



# Risk, Risk Conflicts, Sub-Politics and Social and Environmental Accounting and Accountability in Scottish Salmon Farming

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## Abstract

The aim of this paper is to offer a theoretical analysis, inspired by research into social theories of risk, of the social and environmental accounting processes observed in an earlier empirical study on Scottish salmon farming. Social and environmental accounting and accountability processes in Scottish salmon farming appeared to be similar to those described within the *Risk Society* thesis. Demands for social and environmental accounts within this risk arena could be seen to relate to different perceptions of the risks associated with salmon farming. There was conflict over both the meaning of risks and the methodology of measuring and communicating them. Social and environmental accounts were part of this contest for control of governing these risks. Insights from the *Risk Society* thesis offer useful understandings into appreciating Social and Environmental Accounting (SEA); in particular the role of sub-political movements and the role of sub-political accounting. The importance of recognising social and environmental accounting as part of a wider reflexive process is also an important implication of this paper.

**JEL Classification:** M14; M41; M48.

**Keywords:** Social and Environmental Accounting, Risk, Reflexivity, sub-political accounting, Salmon Farming.

## 1. Introduction

In this paper an earlier study (Georgakopoulos and Thomson 2008) is revisited and it is argued that Beck's concept of a risk conflict (see Beck, 1992a; b; 1995; 1996; Beck *et al.*, 1994; Beck and Willms, 2004) could question the effectiveness of corporate level annual social and environmental reporting techniques. Evidence is theorised from empirical research into Scottish salmon farming using a risk conflict framework to evaluate and understand the diversity of accountability mechanisms observed and examined in detail in a contested arena (see Georgakopoulos and Thomson 2005; 2008).

It is argued in this paper that without effective accountability mechanisms the hazards associated with second modernity (Beck 1992a) [1] to eco-systems, society and economic well-being could be legitimated and allowed to proliferate. The analysis of a risk arena by Georgakopoulos and Thomson (2008) suggested; a series of interrelated risk conflicts, shifting political and sub-political governing institutional structures and practices, fragmented 'single-issue' accountability processes, polarised positions on the 'legitimate' risks of salmon farming and contested discourses between actors. The governing structures in that empirical

setting created extra surveillance and accountability obligations for salmon farming organisations in order to protect and legitimate their farming practices from the ‘irrational’ criticisms of social protest movements (Beck, 1992). In doing so the risk governing structures seemed to be more preoccupied with secondary (reputational) risk management (Power, 2004). Sub-political protest groups used a combination of scientific and economic evidence and risk dramatisation techniques to engage public support for their campaign and to provide a techno-scientific legitimacy for their actions; in that way they tried to get the power to redefine acceptable risks and reform institutional structures and practices.

It is suggested in this paper that Beck’s work on risk could offer considerable insights for the development of accounting in general and Social and Environmental Accounting (SEA) in particular [2]. Beck in his writings stresses the importance of entity construction, the level of dramatisation within social and environmental accounts, the use of statistics, science and theories as instruments of war to avoid costs, and develops the link between power and legitimacy and the political importance of control of defining risks (Beck, 1992a). Beck also proposes that risk conflicts (Beck and Willms, 2004) possess the potential for a form of quasi-revolutionary enlightenment that forces people and groups to communicate with each other who otherwise would not choose to do so. In this way they could change rules and laws, redistribute costs and force liabilities and obligations onto people who want to avoid them. Risk conflicts have been observed as having a role in bringing about social, institutional and epistemological change and re-addressing social priorities.

The range of social, environmental and economic accounts observed by Georgakopoulos and Thomson (2008) is argued here to be related to this notion of risk conflicts and the power dynamics between the political and sub-political institutions associated with salmon farming. Each actor had their own privileged definition of ‘legitimate’ risks that underpinned their involvement in risk conflicts. Each actor in a salmon farming risk conflict presented their risk accounts and demanded specific accounts of the salmon farmers’ practices whilst prescribing specific solutions to minimise or eliminate specific risks. Political institutions, in coalition with some sub-political institutions functioned as legitimating structures justifying rather than reducing the farmers’ potential harm to the ecological and social environment; although there was some evidence of reluctant revision of the definition of acceptable risk and the creation of voluntary rule-enforcing institutions to reform salmon farming practices.

In the above context this paper will develop as follows. Firstly prior usage of Beck in accounting literature is summarised and is followed by a discussion of the principle elements of Beck’s conceptualisation of risks, second modernity and risk conflict which will be developed into a framework to evaluate social and environmental accounting practice. This will be followed by a brief discussion on methodological issues associated with studying risk and a description of the research methods [3]. Evidence is presented then from the earlier study into Scottish salmon farming to illustrate and empirically develop the concept of risk conflict. The paper will conclude with thoughts on the consequences of Beck’s risk conflict and its quasi-revolutionary potential as well as areas for future research.

## **2. Literature Review**

Beck’s work has been used previously in a number of academic studies on accounting related issues. In an attempt to explore how this has been done a literary review of related research articles in leading academic journals (such as *Accounting Organisations & Society*, *Accounting Auditing & Accountability Journal*, *Critical Perspectives on Accounting*, *the European Accounting Review*, *Accounting Forum*), was undertaken. Beck’s ideas on risk

society, individualisation and reflexivity (Beck, 1992a; Beck *et al.*, 1994; Beck and Willms, 2004 for example) have been influential on the work of other sociologists (see for example Beck *et al.*, 1994; Adam *et al.*, 2000), which in turn has been used by a number of accounting researchers in areas ranging from risk and auditor trustworthiness in cyberspace, to institutional change of Local Education Authorities (see Barrett and Gendron, 2006; and Edwards *et al.*, 2005 respectively, to name but few), but they have not been used widely in the area of Social and Environmental Accounting (SEA) [4].

A more extensive use of Beck's work is made by only a few accounting researchers who in general do not use the potential of Beck's insights to interpret the nature of social conflicts in certain settings (i.e. political arenas) and the implications this could have for a more effective design of accounting techniques and SEA in particular .

In this light Unerman and O'Dwyer (2006b) in their attempt to explore direct and indirect impacts of NGO accountability for their advocacy activities (Unerman and O'Dwyer, 2006a) on a broad range of stakeholders draw on the theories of Beck to develop a staged theoretical argument that examines whether NGOs should have duties of accountability for the potential social, environmental and economic impacts. The authors investigate how certain types of strategic discourse can be very effective in mobilising the actions of others and whether the discharging of NGO accountability should apply for perceived non-direct stakeholders. Instances where the NGO strategic discourse has affected the beliefs of many people and has led to potential negative impacts for many were found. Although it is perceived that these negative impacts may be unintended consequences on non-direct stakeholders, the organisations using strategic discourse in this manner are seen as responsible and accountable for the impacts of their advocacy on all those affected.

Further to this, Unerman and O'Dwyer (2007) use Beck's and Giddens' notion of risk and reflexivity to develop an alternative theoretical argument in favour for the regulation of SEA by demonstrating how, contrary to the dominant business discourse, increased regulation designed to protect the social and environmental interests of a range of stakeholders can serve to reduce actual and perceived risks inherent in many business activities and thus enhance SEA's credibility.

Broadbent *et al.* (2008) also partly build on Beck's (1992a) notion of system risk and the expert versus laypeople debate by highlighting the capture of decision making processes by the accounting logic of quantitative risk estimation. This "accountisation" process is examined in the case of the Private Finance Initiative in the UK's National Health Service and it is argued that because of the silencing of qualitative uncertainties only some of the quantification concerns are made visible due to sophisticated measurement issues. The authors argue for a fundamental reshaping of this accounting logic that could allow equal emphasis of risks and uncertainties in decision making to occur.

Hanlon *et al.* (2005) use Beck's ideas on risk society to examine whether the notion of reflexivity does exist and the ways it manifests in people's encounters. They specifically examine this in the case of the UK welfare state and services. In their attempt they compile a typology of characteristics the new citizen, in their view, should demonstrate in specific political or social encounters and by doing so they provide a set of characteristics that could be used for empirically researching risk society and reflexivity.

Everett (2004) in an attempt to examine why environmental accounting has little legitimacy in the business world, challenges the praxis of environmental accounting practice and research in trying to develop tools that few are interested in. Especially for the area of environmental accounting research the author partly builds upon Beck's (1994) notion of

reflexivity to challenge intellectual biases and to make a call for a change in the focus of the researchers' personal practices.

Finally Georgakopoulos and Thomson (2005) by examining an environmentally sensitive "agricultural" sector in an effort to map out producers' decision making processes with an expectation to reveal the use of environmental accounting in evaluating this strategic move, discover a risk arena that informs accountability processes (Georgakopoulos and Thomson, 2008) [5]. Georgakopoulos and Thomson (2005) identify salmon farmers' risk perception as important for considering what factors are thought to be legitimate/illegitimate and powerful/weak in the decision making process. They argue that environmental accounting could play a part in a reflexive process for reconstructing the underlying knowledge of the social, environmental and economic risks of the salmon farming sector as a whole.

## 2.1 Risk Society

Before moving on it is important to clarify Beck's notion of risk, initially developed in *Risk Society* (Beck, 1992a), that underpins all of his work. Whilst not denying the existential reality of harm or hazard, Beck defines risk as a social construct that must be believed in to have real effects. Actual or potential future harm can exist and operate separately from their risks. Risks are perceived and established through knowledge, publicity, statements from experts (and counter-experts) ascription and establishment of causality theories, assignment and acceptance of responsibility. Risks are volatile cognitive constructs based on power dynamics, economic consequences, science, legal framework, cultural processes and dominant epistemological concepts. Risk is about trying to make the consequences of human decisions foreseeable in order to subdue unwanted side-effects through preventative action and to properly allocate costs, responsibility, accountability and obligation to compensate. The governing of risk is characterised by a struggle over the definition of risks and establishing causality between decisions, actions and consequences. This struggle has relied upon dominant culturally-contingent theories (Beck and Willms, 2004) of acceptable behaviour informed by prevailing social and natural scientific theories. Definitional struggles over risk have considerable social, environmental, political and economic consequences that allow for the redistribution of harm and cost, forcing liabilities and obligations onto organisations and individuals who want to avoid them.

The notion of risk conflict (Beck and Willms, 2004) offers a range of insights into how accountability relations are constructed and discharged, in particular the complexity and network of accountabilities (see Georgakopoulos and Thomson, 2008) within a single risk conflict. It is also the case that corporations could get involved in a series of risk conflicts at any one time even though they are involved in different industries or are not physically present at the initial site of the problem. Risk conflicts are important mechanisms in how individuals perceive and interact with corporations rather than the latter's legally-defined entities. Risk conflicts create spaces for individuals and social groups to construct their knowledge of corporations and to evaluate the acceptability of their decisions and actions rather than the production of annual corporate social, environmental and economic reports. The nature of risk conflicts creates sites for engagement and dramatic emotional accounts of possible harm as well as the production and dissemination of financial, statistical and scientific evidence. Risk conflicts are also argued here to be an important shaper of the development of institutional solutions leading to the overthrow of self-referential social systems and dialogue between subsystems – whilst media attention and amplification persists. Understanding risk conflicts could add to the understanding of SEA.

Within the *Risk Society* thesis, risks are both real and epistemological, emerging from interactions between political and sub-political discourses. The same ‘things’ are simultaneously regarded as legitimate and irrational by different groups and individuals in society. According to Beck (1992a) second modernity is characterised by disputes over the true nature of risks and hazards and appropriate methods of their governing. Broadly speaking in second modernity it is suggested that political institutions have been depoliticised and captured by scientism. Unless there is a scientifically legitimate account of the risk it doesn’t exist and therefore no action need be taken to reduce, eliminate or govern it.

It is only when a risk is accounted as legitimate that regulations are established or amended, political institutions are set up and tasked with managing said risk. Defining and managing these risks involves the isolation of facts, normalization and surveillance, processes that many have associated with accounting (e.g. Hoskin and Macve, 1986; Miller, 1991; Rose, 1990). This scientific construction process reifies certain risks, granting those risks power in discourses and empowering those that govern them (Habermas, 1985 in Beck, 1992a: 189), but also obscures other risks. The accounting for risks and governing of these risks is therefore affected by political power dynamics and the dominant epistemology surrounding any particular problems or institutions. However, modern science is incapable of proving that risks, hazards and harm associated with second modernity actually exist. These flaws are basically the same as criticisms of positivism in accounting research (Christensen, 1983; Chua, 1986; Hines, 1988a; b; Tinker *et al.*, 1982). The inability to account for certain risks allows these risks not only to continue but actually to be considered acceptable further promulgating future risk, hazards and harm.

Risks are unthinkable by those in power unless made real through some form of calculative technology (Rose, 1991). Political risk governing in this context becomes restricted to a small subset of risks that are capable of reliable scientific measurement with proven causal connections to harm. These incomplete accounts of risks provide a distorted understanding of risks and distorted risk discourse.

## 2.2 The Subpolitical

Second modernity is also characterised by the politicisation of the previously non-political, what is referred to as sub-political movements. Sub-politics is the application of the basic principles of modernity that empower the citizen to participate in societal governing and groups of citizens challenging the supremacy and legitimacy of the existing political governing structures, creating a *new obscurity* (Habermas, 1985). Within this *new obscurity*, there is a weakening of social structures, the mobilisation of citizens, single-issue protests and wider social movements attempting to affect change. Second modernity enables citizens to challenge the powers of previously trusted political institutions. The political centre has lost power to these civil groups, particularly on issues of politically and scientifically denied risks that these citizens have been subjected to and experienced real harm from. These sub-political movements use a number of different tactics including the provision of alternative, but scientifically legitimate, accounts of these risks to challenge the credibility of existing knowledge claims. Beck and Willms (2004) suggest that a critical social process in second modernity is risk conflict, a process which they argue has the potential to bring about substantive social reforms and a re-politicisation of issues associated with security and safety of citizens. The next section will briefly outline the key stages of a risk conflict as a prelude to a discussion on its relevance to social and environmental reporting.

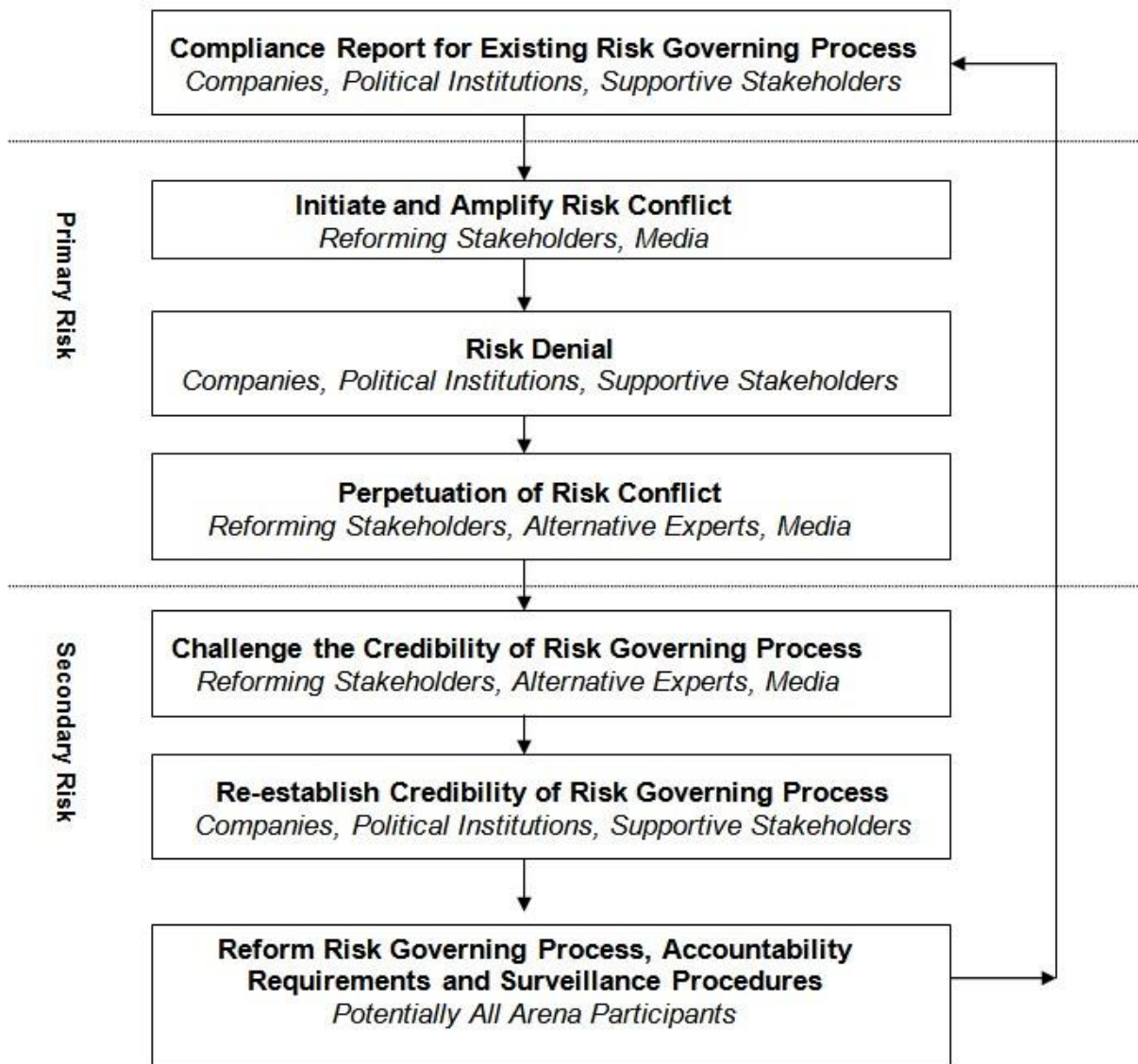
### **2.3 Risk Conflicts**

The first stage in a risk conflict (see Figure 1) is normally located around a growing concern, an emerging consciousness of problems within a specific social group who perceive themselves to be suffering as a consequence of others actions, normally the actions of a profit-oriented company. These problems are then developed and amplified by the media into stories of concern to consumers, especially to parents of small children. Such media coverage is normally met with official resistance by companies, rule-enforcing institutions and regulators. Despite this systemic institutional denial of these risks there is a growing concern over this reported threat that transfers these media stories into a social fact accepted by groups within societies.

These affected and/or worried groups then consult scientific experts, those currently with cultural legitimacy within their society, to apply their expertise and judgement onto their concerns. However, it is often the case that regulators and rule-enforcing institutions are based upon the knowledge, theories and evidence collection and evaluation methods of these scientific experts. Turning to these scientists adds a scientific risk denial to other institutional risk denials, but also can uncover competing theories as to the cause and definition of risk and evidence that has been either: suppressed; dismissed; or untested within the scientific community (Beck, 1992a; Beck and Willms, 2004). This can lead to the persistence of the social facts and a further amplification of the risks in the media fuelled by contradictory statements between experts, counter-experts, institutions, corporations and suffering individuals. At this stage risk conflicts are characterised by finger pointing and playing the blame game. Statistics, costs, facts, 'scientific' theories become instruments of war to ward off compensation costs. The increased production and communication of knowledge on the 'risk' does little to resolve the conflict but rather manufactures uncertainty (Giddens, 1994b). Rather than reducing risks this amplifies and transmits risk concerns like a virus transcending the origins of the risk conflict.

The assumption by political institutions and corporations that perceived dangers to citizens can be settled by an abstract technical dialogue between experts isolated from their social and cultural setting is found to be highly problematic. Within a risk conflict the direct placeability of the initial concern is lost and the risks cross social, political and geographic boundaries, for example moving from a specific production site to global consumers and even their future generations. This reflects the radical dispersion between the initial producer of the risk and those potentially at harm from it within today's society. The risk conflict has shifted to threaten the credibility and legitimacy of corporations and those institutions trusted by populations to provide safety, clean air, water and safe food. The epicentre of the risk conflict no longer becomes the risk itself but the possible undermining of the legitimacy of those causing and governing these risks (Power, 2004). This tends to up the stakes and entrenches those currently denying the risks.

**Figure I.** Overview of the risk conflict process



This stage of a risk conflict is similar to Power’s (2004) view on risk management practices of the regulatory state which are seen as ‘paradoxical’ (ibid.: 60); on the one hand the development of specific regulatory regimes appears to be a rational response to the management of first order risks to health, financial security, etc. On the other hand, the very existence of such regulatory agencies can be interpreted as a responsibility-shifting strategy by central government concerned with its reputation and the problem of “secondary risk management” (ibid.: 14 - 15). A different agenda of concern is being created; namely the experts who are being made increasingly accountable for what they do are now becoming more preoccupied with managing their own risks. Secondary risks to their reputation have become as significant as the primary risks for which they have knowledge and training. This trend is resulting in a dangerous movement away from judgement and the formation of cultures of defensiveness that create their own risks for institutions in preparing for, and responding to, a future they cannot know.

The concerned population then organises into single-issue social sub-political movements or enters into coalitions with existing sub-political movements that already possess social

legitimacy and counter-expertise experience (Beck 1992a, Beck and Willms, 2004). These groups gather using alternative cognitive instruments to challenge and counter institutional risk denial. It is important to note that the risk conflict has moved away from a single factory, company or product to incorporate elements of legal systems, political systems, systems of science and mechanisms for the production of socially acceptable truth. The objective may have mutated into institutional reform, rule changes and a re-establishing of who in society is given the power to authoritatively determine what is an unacceptable risk and who is to blame. Risk conflicts are characterised by clashing and compromising over regulations and power over the setting and enforcing of these regulations. It is important to recognise that existing institutional structures have been shaped by past risk conflicts and thus are potentially reformed by the changing topology of risk conflicts.

#### **2.4 Risk Conflicts and the Subpolitical**

SEA can be seen as a part of Beck's notion of risk conflicts. This can be conceptualised as part of the war of statistics, costs, evidence and causal theories; it attempts to undermine institutional credibility, its confidence on risk-denial/-falsification/-causality, and its effort to maintain legitimacy and avoid liabilities (see for example Cooper and Thomson, 2000). Beck posits that in a risk conflict corporations are likely to adopt two strategies. One strategy is to confront these alternative accounts of the risks they are producing and uphold their definition of acceptable risk. A second strategy is to engage with social groups to establish a degree of political protection and legitimacy and redefine acceptable risks. However this engagement requires a commitment to extra surveillance and accountability often satisfied by enhanced social and environmental reporting. Arguably current corporate social and environmental reporting practices represent the past impact of previous risk conflicts. However, it is likely that these reporting practices are tailored to those risk conflicts and not simply discharged by annual corporate social reports.

One of Beck's observations (Beck and Willms, 2004) of risk conflicts is the inverse relationship between power and legitimacy in second-level modern societies, where the power lies with transnational companies and legitimacy with social sub-political movements. He notes that the greater social legitimacy of social movements can be harnessed in risk conflicts to change corporate behaviour even when they operate within the protection of the state and comply with all relevant laws (e.g. Brent Spar, *ibid.*: 141).

Beck's analysis of risk conflicts that have resulted in social movements, changing corporate and institutional structures and practices identified a number of important dimensions of their 'counter-accounts' and in particular their dramaturgy of risks. Social groups produced accounts of corporate behaviour and institutional 'collusion' that translated corporate decisions into symbolic events relevant to business culture, portraying the corporate decision-making processes as scandals that individuals could also experience. They linked corporate decision making with personal decision making where there was a clear moral choice and a feasible moral alternative that was rejected. In constructing their case they made effective use of costs, evidence, statistics and science to counter the economic, scientific, social case made by the company.

What is interesting is that the initial site of these risk conflicts was not the monolithic, abstract notion of the transnational corporation but a spatially, temporally and socially defined event that was used to dramatise and represent the problematic behaviour of the corporation and associated institutions. It is interesting to note that many commentators on the content of corporate social reports have noted the use of similar techniques – mini-cases,



emotional and personal tales intended to dramatise and represent the moral and socially responsible behaviour of the corporation.

The sub-political movement has had and continues to play a critical role in societal governing, however the rise of the number and power of these groups is not matched by their democratic accountability. Sub-political groups are extremely heterogeneous, motivated by diverse aims and value sets. Sub-political does not mean political subversion against those in power, nor does it imply a coherent or shared ideology. It is wrong to think of sub-political movements as automatically opposed to economic-technological developments and the exploitation of natural and/or human resources. Whilst many sub-political groups are opposed to the notion that techno-scientific developments necessarily equate to social benefit and have attempted to obstruct this trajectory of development, many other groups have not.

Many sub-political groups act in the interests of economic growth, technological development and scientifically determined progress, and these groups use the same ‘protest’ strategies to further their aims and objectives. Many of these groups have also been highly successful in lobbying political institutions, working in collaboration with these institutions providing evidence and support for oppressive and societally damaging activities or creating scientific ambiguity to oppose or neutralize other sub-political groups.

In general the sub-political movement has created a number of important changes to governing in Second modernity. It has largely debunked the notion of the “best and only solution” to problems in the increasing complexity of late modernity. They have challenged the “wise and trusted” image of political institutions and created the notion that solutions should be a process of collective actions that observe citizens democratic rights. Sub-political movements have created systems of extra-parliamentary monitoring and surveillance of potentially everything and everyone. Sub-politics create sub-political-accountability processes to challenge the dominance of political and corporate reporting.

Risks at any point in time will be shaped by reflexively related factors such as political and sub-political risk legitimisation processes, political and sub-political governing institutions and political and sub-political accountability mechanisms. The effective governing of risks depends on the inter-relationships between these different elements and the ability to transcend these risk conflicts and to synthesise new legitimated risks. These risks will then form the basis for constructing appropriate governing structures and accountability mechanisms. Accountability mechanisms are crucial in maintaining and evolving these reflexively determined risks as they are key to the re-/de-construction of risk perceptions and critical to the pedagogic process (Beck 1992a: 181; Bebbington and Thomson, 2005).

Drawing upon this review of this literature, it is suggested that revisiting accountability mechanisms (such as in the case of the salmon farming in Scotland) could provide valuable insights into the legitimate risks of any (sub)political institution and their modes of governing (see also Power, 2004). Understanding accountability processes could allow an evaluation of the reflexivity of any system; who accounts to whom, what they account for, how they account for it, how their accounts are received by others and how they perceive others accounts of the same phenomena, are important elements in an empirical study of accountability and risk governing.

The *Risk Society* (Beck 1992a) inspired literature would suggest a number of observable empirical occurrences. These would include variations in the perceptions of risks within and between political, sub-political and business organisations, the denial of certain risk perspectives, fragmented, single issue approaches to risk governing in both the political and sub-political domains, the absence of accountability processes or partial fragmented accounts

of specific activities and the dominant assemblage to be a coalition of sub-political, political institutions legitimating the economic-technological development of business. It may also be possible to observe limited consensus and the emergence of proto-reflexivity of certain less controversial risks.

The next section presents a brief discussion on the methodological implication of using Beck's works in relation to wider epistemological aspects to understanding risk. A brief presentation of the research methods undertaken will also take place (see endnote 3).

### **3. Epistemological Issues and Research Methods**

The theoretical framework used in this paper draws upon the research literature on risk. Risk has been subject to a sustained and interdisciplinary investigation as to its underlying nature (see for example The Royal Society, 1992; Power, 2004), how risk is defined and measured (Krimsky, 1992; Slovic, 1992) appropriate modes of risk governing (Foucault, 1984; 1988; 1991; Castel, 1991; Giddens, 1991; 1994; 2002) impact of institutional structures (Beck, 1992a; b; 1994; 1995; 1996; Beck et al, 1994; Beck and Willms, 2004) and its sociological, psychological and cultural significance (Lash, 1993; 2000; Wynne, 1992; 1996; Douglas and Wildavsky, 1982; Thompson, 1980; Thompson *et al.*, 1990; Wildavsky 1994).

Renn (1992b) presents a classification of the different approaches in risk research and discusses the different ontological and epistemological positions taken by different disciplines. One factor that all these risk positions have in common is the distinction between reality and possibility. This implies that social actors can and will make causal connections between actions (or events) and their effects, and that undesirable effects can be avoided or mitigated if the causal actions (or events) are avoided or modified. Risk is an issue of perception rather than "real or actual risk" (Adam and Van Loon, 2000).

In this context Beck adopts a weak constructionist epistemological position in that risk is an objective hazard, threat, or danger that is inevitably mediated through social and cultural processes and can never be known in isolation from these processes (Lupton, 1999: 35).

It is beyond the scope of any single paper to provide a comprehensive review of all the risk literature. However, in relation to social and environmental accounting and the specific context of the empirical site in this paper the most relevant aspects of this literature are the social construction of risk perceptions (Adam and Van Loon, 2000; Adams, 1995), risk legitimisation processes (Beck, 1992a), risk governing institutions and practices (Lash, 1993; 2000; Wynne, 1992; 1996), risk communication mechanisms (Renn, 1992a; Palmlund, 1992; Kasperson *et al.*, 1988), and political and sub-political risk governing processes (Beck, 1992a; b; 1994; 1995; 1996; Beck *et al.*, 1994; Foucault, 1984; 1988; 1991; Giddens, 1991; 1994; 2002).

In this light this paper explores the implications for SEA thinking and practices, in societies with enhanced risk consciousness that exhibit characteristics of second stage modernity (Beck and Willms, 2004). However, it should be pointed out that there is considerable debate in the broader literature about the validity of Beck's thesis and whether it is realistic to argue that society is actually riskier - even if the perception of risk is higher (see for example Power, 2004: 14; Adams, 1995; Giddens, 1991: 32 – 34; Giddens, 2002: 34; Lash, 1993; Adam and Van Loon, 2000).

Further to this, Beck's work has been criticised for: the testability of his theories with little grounding on actual institutional processes; a tendency to generalise without taking into account aesthetic, cultural, gender, age, social class, ethnicity, nationality and so on

dimensions in constructing different risk knowledges and experiences; constraints from a dependence upon objectivistic and instrumental models of the social construction of risk and uncertainty in social relations and a failure to adequately define the relations between institutional dynamism, self referentiality and critical reflection; the notion of cosmopolitan individualisation as a solution to global world risk, to name but a few (see for example Lupton, 1999; Lupton and Tulloch, 2002; Elliott, 2002; Lash, 1994; 2000; Wilkinson, 2001; Dean, 2007). Many of these criticisms were incorporated in Beck and Willms (2004). In addition these criticisms were levelled mainly at his proposed solutions to governing risk rather than his framework for analysing the problems of risks in contemporary developed economies. Reservations as to Beck's solutions and generalisations are also shared by the author, a critique is developed however through evidence gathered from the empirical site; an industry that has been subject to considerable levels of criticisms over its risks to local and global ecosystems, human health and wealth.

Because of the setting of the empirical study in a particular geographic region with a strong identifiable culture those criticisms were tested and Beck's notion of risk was found to have an enormous explanatory power and to be a good way to understand both SEA theory and practice.

The research methods followed were influenced by Grounded Theory methodologies (see for example Glaser and Straus, 1967; Glaser, 1978; 2004; Parker and Roffey, 1997; Georgakopoulos *et al.*, 2008), in that the author sought to discover the theories implicit in the interviews and other data/empirical material sources. This approach allowed investigation of any potential relationships between engagement processes of the arena participants (Salmon Farming Organisations – SFO thereafter, political institutions, regulatory authorities and other stakeholding groups), social and environmental accounting practices, communication routes, risk perceptions and organisational behaviour.

Drawing upon the extensive literature on Social and Environmental Accounting (see endnote 2) there was the expectation to find examples of social and environmental accounting, as conditions would appear to exist that would give rise to, political economy responses, legitimacy actions and perhaps responses driven by a desire for emancipatory change or democratic accountability. The author sought to explore and uncover how the various participants in the salmon farming political arena used social and environmental accounting in their engagements with each other (see also Georgakopoulos and Thomson 2008).

A range of research methods were used to gather information to provide a rich description of salmon farming. Initial data on the sector was collected by a postal survey. Then face to face interviews were conducted with the different participants in the salmon farming political arena, and the empirical material gathered was analysed through a code and retrieve process (see Huberman *et al.*, 1994) and also by adapting O' Dwyer's (2004) practical, non-prescriptive process of analysis.

Where it was not possible to arrange interviews due to access problems, confidentiality issues and unavailability of people, secondary data and empirical material sources such as websites, policy documents, government statistics, government reports, media coverage and reports by stakeholder groups or related institutions were accessed. These secondary sources were analysed with the codes developed from the interview material [6].

In the next section the evidence gathered from the Scottish salmon farming arena in relation to Beck's risk conflict concept is examined.

#### **4. Empirical Evidence**

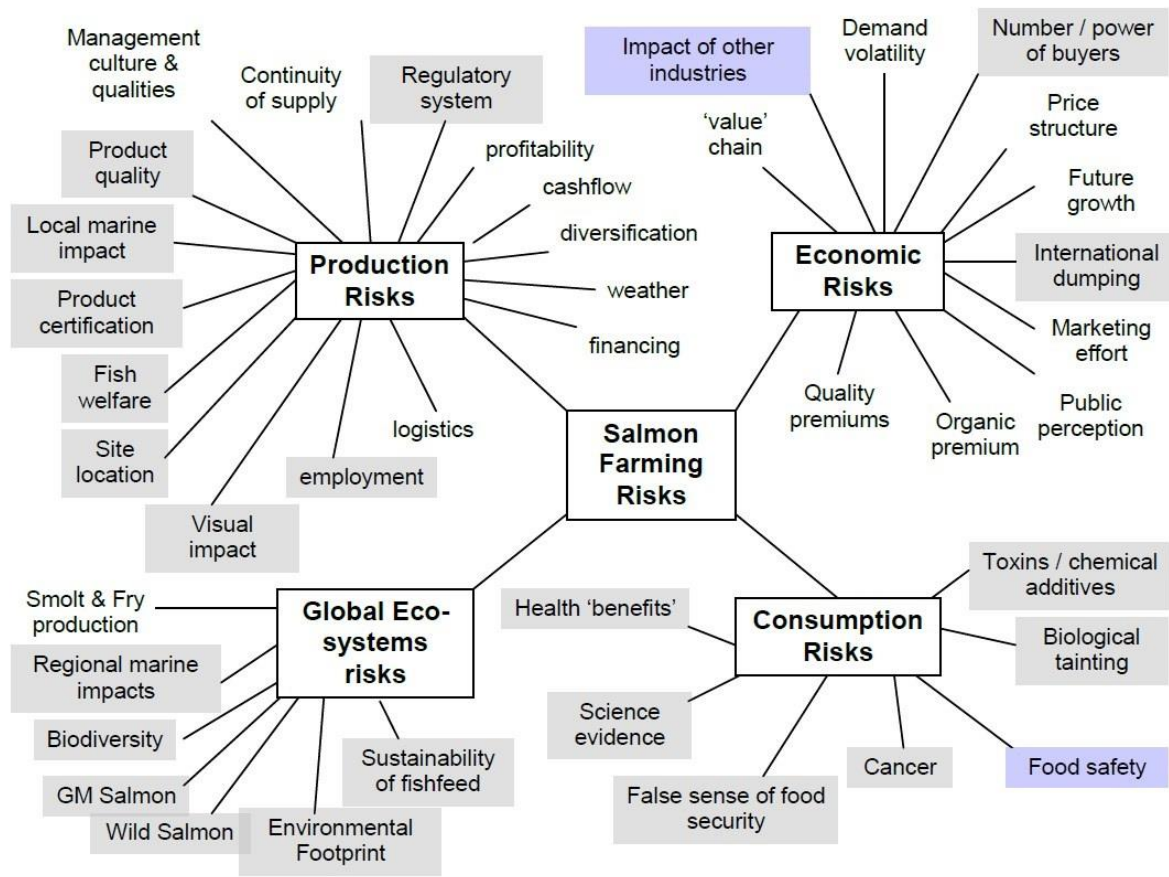
Figure II is an attempt to provide a systemic representation of the multiple risks associated with salmon farming [7]. This is a composite representation of the different risks from all of the actors involved in this study, but no single institution described all of these risks and in some cases strongly denied the existence of certain risks. The shaded boxes represent the most contested risk claims. Those contested risks are largely disputes between sub-political reforming salmon farming stakeholder groups and a coalition between political institutions, sub-political supporting salmon farming stakeholder groups and the fish farmers themselves. Salmon farming can be seen to have been the site of a number of interrelated risk conflicts that have a significant effect on its risk governing process, in particular with relation to the number of mandatory and voluntary rule enforcers.

Responsibility for governing the risks associated with salmon farming was spread over a range of different political and sub-political institutions. There was not a single institution that integrated or governed the systemic risks of salmon farming, and a number of sub-political groups such as Soil Association, SSGA, SQS, RQS and supermarkets (see Table IV in the appendix), were operating as legitimate rule enforcers and standard setters for the industry via product certification and labelling schemes. Typically these voluntary schemes were more stringent and prescriptive than mandatory regulations; aiming at satisfying particular supermarket quality specifications. Compliance with the latter quality requirements was essential as supermarkets tended to forward purchase whole harvests for an agreed price, however contracts contained clauses that allowed the retail chains to withdraw from the purchase based on any deviation from prescribed practises and at the time of the study supermarkets controlled over 85% of salmon sold in the UK (interview with SSGA).

The range of social and environmental accounts observed in this study in relation to the risk conflicts associated with salmon farming in Scotland were analysed using the risk conflict process depicted in Figure 1. A relationship between the type of arena actor, SEA report and stage in the risk conflict process was observed. A consistent relationship between Salmon Farming Organizations (SFO) reports with reforms in the risk governing process resulting from past risk conflicts was also observed, although most of these reforms were related to the introduction of voluntary sub-political rule-enforcement processes rather than substantive reforms to the political institutions' risk government. Table VI (in the appendix) links the range of social and environmental accountability mechanisms observed with the risk themes and risk conflicts. What became noticeable was the way in which these accountability mechanisms were used within a number of interrelated risk conflicts and themes.

The different arena actors behaved in a manner consistent with the risk conflict concept. Reforming stakeholders produced reports that appeared to be designed to initiate new and perpetuate previous risk conflicts and to challenge the credibility of the voluntary and mandatory components of the risk governing process. Locally based reforming stakeholders were largely concerned with the resolution of local issues such as visual pollution, impact on other forms of marine industry (e.g. sea fisheries), whereas national and trans-national stakeholders appeared to focus on challenging the credibility of the risk governing process repositioning the risk conflict away from the direct risk to the reputational risk and legitimacy of the rule enforcers.

**Figure II - Risk themes and conflicts within the Scottish salmon arena**



On the other hand supportive stakeholders' and political institutions' reports were linked to demonstrating compliance with existing risk governing processes, denying the risk claims of the reforming stakeholders and attempting to re-establish their credibility and social legitimacy. However, on a number of occasions an acceptance of some of the criticisms by elements within the political institutions was observed. Supportive stakeholders in an attempt to seek reforms of what they saw as overzealous regulatory regimes sought to initiate risk conflicts with political institutions, claiming dire consequences for the salmon farming industry and local communities unless regulations were changed.

The main thrust of the salmon farmers accountability efforts were related to demonstrating compliance with both the voluntary and mandatory risk governing processes. They were involved to a certain extent in risk denial and re-establishing regulatory credibility, but most of the responses to these secondary risk conflicts were undertaken on their behalf by their supportive stakeholders. There was evidence of a coalition between salmon farmers, supportive stakeholders and political institutions acting to resist the claims of the reforming stakeholders, often by an outright dismissal of their risk claims.

*“The industry has had a terrible press from a few people who are anti-fish farming campaigners. These are absolute nut cases” (SSGA).*

*“The divergence of views makes constructive dialogue impossible because they throw rocks at each other” (SEPA).*

In accordance with the risk conflict process presented in Figure I the rest of the findings section will present evidence of the different risk arena participants' use of reports (see also Georgakopoulos and Thomson 2008) at the following stages of the risk conflict concept: a)

compliance with existing risk governing processes; b) risk initiation; c) risk denial; d) risk perpetuation; e) challenging credibility of risk governors; f) re-establishing credibility of risk governors; and g) reforming risk governing processes.

#### 4.1 Compliance with existing risk governing processes

##### *Reforming stakeholders;*

Reforming stakeholders problematised the notion that complying with the voluntary and mandatory risk governing processes effectively dealt with salmon farming risks e.g.

*“The industry claims it is clean because it follows SEPA’s regulations, but sea lice is not regulated by anyone and SEPA’s models used for the monitoring of the discharges are too simplistic based on fjord type systems, unable to grasp the complexity of the issues at least in our region... so there is a lot of prescriptive inflexible regulation which does not relate a lot to what is happening” (RSTA).*

##### *Supportive stakeholders;*

As was discussed earlier most of the reports produced by SFOs aimed to show compliance with regulatory processes. The aim of supporting stakeholders was highlighted as reactive in trying to counter reforming stakeholders’ views. In this context it is typically SSGA’s view that:

*“In the European Commission’s web-site there are 369 pieces of legislation affecting aquaculture. In the UK if you try to set up a farm you have to consult around 40 bodies from which 6 are statutory... You have to do an Environment Impact Assessment which costs around £30,000 before you even apply for the license in the Crown Estate and if even one of those 40 bodies object you have £30,000 down the drain.”*

##### *Political institutions;*

Refer to reports by Scottish Executive (2002) and SEPA (2003) in Table I indicating that everything is well on the side of environmental responsibilities of Scottish SFOs.

**Table I – Risks identified by political institutions**

Economic Impact of Salmon Farming	Political Institutions	Production Risks, Market Risks	Product Quality, International Dumping, Employment,
Annual Salmon Production Volume and Prices	Political Institutions	Production Risks	Employment, International Dumping
Annual Salmon Import Volume and Prices	Political Institutions	Mandatory	Employment, International Dumping

Source: Scottish Executive (2002), SEPA (2003)

##### *Salmon Farming Organisations (SFOs);*

The accounting demands by the political and sub-political risk governing process on the salmon farmers were extensive and farmers were producing a considerable volume of mandatory and voluntary disclosures to a wide range of different external bodies in a variety of different modes (See Georgakopoulos, 2005; Georgakopoulos and Thomson, 2008). However, each of these accounts were very specific and delivered to a range of different

accountees based on their powers, rules, ideological position and contextual definition of what counted as legitimate information.

## 4.2 Risk initiation

### *Reforming stakeholders;*

In the salmon farming arena there were numerous instances of reports, or perhaps more correctly press stories on these reports, being used to initiate risk conflicts. For example: 10 reasons to boycott Scottish salmon this year ([www.salmonfarmmonitor.org](http://www.salmonfarmmonitor.org), accessed in November 2003, Hites *et al.*, 2004; FOE, 2001; WWF, 2003). Table II illustrates the risk themes and risk conflicts contained within FOE (2001) report (also refer to Table VI contents in the appendix).

**Table II.** Risk themes/conflicts – a Friends of the Earth perspective

<b>Production Risks</b>	<b>Ecological Lifecycle Risks</b>	<b>Economic Risks</b>	<b>Consumption Risks</b>
site location	Sustainability of fishfeed	further development	Scientific evidence
	Genetically modified salmon	Benefits of organic production	Ineffective source of human protein
industry's management & culture	Global environmental footprint	Limited Economic benefit to fish farmers	false sense of food security
Regulatory system	Biodiversity impact	Negative Economic impact on other industries	Consumers perception of salmon farming
Local Marine Impact	Impact on other species; shooting seals, bird entanglement	Negative indirect employment impact	Health risks from consumption
Fish Welfare	Impact on wild marine salmon stocks	Power of supermarkets	Toxins / chemical additives
Product quality		Limited direct employment impact	
Product certification			
Health risk for workers			
Logistics			
Employment			
Scenic pollution			

Source: FOE (2001)

### *Supportive stakeholders;*

Supporting salmon farming organisations reacted by trying to counter anti-fish farming claims. Typical quotes included:

*“The Salmon Industry is so environmentally friendly that it is choking itself to death” (SMK).*

*“Regulators only want to manage your disease problem for example and they do not care about the consequences this has on the profitability of the industry as a whole” (SMK).*

*Political institutions;*

Nothing was observed.

*SFOs;*

Mainly economic risks were included in this category. These were acknowledged by all the involved risk arena parties. However their implications for the environment were not accepted by SFOs.

### **4.3 Risk denial**

*Reforming stakeholders;*

Whilst reforming stakeholders did not undertake explicit risk denial reports – they did point out and comment upon risk denial practices within the arena. The following quote refers to risk denial practices within political institutions concerned with risk governing. For example, RSTA indicated that:

*“...we are normally tipped off by politicians or scientists working for a ‘government research institute’ to make noise about issues that they cannot officially comment on, either because it is not their regulatory remit or because it opposes SEERAD’s general policy in salmon farming...extreme environmental groups in these cases can have their use.”*

*Supportive stakeholders;*

Typical quotes include:

*“The wild stocks (of salmon) have been declining for the last 50 years, long before the industry” (SSGA).*

*“There is a potential risk for public health coming from the pigmentation of the salmon flesh. However, SSGA estimated that the amount of salmon one needs to consume in order to develop a problem is not humanly possible to eat” (SEERAD Fisheries Research Group, SEPA).*

SEPA adopted a mediatory role between the industry and some of the protest groups seeking reform in salmon farming practices. In relation to the first quote, it is worth remembering that the SSGA is a sub-political lobby group whose main objective is to promote and develop salmon farming. Yet political/regulatory institutions were using their ‘facts’ to discount the claims of other sub-political groups. Conversely, sub-political (reforming) stakeholders described their relationship with political institutions and rule enforcers as difficult with lots



of friction and a lack of willingness to listen to their concerns, particularly in relation to the effectiveness of the regulatory regimes.

*Political institutions;*

Examples of risk denial include;

*“The industry asserts that its environmental footprint is minimal while the environmentalists say no-one knows until more hard data is available” (SEERAD).*

There was an absence of significant disputes over legitimate risks between the farmers and the political institutions that had been charged with governing these risks. The farmers viewed compliance with the regulatory regime as eliminating all significant environmental and social risks (Georgakopoulos and Thomson, 2005). The political institutions generally expressed confidence in their methods of governing all the significant risks of salmon farming.

*SFOs;*

Typical quotes include:

*“It takes a lot of convincing to persuade potential customers that there is not anything bad with farmed salmon” (SMK).*

*“The media seems to be more pleased to hear bad things about the industry from environmentalists than from the industry promoting its product as good and healthy. The media have never pointed out that salmon is produced under very good conditions and it has not caused any proven damage” (SMK).*

#### **4.4 Risk perpetuation**

*Reforming stakeholders*

Many reports on Table VI were seen by reforming stakeholders as simply designed to show conformity with regulation rather than addressing the real risk issues. Examples of such reports were: application of medicines; waste quantities/composition; production chemicals/additives; production regime details; noise, odours, visual/aesthetic impact reports; fish movements; fish traceability; fishfeed composition/source; compliance with licenses/consents.

The risk governing systems in Scottish salmon farming were highly fragmented, with numerous institutions each with extremely restrictive remits. These remits were restricted by legislation or sub-political ideologies. Each institution had its own specific agenda as to hazard prioritisation and engagement strategies. It was interesting to note the approach of the sub-political groups to affect change and gain political legitimisation for their risk perceptions. Sub-political groups were engaging via scientific arguments, either by producing and promoting their independent scientific studies to add to or challenge the current notion of best scientific knowledge on the topic, or by scientifically critiquing the basis of the ‘legitimate’ risk position or the effectiveness of political governing methods. For example, WWF describes itself as a challenging, constructive, science-based organisation ([www.wwf.org.uk](http://www.wwf.org.uk), accessed May 2004).

*Supportive stakeholders;*

Nothing was observed.

*Political institutions;*

Nothing was observed.

*SFOs*

Salmon Farming Organizations denied the existence of any potential harm indicating how unnecessary current regulation at the time was.

*“As the industry becomes politically more self-aware it will start dictating to the rest of the regulators and certification bodies what should be done and not the opposite” (Tm1).*

#### **4.5 Challenging credibility of risk governors**

*Reforming stakeholders;*

Reforming stakeholders challenged the credibility of the risk governing process.

Typical quotes include:

*“The government until recently was refusing to accept that linkage between the industry and sea-lice” (RSTA).*

*“The consequences of the whole genetic mixing between farmed and wild salmon are unknown. At the bottom line, we do not know what is actually happening. There is not good monitoring of the escapees, we do not know where they go or the impacts they have” (WWF).*

*“... (a) lack of knowledge and information about the cumulative impacts of the fish farms. There is a lot of ignorance out there and there is not the necessary information that will convince a public inquiry that some developments are dangerous” (RSPB).*

The Soil Association (SA) was perhaps unusual in that it could be seen to be part of the legitimisation structure by creating the possibility of salmon farming to become organic. In fact they were criticised by other sub-political groups for their stance and their motives were questioned, the most common comment was that the SA were more concerned with empire building than promoting sustainability and that organic production was not necessarily sustainable.

*“The so-called organic fish will affect in some way the pristine environment and it will have some kind of interaction with the wild fish. In that way organic salmon farming would be something similar to cutting down rain forests to grow organic coffee trees” (RSTA).*

*Supportive stakeholders;*

Nothing was observed.

*Political institutions;*

Nothing was observed.

*SFOs;*

Nothing was observed.

#### 4.6 Re-establishing the credibility of risk governors

*Reforming stakeholders;*

Nothing was observed.

*Supportive stakeholders;*

Examples include press releases (Scottish Salmon, 2004a; b) against the Hite (2004) report.

*Political institutions;*

Political institutions argued that all was well with the governing process and what was really in need was a better understanding between SFOs and reforming stakeholders.

Typical quotes include:

*“SEPA acts as an intermediary between the salmon farming industry and the local sea trout association” (SEPA).*

*“The divergence of views makes constructive dialogue impossible because they throw rocks at each other” (SEPA).*

The representation of the risk conflicts appear to substantiate certain insights of Beck’s on second modernity as well as Power’s (2004) views, where political institutions effectively operate as structures to legitimate business practice and are more concerned with their risk-reputation management. However, the production of the Strategic Framework (Scottish Executive, 2003) can be seen as an attempt to regain credibility through a substantial reform of the Risk Governing Process. Table III illustrates the risk themes and risk conflicts associated with this framework. Note the similarity of risks with that of FOE (2001) report in Table II.

**Table III-** *Scottish Executive’s Strategic Framework for Aquaculture*

<b>Production Risks</b>	<b>Ecological Lifecycle Risks</b>	<b>Economic Risks</b>	<b>Consumption Risks</b>
Site location	Sustainability of fishfeed	Further development	Scientific evidence
Profitability	Genetically modified salmon	Price volatility	
Industry's management & culture		Demand volatility	false sense of food security
Regulatory system	Biodiversity impact	Negative Economic impact on other industries	Consumers perception of salmon farming
Local Marine Impact	Impact on other species	Negative indirect employment impact	Health risks from consumption
Fish Welfare	Impact on wild marine salmon stocks	Power of supermarkets	Toxins / chemical additives
Product quality		Pricing structure	Health relative to other foods
Product certification		Public perception	
Health risk for workers		International dumping	

Financing			
Employment			
Scenic pollution			

**Source:** Scottish Executive (2003)

*SFOs;*

Nothing was observed.

#### **4.7 Reforming risk governing processes**

*Reforming stakeholders;*

Lots of suggestions for change were contained within reforming stakeholders' reports (FOE, 2001; Scottish Executive, 2003; SNH, 2002). Typical examples included: moving operations to sites where environmental damage was less likely; scaling down of operations; vegetable protein usage for feeding purposes; more holistic approaches when examining the treatment of discharges / drafting Environmental Impact Assessments; introduction of sea lice regulation; less fragmentation in the regulatory structure; compulsory introduction of polyculture practices, to name but a few.

Concerns were expressed about the lack of accountability of political institutions over their operations and ways in which individuals would use sub-political institutions to drive change in order to bring certain issues about fish farming in the public discourse.

Whilst a number of sub-political groups accepted that there was better communication with the industry (RFA, RSPB, RSTA, WWF, FOE) they also advocated the need for better communication and more accountability.

*Supportive Stakeholders;*

Supportive stakeholders promoted the Strategic Framework for Scottish Aquaculture initiative (Scottish Executive 2003) as they felt it would be of significant importance for reforming stakeholders to have their say in how the governing process in Scottish salmon farming should evolve.

Typical quotes include:

*“The Strategic Framework for aquaculture is the chance all stakeholders involved with the industry have to offer their views and help salmon farming progress in a sustainable manner into the future” (SEERAD Fisheries Research Group).*

*“Risk for the industry not to take advantage of the Strategic Framework for aquaculture and turn it into a strategy which will attract foreign, indigenous, or multinational investment” (SSGA).*

Questions were asked, however, about what the real motivation behind such initiatives were. It was pointed out by HIE for example that *“The Scottish Executive did not want a public inquiry into the industry’s practices because they felt perhaps that issues they wouldn't like to appear in the public domain might have showed up. So if you play monopoly the Strategic Framework for Scottish Aquaculture was their out of jail card.”*

*Political Institutions;*

It would appear that the problematic nature of risk conflicts directly led to the Scottish Executive initialising the Strategic Framework (Scottish Executive, 2003). Within political

institutions the risk conflicts had uncovered a number of problems within the Risk Governing Process that could no longer be denied or ignored and this was present in the interviews with representatives from political institutions. These issues included the following:

*“A lack of co-ordination between the Regional Authority and SEPA” (SEPA, REN).*

*“Risk of a clash between a local and a national policy on development/sustainability grounds. Co-ordination is needed with SEERAD” (RA, SEPA, REN).*

*“Risks from the lack of clear planning remit between the Crown Estate and the local authorities” (SEPA, REN).*

*“Regulatory risk for the sustainability of the fishmeal fisheries from the inability of the latter to meet the strict standards of international accreditation bodies” (SEPA).*

*“Health risk for the public might exist from the presence of stuff in the fishfeed. However, the official position is that the public should eat fish because it is healthy” (RA, REN).*

SFOs;

Nothing was observed.

## **5. Summary**

It is suggested in this paper that Beck's work on risk could offer considerable insights for the development of Social and Environmental Accounting. The latter in this particular risk arena was unreflexive (see for example Beck, 1992a) and it involved a risk governing assemblage. However, in relation to certain risks where there was a degree of consensus there was evidence of a proto-reflexive relationship between a number of the sub-political and political institutions, as evidenced by the emergence of less antagonistic engagement processes; for example the ministerial and tri-partite working groups when preparing the Strategic Framework for Scottish Aquaculture (Scottish Executive, 2003). The potential for an on-going dialogue was present and some of the antagonism between certain actors began to diminish as groups constructively engaged and undertook mutually agreed actions (e.g. voluntary agreements on the use of anti-predatory nets, allowing sub-political groups to visit fish farms and co-operation in the preparation of Environment Impact Assessments (EIAs).

## **6. Concluding Comments**

In this paper the legitimate risk constructions of different actors in salmon farming were mapped out at an arena level. The system level analysis of the empirical data was consistent with concepts derived from the emergent risk society literature, where risk is mainly an issue of perception that does not necessarily imply that society is actually riskier.

Beck (1992a) in his analysis of risk society stresses a similar nature of risk conflict debates as those observed in the earlier empirical study of Georgakopoulos and Thomson (2008). Risk conflicts were dominated by scientism, whereby risks had to be proven to be truth with the application of certain scientific methodologies before they could become a legitimate part of the institutional risk management agenda, which seemed to be more concerned with addressing secondary risk management issues (Power, 2004). Stakeholders created sub-accountability processes that challenged the dominance of the political in an attempt to establish a reflexive governing structure.

The evidence gathered by Georgakopoulos and Thomson (2008) supported the contested nature of risks and the view that risk perceptions were locally, temporally and epistemologically defined. Considerable diversity in risk perceptions were revealed to be at the core of the discourses between the different parties. Evidence was also available to support the de-politicising of the political institution on two key dimensions. Firstly, the reliance on techno-scientific evidence and thinking to underpin risk governing institutions and processes and secondly, the number and nature of sub-political groups involved in rule-enforcing. Rule enforcement, normally assumed to be the function of political institutions, was partially enacted by “supporting” sub-political groups. The exception to this assemblage was the Soil Association, which entered into the rule-enforcing role in order to legitimise and promote the notion of organic aquaculture. In many cases the most stringent restrictions on farmers activities came from these sub-political rule-enforcers.

The main accountability mechanisms used by the salmon farmers as discussed by Georgakopoulos and Thomson (2008) were to satisfy the rule-enforcers of their compliance with their specific rules and risk reduction. There was an absence of what could be termed as a typical SEA in this arena, because of the scientific nature of the engagement activities, rather than that of an economic discourse.

The study of Georgakopoulos and Thomson (2008) was seen to raise a number of important issues for the development of thinking on SEA. The demands for social and environmental accounts of organisations is likely to be reflexively linked to political and sub-political discourses on risks, the diversity of risk legitimisation practices in the relevant arena, the relative powers of the political and sub-political groups, the alignment and/or coalition of these different groups, the existing ‘accounts’ in the public domain and the rule-enforcing bodies. Mapping the relationship between risk conflicts and emerging accountability routes and content could provide a valuable insight into the risk governing processes, the legitimate risk perceptions of different parties and powers of different rule enforcers.

In examining social and environmental accounting an awareness of both the political and sub-political dynamic is important, particularly given that change is normally driven by sub-political dynamics. Political institutions tend to be non-politicised, working to defend the status quo, hampered by their epistemological dependence on scientism. If social and environmental accounting is to form part of a change process it must be both sensitive to the sub-political movement, as the driver of change, yet also be expressed in a way that would be regarded as legitimate by the relevant political institutions.

The sub-political dynamic problematises the appropriate entity of SEA. The majority of the efforts of sub-political groups is not aimed at individual companies, but rather targeted at the rule-enforcers. Concentrating engagement activities to reform rules allows these efforts to have an industry-wide impact. Rule enforcers, especially political institutions, are potentially easier to change than individual companies who use compliance with rules as evidence of acceptable behaviour. Political institutions are, in theory anyway, subject to democratic accountability, control and reform.

The analysis of the salmon farming industry by Georgakopoulos and Thomson (2008) provides evidence to support a series of interrelated risk conflicts between business, political and non-political entities. Examples of reforming stakeholders using social and environmental accounts to initiate dramatised and amplified conflicts were found; this often involved attacking the credibility of existing risk governing processes and the compliance accounts used to legitimise associated practices. These companies, political institutions, regulators and supporting stakeholders also used scientifically grounded accounts to deny these risks.

There was evidence of the use of accounts to perpetuate these conflicts, which in a number of cases shifted the centre of the risk conflict from a specific local issue to challenge the credibility of the established risk governing process. This shift described by Power (2004) as a move from first to second order risks led to the companies, political institutions, regulators and supporting stakeholders to counter this threat to their credibility by using “scientism” again.

There was also evidence from all participants of problems with all the reforms of the risk governing processes with no consensus on the nature of those reforms; for example reforming stakeholders wanted a tightening of the risk governance process on the basis of their improved “scientism”, whereas supporting stakeholders advocated a lessening on existing regulation on the basis of uneconomic cost claims.

The analysis of the empirical setting of Georgakopoulos and Thomson (2008) suggests that salmon farmers initially adopted a risk denial strategy as described by Beck and Willms (2004). However given the persistence of reforming stakeholders in initiating new risk conflicts there was a move towards allowing the latter’s’ perception to partially redefine acceptable risks. Predominantly this involved product certification schemes with increased monitoring and surveillance of the fish farmers’ activities across the products’ life cycle. This strategy was only partially successful as new conflicts emerged resulting in the need for the tri-partite forum and the development of the Strategic Framework for Scottish Aquaculture (Scottish Executive, 2003).

As was mentioned earlier this paper sought to explore the insights that could be derived from the risk conflict theory (Beck, 1992a; Beck *et al.*, 1994; Beck and Willms, 2004) to SEA theory and practice using the earlier empirical exploration of Georgakopoulos and Thomson (2008) in the Scottish salmon farming risk arena as the case to demonstrate this contribution. This exploration included an awareness of the specific risks and their stage within the risk conflict process. Despite the predominance of “scientism” in the content of various accounts used in the conflict process, the importance of risk dramatisation in maintaining and initiating media interest should not be understated; the risk conflict concept has the potential to force different parties to engage ,however, the extent of this engagement is largely dependent on media amplification. Without media interest the potential of the conflict process to bring about emancipatory change is greatly reduced.

Most of the accounts in Scottish salmon farming (Georgakopoulos and Thomson, 2005; 2008) could be seen to be about gaining power to define acceptable control over the risk epistemology. This was a desired outcome by all the parties involved in the salmon risk arena (Georgakopoulos and Thomson, 2008) particularly in the secondary risk phase (Power, 2004). This observation seems to reinforce the need to locate any SEA event in the risk conflict process.

Apparently contradictory theories used to explain SEA practices would appear to be consistent with different stages in the risk conflict process (for example compliance with standards, reputational risk, political economy responses, legitimacy theory). Further research could explore in more detail the possible link of SEA theories within the risk conflict process.

## ENDNOTES

[1] A term used to denote a realisation that mankind cannot control all risks. This is in contrast to first modernity’s claims (represented by political, scientific, and religious institutions) that it could protect humanity from all the risks it faces (Beck, 1992a). For more information see the literature review section.

[2] The focus of this paper is not on a detailed review of the Social and Environmental Accounting literature but on the insights Beck's writings could have for the further development of this literature. However it would be fair to say that SEA is largely energised by an active discourse on the purposes, motivations and implications of social and environmental accounting. Indicatively it is noted here that SEA literature is broad in the: a) techniques researched (e.g. social and environmental costing (Parker, 1997); social and environmental auditing (Owen *et al.*, 2000); silent accounts (Gray, 1997); shadow accounts (Adams, 2004); external social audits (Cooper *et al.*, 2005); energy and waste accounting (Gray and Bebbington, 2001); full costing (Bebbington *et al.*, 2001); pollution damage inventories (Buhr, 1998); social bookkeeping (Gray *et al.*, 1997); ecological footprinting (Wackernagel and Rees, 1996); biodiversity accounting (Jones, 1996); compliance with standard accounting (Tilt, 2001); accreditation schemes (Georgakopoulos and Thomson, 2005); and environmental management systems (Gray and Bebbington, 2001)); b) appropriate entities (e.g. natural resources (Jones, 1996); pollutants (Beets, 2001); political institutions (Ball, 2002); communities (Lehman, 1999); NGOs (O'Dwyer, 2005); and nations (Cooper and Thomson, 2000)); and c) theoretical frameworks to evaluate practice or the absence of SEA practice (e.g. deep ecology (Mauders and Burritt, 1991); ecological modernity (Everett and Neu, 2000); communitarian ethics (Lehman, 1999); Marxism (Tinker and Gray, 2003); political economy (Cooper and Sherer, 1984); eco-feminism (Cooper, 1992); media setting theory (Brown and Deegan, 1998); stakeholder theory (Owen *et al.*, 2001); legitimacy theory (Campbell, 2000); managerial capture (O'Dwyer, 2002); accountability theory (Gray, 1992); pedagogical theories (Thomson and Bebbington, 2005); emancipatory change (Dillard *et al.*, 2005); business pragmatics (Al-Tuwaijri *et al.*, 2004); and informational usefulness (Deegan and Rankin, 1999).

[3] More detailed information of the research methods can be found in Georgakopoulos and Thomson (2008).

[4] In this context Beck's work is cited (but not explored or otherwise used at great length) by a few scholars such as: Lowe (2004) on accounting practice as a distinctive expert knowledge culture; Ball (2007) in the context of environmental accounting and social movements and how the former can be used by the latter (i.e. employees of institutions) to build a positive response from institutions to environmental issues; Everett *et al.* (2005) on the emergence of the notions of independence and objectivity and their domination in the ethical discourse of the Canadian CA profession; Ball and Seal (2005) on exploring the possibility of social accounting for justice in relation to local government; Ryan (2007) on organisational accountability and individualisation issues when examining the nature of budgetary control in the context of changing operational environments; Hammond and Miles (2004) on examining evaluation systems of UK corporate environmental and social reporting practices and the complications created in the evaluation process when contested claims about environmental issues are made; Gendron and Bédard (2006) on examining the process by which meanings regarding audit committee effectiveness are internally developed and sustained by the small group of attendees, with calls for future research in the significance the hopes and anxieties of these attendees have in constructing notions of effectiveness; Barrett *et al.* (2005) in an attempt to explore globalisation issues in multinational audit processes by examining what globalisation means to auditors as managers, how it impacts them and how it affects their identity, decisions and practices; and Knechel (2007) on the development of the business risk methodology in the 1990s and the impact risk management theories and processes had, as generalised approaches for handling complexity especially in business settings, on the re-engineering of audits.



[5] It is argued here that these latter findings exhibit many of the characteristics of Beck's *Risk Society* thesis (Beck, 1992a; b; 1994a; b; 1995; 1996; Beck *et al.*, 1994; Beck and Willms, 2004) and their implications for the development of SEA are further explored in this paper.

[6] A list of the participant organisations/institutions in this study and the sources of additional empirical material used can be found in tables IV and V respectively in the appendix.

[7] A more detailed breakdown of the risk sub-themes is available on request.

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**Appendix: Table IV**– Organisations where representatives were interviewed

<b>Salmon Farming Organisations</b>	<b>Regulatory Rule Enforcers/Political Institutions</b>	<b>Supportive Stakeholders</b>
OS1 - small family run organic fish farm.	SEPA - Scottish Environment Protection Agency.	RGA – Regional Salmon Growers Association.
OS2 - small family run organic fish farm.	Regional Authority - democratically elected single, all-purpose local authority.	FM1 – Glasgow based retail fish monger, sole trader. FM2 – Glasgow based wholesale fish market, sole trader.
ML1- subsidiary of multinational group producing conventional & organic salmon.	SEERAD - Scottish Executive Environment & Rural Affairs Department	FM3 – Scottish based wholesale/retail group, UK company.
ML2 - subsidiary of multinational group producing conventional and organic salmon.	<b>Reforming Stakeholders/Voluntary Rule Enforcers</b>	<b>Reforming Stakeholders</b>
TM1 – subsidiary of family run group producing conventional salmon.	Soil Association (SA) - an independent charity promoting and certifying organic agriculture	RSPB - Royal Society for the Protection of Birds. Wildlife conservation charity.
MK - marketing company of TM1.	<b>Supportive Stakeholders / Voluntary Rule Enforcers</b>	RFA – Regional Fisheries Association represents sea fishermen.
MM - large salmon UK company producing conventional & organic salmon.	SSGA - Scottish Salmon Growers Association.	RSTA – Regional Sea Trout Association Sea fishing NGO.
SM - large smolt producer.	SQS - Scottish Quality Salmon product-labelling scheme.	WWF - World Wide Fund for Nature Scotland: International environmental non-governmental network.
SMK - a small salmon smoking company.	RQS – Regional Quality Salmon labelling schemes – part of RGA.	<b>Political Institutions</b> REN - Regional Enterprise Network reports to Scottish Executive.



**Appendix: Table V** – Additional (non-interview based) Sources of Empirical Data

<p><b>SALMON FARMING ORGANISATIONS Data Gathered through a questionnaire survey.</b></p> <p>OS3 –small organic business that produce salmon, fry and smolts.</p> <p>TL1 – large salmon farming business producing non-organic salmon and smolts.</p> <p>TL2 – large salmon farming business, that is a subsidiary of a larger national company producing non-organic salmon, fry and smolts.</p> <p>TS1, SS1 – small firms that are subsidiaries of larger national companies, producing non-organic fry and smolt.</p> <p>TS2, TS3, TS4, TS5 – small family run businesses producing non-organic salmon. TS5 also produce mussels.</p> <p>TM2, TM4 – medium sized companies producing non-organic salmon.</p> <p>SS1 – small company that is a subsidiary of a larger firm and produces non-organic smolts.</p> <p>SP – small independent firm producing non-organic smolts and is also involved in salmon processing.</p>
<p><b>RULE ENFORCERS Data gathered through websites, policy documents and other governmental reports.</b></p> <p>HSE – Health and Safety Executive responsible for regulation of health and safety issues</p> <p>MCA - Maritime and Coastguard Agency - to develop, promote and enforce high standards of maritime safety and pollution prevention, to minimise loss of life and pollution from ships</p> <p>FSA - Food Standard Agency - independent food safety watchdog set up by Parliament to protect the public’s health and consumer interests.</p> <p>CE - The Crown Estate: political agency responsible for management of the territorial seabed and foreshore between high and low water mark</p> <p>VMD - Veterinary Medicines Directorate – UK Government Agency protecting public &amp; animal health, the environment, promoting animal welfare by assuring the safety quality and efficacy of medicines.</p> <p>EMA - European Agency for the Evaluation of Medicinal Products co-ordinates scientific resources to evaluate &amp; supervise medicinal products for both human and veterinary use throughout EU.</p>
<p><b>POLITICAL INSTITUTIONS Data gathered through documentary analysis. SNH (2002)</b></p> <p>SNH - Scottish Natural Heritage - Scottish Executive’s statutory adviser on natural heritage, nature conservation matters, promotion of nature’s sustainable use, public understanding &amp; enjoyment.</p>
<p><b>STAKEHOLDERS – OPPOSING SALMON FARMING</b></p> <p>FOE - Friends of the Earth Scotland a NGO network of environmental groups with representation in 68 countries, major environmental pressure group in the UK. –<b>documentary analysis of FOE (1988, 2001)</b></p> <p>SFPG – Salmon Farm Protest Group – an environmental NGO to ensure the preservation of wild species, unpolluted coastal &amp; inland waters, &amp; people relying on that environment for a living. <b>Analysis of <a href="http://www.salmonfarmmonitor.org">www.salmonfarmmonitor.org</a>.</b></p>
<p><b>STAKEHOLDERS – FOR SALMON FARMING</b></p> <p><b>Analysis of websites of Tesco, Sainsbury, Asda, Waitrose and by visits to supermarkets.</b></p> <p>Supermarkets dominate the retailing of salmon and organic salmon and play a critical role in driving product modifications. Supermarkets impose strict quality requirements and can be viewed also as voluntary rule-enforcers.</p>

**Appendix: Table VI - Reports and risk conflicts**

<b>Type of Report</b>	<b>Source</b>	<b>Risk Category</b>	<b>Risk Conflict</b>
Application of Medicines	Salmon Farmers	Consumption Risks, Production Risks, Market Risks	Toxins/chemical additives, Health relative to other food, Cancer, Water contamination, Fish welfare, Media scare story.
Waste Quantities / Composition	Salmon Farmers	Consumption Risks, Production Risks, Downstream Risks, Market Risks	Hygiene, Toxin/chemical additives, Contamination, Regulatory Compliance, Product Quality, Local marine impact, Fish Welfare, Site Location, Production Ecosystem, Other sites, Media scare story
Production Chemicals/ Additives	Salmon Farmers	Consumption Risks, Production Risks, Downstream Risks, Market Risks	Toxins/chemical additives, Texture, Contamination, Health Relative to Other Food, Regulatory Compliance, Product Quality, Local Marine Impact, Product certification, Production Ecosystem, Other sites, Media scare story
Production Regime Details	Salmon Farmers	Production Risks, Market Risks	Product Quality, Media Scare story
Noise, odours, visual/aesthetic impact	Salmon Farmers	Production Risks, Consumption Risks	Hygiene, Regulatory Compliance
Fish Movements	Salmon Farmers	Production Risks, Downstream Risks, Market Risks	Local Marine Impact, Regulatory compliance, Production ecosystem, Other sites, Media scare story
Fish Traceability	Salmon Farmers	Production Risks, Market Risks	Product quality, Product certification, Media Scare story
Fishfeed composition / source	Salmon Farmers	Downstream Risks, Market Risks	Sustainability of fish feed, Media scare story
Compliance with licenses/ consents	Salmon Farmers	Production Risks	Regulatory compliance
<b>Direct Periodical Reports</b>			
Economic Impact of Salmon Farming	Political Institutions	Production Risks, Market Risks	Product Quality, Employment, International Dumping
Annual Salmon Production Volume and Prices	Political Institutions	Production Risks	Employment, International Dumping
Annual Salmon Import Volume and Prices	Political Institutions	Mandatory	Employment, International Dumping
<b>Direct Contingent Reports</b>			
Disease Notification	Salmon Farmers	Production Risks, Downstream Risks	Regulatory compliance, Product quality, Product certification, Production Ecosystem, Other sites, Risk perception, Media scare story
Fish Forecast harvests	Supporting stakeholders	Market Risks, Production Risks	Number /power of buyers, International Dumping, Employment

Changes in licenses/dischARGE consents	Fish Farmers	Production Risks	Regulatory compliance
<b>Direct Qualitative Reports</b>			
Plans for sea-lice treatments	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks	Local marine impact, fish welfare, production ecosystem, other sites, media scare story, Risk perception
Anti-predatory Precautions	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks	Local marine impact, fish welfare, production ecosystem, other sites, media scare story, Risk perception
Fish Welfare	Salmon Farmers	Production risks, Consumption risks, market risks	Product certification, Product quality, Risk perception, Media scare story
Escaped Salmon	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks,	Local marine impact, Production ecosystem, Other sites, Media scare stories, Risk perception
Impact on Wild Salmon Population	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks,	Local marine impact, Production ecosystem, Other sites, Media scare stories, Risk perception
Impact on marine environment	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks,	Local marine impact, Production ecosystem, Other sites, Media scare stories, Risk perception
Impact on other marine businesses	Salmon Farmers	Production risks, Downstream risks, Market risks, Consumption risks,	Local marine impact, Production ecosystem, Other sites, Media scare stories, Risk perception
Salmon Product Labelling	Salmon Farmers	Production risks, Market risks, Consumption risks	Product quality, Product certification, Media scare story, Risk perception
Salmon Environmental Impacts	Reforming stakeholders	Production Risks Downstream Risks	Local Marine Impacts, Fish welfare, site location, fish welfare, production ecosystem, other sites, sustainability of the fish feed
Contaminants in Farmed Salmon	Reforming stakeholders	Consumption risks	Toxin/chemical additives, contamination, cancer, science evidence
Fishmeal Sustainability	Reforming Stakeholders	Downstream risks	Sustainability of Fishfeed
Marine Impacts	Political Institutions	Productions Risks	Locale marine impacts
Strategic Framework	Political Institutions	Production Risks, Downstream risks, Market Risks Consumption Risks	Site location, Production ecosystem, employment, other sites, International dumping, Risk perception
Sustainable Aquaculture	Political Institutions	Consumption risks, Production risks, Market risks, Downstream risks	Risk perception, Product quality, Local Marine Impacts, Production certification, Site location, Production Ecosystem
Licensing/litigation/ Site	Political Institutions	Production risks	Regulatory compliance

Inspections			
Press releases/ News letters	Supporting stakeholders	Market Risks	Media Scare stories
Press releases/ News letters	Reforming stakeholders	Consumption Risks, Downstream Risks, Production Risks	Toxins/ chemical additives, contamination, “benefits”, science evidence, other sites, sustainability of fishfeed, local marine impacts, fish welfare, site location, production ecosystem
Formal roundtables (Tri-partite/AMAs/C oastal Forum)	All	Production Risks, Downstream Risks	Regulatory compliance, Product quality, Local marine impacts, Product certification, fish welfare, site location, production ecosystem, other sites
Open Days	Salmon Farmers	Market Risks, Consumption Risks	Media scare story, Risk perception
Public meetings	Salmon farmers	Market Risks	Media Scare stories
Public meetings	Reforming stakeholders	Consumption Risks, Downstream Risks, Production Risks	local marine impacts, site location, production ecosystem