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# Complexity, Uncertainty and Future Risks

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**Abstract**

Roger Kaspersons's paper prompts us to reflect on whether traditional risk communication tools and approaches might be inadequate for many of the tasks now emerging. One can point to the increasingly complex nature of some technological and environmental hazards; the need to scrutinise emerging technologies upstream of significant applications; and fundamental changes to risk identities within society. Perhaps we now genuinely face a risk society, exemplified by the dysfunction of global financial systems, extreme inequalities and encroaching environmental threats, alongside the unwinding of traditional social identities? Strategic capacity to address many of these fundamental risk challenges is lacking.

Developments in risk communication since the mid-1980s have led to a genuinely international research and practitioner field which has blossomed in its empirical efforts, if not necessarily always in theoretical insight or clarity. In the UK significant policy and regulatory activity around risk governance and communication developed from about 1990 onwards: the controversial birth in 1992 of the second edition of the UK Royal Society's Risk Report, a volume eventually to become something of a best-seller for the Society; the regulatory work within government of the 'ILGRA' Intergovernmental Liaison Group on Risk Assessment; and several key research projects sponsored by the Health and Safety Executive including the 1999 workshop on social amplification of risk held at Cumberland Lodge (Pidgeon, Kasperson, Slovic, 2003). At about this time the UK and Europe saw a series of chronic failures of risk management and regulation, and in particular the BSE 'mad cow' crisis of the mid-1990s, the outcome of which would prompt even the UK House of Lords (2000) to advocate a more dialogic relationship between scientists and wider society, sentiments fully in keeping with the then developing thinking in risk communication practice.

A quieter period for risk communication professionals followed the turn of the millennium, although the past 5 years have seen renewed high-level interest in the topic within both science and government policy circles in the UK as elsewhere. The 'Climategate' affair in late 2009 focused attention on what could be legitimately claimed about climate change and its attendant uncertainties and risks, the Icelandic volcanic ash cloud that grounded much of Northern European aviation in April 2010, the Fukushima nuclear disaster of course, but also a less well-known example of social amplification of risk when the UK press discovered that British ash trees had become infected with the Chalara pathogen (Pidgeon and Barnett, 2013).

All of these recent events merited (without necessarily receiving) a robust, evidence-based risk communication response.

For those of us working in this field it felt as if the phone-lines from the press, policymakers and scientific colleagues would never stop ringing. An erudite response to all of this renewed interest might be to simply state that risk communication is a mature field of study, we have been here several times (and decades) before, and that as a result proper guidance and tested methodologies in large measure already exist. Policy makers and risk practitioners could therefore do worse than make reference to the established literature on the subject. Roger Kasperson (this volume) rightly urges us to reject such complacency, and to take proper stock of the real lessons, both positive and less-so, learned over the thirty year period since risk communication first became a recognised field of inquiry.

Several themes emerge from Kasperson's characteristically perceptive analysis: that more than ever, risk communication practitioners need to recognise and accommodate the values of a diverse set of publics; that different forms of uncertainty may need careful analysis if we are to fully understand where to focus communication and risk management efforts; that growing conditions of social distrust may signal a need to adopt more deliberative approaches with varied stakeholders and publics; and above all that effective risk communication programmes require persistence, long-term intellectual engagement and significant investment in technical capacity. All of these raise profound questions for our discipline as it moves forward into its next decade and beyond.

Roger's paper also prompts us also to reflect more deeply on why our traditional tools and methods might be inadequate for the tasks now emerging. Some technological and environmental hazards may well have become genuinely far more complex, and with this their risks more uncertain and unpredictable, making the possibility of unintended consequences and systemic accidents, to use Charles Perrow's (1984) immortal phrase, more 'normal' in their onset, consequences and frequency. Other manufactured risks are being closely scrutinised at a much earlier stage in their research and development histories, where uncertainties almost by definition abound, with technologies in effect being subject to assessment 'upstream' of significant or widespread application within society (nanotechnologies, global climate engineering, or synthetic biology risks to take just three). Finally, societies may themselves be changing in fundamental ways. Risks are never purely environmental or technological – they always involve people, communities, their organisations and sometimes (as at Fukushima Daiichi) the cultures of whole nations. Few would disagree that we are in a more globalised world, and one which holds fundamental implications for many aspects of both risk governance and the organisation of everyday life. Hence, it remains to be seen whether the decline in trust diagnosed by Kasperson represents simply an antecedent condition, to be addressed through devising and applying better discursive and deliberative processes, or a symptom of a far deeper set of trends?

For my own part I would point to the recent book *The Unwinding*, a blend of narrative and contemporary history, where the social commentator George Packer (2013) describes how many of the taken for granted social contracts between citizens and institutions have been gradually unravelling in the USA over the past 30 years; in effect individualising responsibility for the risks faced in employment, personal finances, personal security and healthcare, and even social standing and status, for a very large sector of the American

population. Similar contemporary trends could be identified in many other countries around the globe. This is, of course, Ulrich Beck's (1992) risk society writ large, with privatization for individual harm sitting alongside an erosion of both trust and the social certainties that traditional identities (such as being a family member, employee, trade unionist, home owner) always brought us. Beck did not entirely foresee that the principle test of his thesis would come first in the USA and Britain, amidst the systemic collapse in 2008 of global systems and institutions of financialisation. And Packer's thesis might be dismissed as simple narrative, were it not set alongside evidence also of growing inequalities in access to wealth in many nations, and to levels not seen since the advent of the First World War (Piketty, 2014). Amidst all of this, one is prompted to ask whether complex and uncertain risks are indeed set to encroach further into modern everyday life over the coming decades? And financial crises, serious though they might be, should not serve to deflect our attention, or that of our elected politicians for that matter, from continued encroachment on the earth's environmental and resources limits, the significant possibility of global climate disruption if we enter a 4 or 5 degree warming world, or of mega-technologies offering catastrophic and existential risks to global society.

What is clear in all of this is that we lack fundamental strategic capacity (Pidgeon and Fischhoff, 2011) not only in 'risk communication' as framed in the traditional disciplines of decision and risk analysis, but in uncertainty assessment, in appropriate methods for situating 'values' in public and stakeholder engagement, and in fostering citizen deliberation for the wider public good – several of the reasons why past intellectual progress is not seemingly matched by current practical action. Roger Kasperson's paper should be taken as a light to illuminate a part of the rocky road that might very well lie ahead. It is also a challenge to risk

communication researchers and practitioners to begin to grapple with some of the deep-seated problems that we will find along the way.

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