

CHAPTER 11

Conclusion: Reflections on 'Critical' Risk Research

Stuart N. Lane¹, Francisco R. Klauser² & Matthew B. Kearnes³

¹Institut de Géographie, Faculté des Geosciences et de l'Environnement, Université de Lausanne, Lausanne, Switzerland

²Institut de Géographie, Faculté de Lettres et Sciences Humaines, Université de Neuchâtel, Neuchâtel, Switzerland

³Institute of Hazard, Risk and Resilience, Department of Geography, Durham University, Durham, UK

The chapters collected in this volume display an extraordinary range of conceptual reflection, across a range of spatially and temporally distributed sites of empirical investigation. Given this heterogeneity what is perhaps most remarkable is the way in which a cluster of themes around the notion of criticality – and indeed need for critical interventions in the practice of risk research, risk assessment and post-disaster relief efforts – emerge across these chapters. At issue here is a shared concern for what might be thought of as *situatedness* of critical risk research; with the social, economic and political contexts that shape the conduct of approaches to risk, the continuing and persistent influence of particular academic disciplines at the expense of others, and the provisionality of expert knowledge claims (Fischer, 1999; Hajer, 1995; Jasanoff, 1986). In addition, the chapters that comprise this volume highlight the ethical and normative implications of the situatedness of contemporary risk research, arguing that an important first step in generating self-reflexive approaches requires subjecting both the epistemological constitution and practical conduct of risk research to critical scrutiny.

In introducing this volume, we identified three core concerns – conceptualisation, disciplinarity and interdisciplinarity, and institutionalisation – as critical for contemporary risk research. In many ways these three themes have, in recent years, become the preeminent conceptual and practical challenges for risk researchers; challenges that are revealed to be both pressing and salient in the aftermath of events such as the 2004 Indian Ocean earthquake and tsunami, as well as the 2011 Tōhoku earthquake

Critical Risk Research: Practices, Politics and Ethics, First Edition.

Edited by Matthew Kearnes, Francisco Klauser and Stuart Lane.

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220 Chapter 11

1 in Japan. In response to these challenges across the chapters that comprise
2 this volume we identify a range of cross-cutting and thematic concerns and
3 observations that speak to the often ambivalent relationships researchers
4 maintain with the social and political factors that form the context of con-
5 temporary risk research. Across each of the chapters concern centres on
6 how risk as a concept is put to work; the importance of reflecting upon
7 how risk is made calculable; and, crucially, the need to rethink notions
8 of expertise and authority, which are typically implicit to the conduct
9 of risk research and officially sanctioned forms of risk assessment and
10 management. In addition to these issues a range of additional, more syn-
11 thetic, themes are evident across the chapters. These include a concern for
12 the increasing institutionalisation of critical risk research, particularly as
13 a technology of state-power (Amoore and de Goede, 2008; Collier, 2008;
14 Ericson, 2005; O'Malley, 2004), the challenge posed by interdisciplinary
15 ways of working (Bracken and Oughton, 2009) and the development of
16 new forms of public participation and deliberation (Chilvers, 2008, 2010;
17 Lane *et al.*, 2011). In summarising and reflecting on these themes we con-
18 clude by suggesting that if risk researchers are to respond to the social and
19 political contexts that shape research in the field this will, above all, re-
20 quire nurturing a set of new ethical and normative capacities – a capacity
21 for reflexive and critical research practice that enables the field to become
22 more porous, open to a range of non-traditional and lay knowledges and
23 alternative forms of expertise grounded in the everyday perceptions and
24 experiences of risk.

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27 **Putting risk to work**

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29 The first underlying theme, evident across the chapters of this volume, is
30 that risk is a concept that is 'put to work', one that serves to maintain
31 existing social and political orders and, in so doing, takes on an existen-
32 tial logic. Risks are created and constructed from the panoply of possible
33 threats affecting a population, society or social group (Adam *et al.*, 2000).
34 By translating both known and anticipated threats into risks, and by en-
35 abling the development of new institutional and governmental forms, risk
36 research and risk management become a technology of contemporary po-
37 litical power. For example, in their study of the development and practices
38 of surveillance at Geneva International Airport, Klauser and Ruegg (this
39 volume) demonstrate how these security and policing systems were es-
40 tablished not simply as a necessary response to security threats. Rather,
41 the development of these systems was also informed by the commercial
42 appeal of the airport. The case exemplifies that critical risk research and

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1 management must always be positioned within a complex field of both
2 often conflictual but mutually reinforcing public and private imperatives,
3 driving forces and motivations. The goals and strategies of risk manage-
4 ment are constantly renegotiated and reoriented within this complex net-
5 work of expertise and authority.

6 Often with little oversight or official sanction, the techniques and tools of
7 risk management and securitisation are utilised in ways well beyond their
8 initial function. The terminology of risk, threat and vulnerability becomes
9 a technically inscribed vocabulary for a whole host of contemporary prob-
10 lems and problematics.¹ As the chapters of this volume suggest, risk is put
11 to use in at least two principle ways – by conferring a form of technical le-
12 gitimacy on a range of social and political discourses and by constituting an
13 underlying technology of contemporary government. It is this distinction,
14 between what Rose and Miller (1992) term 'political rationalities' and the
15 'technologies of government' that defines the intersections between risk
16 and contemporary political power. Rose and Miller outline this distinction
17 in the following way, suggesting that:

18
19 It is through technologies that political rationalities and the programmes of govern-
20 ment that articulate them become capable of deployment. But this is not a matter
21 of the 'implementation' of ideal schemes in the real, nor of the extension of con-
22 trol from the seat of power into the minutiae of existence. Rather, it is a question
23 of the complex assemblage of diverse forces – legal, architectural, professional, ad-
24 ministrative, financial, judgmental – such that aspects of the decisions and actions
25 of individuals, groups, organisations and populations come to be understood and
26 regulated in relation to authoritative criteria. (p. 183)

27
28 Across the chapters that comprise this volume we have seen that
29 the concept of risk operates on both sides of this distinction. On the
30 one hand, risk embodies a certain kind of political rationality or logic,
31 where the regulation and management of risky things and risky bod-
32 ies becomes central to the imagination of contemporary government
33 (O'Malley, 2004). On the other hand, institutionally-sanctioned forms of
34 risk management represent one of 'the humble and mundane mechanisms
35 by which authorities seek to instantiate government' (Rose and Miller,
36 1992, 183).

37 Taken as a whole, the question that is posed by this volume concerns
38 the implications of this co-production of risk and contemporary political

41 ¹ This comment strongly echoes Winner's conception of the 'function creep' of technol-
42 ogy (Winner, 1977) See also Lyon (2007) and (Haggerty and Ericson, 2000).

222 Chapter 11

1 order for critical risk research and risk researchers. A number of chap-
2 ters in this volume have pointed to the ethics of risk research, demon-
3 strating that risk problems are bound, both directly and indirectly, to a
4 range of ethical and normative concerns (Lane, this volume; Macnaghten
5 and Chilvers, this volume; Rigg *et al.* this volume). However, as demon-
6 strated by these interventions, the relationship between ethics and risk
7 is not straightforward. Through critical risk research clearly has an 'ethi-
8 cal dimension', worthy of dedicated and thoughtful reflection the political
9 utility of the concept of risk is also sustained by a 'risk industry', which
10 provides a context of contemporary risk research (see Klauser and Ruegg,
11 this volume; Macnaghten and Chilvers, this volume). As Kearnes (this
12 volume) suggests, notions of virtue, responsibility and ethics are increas-
13 ingly invoked in the constitution of contemporary risk analysis. Public dis-
14 plays of corporate responsibility, political transparency and accountability
15 have become the stuff of institutionalised forms of risk management, of-
16 ten called or recalled so as to resuscitate the social and political legitimacy
17 of governmental interventions (Brown and Michael, 2002; Shamir, 2010;
18 Strathern, 2005). In this sense, critical risk research is ethically significant
19 in at least two ways. Whilst risk management and security interventions
20 evolve in ways that have important (ethically relevant) power implications
21 (Klauser and Ruegg, this volume), these interventions, including persist-
22 ent calls for greater and more comprehensive forms of surveillance and
23 risk management, become justified as moral imperatives in themselves.
24 By designating threats as risks on ethical grounds it becomes possible to
25 justify interventions whilst simultaneously overlooking the cultural and
26 political forces that motivate, and which rely upon, this designation. Risk
27 is put to work through its construction as an 'ethical' practice, notwith-
28 standing the much less ethical behaviours that are then sustained by
29 this construction.

30 Second, when risk is manifest as a (catastrophic) event, that event may
31 itself, in turn, become an opportunity for critical risk research. Davies *et al.*
32 (this volume) opened their innovative chapter (a narrative between three
33 academics) by noting just how much we rely upon the definition of a prob-
34 lem as 'risky' so as to justify the research related to that problem. This is
35 almost 'risk' without limits: if we define risk using one of the classical for-
36 mulae we noted in the Introduction, where risk is simply calculated as a
37 product of exposure and probability, all things have the potential to be
38 mobilised as risk. What Davies *et al.*'s chapter points to is the malleability
39 of risk, which is made all the more effective as a foundation for academic
40 enquiry because of its moral imperative. Ethically motivated risk analy-
41 sis and management may share strong parallels with ethically motivated
42 risk research.

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1 Making risk calculable

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3 A related theme, across a number of chapters in this volume, concerns
4 issues of calculation and quantification. Much like the man with the ham-
5 mer who sees every problem in the form of a nail, standardised mecha-
6 nisms for the calculation and quantification of threats represent the man-
7 agerial and techno-scientific *zeitgeist* of current approaches to dealing with
8 risks. In this sense, perhaps the primary way in which risk is put to use in
9 sustaining the contours of contemporary political power is rendering the
10 uncertain and threatening calculable. For example Dean (1999) suggests
11 that 'risk is a way – or rather, a set of different ways – of ordering reality,
12 of rendering it into a calculable form. It is a way of representing events so
13 they might be made governable in particular ways, with particular tech-
14 niques, and for particular goals' (p. 131). Notions of calculation and cal-
15 culability therefore define the epistemological limits of the risk, such that
16 'it is thus not possible to speak of incalculable risks, or of risks that escape
17 our modes of calculation, and even less to speak of a social order in which
18 risk is largely calculable and contrast it with one in which risk has become
19 largely incalculable' (*ibid.*, p. 131). The primary utility of the concept of
20 risk – and the way that it is invested with a range of contemporary anxie-
21 ties about our relationship with the natural world, with other people and
22 populations and with the fruits of our technological accomplishments – is
23 to render dimly conceived threats and hybrid materialities knowable and
24 so to justify the investment of resources in subsequent (risk) management.
25 Risk is a culturally functional term that serves to make the anticipated, the
26 possible and the predicted socially tractable. It is the vocabulary through
27 which particular threats can be made 'public problems' (Borraz, 2007;
28 Gusfield, 1981).

29 In practice, however, the chapters of this volume demonstrate a range of
30 ambivalences in this intersection between the concept of risk and notions
31 of calculation and quantification. Principle here is a concern for the ways
32 in which standardised mechanisms for the measurement and quantifica-
33 tion of risk are underpinned by and reinforce a limiting set of framings.
34 These include: the expression of risky activities in terms of costs and bene-
35 fits; the quantification of the probabilities of loss whether of life, money or
36 other 'resources'; the use of indices of health and well-being as a metric of
37 both impact and performance. As we noted in the Introduction such fram-
38 ings themselves are in need of critical analysis. Rigg *et al.* (this volume)
39 for instance challenges the ways in which the calculation and assessment
40 of risks becomes spatially and temporally delimited, typically centring on
41 geographically, and historically, defined communities and where eluci-
42 dating impacts of events becomes possible. Rather, and in line with our
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224 Chapter 11

1 comments in the Introduction regarding the issues of scale as revealed by
2 events such as the Fukushima catastrophe, Rigg *et al.* demonstrate how
3 the implications of such events need to be viewed in terms of a much
4 wider network, where the impacts are recognised as having effects in a
5 more geographically distributed and variegated pattern, expending well
6 beyond the location of the physical 'event'.² The issue here concerns the
7 geographical and historical fixity of contemporary critical risk research,
8 and the ways in which current approaches, by relying in notions of the
9 physical *calculability* and quantification of risk, are implicitly bound in both
10 time and space. As Rigg *et al.* demonstrate, the danger here is that these
11 approaches produce partial accounts of risks and vulnerabilities that ef-
12 fectively deny the felt experience of affected populations. The challenge
13 for critical risk research is to avoid framings that are explicitly bounded in
14 space and time even if this implies a tension with the need for critical risk
15 research that is attentive to the geographical and historical specificity of
16 contemporary risks.

17 Making risk calculable also involves a second tension. Risk is often seen
18 as the 'industry of uncertainty'. Take, for example, the reinsurance in-
19 dustry: it is built around the implicit assumption that whilst risk is ever
20 present, events are geographically and historically random. For most of
21 the time, most communities and individuals are free from such events,
22 but may be cognisant of the presence of risk. This cognisance may be ex-
23 pressed financially through the payment of insurance premiums, by the
24 many, and capital accumulates in the risk industry as long as risk does
25 not translate into events. When it does, capital is released to those geo-
26 graphically less-extensive places, those deemed to have been effected by
27 events. The fact that risk is uncertain is what allows this model to work:
28 present and with a randomness that is quantifiable; aleatory. However, not
29 all uncertainty is aleatory and making risk calculable is, therefore, about
30 reducing that which is uncertain to that which is aleatory (Stirling, 2009).
31 To be made calculable, 'risky things' need to be reduced to their physical
32 essence, described by a finite set of possible rules, whether those are deter-
33 ministic or based upon the stochastic characteristics of past events. Indeed,
34 as developed by Kearnes (this volume), risk management has tended to
35 see itself as the arbiter of the *physical* properties of risky things, an arbi-
36 tration that becomes sustained by keeping non-physical elements out of
37 the analysis. Risk becomes governable because in this stripped down state,
38 priorities can be set on the grounds of apparently objective criteria, and
39 places can be compared in terms of their 'riskiness'. The lifeworld of the

42 ² See Anderson (2010) for a discussion on an expanded definition of 'the event' of rev-
43 elance to an extended notion of risk, impact and harm.

1 risk analyst is comparative, one in which history and geography become
2 atomised into comparable return periods. Not only, as Lane (this volume)
3 argues, are such 'atoms' far removed from how risk is experienced – in his
4 case by flood victims – but the atomisation is equally founded upon a se-
5 ries of assumptions and simplifications that mean that the atoms can only
6 continue to exist if the world that has shaped their constitution is, in turn,
7 made to look like them. Risk calculation does not tell us about risk in the
8 world, as we know it. Rather, risk calculation tells us what the world has
9 to be made to look like, if those calculations are indeed to become correct
10 (Lane *et al.*, 2011). This is an example of the co-production of risk analysis
11 by risk management and of risk management by risk analysis.

12 Calculating risk, in this way, leads to an important consequence. Not
13 only will events with low return periods still occur (because they have a
14 longer return period than the standard of protection that we have cho-
15 sen) but they are likely to happen much more frequently than we might
16 imagine because we cannot make the world look like our calculations
17 of it. Events, in a risky world, should be more frequent and potentially
18 more catastrophic than our calculations suggest. The Fukushima event dis-
19 cussed in the Introduction provides a terrible example thereof. Such events
20 are important because they force us to interrogate those calculations, and
21 the institutions behind them (Macnaghten and Chilvers, this volume), not
22 only to reveal their bias, but also to open up the possibility for that which
23 has not, or cannot, be quantified to be brought back into the frame.

24 A third tension then arises. We tend to see risk research as the analyt-
25 ically determinate and independent arbiter of risk management priorities.
26 In a classically realist frame the purpose of critical risk research is to un-
27 cover the true nature of possible and anticipated threats, and to provide
28 a knowledge base for possible remedial actions. However, it is also clear
29 that in the act of managing risk, risk itself becomes redefined, and risk re-
30 search is actively involved in this redefinition. For instance, Klauser and
31 Ruegg (this volume) describe how it is technological innovation in security
32 companies that influences how risk is revealed and which, in turn, causes
33 risk to be constructed in new ways. As with other areas of both the nat-
34 ural and social sciences, the act of researching risk is not simply neutral,
35 but contributes directly and indirectly to the reformulation of its objects
36 of enquiry. Risk research is actively involved in the co-production of risk
37 analysis, risk management and of itself.

38 The chapters of the book suggest at least three possible strategies, or ar-
39 eas for further reflection, to respond to these tensions. First, there is a need
40 to think through who and what makes risk calculable and, in particular, to
41 consider the range of social, political and economic interests at play in ren-
42 dering some threats as quantifiable risks. Such an analysis needs, equally,
43 to be dynamic by recognising that the designation and conception of

226 Chapter 11

1 particular risks is one that may equally be driven by experience of the act
2 of calculation as much as perceived threats themselves. Secondly, while
3 non-physical elements have been implicated in our understanding of risk
4 for some time (see for example, Douglas and Wildavsky, 1982) the chap-
5 ters of this book demonstrate that what is much less well thought through
6 is precisely how it is that critical risk research has grasped the challenge
7 of understanding risk as a hybrid of nature and culture. Most pointedly
8 the chapters demonstrate how the academy has worked with and against
9 this hybridity (Beck, 1998). For example, both Bracken (this volume) and
10 Rigg *et al.* (this volume) reflect upon the consequences of disciplinary lock-
11 in for situations that are clearly hybrid, and where interdisciplinary modes
12 of analysis and engagement are required. Both highlight the subtle ways
13 in which particular disciplinary traditions come to the fore in the defini-
14 tions of particular risks and hazards, defining research problems in specific
15 ways. Third, the recognition of risk as hybrid is potentially valuable. It
16 points in a normative sense to what risk analysis and management ought
17 to involve. But, it also indicates how critical risk research needs to respond
18 by experimenting with new ways in which risk analysis and management
19 might work with this hybridity rather than advocating its reduction, atom-
20 istically, to non-physical things. It is perhaps interesting that many of the
21 chapters in this volume (Bracken, Davies *et al.*, Dominelli, Kearnes, Lane,
22 Macnaghten and Chivers, Rigg *et al.*) have considered the need for new
23 forms of research into democratic engagement in the analysis and man-
24 agement of risk, ones which can unsettle the dominant framings that are
25 brought to bear on risk questions, such as the emphasis on comparative
26 prioritisation of risky locations for subsequent intervention.

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29 **The state, institutions and governance**

30

31 An additional area of concern across a number of the chapters here is the
32 need to critically examine the role of institutions, both public and pri-
33 vate, in making risks calculable (e.g. Kearnes; Klauser and Ruegg; Lane;
34 Macnaghten and Chivers, this volume). Nowhere is the interpenetration
35 between risk and social, political and economic order more palpable than
36 in the institutionally sanctioned ways in which some threats are desig-
37 nated as risks. For example, Lane (this volume) argues that the history of
38 risk management might be seen as a progressive change in scale of respon-
39 sibility for managing risk, from smaller scales to larger scales, from individ-
40 uals and communities, to institutions and states. In addition he also argues
41 that risk modernisation has been as much about a changing scale and in-
42 creasing appropriation of institutional power as it has been the progress of
43 technological solutions. The state starts with some form of moral or ethical
imperative, perhaps linked to its democratic foundations. Threats become

1 an opportunity to express this imperative, especially if they are manifest as
2 events, and this expression takes the form of interventions and the institu-
3 tions needed to sustain them. Such institutions usurp authority, drawing
4 further upon moral and ethical imperatives, and so are able to sustain their
5 own logic, their own existence. Events are particularly interesting in this
6 context because they are at once a problem (the possibility that risk as
7 manifest is taken as a sign of institutional failing) and a benefit (an oppor-
8 tunity to further assimilate power into an institution), provided, critically,
9 the event can be recast as a problem that is beyond an institution's con-
10 trol rather than being a sign of institutional failure. As Lane (this volume)
11 notes, research has shown that institutions that are tasked with respon-
12 sibilities for risk management do not limit their interventions solely to
13 addressing the possibilities of physical harm. Rather such bodies typically
14 engage in a range of 'public relations' exercises that are as much about
15 managing institutional reputations and political positionalities as they are
16 about attenuating the effects of hazardous events. Seen in this light, such
17 events only continue to have their logic in so far as they can be put to
18 work (Collier, 2008; Cooper, 2010).

19 As part of this transition, Kearnes (this volume) describes an 'antici-
20 patory turn' in contemporary risk analysis and management, which is linked
21 to the development of an institutional capacity to attenuate the latent po-
22 tentiality of future threats. Traditionally, the governance of risk has been
23 concerned with precaution, with recognising that where the risk is thought
24 to be high, moving forward should be reflective, evaluative and adaptive.
25 Requiring a kind of perpetual recalculation this form of risk governance
26 has led to a strong and mutually reinforcing relationship between what
27 Kearnes called the 'technical logics of prevention and prediction' and the
28 'moral virtues of precaution and care'. Precaution has a moral imperative
29 that binds it to recalculation. Kearnes argues that risk analysis and man-
30 agement has moved on from this model, in an environment where moving
31 forward meant being prepared to be wrong, to an environment where be-
32 ing wrong is not possible. This may well be sustained by the progressive
33 accumulation of responsibility for risk analysis and management in the
34 state and its institutions (Lane, this volume) and at least where democ-
35 racy permits it, perceived institutional failures can be addressed through
36 traditional political means.

37 Extending this theme, Macnaghten and Chilvers' (this volume) anal-
38 ysis of the range of public engagement initiatives, recently commissioned
39 by the UK government, reveals that public mistrust in state institutions has
40 become a constitutional condition for contemporary risk management (see
41 also Hagendijk and Irwin, 2006; Wynne, 2006). Here, the need for recalcu-
42 lation is not bypassed, but shifted; away from calculating the risk towards
43 calculating the conditions that might lead to the risk being manifest. Such
calculations have, in turn, invoked new kinds of anticipatory technologies

228 Chapter 11

1 and forms of automated surveillance and management (Amoore and
2 de Goede, 2005; Graham and Wood, 2003; O'Malley, 2010). Similarly,
3 Klauser and Ruegg (this volume) also describe how the ways in which an-
4 ticipatory risk management strategies – engaged managing the possibilities
5 of security breaches at airports – is embodied in particular kinds of mate-
6 rial objects (e.g. closed-circuit television systems). They point to a circular
7 logic whereby these interventions create new experiences of what consti-
8 tutes risk (e.g. the homeless) and hence what needs to be anticipated. The
9 result is a culture of dependency on a surveillance system that is an evol-
10 ving hybrid of technology, expertise and experience. The ways in which
11 surveillance systems and risk management processes are augmented by
12 technical devices further suggests their purpose is not only simply the re-
13 duction and attenuation of risks but is also part of a social and political
14 assemblage that works to enforce a set of hidden norms about what con-
15 stitutes acceptable behaviour. The risk begets anticipation and anticipation
16 in turn begets the risk. Surveillance is one of those activities that have be-
17 come increasingly endemic in the risk industry and it is clear that critical
18 risk research is only just starting to think through what it means for the
19 dynamic of risk and the ethical concerns that are bound to it.

20 However, whilst calculation, or recalculation may still be endemic to
21 the anticipatory turn, both Kearnes (this volume) and Macnaghten and
22 Chivers (this volume) argue that it also provides an opportunity for re-
23 thinking the nature of risk analysis and management. It suggests perhaps
24 a deeper unease with precaution and its underlying faith in the ability to
25 make risk calculable. Kearnes (this volume) argues that it opens up a much
26 richer form of risk analysis and management, one that effectively moves
27 'upstream', away from *post hoc* in situations where things are discovered
28 to have gone wrong (or risky things are innocent until proven guilty) to-
29 wards *ante hoc* analyses in the form of a pre-emptive logic (or risky things
30 are seen as forever potentially guilty). In relation to new technologies, in
31 their respective chapters both Kearnes (this volume) and Macnaghten and
32 Chivers (this volume) argue that such *ante hoc* analyses recognise explic-
33 itly that some things (e.g. 'futures') are by definition not determinate. In
34 turn, the upstream move opens up new opportunities, both for a broader
35 evaluation of those involved in producing novel risks (e.g. the financial
36 motives of biotechnology companies) but also for new ways of defining
37 and manipulating threats as risks in ways that sustain and enable the range
38 of actors and institutions bound to them.

39 This pre-emptive logic is also interesting because of the contradiction
40 that it represents for institutions. On the one hand, pre-emptive risk
41 management is typically presented as more efficient and cost-effective
42 than clearing up afterwards, especially clearing up after perceived institu-
43 tional failures. For example, areas of technological innovation as diverse as

1 nanotechnology, geoengineering and neuro-chemistry are presented as an
2 opportunity to avoid the mistakes of the past – to circumvent the often re-
3 luctant admissions of institutional failures in the face of public concern and
4 political controversy that characterise debates about civil nuclear power
5 and genetically modified food – by engaging in early forms of public par-
6 ticipation and by designing anticipatory and adaptive forms of governance
7 and regulation (Barben *et al.*, 2008; Royal Commission on Environmental
8 Pollution, 2008). However, the contradiction is that effective pre-emption
9 rarely becomes appreciated as such, without the aid of a host of devices for
10 simulating the effects of non-intervention. This takes us back to the prob-
11 lematic nature of events, of how risky landscapes have become sanitised
12 of risk by pre-emption and what this means for how we come to live with
13 risk. Concurrently, Kearnes (this volume) shows how the engagement of
14 anticipatory forms of risk management, particularly by state institutions,
15 creates a tension between the capability of the state to know and the ca-
16 pability of the state to act. Ultimately, this leads to an aggrandisement of
17 power where the state claims a monopoly in regulatory expertise in or-
18 der to pre-empt potential future threats. On the basis of this monopoly a
19 range of additional measures are often engaged to translate anticipatory
20 risk assessment into broadly defined norms of personal responsibility.³ In
21 this context experiential know-how and lay knowledge is often replaced
22 by de-contextualised notions of expertise invoked in anticipated particular
23 problems and the definition of acceptable modes of responsible behaviour.
24 The state and institutions anticipate, people are expected to act and the
25 dependency on systems of governance, noted above, is reinforced. In turn
26 this rests upon not just the moral authority of the state to engender re-
27 sponse but also faith in those instruments of state, such as institutions,
28 engaged in the anticipation of threats and the deeper set of relationships
29 between potential victims, institutions and the state, as they play out in
30 the world around them.

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33 **Interdisciplinarity**

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35 Whilst chapters in this book raise some crucial new questions about how
36 risk research can illuminate the changing nature of risk analysis and

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39 ³ This translation of anticipatory risk management into notions of personalised responsi-
40 bility and prudence is particularly evident in cases such as the publication of online flood
41 maps (Landström *et al.*, 2011), norms of parental responsibility invoked around child-
42 hood obesity (Colls and Evans, 2008) and notions of bodily comportment invoked in
43 strategies designed to address recent outbreaks of influenza (Diprose *et al.*, 2008; Lakoff
and Collier, 2008).

230 Chapter 11

1 management, they equally raise interesting questions about the very nature
2 of critical risk research itself. Davies *et al.* (this volume) draws attention
3 to the power that risk has as a means of legitimating more than just
4 state action, but research itself. If the changing nature of state involvement
5 in questions regarding risk merits consideration as a political economy,
6 so the relationship between disciplines, disciplinary claims regarding critical
7 risk research and the nature of risk also requires interrogation. Both
8 Bracken (this volume) and Rigg *et al.* (this volume) consider how particular
9 disciplinary traditions structure the conduct of risk research, framing
10 the range of knowledge and expertise deemed relevant in addressing particular
11 problems – a parallel between how institutions frame risk and how
12 disciplines frame risk research, in turn shaping how risk becomes understood.
13 It is perhaps interesting that across the chapters of this volume at
14 least three disciplines are positioned as central to the conduct of critical
15 risk research: Anthropology (Merli); Geography (Rigg *et al.*); and Social
16 Work (Dominelli *et al.*). However, each of these chapters reveals that in
17 practice these disciplinary traditions function to render particular explanations
18 of risk dominant and that specific kinds of interventions, both before,
19 during and after events, are legitimated over others. There is a clear need
20 for both comparative analysis of those involved in risk related research
21 projects (Bracken, this volume) but also more specific self-interrogation of
22 the practices bound to risk research as it unfolds (Rigg *et al.*, this volume).
23 Bracken's chapter points to a set of factors that come together to make
24 the practice of interdisciplinary risk research difficult. However Bracken
25 also notes the apparent moral imperative in contemporary risk research,
26 to make a positive contribution to the world around them. Such imperatives
27 appear to be legitimating devices in relation to both the decision
28 to research risk and to translate threats into risks. Perhaps reflecting the
29 complex multitude of ways in which risk may be defined, and the consequences
30 of this definition for the kinds of risk management that result, interdisciplinarity
31 and the normalisation of interdisciplinarity as a practice are invoked as
32 necessary to making risk research 'better' (Rigg *et al.*, this volume). In theory,
33 interdisciplinarity can unsettle the framings brought by particular disciplines.
34 However, both Bracken (this volume) and Rigg *et al.* (this volume) demonstrate
35 that the ideal of interdisciplinary critical risk research partly founders on the
36 power of disciplines, on their political economy.

37
38 A number of chapters in this volume point to ways in which these
39 framings can become unsettled resulting in openings for the inclusion
40 of alternative forms of disciplinary explanations. In the same way that
41 events can unsettle institutions, so they may also unsettle the nature of
42 risk research forcing interdisciplinarity. But as Rigg *et al.* (this volume)

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1 reflected, whilst this may allow the development of new understandings of
2 particular events, how far this understanding can travel back into the aca-
3 demic world can become strongly conditioned by disciplinary forces. If
4 events are not enough, risk researchers need to develop other ways of let-
5 ting the essence of risk 'speak back' (Bracken *et al.*, this volume), involving
6 both animate and inanimate objects (Kearnes, this volume).

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9 **People and participation**

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11 The final theme common across the chapters of this volume is a response
12 to this problem – that recognising the 'moral imperative' of critical risk
13 research this requires new forms of participatory risk research, principally
14 by engaging with those who live with, and are affected by, contemporary
15 risks (see Dominelli, this volume, Rigg *et al.*, this volume). Lane (this vol-
16 ume) reflects upon how, in his research, working with those who live
17 with floods forced him to dissociate with his normal networks of aca-
18 demic enquiry and to associate with those who had been excluded from
19 the practice of generating knowledge. He found strong parallels between
20 the knowledge gained through the extensive and comparative practices
21 of the certified expert and the local and place-bound expertise of the dis-
22 aster victim; but also a strong difference, one echoed strongly by Merli
23 (this volume). The knowledge of the (certified) expert is knowledge com-
24 monly gained through a professional position, which may in turn invoke
25 a personal attachment to that problem; but the non-certified expert gains
26 knowledge through lived experience, where the nature of that experience
27 and the motivations it creates are fundamentally different. There are very
28 few (certified) experts in relation to disasters if knowledge is defined as
29 'lived experience'. For example, Merli argues that, if risk research started
30 with definitions of risk, threat and harm as experienced by non-certified
31 experts this would have the effect of fundamentally changing the ways in
32 which these risks are constructed and understood by regulatory agencies
33 and institutions.

34 The call for more engaging forms of public participation is then a means
35 of unsettling dominant framings in risk analysis and management. For in-
36 stance, institutions commonly bemoan the differential between public risk
37 perceptions and the 'reality' of risks and the consequent failure of popu-
38 lations to act rationally when facing risks or to heed official warnings and
39 advice. Wynne (1996, 2001) characterises such a view – that fickle and
40 irrational public perceptions need to be addressed simply through clearer
41 and more comprehensive risk communication – as the 'deficit model' of
42 the public understanding of science. He demonstrates that across a series

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232 Chapter 11

1 of recent controversies a guiding assumption on the part of regulators has
2 tended to be that public concerns are the result of a form of collective
3 irrationality, caused by a deficit in public knowledge of the scientific 'real-
4 ity' of risks. Notions of public irrationality, and that public concerns are of-
5 ten inflamed by popular media reporting, have become a kind of folk-story
6 deployed in explaining the emergence and persistence of public concerns
7 in the face of regulatory assurances.

8 However, Wynne (2006) goes on to demonstrate that, in many cases,
9 programmes that improve public understanding of risk issues and gen-
10 eral scientific literacy have often had the inverse effect, working to in-
11 tensify underlying concerns and anxieties. The chapters in this volume
12 corroborate this finding, suggesting that the often incompatible relation-
13 ship between public risk perceptions and institutionally-authorised expert
14 judgement is not simply based on a knowledge differential or that re-
15 searchers should work to overcome 'local' traditions and belief systems in
16 the conduct of critical risk research and communication initiatives (Merli
17 *et al.*, this volume; Rigg *et al.*, this volume). Rather this incompatibility
18 is produced by an ontological distinction (Verran, 2001) that conditions
19 how different social groups respond to and manage risks and catastrophic
20 events. In addition, recent psychological research has established for some
21 time the complex playing out of risk and reward, and their subsequent
22 path dependence (see Lane, this volume; Rigg *et al.*, this volume). Rather
23 than events being mapped as the random manifestation of a statistically
24 stationary magnitude-frequency relationship, events have to be seen as
25 emergent as they are created (and also transform) the complex assem-
26 blage of which they are a part. Risk then, is produced through the way
27 it is lived, and risk itself is a lived experience. What is at stake in con-
28 temporary critical risk research is what Mol (2002) describes as 'onto-
29 logical politics'. She suggests that 'ontology is not given in the order of
30 things . . . instead, ontologies are brought into being, sustained, or allowed
31 to wither away in common, day-to-day, socio-material practices' (p. 6).
32 In a similar fashion, Dominelli, Merli and Rigg *et al.* (this volume), draw
33 out the ontological diversity of risk as it is both experienced and practiced.
34 If this is how risk is experienced, critical risk research needs to be sen-
35 sitive to those kinds of methods that bring this richness of experience to
36 the fore.

37 Responding to these challenges Callon *et al.* (2009) develop a conception
38 of the social and political dynamics that are often at play in risk regulation
39 and decision-making. For Callon *et al.* that such events and controversies
40 are characterised by often intense public concerns, fuelled by underlying
41 suspicion and lack of trust, and are coupled with high-degrees of scien-
42 tific uncertainty, suggests that risk issues have the capacity to engender

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1 particular kinds of public fora.⁴ They term these spaces 'hybrid forums',
2 suggesting that:

3
4 The controversies take place in public spaces that we propose to call hybrid forums –
5 forums because they are open spaces where groups can come together to discuss
6 technical options involving the collective, hybrid because the groups involved and
7 the spokespersons claiming to represent them are heterogeneous, including experts,
8 politicians, technicians and laypersons who consider themselves involved. They are
9 also hybrid because the questions and problems taken up are addressed at different
10 levels in a variety of domains, from ethics to economic and including physiology,
11 nuclear physics, and electromagnetism. (p. 18)

12
13 The significance of this concept of hybridity of the political spaces that
14 emerge around particular risk issues is that it captures both the conceptual
15 and practical challenge for critical risk research. For example, Callon *et al.*
16 (2009) outline the nature of this challenge in the following terms:

17
18 Hybrid forums take part in a challenge, a partial challenge at least, to the two great
19 typical divisions of our Western societies: the division that separates specialists and
20 laypersons and the division that distances ordinary citizens from their institutional
21 representatives. These distinctions, and the asymmetries they entail, are scrambled
22 in hybrid forums. Laypersons dare to intervene in technical questions; citizens re-
23 group in order to work out and express new identities, abandoning their usual
24 spokespersons. Thanks to this double transgression, as yet unidentified overflows
25 are revealed and made manageable. The hybrid forums could thus become an ap-
26 paratus of elucidation. The cost of accepting their use is acceptance of the challenge
27 to the two great divisions. Actors involved in socio-technical controversies are not
28 mistaken. When they establish a new hybrid form, they lay their cards on the table:
29 "We do not accept the monopoly of experts! We want to be directly involved in
30 the political debate on questions that our representatives either ignore or deal with
31 without speaking with us!" (p. 35)

32
33 For Callon *et al.* such knowledge controversies represent an opportunity
34 for both engaged research and for realigning the relationships between
35 authorised and non-authorised forms of knowledge. The challenge is to

37
38 ⁴ Callon *et al.* conception of the agency of risk issues to draw together a hybrid forum
39 of actors is an extension of recent work on 'issue-oriented' analysis of public controver-
40 sies. Drawing on pragmatist political and social theory this work suggests that does not
41 preexist the emergence of political issues. Rather public fora are defined around con-
42 troversies as they emerge, defining the range of actors involved in constituting issues as
43 issues (Latour, 2005; Marres, 2007).

234 Chapter 11

1 work *with* rather than *against* the heterogeneity invoked in responses to
2 risk problems. If the chapters in this volume offer some, at least partial in-
3 sights, on this challenge it is to suggest that diverse modes of participation
4 may help, as a means of bridging the gap between those who are study-
5 ing and those who are being studied; as a means of making those who
6 conduct critical research risk, as well as those who analyse and manage it
7 more accountable; as a means of diversifying the centres of knowledge in
8 contemporary critical risk research.

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UNCORRECTED PROOFS