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Citation for the original published paper (version of record):

Johansson, J., Lidskog, R. (2020)

Constructing and justifying risk and accountability after extreme events: public administration and stakeholders' responses to a wildfire disaster

Journal of Environmental Policy and Planning, 22(3): 353-365

<https://doi.org/10.1080/1523908X.2020.1740656>

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Constructing and justifying risk and accountability after extreme events: public administration and stakeholders' responses to a wildfire disaster

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ABSTRACT

The impacts of extreme weather events, causing severe storms and wildfires, cascade across administrative borders within a country, challenging the steering capacity of governance networks at different political scales. This paper examines how accountability and risk were constructed and negotiated in the aftermath of Sweden's largest wildfire. It draws on results from an interview study with executives of organizations and landowners involved, and an analysis of government reports about the wildfire's cause and consequences. Although the fire was human-caused, public administrative bodies paid considerable attention to the local emergency services and their poor handling of the wildfire, caused by lack of knowledge of forest fire behavior. The study confirms many of the challenges associated with governance networks. It finds that issues about who to hold accountable, in what forum and for what issue are not fully addressed, being overwhelmed by demands for better knowledge of forest fire prevention and improved coordination and collaboration. To conclude, the paper calls for a better-informed public administration, forest sector and interrelated networks that take responsibility for their actions or lack thereof.

ARTICLE HISTORY

Received 13 November 2018
Accepted 17 February 2020



KEYWORDS

Accountability; climate change; disaster; risk; wildfires

1. Introduction

During the last couple of decades, there has been a gradual shift in the perceptions of public administration, from believing that we can 'control' nature to a focus on complex systems embedded in societal and natural contexts in which we must manage, accommodate and adjust to a changing environment (Duit & Galaz, 2008). Simultaneously catastrophic shifts in socioecological systems, such as severe hurricanes, storms and wildfires, have cascade effects within and across national borders, which challenge the steering capacity of governance (Klijn & Koppenjan, 2015). Climate change will probably amplify this challenge since extreme weather is expected to be more frequent, with severe implications for society (Calkin et al., 2014; McCaffrey et al., 2013; Stephens et al., 2013). This is not least the case for wildfires, where climate change is a key driver of escalation (Abatzoglou & Williams, 2016; Harvey, 2016; Moritz et al., 2014; Stephens et al., 2013). This escalation will probably lead to an increase in the frequency of 'megafires', wildfires that overwhelm the capability and endurance of available firefighting resources (Tedim et al., 2016).

Improved risk evaluation and disaster management are essential for making society less vulnerable and more sustainable, although it is often more politically expedient to respond after a disaster when constituents are demanding assistance or accountability (Cutter et al., 2015). Recent research has, therefore, called for approaches to strengthen risk governance to manage risks across all sectors in society, focusing on the root causes of disasters and probable emergent risks, supporting action by local communities, authorities and

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engaging policy-makers (Cutter et al., 2015; Djalante et al., 2011). This is well in line with literature on governance, which emphasizes the key role of various constituencies to inform and co-govern within the public sphere (Ansell & Gash, 2008; Bodin & Nohrstedt, 2016). However, scholars have raised awareness of the limits of governance networks, particularly with respect to accountability (Bäckstrand, 2008; Bovens, 2007; Willems & Van Dooren, 2011). ‘The politics of accountability’ is a term coined to grasp the phenomenon in which various actors, governments and non-state stakeholders, actively construct, contest and justify accountability for various purposes (Black, 2008; Chan & Pattberg, 2008; Gordon, 2016; Johansson, 2013; Newman, 2004). What complicates the search for accountability is that actors must make decisions in a situation of great uncertainty and where the outcomes of the actions are not known beforehand. Whilst responsibility relates to a sphere of duty or obligation assigned to a person, position or organization, accountability concerns whether this person or organization can justify its actions (or inaction) (Bivins, 2006). When a harm has occurred – or when a particular risk is transformed to a disaster – the issue of accountability concerns whether a person or organization has legitimate excuses or not for not handling the situation sufficiently.

In this paper, we draw attention to the construction and justification of accountability and risk in the aftermath of a large-scale wildfire in Sweden. In the summer of 2014, a forest fire in Sweden escalated into one of the largest wildfires ever seen in the country. Previous studies have addressed issues of Swedish crisis management per se, or future directions for the practical crisis management of large-scale disasters in Sweden (e.g. Bergström et al., 2016; Bodin & Nohrstedt, 2016; Wimelius & Engberg, 2015). In general, relatively few studies have systematically analyzed accountability from the perspective of stakeholders and public administration in a post-fire situation (for exceptions, see Holmes, 2010; Taylor et al., 2014). This paper, however, examines how accountability and risk are constructed and justified in a complex structure of networks, particularly what kind of mechanisms, if any, for accountability are presented in the aftermath of a wildfire disaster. Specifically, we analyze how public administration and non-state organizations and stakeholders understand and evaluate the occurrence of a wildfire and the efforts to combat it, to what extent and to which actor(s) they ascribe responsibility and accountability, to what extent they consider risk awareness a key issue, and to what extent a major wildfire will change practices in order to avoid future disasters of the same sort. Although the scope of the case study is restricted to Sweden, we illustrate the problems associated with rendering any sector or actor accountable in governance networks. Further, wildfires are a growing phenomenon globally and there are important lessons to be learnt for other countries in terms of risk regulation and forest fire prevention.

The paper is organized in six sections, including this one. The next section outlines analytical considerations relating to accountability and risk in governance networks. Here, accountability is recognized as a contested concept and definitions of accountability depend on institutional arrangements. The third section presents the contextual and regulatory background for the case, whilst the fourth section describes the methods and sources used. The fifth section presents the results; public administration and other involved actors’ constructions and justifications of accountability and risk. The sixth and concluding section discusses lessons learned from the case as well as the issue of the wider implications of the results, not least how accountability and risk are constructed among actors in governance networks.

2. Tracing patterns of accountability and risk in governance networks

2.1. Governance networks and accountability

During the last few decades, public administration has increasingly relied on various forms of governance networks to enhance policy effectiveness at multiple administrative levels, including processes of decision-making, implementation and service delivery (Bodin & Nohrstedt, 2016; Klijn & Koppenjan, 2014). The network structure is associated with shifts in authority from the national level to sub-national levels and from public agencies to collaborative networks that involve public as well as private actors (Sandström et al., 2015). Governance networks have been defined as ‘more or less stable patterns of social relations between mutually dependent actors, which cluster around a policy problem, a policy programme, and/or a set of resources which emerge, are sustained, and are changed through a series of actions’ (Klijn & Koppenjan, 2015, p. 11). Networks are thereby characterized by

complex policy problems that cannot be solved by one actor alone, but require the collective actions of several actors, actors that may have different perceptions of the problems and strategies to solve them. Therefore, there is a need create institutional arrangements that enable coordinated action (Klijn & Koppenjan, 2015).

Moreover, networks operate in the shadow of the state and are neither directly accountable to an electoral base, nor do they exhibit public authority (Bäckstrand, 2008). The increasing significance of networks, in which responsibility for policy making and delivery is shared across organizational boundaries, challenges formal notions of accountability. Scholars have drawn attention not only to the merits, but also the limitations of various governance efforts involving multiple types of actors, including the ability to address the interests of society (Gordon, 2016; Klijn & Koppenjan, 2014). One key concern deals with the extent to which accountability turns out to be diminished in governance systems relying heavily on non-state participation (Koliba et al., 2011; Newman, 2004; Sørensen & Torfing, 2005), often known as ‘the problem of many hands’ and the difficulties in establishing the contribution of each participant (Poel et al., 2015; Thompson, 1980).

The growth of network governance and coordination has produced multiple, rather than single, forms of accountability (Newman, 2004). As a form of umbrella concept, accountability may cover various areas such as transparency, equity, democracy and responsibility. From a narrow viewpoint of public administration, accountability has been defined as ‘a relationship between an actor and a forum, in which the actor has an obligation to explain and to justify his or her conduct, the forum can pose questions and pass judgement, and the actor may face consequences’ (Bovens, 2007, p. 450). Moreover, ‘accountability is not only about *ex post* scrutiny, it is also about prevention and anticipation’ (Bovens, 2007, p. 453). Key issues concern who to bring to account in the forum and about what issues (which may become far more problematic in networks than in traditional command-and-control relationships) (Bovens, 2007). However, there are overlaps between accountability regimes that are associated with the public sphere and regimes that are associated with the private sphere, thereby bringing in new forms of standards for accountability (Chan & Pattberg, 2008). From a broader governance perspective, an accountability system has been defined as ‘a more or less coherent set of rules and procedures, delineating who takes part in decision-making, who holds whom responsible for what kind of actions, and by which means’ (Chan & Pattberg, 2008, p. 104). Therefore, there is a need to explore constructions of accountability in the terrain of network governance. We thereby understand accountability primarily as a form of *ex post* responsibility as it depends on how a certain conduct can be constructed or justified (Löfmarck et al., 2017). However, we also recognize the value of prevention, that is, the feedback information that may allow actors within a network to learn how to improve their conduct in case of future events (Bovens, 2007; Schillemans, 2008). Horizontal forms of accountability are expected to stimulate actors to reflect upon their behavior, which may lead to policy changes (Schillemans, 2008).

2.2. Risk consciousness and uncertainty: from networks to risk governance

What further complicates the issue of accountability is that decisions are increasingly taken without any certainty about their outcome, and most organizations have appropriated an awareness of risks associated with activities they run and decisions they make (Power, 2007). Even if the likelihood of an event is low, an organization should nevertheless recognize and consider it when making decisions and be prepared to handle its consequences in those cases when it occurs. This means that legitimate claims can be articulated that an organization should foresee consequences of an action, even unintended ones (if they are severe). Thus, when risks transform to disasters, issues of accountability come to the fore (van de Poel & Nihlén Fahlquist, 2013). The fact that many disasters have a systemic character, that is, with multiple causes, does not mean that accountability is absolved, but only that the regulation should be designed in a way that is both *ex ante* and *ex post*, both future-oriented (obligation to avoid or reduce risk) and backwards-looking (claiming accountability when a risk is realized).

However, the fact that risk consciousness has spread in society does not mean that risks are understood in a consistent way. As sociological and psychological research has revealed, risks are differently understood and have different implications in different contexts and categories, and with respect to different interests (Lidskog & Sundqvist, 2013). This is apparent when the social location of risk-taking is decoupled from places and people

that must bear its possible negative consequences (Beck, 2009). Thus, in the wake of a disaster, there is often a lengthy attempt to understand what has taken place, during which accountability is constructed, including developing an understanding of the causes behind it as well the extent it was possible to foresee. Thus, when a disaster occurs, it may not only lead to criticisms being voiced about its handling but also questions about why it was not foreseen and prevented. This may also be fueled by the complex governance networks handling the issue, where it may be hard to find who to hold accountable for a disaster. Thus, the spread of risk consciousness has implications for how to organize accountability, especially when it is characterized by ‘many hands’. It can even be claimed that it is a case of ‘organized irresponsibility’ (Beck, 2009, p. 27), where affected citizens cannot find anyone to hold accountable for a disaster, which may lead to distrust towards the organizations involved as well as society at large (Erikson, 1994).

3. Regulatory systems and case study

3.1. Swedish forestry governance system

The governance system for Swedish forestry consists of two main principles: (1) the goal of preserving the environment should be given the same importance as the goal of producing woody biomass, and (2) the governing principle of forest management should be ‘freedom with responsibility’; i.e. a set of rules should lay out the principles for forest use, while the Government acts by providing information, advice, and recommendations (Beland Lindahl et al., 2017). A unique feature of Swedish forestry is its ownership structure: approximately 50% of productive forestry land is owned by individuals, 30% is owned by private companies, and 20% is publicly owned (generally by state-owned companies) (Royal Swedish Academy of Agriculture and Forestry, 2015). This means that the governance system relies rather heavily on social norms, knowledge dissemination and guidelines to shape individual forest owners’ actions (Löfmarck et al., 2017).

3.2. The crisis management system in Sweden

The Swedish system of crisis management rests on three principles: (1) responsibility – whoever is responsible for an activity in normal circumstances should maintain that responsibility in times of crisis; (2) parity – authorities should function in a similar way during a crisis as under normal conditions; and (3) proximity – a crisis should be managed where it occurs and by those directly concerned and responsible (Wimelius & Engberg, 2015). This means that all public agencies must be prepared to engage in crisis management. Furthermore, if a municipality can no longer provide resources for managing a crisis, it should call for national support. This is important since Swedish municipalities have considerable autonomy and several executive powers (based on a decentralized principle of local responsibility). This includes responsibility for fire and rescue services within the municipality’s geographic border. Like many other countries, the system is organized at three different levels of authority – national (Ministry of Defense, Swedish Civil Contingencies Agency), regional (County Administrative Boards) and local (municipalities). However, the Swedish system is also different, primarily due to public policy making and steering in general, including public agencies that have relative autonomy vis-à-vis the government (Wimelius & Engberg, 2015). As part of a deregulated policy area, the state governs by outlining political intentions and by emphasizing that cooperation and networks between relevant actors are key for the effectiveness of the crisis management system (Bergström et al., 2016; Bodin & Nohrstedt, 2016).

3.3. Case: the 2014 wildfire in Sweden

In the summer of 2014, Sweden experienced one of the largest forest fires in its modern history, covering an area of 14,000 hectares in four municipalities. A large forest company had hired a local entrepreneur to perform subsoiling, and on 31 July, a forest vehicle ignited a fire (Henningsson & Jacobsen, 2014). This wildfire was initially deemed to be under control but developed into a megafire that overwhelmed the capacity of fire

departments and crisis management systems. The weather had been extremely hot, and it had not rained for weeks, which caused the fire to spread rapidly: at its most critical point it spread at a rate of over two kilometers per hour. Two firefighting departments (from two different municipalities) fought it separately. However, on the fifth day, the fire went completely out of control as it spread from 2,800 to 13,000 hectares, and the authorities considered it to be a major crisis. This led to a reorganization of the operations, involving government agencies as well as fire and rescue services from other parts of Sweden; firefighting planes from France and Italy also water-bombed the fire. After almost two weeks, and mainly due to changes in the weather, the fire was under control. By then, an area as large as almost 30,000 football pitches had burned. Finally, on September 11th, it was formally declared that the fire had been extinguished.

In total, 2,300 people – police officers, soldiers, firefighters, forestry workers and volunteers – were mobilized to fight the fire and evacuate people and animals. The damage was considerable: it caused one fatality; over 1000 people and 1700 animals (cattle and sheep) were evacuated; 71 buildings were damaged or destroyed and 1.4 million cubic meters of timber damaged. The total cost of the fire was at least 100 million euros (County Administrative Board, 2014; Swedish Civil Contingencies Agency, 2016). The burned area was owned by approximately 100 small-scale private landowners and a handful of large forest companies and organizations. In spring 2015, half of the area (6,400 ha) was declared a nature reserve, with the state offering either economic compensation or a new forest property in the vicinity for those owning forest in the newly established nature reserve.

4. Materials and methods

Public authorities, fire departments and other affected organizations conducted several evaluations of the wildfire. We limit our analysis to the two evaluations that were commissioned by the Swedish government: (1) the official government commission, appointed by the government shortly after the fire was extinguished (Sjökvist & Strömberg, 2015), and (2) the official formal public report by the responsible government authority, the Swedish Civil Contingencies Agency (2016). The latter is a synthesis of the Civil Contingencies Agency's analysis of 26 investigations and their conclusions, recommendations and action proposals suggested by other public agencies, the official government commission, civil society organizations, county administrations, affected municipalities and other actors. Based on the findings from several different evaluations, the aim of the report was primarily to suggest measures for strengthened crisis management in Sweden.

This study primarily draws attention to how public administration, organizations and involved stakeholders (forest companies, public agencies, civil society and landowners) perceive accountability in terms of the cause and consequences of the fire and its magnitude. Further, it considers what organizational practices they identify necessary to change, in order to reduce the risk of future wildfires. These topics were primarily examined through an interview study. The selection criteria were: (i) being deeply involved in the post disaster work and (ii) representing different organizations in public, for profit and non-profit sectors. The reason for this focus was that whereas there are studies that investigate how affected individuals – residents and property owners – evaluate the work (Lidskog, 2018; Lidskog et al., 2019;), there are few studies that focus on the involved organizations' experience and evaluation of the wildfire and its handling. There were relatively few organizations deeply involved in the post disaster work, and based on governmental investigations and earlier studies, we found 18 relevant organizations to study. Within these organizations, interviewees were selected based on: (i) having main responsibility within the organization for the post disaster work; (ii) often mentioned in the media as representing the organization; or (iii) often mentioned by other interviewees as being deeply involved in the post disaster work. Besides these 18 organizations, two additional individuals were interviewed: permanent residents who had been heavily involved in the work and had good knowledge about the work of the organizations involved and who to interview. In total, 20 respondents were included in the interview study. The interviews were undertaken during April and May 2015 and involved representatives from government agencies (5 respondents), forest companies (3), forest associations (3), individual forest owners (2), non-profit NGOs (4), insurance companies (1) and residents/house owners (2). The interviews were recorded and transcribed verbatim and all respondents were assured their anonymity. The interviews were semi-

structured, based on an interview guide but allowing the interviewer and respondent to examine new ideas that were brought up during the interview (Kvale & Brinkmann, 2014). The interview questions targeted the respondents' perceptions of the following areas. (1) *The cause of the forest fire*, e.g. what was it that caused a fire of such magnitude? What could have been done differently from the start? (2) *The course of actions during and after the fire*, e.g. can you describe the course of events from your perspective? How did you experience coordination and support from public agencies? (3) *Lessons learned and responsibility*, e.g. what will happen now, after the fire? What different requirements are there from organizations regarding how to deal with the damaged areas? How did you experience access to information and the opportunity to feel involved in local decisions? And, finally, (4) *general questions regarding the role of current forest management practices, forest fires and climate change*, e.g. is there a need to adapt current forest practices to climate change? If so, what actions are required? What are the increased risks to the forest area after the fire? Which actors have the responsibility for reducing the risk of fire in the future?

NVivo software for the analysis of qualitative data was used for conducting a contextualized thematic analysis (Bryman, 2012). We used the same pre-defined coding scheme (cause, course of actions, lessons learned and responsibility, forest management and climate change) in our qualitative analysis of the commission reports. This made it possible to place the views of the forest sector and civil society in the context of how public agencies understood the wildfire and potential prioritizations and challenges for the future. We present the results in two broad categories: (1) *cause, responsibility and accountability* (how public administration, through the assessment of government commissions, and respondents from public agencies, land owners and civil society, perceived the cause and course of actions in the aftermath of the wildfire), and (2) *risk perception and forest fire prevention* (how the issue of forest fire prevention was dealt with, particularly the capacity and responsibility to prevent and handle wildfire disasters in the future).

5. Tracing patterns of accountability and risk in the post-fire dynamics

5.1. Public administration through the assessments of commissions

5.1.1. Cause, responsibility and accountability

The main commission appointed by the Swedish government (Sjökvist & Strömberg, 2015) outlined several critical issues in the handling of the fire. Regarding responsibility, it stresses that 'The reason for the current forest fire can be derived from a forest contractor's everyday activities' (Sjökvist & Strömberg, 2015, p. 105). However, shortcomings in knowledge of forest fire behavior, the forest fire index, the forest areas and limited experience with large-scale forest fires, were seen as the main issues that the fire fighting and emergency services failed sufficiently to assess in relation to the risk of a large-scale wildfire (Sjökvist & Strömberg, 2015, pp. 8–9; 152). The absence of risk assessment in connection with the deployment of emergency services (rescue efforts were under-resourced in terms of both personnel and material resources) was considered a key concern, as well as difficulties in collating and communicating a combined picture of the situation during the initial day of the effort. This made it impossible for the rescue services to surround the fire and to carry out actions in a systematic and efficient manner (Sjökvist & Strömberg, 2015, pp. 8–9). In general, the lack of preparatory actions in the form of risk and vulnerability analyses, education, planning and practice, and crisis management skills were the main observations (Sjökvist & Strömberg, 2015, pp. 8–9). As a result, the investigation reported a great need for improved planning, coordination and training, concerning the executive functions of Swedish crisis management (Sjökvist & Strömberg, 2015, pp. 105–106).

The investigation by the Swedish Civil Contingencies Agency (2016) confirmed many of the findings of the main committee. As regards accountability, it stressed the great need for improved collaboration, coordination and clarification of responsibilities in the general system of crisis management in Sweden. In general, the investigation primarily revealed a picture of a general lack of coordination among the local emergency services in the area (municipal level) and public authorities. Furthermore, when the fire started, the fire risk was extremely high and a fire ban was issued (Swedish Civil Contingencies Agency, 2016, p. 51). The evaluation stressed that 'there are major knowledge shortages in a variety of areas, from forest fire extinguishing to how the Swedish

crisis management is supposed to work and what is ‘best practice’ (Swedish Civil Contingencies Agency, 2016, p. 65). Although the Civil Contingencies Agency did not seek to blame any organizations or individuals, it noted that it is likely that the fire was ignited by a forest vehicle performing subsoiling in the area (Swedish Civil Contingencies Agency, 2016, p. 57).

5.1.2. Risk perception and forest fire prevention

As regards risk perception and fire prevention, the main investigation directed considerable critical attention to the forest sector, but also to the crisis management system in general. As regards forestry, it primarily drew attention to a need to consider the forest sector’s lack of current preventive work. Further, this type of accident was also not included in nor did it influence the actors’ preparatory actions in the form of risk assessment, planning, training and practice. This concerns both rescue services and crisis management (Sjökvist & Strömberg, 2015, p. 153). At a given critical point, the report noted, there may be grounds for assessing the activities of forestry to be so risky that the likelihood of an accident (which could lead to the need for rescue efforts) is very high. In such circumstances, the operation is deemed to be hazardous and a possible action would be that the forest sector adjusts its forestry activities to the current fire risk level at any given time, being prepared to extinguish forest fires or limit forest operations in certain geographic areas (Sjökvist & Strömberg, 2015, pp. 105–106).

In contrast to the main investigation, the findings by the Civil Contingencies Agency emphasized the need for improved collaboration between the forest sector and local emergency services. This also concerns active measures to reduce the risk of forest fire in the future, not least to develop forecast-, analysis- and decision support for forest and vegetation fires (Swedish Civil Contingencies Agency, 2016, p. 57) and to increase knowledge about climate change and crisis management among different actors (Swedish Civil Contingencies Agency, 2016, p. 63). Further, it suggested that the forestry sector, together with insurance companies, develops a certification system for fire safety in forestry (Swedish Civil Contingencies Agency, 2016, pp. 57–58).

As regards fire prevention, public investigations pointed – to some extent – to the forest sector’s responsibility for preventing and handling fires, but not least to problems with crisis management; there was a lack of preparatory action in the form of risk and vulnerability analysis, planning and practice. Considering these findings, the Civil Contingencies Agency’s evaluation drew attention to the need to strengthen the ability to interact, lead and communicate crisis management, to clarify roles, responsibilities and rules and to increase actors’ skills and knowledge. Thus, the shortcomings of the crisis management system, not least the emergency services, were in focus when explaining how the fire became such a large-scale wildfire that grew out of control.

5.2. Perspectives from interviews with public agencies, landowners and civil society

5.2.1. Cause, responsibility and accountability

When the respondents were given the opportunity to freely express their views on the probable cause of the fire and to describe the sequence of events that led to its magnitude, they were in general inclined to stress that the fire was, indeed, ignited by a forest vehicle, but that the local emergency services were the ones responsible for its magnitude. Nevertheless, several respondents stressed the fact that subsoiling should have been avoided and that the fire risk was extremely high. In addition, several respondents considered that ‘a series of unfortunate circumstances’ such as unusual dry and hot weather, and a lack of communication between local emergency services, absence of up-to-date maps of the area, and knowledge of forest fire behavior, caused an extreme and unusual situation: ‘They [the rescue services] obviously did not understand how serious it was, because then they would probably have set up a larger emergency response right from the start’ (Forest company2).

At the same time, although all of the respondents considered this fire an extreme and severe incident, many of them also stressed that it was a ‘blessing in disguise’; the burned area was sparsely populated and, most importantly, it fostered a sense of a strong and united community. Shortly after the fire was extinguished, the government also offered compensation to forest owners and about half of the burned area was declared a nature reserve. As regards accountability, the views of the respondents confirmed many of the findings from the public investigations, especially the role and responsibility of the local emergency services. However,

although the issue of blame was discussed and forestry activities were part of the problem that caused the fire, a lack of knowledge and coordination in the emergency services contributed to a disaster that grew out of control.

5.2.2. Risk perception and forest fire prevention

When it came to the respondents' perceptions about risks and forest fire prevention, they continually stressed the need to have a national organization that can handle coordination-efforts in case of large-scale forest fires. The main responsibility for initiating this should be public agencies, providing support to local emergency services. As regards lessons learned, most of the respondents stressed the need for improved coordination and communication between affected residents and local emergency services as well as the need to act quickly from the start. Further, it was considered important that Swedish municipalities consider forest fires in their risk- and vulnerability assessments. In terms of risk perception, it was clear that most of the respondents believed that forest fires will become more common in the future in Sweden, particularly as a result of climate change. However, they still considered this fire to be an extreme event and that it is impossible to foresee a similar disaster. One reason for this is that Sweden has experienced relatively few major forest fires and the forest sector normally has the skills required to extinguish fires before they spread.

However, at the same time as the forest sector recognizes the need to adjust practices to prevailing weather conditions and to act carefully, they do not foresee a change in current forest management. Nevertheless, the aftermath of the disaster did indeed start a discussion about preventive work, and new recommendations on fire safety were developed: 'What the forest sector could have done, of course, is to have a different structure of the forest. This could possibly have reduced the extent of the fire, namely, to have a more diversified forest. They have not adapted the forest after fires or storms' (Public agency1). However, it was not considered possible to adjust forest management and to adapt to climate change through the formation of a less 'fire-prone' (i.e. more diverse) forest nor was this deemed desirable by the forest owners. This was commonly expressed in the following way 'I do not see that you can influence the risk of forest fires by changing the forest management system in any way' (Private forest owner1).

6. Discussion

In this concluding part of the paper we discuss lessons learned from the Swedish case as well as the issue of the wider implications of the results, not least how perceptions of accountability and risk are constructed among actors in governance networks.

6.1. Lessons learned from this case: horizontal accountability and networks

Various relationships between state and non-state actors exist in vertical as well as horizontal forms of accountability relationships. *Vertical accountability* is predominant in relationships where a forum formally wields power over an actor, for instance in public regimes that encompass electoral, bureaucratic and legal systems. *Horizontal accountability* is generally characterized by the lack of a hierarchical relationship between an actor and a forum, including any formal obligations to render account (Bovens, 2007; Chan & Pattberg, 2008). Here, accountability often involves various non-governmental organizations and interest groups in society wherein obligations are often informed by judgment of appropriateness (Chan & Pattberg, 2008). In the latter case, a myriad of relationships exists, various actors are constructing and reworking practical concepts of accountability to guide their every-day decision making and legitimate their actions to others (Black, 2008; Newman, 2004). As seen in our empirical case, no single actor is held accountable for the cause and spread of the forest fire. A key feature of the evaluations is, rather, to make sense of the events that essentially caused the fire to spread rapidly. Common threads that run through the evaluations are collaboration and coordination, performance-related content, action plans and chains of command in Swedish crisis management, including planning efforts at all levels of government. The main commission stressed the need to follow up not only on lessons learned for crisis management but there are also calls for demands to clarify responsibility, preventive work and change practices, in the forestry sector, emergency services and the national system of crisis

management. The Swedish Civil Contingencies Agency primarily drew attention to a general lack of coordination and collaboration among the local emergency services and a lack of knowledge. Further, collaboration at all levels between sectors and actors working with, for example, land use planning, risk management and climate adaptation was emphasized as a prerequisite to reduce underlying risk factors and enhance society's ability to cope with wildfire disasters.

As shown above (section 5) the wildfire provided learning opportunities and initiated a discussion about regulatory changes, although the lack of knowledge of forest fire prevention is considered a key issue. This is mainly a result of the Swedish governance system, which emphasizes collaborative efforts and coordination among network partners. Nevertheless, the case presented here confirms many of the key issues raised in the network literature, particularly concerning the 'problem of many hands', that is, a lack of coordination among different actors, sectors and political scales, including the forestry sector, the emergency services and the overall national system of crisis management. We see this as a clear example of *horizontal accountability*; key issues concern lessons learned and the need for improved collaboration between network partners, rather than formal accountability seeking to clarify who to hold accountable, in what forum and for what actions. Although the fire was most likely human-caused, the issue of forestry is, to a large extent, separated from the issues of the emergency services and should therefore primarily be dealt with through separate legal processes. The interview study directed more critical attention to the cause of the fire, and forestry activities in general, especially in relation to climate change and the need to consider prevailing weather conditions and to act carefully. However, it is obvious that the fire was considered an extreme event, triggered by deficits in emergency response and preparedness, which could have stopped the fire at an early stage. Here, it is worth mentioning that the issue of legal accountability was clarified by the district court in December 2019. The judicial decision, carelessness endangering the public, imposes a corporate fine of 2500MSEK to the forestry contractor, thereby exonerating the large-scale forest company that had initially hired the contractor to undertake subsoiling in the fire area (District Court of Västmanland, 2019, p. 1). Further, the court finds that the forest vehicle performing subsoiling ignited the fire and that the contractor, who did not call off the subsoiling despite dry weather conditions, acted negligently (District Court of Västmanland, 2019, p. 13).

We identify five possible reasons for diverse views on accountability and (lack of) risk consciousness: (1) overlapping jurisdictions, legal boundaries and networks including organizations and public agencies from different sectors in society, making accountability blurred; (2) a strong reliance on collaboration and existing networks to handle disasters in Swedish crisis management; (3) a sense of few negative outcomes among organizations and residents despite the magnitude of the wildfire, making the issue of blame less relevant; (4) a general lack of knowledge regarding forest management among evaluators and public administration, and; (5) divergent views among involved organizations about the relationship between climate change, forest management and wildfires in Sweden. These findings highlight the need to broaden the view of responsibility for wildfire disasters and to acknowledge risks better. This also includes a recognition of responsibility at different levels of public administration and in different sectors. Further, it is important to consider how society's response to a wildfire fits into broader processes of public administration and governance. Combined, these findings reinforce the need to clarify the responsibility of the state and the forest sector to prevent forest fires from igniting and spreading.

6.2. Implications for risk perception and forest fire prevention

In general, a wildfire can open space for contestation and accountability claims (Dickinson et al., 2015; Lidskog & Sjödin, 2018). However, in the case presented here, this has not been a key issue for the actors involved. Although several respondents saw this fire as a rather extreme and unlikely event, many of them still noted the challenges with a warmer climate and called for a better-informed forest sector and crisis management system. Hence, attention was paid to information and the need to be careful during dry and hot weather (see Steelman & McCaffrey, 2013, for a discussion about the importance of information). At the same time, the forest sector did not link this to a required or even likely change in forest management. One explanation might be that the disaster had few negative consequences for the people directly affected: 75% of the damaged forest

was insured against forest fires, and the remaining part was mainly owned by one large forest owner (who was less economically vulnerable than the small-scale ones). A further reason may be that the respondents directly observed how the community came together, which created a sense of a 'happy disaster', that is, a disaster that had substantially fewer severe consequences than initially assumed but also had a number of unforeseen positive consequences (Lidskog et al., 2019, p. 321). Therefore, many respondents see other causes of the disaster – such as initial deficiencies in the emergency response and the extreme weather conditions – as more important than forestry practices in general. Hence, despite the fire's human-made character, little blame or calls for accountability were directed towards the forest sector.

However, because of climate change, wildfires will probably increase in frequency, intensity, and area burned (Harvey, 2016; McCaffrey et al., 2013; Stephens et al., 2013). There is a need to consider how to adapt forest use and regulations to a warmer climate (Klapwijk et al., 2018). One reason for this is that a forest serves multiple ecosystem functions, thereby involving several different and often divergent opinions about what kind of forest to shape and what kind of forest practices are considered relevant (Hysing & Lidskog, 2018). In addition, risk assessments (explicit or implicit) are needed in order to balance different goals. This may include different opinions about the probability and consequences of wildfires leading to different decisions, i.e. about whether it is economically justifiable to allocate money to increased fire-fighting capacity. This has also been confirmed in our study, and respondents as well as public investigations stressed a lack of risk assessment and limited preventive actions. What further complicates the task is that there is often uncertainty or a lack of knowledge about the consequences of different actions. New recommendations in case of extreme weather conditions have been established since this major wildfire, which could have an impact on risk perception and preparedness.¹ Although the clear majority of the respondents believed that forest fires will increase in frequency, so far perceptions of risk assessment primarily deal with a change in practices when necessary, i.e. to avoid subsoiling when there is a high fire risk level.

6.3. Conclusions

The results clearly illustrate that the public investigations devoted considerable attention to major shortcomings of the Swedish crisis management authorities, which resulted in a fire disaster that grew out of control. Although the fire was human-caused, public administration devoted considerable attention to the local emergency services and their poor handling of the wildfire, caused by a lack of knowledge about forest fire behavior. Further, landowners as well as public agencies stressed the importance of recalling the lessons learned from this disaster, particularly concerning the need for improved coordination and collaboration among network partners in the Swedish system of national crisis management and local emergency services. At present, legal accountability in terms of potential economic compensation to insurance companies has still not been settled in court (District Court of Västmanland, 2019). Although the empirical results from our Swedish case study are not directly transferable to other contexts, we have identified many of the challenges generally associated with governance networks, such as the 'problems of many hands'. We argue that issues of who to hold accountable, in what forum and for what issue mainly take the form of demands for better knowledge of forest fire prevention and improved coordination and collaboration among public agencies. Critically assessing constructions of accountability and risk perception and evaluation within forestry and crisis management would offer a better understanding of post-disaster administration and could present ways forward. Therefore, it is important to advance the understanding of actors' capacity for mitigating and handling future wildfires and to promote the sharing of responsibility for preparedness and adaptation. This highlights the need for a better-informed public administration, forest sector and interrelated networks that take responsibility for their actions or lack thereof.

Note

1. Here, it is worth mentioning that large-scale fires have once again hit northern Scandinavia and caused severe damage in several parts of Sweden. Although the total burned area of the wildfires in the summer of 2018 was larger (in total, 25,000 hectares), the burned area was caused by some 60 wildfires at different locations (Lidskog et al., 2019).

Acknowledgements

We thank Viktor Hedermo (Örebro University) for conducting parts of the interviews. We also thank three anonymous reviewers for valuable feedback on earlier versions of this paper. The work was supported by the Swedish Research Council Formas [grant number 211-2014-1875].

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work was supported by the Swedish Research Council Formas [grant number 211-2014-1875].

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