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CAPUR

IMPROVING SOCIETY'S MANAGEMENT OF RISKS

A STATEMENT OF PRINCIPLES

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CAPUR

CAPUR is a project of Atomium – European Institute for Science, Media and Democracy, an independent, non-profit institution, which is supported by various entities, including the European Commission and industry. CAPUR's analysis is undertaken by an independent scientific committee established by Atomium and consisting of unpaid researchers with expertise in a range of risk research areas. CAPUR values the help received during its work by consultation and engagement with a wide range of stakeholders from policy makers, regulators, industry and the media. All CAPUR outputs are the sole responsibility of the scientific committee.

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PREFACE

Risk is an idea about what might happen in the future (good or bad) and yet, especially in policy and initiatives around contentious issues, risk all too often figures simply as a 'bad.' While there are many examples where this is true, it is also the case that risk is a double-edged sword - ill-considered risk avoidance can increase harm by eliminating opportunities and creating a society bereft of resilience, self-efficacy and innovative drive. Consequently, it is ever more essential to make reasoned decisions about the nature of risks and their control and this requires clarity on objectives and attention to unintended consequences.

There is confusion and obfuscation over the aim of public risk interventions: is it to direct people towards changing particular behaviours, or to provide tools that equip people to make better decisions for themselves? Other problems persist, such as continued muddle over risk and hazard in policymaking, failure to take account of both the absolute and relative dimensions of risk, and the offsetting of risks against benefits, plus other trade-offs including the unintended consequences of risk control measures.

Awareness of and discourse on risk has proliferated beyond recognition but substantial deficiencies in understanding of risk and risk decision making remain. The stakes are high: if we can better master risk and uncertainty, we will better allocate our finite resources to pursue our goals, we will be more resilient in the face of imperfect knowledge, and better placed to benefit from a period of change and innovation.

In the 21st century, we face an era of pervasive change and disruption. We are surrounded by uncertain futures and issues for decision without full knowledge. Science gives us tools with which to foresee and manage these challenges, but too often the tools of science are poorly deployed, misinterpreted or not deployed at all.

We need to learn to better distinguish the dangerous from the frightening, to make more explicit the different ways in which as groups and individuals we perceive issues as of high principle, or of common economic and social good in which we weigh each of the pros and cons in any decision, and in which we trade off our present goals against longer-term and society-wide impacts.

In 2018 a new collaborative initiative was launched by Atomium-EISD to encourage ways risk can be intelligently understood and managed. This collaboration seeks to foster greater public risk literacy, from its stronger forms of developing better statistical understanding to more basic abilities to recognize characteristics of both bad and good risk communication and research. The aim is to make an actionable impact on risk conversations in society, among thought-leaders and between decision-makers and to improve the quality of debate and decision making around risk issues. The ultimate aim is to free up societal resources which can then be used for the greater good of the public.

The following risk researchers and practitioners form the scientific committee:

- David Ball, Centre for Decision Analysis and Risk Management, Middlesex University, London (Convenor)
- Ed Humpherson, UK Statistics Authority
- Michelle McDowell, Harding Center for Risk Literacy, Berlin
- Branden Johnson, Decision Research, Oregon, USA
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- John Watt, Centre for Decision Analysis and Risk Management, Middlesex University, London

The following report summarises the key findings. It consists of an executive summary along with a more detailed statement of the principles developed by the group.

We hope that these are disruptive principles, capable of shifting perceptions and behaviour among both risk elites and all citizens. They stand for modesty, for a way forward that creates more safe space for deliberation and mutual respect, for a deeper understanding both that all humans work with behavioural biases when it comes to risk, and that all decisions taken will be imperfect, but are improvable as knowledge grows over time.

In addition to this report there is a background document, originated by Professor Adam Burgess (University of Kent), which describes examples of risk management which informed our deliberations.

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EXECUTIVE SUMMARY

All stakeholders, and perhaps especially the public, should acknowledge that sustainable management of complex public risk is always going to be a matter of judgement. Such judgements will always face challenges of uncertainty and controversy and, while there are legitimate questions to be asked about who should make the decision and the effectiveness of their chosen approaches, it is central that decision makers receive a clear mandate and appropriate political support and trust.

The concepts discussed encourage approaches to risk that permit it to be intelligently understood and managed. They are intended to foster appropriate approaches to risk decision making by those in authority, to ensure that decision making is proportionate, ethical, fair and trusted, and perceived to be so by those on whose behalf the decisions are made.

It is useful to distinguish 'how the public thinks about risk' and 'how public risk perception and choices are thought about by authority', and both deserve critical scrutiny. Public pressure around environmental risk has promoted a more balanced conception that recognizes decisions are not based only on formalised knowledge about likely impacts and that it is necessary to think more broadly about ways to implement sustainable management actions. However, a similar approach is lacking in other areas, such as lifestyle risk. Cross fertilisation of good practice between different areas will be important for future improvement. It is necessary to achieve a balance between placing greater emphasis upon the contextual logic of public risk choices whilst also promoting the insight available from scientific inquiries based on data acquisition, statistical analysis and probability theory.

Ten principles have been developed to address a number of important issues that have arisen from a wide-ranging evaluation of contemporary successes and failures in public risk interventions. The first four principles are intended to guide decision makers on ways to utilise insights into risk concepts in making policy decisions. Principles 5-8 relate to improving the quality of risk analysis and numbers 9 and 10 are suggestions for helping the public to make better risk decisions for themselves. Finally, an additional principle, number 11, acknowledges that we live in a dynamic world and reminds policy makers that this includes a need to respond to developments in approaches to the consideration and management of risk.

The principles are:

1. Risk decision making involves more than numbers
2. The concept of reasonableness must underpin all decisions.
3. There is an inextricable ethical dimension to risk decision making
4. Risk elimination in public life is rarely sensible and potentially increases danger
5. Risk communication should be integral to risk management activity.
6. It is necessary that policy makers examine the appropriateness of attempts to alter people's behaviour.
7. Approaches to risk management must address the issue of trust in institutions.
8. Consideration should be given to participative (citizen) approaches to decision making and management of risk.
9. Risk literacy can be improved
10. The role of vested interests should be made more transparent
11. It should be recognised that all approaches to risk are provisional and are based upon currently available evidence and prevailing social mores

The concerns raised here are not isolated to the world of risk and its management but are connected to dynamic contemporary issues in a world grappling with social media, 'fake news' and populist politics (an era of 'contextual noise'). Equipping all people with the tools to distinguish better from worse information – and insisting that we trust their capacity to do so – has never been more imperative.

PRINCIPLES

GUIDANCE FOR DECISION MAKERS ON USING RISK CONCEPTS IN MAKING POLICY DECISIONS

Principle 1: Risk decision making involves more than numbers

- Evidence in the form of numerical risk data from the physical world must be used to inform policy decisions but should not overlook data from the social world. All decisions will entail consideration of values.

- Scientific input should be used in the decision process whenever it is available but, like all other inputs, needs to be screened for validity, reliability and bias.

- Decision aids and other algorithms for risk quantification and prioritisation such as 'risk matrices' can be simplistic and heavily influenced by values and risk perception, which may be disguised by the apparently quantitative output. Care is required to take into account the uncertainty underlying the perhaps spurious authority given to numbers.

- Policy decisions involve multiple factors besides the prior risk level, an acceptable level of which will vary with circumstances (e.g. whether the risk is imposed or voluntary) and include the availability of control measures and any unintended consequences of those measures. All control options should be examined for their benefits (risk reduction in this case), costs and other consequences prior to implementation.

- While it is always important to utilise the best possible evidence on the physical attributes of the risk, detailed knowledge is required of stakeholder concerns about the risk (their ambitions as well as their fears). Consideration must be given to potential social consequences including, e.g., pleasure, the right to choose one's lifestyle etc, as well as economic implications and political responses.

- Ultimately, all risk decisions involve consideration of the priority placed on the same and different commodities by different stakeholders. Because values are personal there will always be debate. This signals the need for attention to issues of equity and justice – who is going to benefit and who will be affected by the risk? Is there a justification for unequal exposure to both risk and benefit?

- At the same time, recognition of complexity and the frequent multiplicity of causal pathways doesn't automatically mean that complex problems can't be broken down and harms reduced. Nonetheless, the limitations of reductionist thinking need to be borne in mind.

- In order to become trustworthy and facilitate sensible, productive discourse, ambiguities and uncertainties must not be camouflaged but openly admitted.

Principle 2: The concept of reasonableness must underpin all decisions

- Ultimately all decisions about the management of risk at the policy level should be reasoned decisions which take account of all available evidence including historical data, experiential knowledge and salient human values with as much clarity and transparency as possible.

- Practical decisions always depend on facts and values. Seeing a problem and identifying a practical solution is a necessary but not sufficient reason to implement measures. Whether means are justified depends largely on political and ethical considerations.

- It is necessary to find an appropriate way of framing the risk issues being addressed in order that all interested parties share a common understanding, or else to raise awareness amongst those parties of the differences in what is perceived as a risk. This is particularly true in situations where consequences can be seen as either risks or benefits.

- Since it is unrealistic to expect the population majority to reach a level of risk-literacy allowing for technical discourse it is important that risk experts demonstrate trustworthiness by being transparent and honest, in order to deserve acceptance as a trusted source.

- At the same time, endeavour is needed to increase risk-literacy in experts and decision makers and not only the public.

- Stakeholders who agree on collective policy goals should be willing to make trade-offs between accepting a certain level of risk in order to achieve a wider social benefit. The deliberative aim should be to encourage, but not force, agreement on collective policy goals.

- ‘Reasonableness’ itself requires careful examination. The legal understanding of the term is that law and regulation should only require a level of risk control that would be considered proportionate by the thoughtful citizen. However, increasingly, research is highlighting the shortcomings of conventional risk assessment which fails to incorporate local circumstances or variations in perceived proportionality across citizens.

- Reasonable judgement implies the inclusion of evidence about cause-effect relationships as well as the variety of values and preferences which are impacted.

Principle 3: There is an inextricable ethical dimension to risk decision making

- All risk decisions have an ethical dimension which must be evaluated alongside criteria such as effectiveness, efficiency, sustainability and resilience in order to identify risk solutions that are likely to gain public acceptance.

- While there are some widely accepted ethical principles there is no set of absolute rules. Human judgments are an inevitable component in all decisions, and therefore the appropriateness of any specific judgement is always open to debate.

Principle 4: Risk elimination in public life is rarely sensible and potentially increases danger

- Public life naturally seeks out beneficial activities. But all life and all activities involve some risk. This means that public policy decisions and personal choices must inevitably be based on trade-offs between risk of harm and the benefit of an activity.

- An implication is that, in pursuing the wider public or personal good, zeroing out of risk is seldom desirable. Yet this is not necessarily the same as arguing that because some harms are inevitable, we should accept the expected harms from an activity as is. Risk minimisation in the sense of reducing risk to the extent appropriate may be a prudent approach, even if ‘appropriate’ may differ across domains, people or time. What is ‘appropriate’ will in part be determined by the impact of controls on perceived benefits.

- It is impossible to empirically prove zero risk. Demanding proof that there is no risk involved at all before allowing an activity is disproportionate and serves to block innovations.

- Inevitably there is ongoing debate about the balance between policy interventions to protect the public in general and the rights of individuals to make choices about personal risk to themselves from activities that they enjoy.

- In considering the rights of individuals, disadvantages for third parties should not be systematically ruled out.

- There is evidence from fields such as children's play, education and sport that some level of personal danger may be both valued by the participant as integral to their perception of the activity and also associated with additional benefits in terms of personal resilience, social integration and improved mental health. We must consider this complexity.

SUGGESTIONS FOR IMPROVING THE QUALITY OF RISK ANALYSIS FOR PUBLIC POLICY MAKING

Principle 5: Risk communication should be integral to risk management activity

- The goal of risk communication must be to help and empower stakeholders, including but not limited to the public, to understand the issues involved in the assessment of risk and benefit and to support their ability to make informed choices.

- Effective two-way communication should ensure that those responsible for framing and appraising risk should understand the context and their responsibilities - and those affected should be informed and engaged.

- Research in risk communication over a considerable period has demonstrated potentially fatal weaknesses in simple and unreflected attempts to convey probability-based information to the public.

- It is wrong, however, to assume that citizens do not desire, or should not be given, quantitative data about the level of risk. The challenge is to make this accessible and relevant without improper simplifications.

- Inappropriate comparisons, such as to zero risk, should be avoided. Risk perception research has shown that people use qualitative factors such as dread, novelty and stigma in their judgement and not simply expected values from statistical analyses. Well-designed risk comparisons have great potential, however, since people are frequently capable of making sophisticated choices as consumers.

Principle 6: Policy makers should reflect on the appropriateness of attempts to alter people's behaviour

- Inevitably, decisions by individuals will be mainly experiential or intuitive but there is scope for them to be influenced for the better by education, suggestion, nudging or boosting. This potential must be carefully evaluated before any action is implemented.

- A great deal of practical experimentation is focussed upon the 'nudging' of public behaviour but several potential issues must be addressed, e.g., lack of transparency, potential lack of efficacy (nudging may sometimes be an avoidance of taking responsibility and spending resources on doing something effective) and lack of accountability for a paternalistic approach.

- It is necessary to be aware of the contrast between nudging and boosting interventions – the former aim to change the "choice architecture", to change behaviour, while the latter aim to build competencies so that individuals can be better informed and capable of making the decisions themselves.

- Most notably, if nudging manipulates individual choices and leaves the affected individuals uniformed about the goals and objectives that the risk managers intend to pursue it becomes unethical. True transparency about the goals as well as the means for shaping the choice architecture is an important condition for the ethical acceptability of nudging techniques.

- A great deal is known about risk communication and risk literacy, and there is a variety of different intervention strategies to do so without manipulating the addressees of the communication. Each approach has its own pros and cons and choosing an approach should be part of the conversation. The ultimate goal of risk communication is to empower individuals and groups to make reasonable judgements based on the best available knowledge in line with their preferred values.

Principle 7: Approaches to risk management must address the issue of trust in institutions

- It is necessary to encourage broader conceptions of policy solutions and suspicion of single targets, simple dichotomies and solutions that promise to eradicate problems at a stroke. Risk issues must not be communicated in a way that provokes polarisation (us and them), cynicism and 'fatigue'.

- Many issues described as concerning risk may not be much about risk at all, and those that are might more really be matters of uncertainty - something we need to learn to live with, at least to some degree. An issue here is the strategic use of uncertainty as an argument for non-action because of how it was seen to have been used in the tobacco debate and by climate sceptics.

- It would be beneficial to move beyond simple means of 'fostering' trust, e.g., encouraging people to favour claims substantiated by research in peer reviewed journals, and to develop and recommend more active means of engaging with decision-making and decision-makers at both the individual and societal levels.

- Research and philosophy advise that institutions should not focus on increasing trust but rather on becoming more trustworthy (a judgement that needs to be left to the stakeholder but is known to be intimately associated with competence, perceived fairness and transparency).

Principle 8: Participative / Deliberative approaches have potential both to promote sound risk management and legitimise decisions

- Even vital matters, such as around climate change, have sometimes been over-dramatized and simplified, perhaps on the assumption of a public lacking the capacity to make balanced and differentiated judgements. Yet it remains important to spell out the often-longer-term significance of these issues.

- This may be better done in a more trusting and engaging manner, drawing people into thinking for themselves about the consequences, alternatives and costs of collective activities such as living on floodplains or maintaining prohibition of particular drugs.

- Deliberative / Participatory approaches are potentially useful in enabling citizens to appraise the options for a potential intervention, including the benefits and harms of different approaches to risk management. The emphasis on community engagement in deciding which intervention, if any at all, could be pursued, also has potential to strengthen the legitimacy of a decision.

- There is a tension between opening pathways to community engagement, citizens' participation and deliberation and how the inputs of participatory-deliberative activities are integrated into the final decision. Citizens are frustrated if the only aim of these activities is participation for its own sake. At the same time, research on participatory and deliberative approaches has exposed different sources of bias which cannot substitute for formal decision making and representative democracy. However, the potential influence and power of these biases can to a large degree be mitigated by an appropriate design of the participation program.

- Those with legal and even constitutional responsibility to decide may fear that a diffuse and non-liable "public" may usurp a decision. This tension can generate insincere or limited efforts at consultation with citizens.

- A way ahead to reduce these tensions is to treat citizens less like a passive individual who must be "taught" and more like an active participant in risk policy formulation.

Democracies should open up to the idea that citizens have a right to engage in science and evidence-informed decisions.

- The results of participatory processes should hence be used for feeding informed preferences and ideas to the legitimized decision making bodies. They do not replace but enhance democratic decision-making procedures.

SUGGESTIONS FOR HELPING THE PUBLIC TO MAKE BETTER RISK DECISIONS FOR THEMSELVES

Principle 9: Risk literacy can be improved

- Risk terminology is used inconsistently and means different things to different people. There is no universal definition of 'risk' even, and this leads to confusion amongst the public and miscommunication between experts. At the least, even if a universal definition is not available, awareness of these semantic issues can improve conversations and mutual understanding.

- Even when risk is sharply defined the numbers may be misunderstood. This problem affects almost everybody, the public and formal decision makers alike. Various tools are available and can be developed to aid understanding. Numbers need to be presented in the context for which they are meaningful.

- Use of frequency data rather than probability data can increase comprehension of relative risk although communicators need to be cognisant of how data will be interpreted whatever the format used.

- Quality assessment labelling of press releases, and recruitment to its use by health and science journalists, can help people navigate the alarmist nature of many health and public safety reportage.

Principle 10: The role of vested interests should be made more transparent

- All institutions, all professions and all people are unavoidably prejudiced and have various conflicts of interest. Some prejudices can be justified and are therefore legitimate. Others may be blinkered. Recipients of risk advice from whatever source need to be wary.

- Scepticism should be encouraged about the source and interests - beyond only financial - of claims that stigmatize particular products and technologies or place undue emphasis on the alleged benefits or risk-free properties of a product or activity.

- The central issue is to encourage an open, engaged, fact-oriented, friendly and rational discourse – without creating the impression that all experts disagree, and cannot get anything accomplished.

- It is not always easy to mitigate the effects of prior belief and risk framing, since they may be largely invisible.

- Benefit-risk assessment that permits incorporation of societal benefit (such as education, health and wellbeing) may be useful in reducing unwarranted risk aversion on narrow health and safety grounds. Citizens need and deserve assistance from governments and regulators to avoid both under- and overestimation of risks or opportunities. It is also likely to help people understand the complexity of the issues and participate better in risk decision making.

Principle 11: It should be recognised that all approaches to risk are provisional and are based upon currently available evidence and prevailing social mores

- One of the greatest challenges to risk management is the emergence of unusual events or phenomena.

- In addition, for some risks, such as crime and terrorism, probabilities are dependent on risk management responses and local contexts (for example, protecting one target may cause an attack to be directed elsewhere).

- New possibilities for both mapping and evaluation of risk are emerging but also have potential for misuse: crime and invasion of privacy are already emerging from the collation of ‘big data’ – frequently gathered automatically from social media.

- There may be different approaches to risk management and governance in different cultures and nations, which may affect the acceptance of proposed approaches but also offer potential for creative alternatives and synergies if properly understood.

- It is therefore incumbent on the risk management profession, and those who make decisions on behalf of society to be watchful and flexible with respect to the design of policy options and the communication programs. The challenge is to avoid missing or ignoring signals (or exaggerating them needlessly) when the outcomes cannot be known at the time of the assessment.

- Adaptable early warning systems should search for new hazards and novel events or activities.

- The profession of risk management must itself continue to examine the challenges to risk assessment and management.

THE AUTHORS

David J. Ball (convenor of CAPUR) is Professor of Risk Management and co-Director of the Centre for Decision Analysis and Risk Management (DARM) at Middlesex University. Previously he was Director of the Centre for Environmental and Risk Management and the WHO Collaborating Centre on Risk Communication at the University of East Anglia. He served on the UK's Committee on Radioactive Waste Management and led high profile environmental risk assessments for government agencies. Current interests include decision making in the public sector and the impact of the legal system. David has a PhD in physics and started his career at Bell Labs USA.

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Alfred Uhl is Deputy Head of the Competence Centre Addiction, Austrian Public Health Institute, Vienna and Deputy Head of the English PhD Program of the Department of Psychotherapy Science, Sigmund Freud Private University, Vienna, where he also teaches quantitative research methodology. He coordinated several Delphi Studies commissioned by EU structures and/or the Austrian Federal Ministry of Health involving Austrian and international key experts in the addiction field to reach a consensus on central issues concerning evaluation, prevention, and addiction policy. His latest Delphi study was commissioned to provide a basis for an official "Austrian Strategy on Addiction Prevention", which was ratified by the Austrian government 2015. His previous and current research focuses on addiction policy, epidemiology, prevention, evaluation, and critical analyses of the way empirical research is routinely conducted and interpreted, with a particular focus on the potentials and limitations of empirical research.

John Watt is Associate Professor in Risk Management in the Natural Sciences Department and co-Director of the Centre for Decision Analysis and Risk Management, Middlesex University, London. His research has previously focussed on the science that underpins risk assessment of pollutant effects on human health and the environment. Recent and current research evaluates decision making in industries such as fire-fighting, security, construction, oil and gas production and tree safety management, along with examination of influences on personal risk decisions (for example in exercise regimes and in maternal heath).

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