work.
	☐	2. Key people are promoting tools for appetite/aversion and are open minded to develop new and/or improve existing tools. The management are monitoring how appetite/aversion is working, to discover gaps in, for example, communication or knowledge.
↓	☐	3. Yes, appetite/aversion tools and processes are integrated in every area. The management are promoting and supporting the assisting tools. There is clear guidance on the organisation's approach to appetite/aversion.
	☐	4. The operating culture encourages the development and improvement of methods regarding appetite/aversion. Appetite/aversion and the use of the provided toolbox for risk assessment is a matter of course within the organisation. There is clear guidance on the organisation's approach to appetite/aversion and the management champions the use of the tools to reach the organisation's objectives within appetite/aversion.
High	☐	5. Operating culture encourages the development and improvement of methods regarding appetite/aversion and the framework of appetite/aversion has become a key driver of the operation. The organisation's application of risk judgement drives the organisation's excellence.
Please write additional comments below: _____ _____		

Internal context:

3.3 Is the degree of understanding key risks relevant?

Yes, because we expect that agencies that acts with good environmental behaviour need the knowledge and awareness of how to identify risk, and also are able to define key risks and where these key risks are findable. The risks and especially the key risks are important to manage because of the effects that neglected behaviour could imply. It is vital that tools and methods are in place to decide the impact of correlation between significance and magnitude of risks for different operators, sectors and processes.

What processes and tools are embedded in the management to ensure that awareness and judgement of the key risks are made properly?

BM – Question 3.3		
Do you have access to and do you use tools, methods, procedures or processes to help you identify key risks related to areas of regulated operators?		
Scale		
Low	☐	1. There are a limited number of tools that help me to enhance the quality of risk-based decision making within my daily work.
	☐	2. Key people are promoting tools for identification of key risks and are open minded to develop new and/or improve existing tools. The management is monitoring how well identification of key risks is working, to discover gaps in, for example, communication or knowledge.
↓	☐	3. Yes, tools and processes for identification of key risks are integrated in every area. The management are promoting and supporting the assisting tools. There is clear guidance on the organisation's approach to key risks.
High	☐	4. The operating culture encourages development and improvement of methods regarding identification of key risks. Identification of key risks and the use of provided tool boxes is a matter of course within the organisation. There is clear guidance on the organisation's approach towards it and the management champions the use of the tools to reach the organisation's objective within the management of key risks.
	☐	5. The operating culture encourages the development and improvement of methods regarding the management of key risks and this framework has becomes a key driver of the operation. The organisation's application of risk judgement drives the organisation's excellence.
Please write additional comments below:		

Internal context:

3.4 To what extent is it relevant to report and review risk?

Since we expect agencies to have good environmental behaviour where a total management of risks is included, this includes the regular reporting and reviewing of risks. Risk management - such as the reporting and reviewing of risks - could be used as the foundation or guidance for future decision making. Reports and reviews could be evidence for stakeholders that demonstrate that the agency is acting in a good environmental behavioural manner. However, at the same time reports and their reviews might also provide written evidence of problem areas.

What processes and tools are embedded in the management to ensure that reports and their reviews are used in an effective manner which contributes to success for the agency?

BM – Question 3.4

Are you using some processes which help you with risk assessment and risk-based decision making in your daily work to regulate operators?

	Scale	

Low	☐	1. The organisation has principles for how to account for and review risk. The organisation has a limited numbers of tools for accounting and reviewing risk. The tools do not affect the quality of risk-based decision making within my daily work to any considerable extent.
	☐	2. Key people are promoting tools for how to account for and review risk, and are open minded to develop new and/or improve existing tools. The management is monitoring how well the accounting and reviewing system of risks is working to discover gaps in, for example, approaches and use.
↓	☐	3. Yes, tools and processes for accounting and reviewing risk are integrated in every area. The management are promoting and supporting the assisting tools. There is clear guidance on the organisation's approach towards these systems.
	☐	4. The operating culture encourages the development and improvement of methods regarding the accounting and reviewing systems. The systems and the use of adherent toolboxes is a matter of course within the organisation. There is clear guidance on the organisation's approach and the management champions the use of the tools to reach the organisation's objective within the management of key risks.
High	☐	5. The operating culture encourages the development and improvement of methods regarding the management of accounting and reviewing systems of risks and the framework has becomes a key driver of the operation. The organisation's application of the systems drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

3.5 How important is risk response?

We expect that organisations with good environmental behaviour fulfil a risk assessment where management for risk response is included. It is not enough for regulators to dentify risk; they also need to manage responses to the particular risks. Different responses are needed depending on the magnitude and significance of the issue.

What processes and tools are embedded in the management to ensure that reports and the reviews of them are used in an effective manner that contributes to the success of the agency?

BM – Question 3.5
To what extents do you perceive the agency´s structure contributes to usable management of reports and their review?
Scale

Low	☐	1. The organisation has principles for how to manage reports and the reviews and outcomes from them. The tools do not affect the quality of risk-based decision making within my daily work to any considerable extent.
	☐	2. Key people are promoting tools for how to manage reports and the review and outcome from them, and are open minded to develop new and/or improve existing tools. The management is monitoring how well the system is working to discover any gaps in, for example, approaches and use.
↓	☐	3. Yes, tools and processes for managing reports and the reviews and outcomes from them are integrated in every area. The management are promoting and supporting the assisting tools. There is clear guidance on the organisation's approach towards these systems.
	☐	4. The operating culture encourages the development and improvement of methods regarding managing reports and the reviews and outcomes from them. The systems and the use of adherent toolboxes is a matter of course within the organisation. There is clear guidance on the organisation's approach and the management champions the use of the tools to reach the organisations objective within the management of key risks.
High	☐	5. The operating culture encourages the development and improvement of methods regarding the management of reports and the reviews and outcomes from them. The systems have become a key driver of the operation. The organisation's application of the systems drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

3.6-7 To what extent are the structure and the use of process systems relevant?

Since we expect that systems that are developed to enhance and facilitate the agency's risk-based decision making deliver the best outcomes. That will mean that it is not enough to have one process/tool/procedure/unit or level function with a top score, they also need to be successfully integrated with each other. To have a 'mature' approach to regulatory practice, risk-based decision making needs to be supported by systems, e.g. OPRA and risk rating systems. The system needs to be developed with stakeholders in mind.

Are supporting systems built and implemented to make it easier for stakeholders or do they act as obstacles to meet objectives through risk-based decision making?

BM – Question 3.7		
Are systems developed and implemented in a useful way for risk-based decision making?		
Scale		
Low ↓ High	☐	1. Some systems are used in a joint way with other agencies and enhance the quality of risk-based decision making and risk assessment in my daily operations.
	☐	2. The organisation follows standards in its operation.
	☐	3. The management have developed and improved the systems so that they now make an essential difference within my daily work. The management support and promote the use of the systems and the advantages for the organisation's effectiveness and efficiency.
	☐	4. The organisation's culture and values have integrated the use of the systems and the quality increase, which can be seen within everyday work, has been championed.
	☐	5. The values and culture of the use of the system have created an environment where the success drives the organisation's excellence.
Please write additional comments below: _____ _____		

BM – Question 3.7
Do the relevant developed and implemented systems make risk-based decision making easier for you?
Scale

Low	☐	1. Some systems that are used in a jointly way with other agencies enhance the quality of risk-based decision making and risk assessment in my daily operating of regulating operators.
	☐	2. The organisation follows standards in its operation.
↓	☐	3. The management have developed and improved the systems so that they now make an essential difference within my daily work. The management support and promote the use of the systems and the advantages for the organisation's effectiveness and efficiency.
	☐	4. The organisation's culture and values have integrated the use of the systems and the quality increase, which can be seen within everyday work, has been championed.
High	☐	5. The values and culture of the use of the system have created an environment where the success drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

3.8 How useful are investigation/root cause analysis/identification/evaluation criteria?

Because our assumption is that there is no meaning to risk-based decision making if the decision base is not correct. Risk-based decision making should be integrated from every view: from strategic- and financial planning to consultation and co-operation. To have tools and supporting processes for investigation/root cause analysis/identification/evaluation criteria make it easier (both enhancing quality and accessibility) for the involved to continue the process. To have a qualitative foundation makes it easier to make local risk priorities efforts and make decisions clearer which could decrease the number of sign-offs. We also expect risk-based decision making to be integrated in the first phase where the thoroughness of an investigation/root cause analysis/identification/evaluation is stated. Arguments of not act negligent towards this kind of analysis are highlighted by MacGillivray and Pollard (2008).

We are looking for evidence that shows that risk-based decision making is integrated and used to decide how significant and to what magnitude investigation/root cause analysis/identification/ evaluation criteria should be done.

BM – Question 3.8
Do you use any processes or tools that integrate risk-based decision making in the investigation/root cause analysis/identification/evaluation criteria?
Scale

Low	☐	1. There are some useful processes and tools that integrate risk-based decision making in the investigation/root cause analysis/identification/evaluation of criteria.
	☐	2. The organisation operates by standards and key people support and promote the use of appropriate tools and processes to integrate risk-based decision making in investigation/root cause analysis/identification/evaluation of criteria.
↓	☐	3. The management have implemented risk-based decision making within investigation/root cause analysis/identification/evaluation of criteria throughout the organisation.
	☐	4. Implementation of risk-based decision making within investigation/root cause analysis/identification/evaluation of criteria has been implemented in the value and culture of the organisation. The management are supportive and are also monitoring weaknesses in the systems.
High	☐	5. Implementation of risk-based decision making within investigation/root cause analysis/identification/evaluation of criteria has been implemented in the value and culture of the organisation which results in an organisation where the factors drive excellence.

Please write additional comments below:

_____

_____

Internal context:

4.1 To what extent is the statement of risk policy/strategy/framework relevant?

We expect that a 'mature' organisation that has risk assessment and risk-based decision making as a fundamental view in the operation should also have this clearly stated in its strategy, policies and framework.

We would like to see the awareness of (from the approached employees' view) the agency's risk policy/strategy/framework and how it affects the daily operation of staff. We would like to see procedures and processes with links back to the strategy, policy and framework of risk.

BM – Question 4.1

Do you exercise any procedures and processes that clearly link back to the method of operating risk, stated in the strategy, policy and framework?

		Scale
Low	☐	1. The need for a risk strategy and risk-related policies has been indentified and accepted. The risk management system may be undocumented. Most of the applicable systems I use are linked to the organisation's risk policy/strategy/framework.
	☐	2. Risk management strategy and policies are drawn up, communicated and are being acted upon. Roles and responsibilities are established and key stakeholders are engaged. My daily operations have contributions from risk-based decision making and risk assessment and clear links to the organisation's risk policy/strategy/framework.
↓	☐	3. Risk management principles are reflected in the organisation's strategies and policies. The risk framework is reviewed, developed, refined and communicated. The management have stated clear support and are promoting the integration.
	☐	4. Handling risk is an inherent feature of policy and strategy making processes. The risk management system is benchmarked, best practice has been identified and shared across the organisation. The values and the culture champion the integration.
High	☐	5. Risk management capability in policy and strategy making helps to drive organisational excellence.

Please write additional comments below:

_____

_____

Internal context:

4.2 To what extent are the availability and communication (quality) of risk policy/strategy/framework relevant?

We expect that a 'mature' organisation that has risk policy/strategy/framework interacting in its operation will have this information available for all kinds of stakeholders. The risk policy/strategy/framework should be communicated in an appropriate way and should always be available for staff in a form that is easy to interpret to their own daily operation.

We would like to see evidence of how well the organisation has managed availability and communication of the risk policy/strategy/framework.

BM – Question 4.2		
Can you provide information that contributes to the view of well the organisation has succeeded to make the risk policy/strategy/framework available to staff and how well it is communicated?		
Scale		
Low	☐	1. The need of availability and communication of risk strategy and risk-related policies has been indentified and accepted. The availability and the communication of risk policy/strategy/framework could be improved to give a better contribution to daily work.
	☐	2. Risk management strategy and policies have been drawn up, communicated and acted upon. Roles and responsibility are established and key stakeholders are engaged. The management have integrated the availability and the communication through the most important areas.
↓	☐	3. The management have stated clear support and they are promoting the integration to a full extent. The organisation's values and its culture contribute to a daily use of its risk policy/strategy/framework.
	☐	4. The management champions the integration of risk policy/strategy/framework and has made a big effort to make them available in such a way that they are applicable to and understandable by every employee.
High	☐	5. The implementation of an available and useable risk policy/strategy/framework drives organisational excellence.

Please write additional comments below:

_____

_____

Internal context:

4.3 How important are the development and improvement of risk strategy/policy/frameworks?

It is expected that risk strategy/policy/framework is working as guidance on how to reach the organisation's objectives. A 'mature' organisation is expected to develop and improve their risk strategy/policy/framework, so they can maintain and continue to incorporate best practice.

We would like to see evidence such as principles or procedures that establish continuously development and improvement (or even more often if it is needed) of the risk strategy/policy/framework. Is it possible for the non-management team to raise the need for revision?

BM – Question 4.3
Can you influence the development of an improved risk strategy, policy and framework?
Scale

Low	☐	1. The development and improvement of risk policy/strategy/framework is a closed process where only key people can contribute with their knowledge and inputs.
	☐	2. The development and improvement process of risk policy/strategy/framework are integrated within key areas. Specific roles with specific responsibilities established are allowed to contribute and some key stakeholders are engaged.
↓	☐	3. The process is integrated throughout the organisation and inputs and contribution are given from a variety of directions.
	☐	4. The management promote and support the integration of the process throughout the organisation and encourage suggestions for improvements from employees.
High	☐	5. Each individual's contributions give the management an excellent foundation to improve the risk strategy/policy/framework. The risk strategy/policy/framework that staff have commonly contributed to drives the organisation's excellence within risk-based decision making and risk assessment.

Please write additional comments below:

_____

_____

Internal context:

4.4 To what degree does the implementation of risk management framework and strategy make a difference to the organisation?

It is expected that 'mature' organisations implement a risk management framework and strategy in such a way that it facilitates the implementation and understanding throughout the whole organisation and sets out risk management as a part of the organisation's overall approach to practice and governance.

We would like to see evidence such as processes, procedures and frameworks showing to what extent the implementation has succeeded and how individuals can contribute and enhance the end result.

BM – Question 4.4		
Are there any tools that ensure quality in your daily operations?		
Scale		
Low	☐	1. There are some tools that are applicable to my daily operating of regulating operations.
	☐	2. Key people are actively contributing with forums for how to develop more tools that can cover a wider range of areas and activities leading to easier regulating operations.
↓	☐	3. The management are aware of the difficulties of integrating a risk management framework and strategy to facilitate and enhance daily operations. Therefore, they are supporting and promoting different processes to find the best way to improve the system.
	☐	4. Managers' contributions are a value-based approach where they are aware of how integration of risk management framework and strategy can facilitate, enhance the quality and effectiveness of the daily operations.
High	☐	5. The organisation clearly shows evidence of how integration of risk management framework and strategy facilitates and enhance daily operations which drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

4.5 How important is the flexibility within the risk strategy/policy/framework?

We expect that risk strategy/policy/framework will never be able to cover every situation that might occur. A 'mature' organisation must then have risk strategies/policies/frameworks that are sufficiently flexible to give the individual support in hers/his risk-based decision making even if the specific circumstance has never previously occurred.

We would like to see evidence of how individual employees interpret the risk strategy/policy/framework in circumstances that are not classified within the standard framework. Does the individual employee see the risk strategy/policy/framework as flexible?

BM – Question 4.5		
Is it possible for you to interpret the risk strategy/policy/framework in a flexible way that makes it useful in most situations?		
Scale		
Low	☐	1. There is no flexibility in the risk strategy/policy/framework which makes it difficult to apply in varied circumstances.
	☐	2. There is no flexibility in the risk strategy/policy/framework which makes it difficult to apply in varied circumstances but the closest manager is supporting and promoting flexibility in the daily operations.
↓	☐	3. Key people provide procedures and tools that make it possible for employees to interpret the risk strategy/policy/framework in varied circumstances.
	☐	4. The management promote, develop and implement a risk strategy/policy/framework and adherent tools which facilitate interpretation in varied circumstances. The awareness of activities to reach the organisation's objectives is high.
High	☐	5. The risk strategy/policy/framework is flexible which makes it possible to apply in varied circumstances and this drives the organisation's excellence.

Please write additional comments below:

_____

_____

Internal context:

5.1 To what extent are evidential links relevant for the evaluation of effective risk management?

Since we expect that a mature' organisation succeeded in its risk management and its contribution has extremely high impact on organisations outcomes and deliverables. A visible and clear connection between risk management and overall success would prove how best practice is recognised. This could be applicable both on the organisations overall outcome and to specific outcomes. If risk management has been developed, implemented and structured in an effective and well reasoned way, connections between risk management and organisational outcomes should be visible.

We are looking for evidence that shows the connection between well-managed risk management and outcomes and deliverables. These connections could be stated in individual risk-based decision making-tools or as clear evidence in processes and procedures.

BM – Question 5.1		
Do your deliverables demonstrate any links to effective risk management?		
Scale		
Low	☐	1. There is limited or no clear evidence of links between an effective risk management and my deliverables.
	☐	2. There is limited evidence showing how risk management is effective in my most relevant outcomes and deliverables.
↓	☐	3. There is clear evidence of links that prove how risk management supports my deliverables and key outcomes in all relevant areas.
	☐	4. There is clear evidence of significantly improved delivery of relevant outcomes and sustained improvement within my daily operation of regulating operators.
High	☐	5. All my deliverables and outcomes have significant links to effective risk management. This drives both the excellence of the organisation and me as a contributing part.

Please write additional comments below:

_____

_____

Internal context:

5.2 How well is risk management contribute to an overall outcome?

Since we expect that a 'mature' organisation succeeded in its risk management and its contribution has extremely high impact on organisation's outcomes and deliverables. A viewable and clear connection between risk management and overall success would prove how best practice is recognised. This could be applicable both to the organisation's overall outcome and to specific outcomes. If the risk management has been developed, implemented and structured in an effective and well-reasoned way, connections between risk management and organisational outcomes should be visible.

We are looking for evidence that shows the connection between well-managed risk management and outcomes and deliverables. These connections could be stated in individual risk-based decision making-tools or as clear evidence in processes and procedures.

		BM – Question 5.2
		How does your performance influence the overall results of the organisation?
		Scale
Low	☐	1. There is limited or no clear evidence of how individual deliverables of effective risk management may influence the organisation's outcomes.
	☐	2. Key people raise the importance for an effective organisation to be able to prove how individual deliverables contribute to the organisation's outcomes (which uses risk management to a great extent). Existence of limited evidence is found.
↓	☐	3. There are clear evidence and links that prove how individual risk management deliverables support the delivery of organisational key outcomes in all relevant areas.
	☐	4. The management champions the individual deliverables of risk assessment throughout the organisation and both promote and support my further contributions.
High	☐	5. All deliverables and outcomes of mine have significant links to an effective risk management. This drives both the excellence of the organisation and me as a contributing part.

Please write additional comments below:

_____

_____

Internal context:

5.3 To what extent has risk management contributed to the overall outcome?

Since we expect that a 'mature' organisation succeeded in its risk management and its contribution has extremely high impact on organisation's outcomes and deliverables. A viewable and clear connection between risk management and overall success would prove how best practice is recognised. This could be applicable both to the organisation's overall outcome and to specific outcomes. If the risk management has been developed, implemented and structured in an effective and well-reasoned way, connections between risk management and organisational outcomes should be visible.

We are looking for evidence that shows the connection between well-managed risk management and outcomes and deliverables. These connections could be stated in individual risk-based decision making-tools or as clear evidence in processes and procedures.

BM – Question 5.3		
How does your deliverables influence the overall output of the organisation?		
Scale		
Low	☐	1. There is limited or no clear evidence that shows how my individual deliverables of effective risk management contribute to my overall outcome.
	☐	2. Key people raise the importance for an effective organisation to be able to prove how individual deliverables are linked to their overall objectives and outcomes of risk management. Existence of limited evidence is found.
↓	☐	3. There are clear evidence and links that prove how individual risk management deliverables support the individual objectives and overall outcome.
High	☐	4. The management champions the individual deliverables of risk assessment throughout the organisation and both promote and support further contribution of my deliverables to enhance my overall outcome of risk-based decision making and risk assessment.
	☐	5. All deliveries and outcomes of mine have significant links to an effective risk management. This drives both the excellence of the organisation and me as a contributing part.
Please write additional comments below: _____ _____		

Internal context:

5.4 To what extent does risk management contribute to a specific outcome such as the unit's goals?

Since we expect that a 'mature' organisation succeeded in its risk management and its contribution has extremely high impact on organisation's outcomes and deliverables. A viewable and clear connection between risk management and overall success would prove how best practice is recognised. This could be applicable both to the organisation's overall outcome and to specific outcomes. If the risk management has been developed, implemented and structured in an effective and well-reasoned way, connections between risk management and organisational outcomes should be visible.

We are looking for evidence that shows the connection between well-managed risk management and outcomes and deliverables. These connections could be stated in individual risk-based decision making-tools or as clear evidence in processes and procedures.

BM – Question 5.4		
How are your outcomes linked to specific outcomes of the institution?		
Scale		
Low	☐	1. There is limited or no clear evidence of how individual deliverables of effective risk management contribute to specific organisational outcomes.
	☐	2. Key people raise the importance for an effective organisation to be able to prove how individual deliverables contribute to specific organisational outcomes (which uses risk management to a great extent). Existence of limited evidence is found.
↓	☐	3. There are clear evidence and links that prove how individual risk management deliverables support specific deliverables of key organisational outcomes in all relevant areas.
	☐	4. The management champions the individual deliverables of risk assessment throughout the organisation and both promote and support my further contributions.
High	☐	5. All deliverables and outcomes of mine have significant links to effective risk management and to specific organisational outcomes. This drives both the excellence of the organisation and me as a contributing part.

Please write additional comments below:

_____

_____

Internal context:

5.5 To what level does risk management contribute to a specific outcome?

Since we expect that a 'mature' organisation succeeded in its risk management and its contribution has extremely high impact on organisation's outcomes and deliverables. A viewable and clear connection between risk management and overall success would prove how best practice is recognised. This could be applicable both to the organisation's overall outcome and to specific outcomes. If the risk management has been developed, implemented and structured in an effective and well-reasoned way, connections between risk management and organisational outcomes should be visible.

We are looking for evidence that shows the connection between well-managed risk management and outcomes and deliverables. These connections could be stated in individual risk-based decision making-tools or as clear evidence in processes and procedures.

BM – Question 5.5		
Can you provide your view to what extent your deliveries are linked to specific outcomes of your operating objectives?		
Scale		
Low	☐	1. There is limited or no clear evidence of how my individual deliverables of effective risk management contribute to a specific outcome of mine.
	☐	2. Key people raise the importance for an effective organisation to be able to prove how individual deliverables are linked to their specific objectives and outcomes of risk management.
↓	☐	3. There are clear evidence and links that prove how individual risk management deliverables support specific individual objectives and the overall outcome.
High	☐	4. The management champions the individual deliverables of risk assessment throughout the organisation and both promote and support further contribution of my deliverables to enhance my specific outcomes of risk-based decision making and risk assessment.
	☐	5. All deliverables and outcomes of mine have significant links to effective risk management. This drives both the excellence of the organisation and me as a contributing part.

Please write additional comments below:

_____

_____

Internal context:

5.6 To what extent does risk management contribute to other goals and objectives such as financial?

We expect that a 'mature' organisation succeeded in its risk management and its contribution has extremely high impact on the organisation's outcomes and deliverables. An organisation that wants to reach a high level of trustworthiness and effectiveness and that also promotes risk management and risk-based decision making needs to implement it as embedded values and culture.

We are looking for tools/procedures/processes that show how risk management is implemented as a basic value within the organisation in every unit, e.g. HR, R&D and financial units. This culture of risk management should then be so implemented that staff are aware of it even though they do not work within the specific unit.

BM – Question 5.6		
Can you provide your view of how well risk management is implemented in other units?		
Scale		
Low	☐	1. My awareness of how well-managed risk management is implemented in units other than my own is limited.
	☐	2. The contribution of key people promoting and supporting the integration of risk management as a main thread throughout the organisation raises the awareness of the contribution of risk management within other units.
↓	☐	3. The management implementation and awareness of to what extent risk management can enhance the outcomes of the organisation, enhance the knowledge about risk management in other units.
	☐	4. Well-managed risk management permeates the organisation and management champions the contribution it has made to organisational outcomes. The culture and value of the organisation is implemented in every unit which results in an organisation where staff are well aware and have thorough knowledge of risk assessment in the operation.
High	☐	5. Risk management arrangements are a driver for change and are linked to plans and planning cycles which results in a high level of awareness and knowledge of how units operates with risk management.

Please write additional comments below:

_____

_____

Internal context:

5.7 To what degree is the stakeholder perspective relevant when it comes to how risk management is linked to the organisation's outcomes and deliverables?

We expect that a "mature" organisation implements a values-based risk management as an approach to enhance the quality, effectiveness and efficiency of the organisation and its deliverables and outcomes not as a result of a desire to enhance stakeholders' views of the organisation and how it operates.

BM – Question 5.7		
-		
Scale		
Low	☐	
	☐	
↓	☐	
	☐	
High	☐	
Please write additional comments below: _____		

Internal context:

5.8 In the context of risk management, to what extent is the analysis of less good outcomes and deliverables relevant?

It is logical to expect that a 'mature' organisation evaluates less good outcomes and deliverables in different ways. A less good outcome and deliverable could have roots in several different areas. A clear and objective mind is needed to evaluate where the result stems from.

We would like to see management plans to evaluate the deliverables and outcomes from different perspectives, where risk management is neither is unfairly blamed nor given credits.

BM – Question 5.8
Do you use any tools to objectively evaluate the roots of outcomes and deliverables?
Scale

Low	☐	1. There is a lack of tools to help me on a daily basis to evaluate the outcomes, deliverables and result of my work.
	☐	2. Key areas/units provide tools and processes that enable an objective evaluation of risk-based decision making and risk assessments within my daily operation.
↓	☐	3. The management support and promote development, improvement and implementation of a wider toolbox applicable in the objective evaluation of risk assessment and risk-based decision making.
	☐	4. A clearly stated culture, where values throughout the organisation highlight the importance of objective analysis of outcomes, requires a well-grounded foundation on which to base improvements. The use of the result is the enabler to reach a higher effective and quality level for the organisation.
High	☐	5. The management of outcomes and deliverables drives the excellence of the organisation.

Please write additional comments below:

_____

_____

A.3 References to the Appendix A

Alarm (2010), *Report of the outcomes of the Alarm/CIPFA Risk Management Benchmarking Club 2010*, available at http://www.alarm-uk.org/members/benchmarking/2010_benchmarking_report.aspx (accessed 11th July 2010).

Kumar, A., Antony, J. and Dhakar, T.S. (2006), *Integrating quality function deployment and benchmarking to achieve greater profitability*, Benchmarking: An International Journal, Vol. 13, No. 3, pp. 290-310.

Baldwin, R., Hutter, B. & Rothstein, H. (2000), *RISK REGULATION, MANAGEMENT AND COMPLIANCE* - A report to the BRI Inquiry, available at: http://www.bristol-inquiry.org.uk/Documents/Risk%20regulation%20report.pdf (accessed 7th of July 2011).

Brandt, R.J., Cataldoii, A.J. and McGee, C (2011), *An Out-of-Balance Scorecard at an Academic Institutio*n, Management Accounting Quarterly Winter 2011, Vol. 12, No. 2, pp. 49-56.

Brown, I., Steen, A. and Foreman, J (2009), *Risk Management in Corporate Governance: A Review and Proposal*, Corporate Governance: An International Review, Vol. 17, No. 5, pp. 546–558.

Nonaka, I., Toyama, R and Byosiere, P. (2001), 'A theory of organizational knowledge creation: understanding the dynamic process of creating knowledge', in: Dierkes, M., Berthoin - Antal, A., Child, J. and Nonaka, I. (editors), *Handbook of organizational learning & knowledge*, Oxford University Press, New York, pp. 490-517.

Danielsson, J., Shin, H.S. & Zigrand, J-P. (2009), 'Risk Appetite and Endogenous Risk', available at: SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1360866 (accessed 30th April 2011).

Dodds, A. and Kodate, N. (2011), *Accountability, organisational learning and risks to patient safety in England: Conflict or compromise?*, Health, Risk & Society, Vol. 13, No. 4, pp. 327–346.

Friedli, T., Kurr, M.A. and Camp, R.C. (2006), *Success factors for collaboration management in manufacturing companies*, International Journal of Services and Operation Management, Vol. 2, No. 3, pp. 203-221.

Hampton, P. (2005), *Reducing administrative burdens: effective inspections and enforcement*, the Hampton Review – Final report, HM Treasury, London, UK.

Gai, P. & Vause, N. (2005), *Measuring investors' risk appetite* - Working paper no. 283, available at: https://www.bankofengland.co.uk/publications/workingpapers/wp283.pdf (accessed 5th September 2011).

MacGillivray, B.H. and Pollard, S.J.T. (2008), *What can water utilities do to improve risk management within their business functions? An improved tool and application of process benchmarking*, Environment International, No. 34, pp. 1120–1131.

Patching, K. (2011), *Throw away that leadership competency model*, Industrial and commercial training, Vol. 43, No. 3, pp. 160-165.

Appendix B Guidance for the article

Author guidance for; *Benchmarking: An International Journal* is available at:
http://www.emeraldinsight.com/products/journals/author_guidelines.htm?id=bij
(accessed 4th September 2011).