**Call for Written evidence - Risk Assessment and Risk Planning**

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**How could the Government’s approach to risk assessment be strengthened to ensure that it is rigorous, wide-ranging and consistent? Your answer could refer to any aspect of the risk assessment process including, for example, its governance, the evidence base, or the degree to which it is open to scrutiny and the input of experts.**

Discuss issues resulting from non-diverse advisory groups. The vast majority of contributors within the SAGE organisation are academics within the fields of virology and epidemiology or very closely related. There is a significant lack of diversity within this group that is critical in directing and guiding the government on COVID. Whilst the contributions of such experts are vital in understanding the mechanisms associated with the spread of infection, it provides no balance in considering the opposing risks. For the government to be informed on the balance of risk, they need to be equally informed on all opposing risks in order to strike a balanced approach. Without this balance and diversity within advisory groups, one risk may be prioritised over many others.

When addressing any risk to life and health, the approach should be to reduce the risk to ‘As Low As Reasonably Practicable’ (ALARP), which is a well-established principle in risk management[[1]](#footnote-1), and not ‘as much as possible’. Ultimately this means that the mitigations need to be measured and justifiable. This means that the impact of any mitigations needs to be understood in order to strike this balance. Mitigations and countermeasures introduced in response to any emergency introduce new risks and any proposal measures should be scrutinised as such. In respect to the advice given to the Government by SAGE in the recommendation of countermeasures to the recent Pandemic, I would expect a greater level of diversity within the group in order to ensure this scrutiny. For example, the actions taken this year have effects beyond COVID, including social, economic, psychosocial, political, intergenerational and other health impacts that need to be considered. Whilst I would expect the Government to be considering all aspects in introducing any measure within society, I would be concerned that they may be overly influenced by SAGE who are charged with providing the expert advice to the Government in the response to the pandemic, but does not have the required level of self-scrutiny to ensure that their recommendations are ALARP.

**Given the range of possible national risks, and the need to achieve a balance between efficiency and resilience, what level of assurance should the Government be seeking on the UK’s resilience to hazards? What would effective national risk management achieve, and how could its success be measured?**[**[1]**](https://committees.parliament.uk/call-for-evidence/339/risk-assessment-and-risk-planning/#_ftn1)

Whilst it is important to understand the national resilience efficacy to a specific risk and its direct impact, it is equally important to understand this in the context of the national resilience towards the unintended consequences and indirect impacts in response to any event. As such any measure of resilience should have full consideration for resilience to countermeasures. In the same regard, the indirect impacts caused by any event and its countermeasures, whether be psychosocial or economic, need to be considered to determine the benefits and efficacy of any measures imposed. Success should not be measured by the Nation’s ability to mitigate the initiating risk in isolation, success needs also consider the costs of implementing emergency measures in order to gain a holistic view.

**How effectively do current ways of characterising risks (for example, the use of a five-point scoring system of a ‘reasonable worst case scenario’) support evidence-based policy decisions? What other information would be useful?**

An effective and explainable measurement of risk can be important in order to implement and remove countermeasures. This is affected by two important factors; the first being the perception of controllability of the risk; the second is that safety measures for the non-specialist can be interpreted as a measure of the risk itself. As will be covered in more detail later in this document, perceptions of risk within society are complex and influenced by many subjective factors. One being the element of perceived controllability. As risks that are considered to be outside of a person’s control will tend to be treated with greater concern than one that an individual may perceive to have some form of influence over the likelihood[[2]](#footnote-2). However, the measure of influence can be misjudged such that the benefits of a safety measure may create optimistic bias. This has been evidenced in the implementation of advanced driver-assistance systems in modern cars, where a false sense of security can become evident in drivers[[3]](#footnote-3). This means that other more effective means of reducing risk may be ignored to a certain extent. In addition to this safety measures can be identified as a measure of the risk itself, heightening concerns around it. This will be discussed later in the document. These factors may lead to a false sense of security due to measures being introduced but also a heightened perception of the initiating risk, such that removing that measure, even if justified, may significantly raise concerns about exposure to the risk. For this reason, an explainable scoring system is useful to identify when certain safety measures may need to be implemented but equally provides an important exit strategy in order to remove measures when appropriate when they may no longer be proportionate to the risk.

**What is the role of the individual in relation to national crises? Are there potential benefits in increasing public involvement and transparency in emergency planning? What limitations are there to this? What lessons have been learnt or should have been learnt about the approach taken to risk assessment and risk planning in this country from the COVID-19 pandemic?**

Public perception of any risk will determine the success in the ability to manage the risk at societal level. Individual perceptions of risk will ultimately drive behaviours and responses to events and measures introduced. Effective risk communication strategies, with close attention to public perception, is key to avoiding adverse reactions and unforeseen 2nd order effects. Whilst expert judgement may be reliant on evaluating risk through objective assessment, the layperson is more likely to evaluate risk by heuristics and informal thought processes[[4]](#footnote-4). In communicating risk, it is key to understand the factors that impact behaviours towards risk. Poor risk communication strategies can ultimately lead to psychosocial impacts, poor substitutions of risk, misinformation through misinterpretation and ultimately a breakdown in socio-cultural and institutional trust. This can be seen in public responses to major events such as the civil nuclear emergencies in Chernobyl, 1986 and Fukushima, 2011. Here there is very strong evidence to suggest that the psychosocial impacts in response to the events and countermeasures far outweighed the direct physical health risks imposed by the events.

The findings from the Chernobyl Forum in 2006, led by the WHO identified that the mental health impact far outweighed any measure of physical health impacts from the event[[5]](#footnote-5). Significant psychosocial impacts were also seen following the March 2011 earthquake and tsunami that led to Fukushima nuclear emergency in Japan. By 31 March 2012, 1632 deaths, resulting from non-physical impacts, were indirectly linked to the triple disaster event. A disproportionate amount (47%) of these was within the Fukushima Prefecture, which suggests the Fukushima Daiichi accident itself caused significant psychosocial consequences[[6]](#footnote-6). Whilst it be impossible to ascribe directly, the poor risk communication from authorities, along with lack of understanding of the risks imposed by the countermeasures were significant.

The individual in society may tend to be far more concerned with risks where the consequences invoke fear, anxiety or public outrage, regardless of the likelihood of that event. These types of risks are often referred to as ‘Dread Risks’. There are a number of factors that affect perceptions of risk and the tendency to have associated ‘dread’. It has often been found that many people will choose risks that are statistically more hazardous in order to avoid or remove the threat of a dreaded risk. Evidence was found in a study conducted in the 3 months following the 9/11 attacks, that suggested that “the number of Americans who lost their lives on the road by avoiding the risk of flying was higher than the total number of passengers killed on the four fatal flights.”[[7]](#footnote-7) It is therefore vital to be aware that if the public attention has been drawn to a particular risk, this may lead to behaviours of risk avoidance and introduction of greater risks.

Managing risk from an expert perspective is largely objective and mostly considers the measurement of consequence and likelihood of events, but within society and for the individual evaluation of risk is a subjective matter. The factors that affect this are numerous and intertwined, which creates a far more complex situation. There are a number of risk perceptions models that identify the factors affecting public risk perception. Covello (1998), a leading academic in risk perception identifies the following factors[[8]](#footnote-8):

* Familiarity
* Understanding
* Uncertainty
* Controllability
* Voluntariness
* Effects on children
* Effects manifestation
* Effects on future generations
* Catastrophic potential
* Victim Identity
* Dread
* Trust in institutions
* Media attention
* Accident history
* Equity and fairness
* Benefits
* Reversibility
* Personal stake
* Nature of evidence
* Human vs natural origin

It is also vitally important to understand how mitigating and preventive measures that are introduced in response to any risk may be perceived by the lay person. It has been found in previous studies that in certain circumstances safety measures, rather than allay any fears can actually raise concerns amongst those without the specialist knowledge[[9]](#footnote-9). For this reason, a ‘better safe than sorry’ approach can ultimately trigger a negative and disproportionate response within society. Any measures introduced in response to an event should always be proportional to the risk and justifiable. If a safety measure is largely ineffective or the benefits are questionable/minimal, then it should be considered that its introduction may have an overall negative effect in terms of the response within the population. Without understanding of the mechanisms of the hazard and safety measures, the lay person will often assume that the measure is justified and use it as a measure of the risk itself. This can also mean that it is difficult to then remove that safety measure, whilst the risk still perceived to exist even if removing it is justifiable in the objective sense.

Public trust underpins the effectiveness of any risk communication strategy. Public trust in respect to risk communication can be considered to be layered and influenced by four main factors[[10]](#footnote-10):

1. Perception of the characteristics of the information received;
2. Perception of the risk managed or communicated;
3. The perception of institutional characteristics;
4. The individual and socio-cultural characteristics of those who exhibit trust.

These can be considered to be layered in terms of ‘specific’ and ‘general’ factors, such that the first is considered as the most specific progressing in order such that the fourth is the most general. It is layered such that the more general factors underpin the more specific trust factors. For example, the perception of the information being perceived will be strongly influenced by the trust in institutions managing the risk and the perception of the hazard itself, regardless of the characteristics and nature of the information presented.

It also needs to be considered that the breakdown of trust owing to the information presented can cause a progressive breakdown in the more general factors. Paul Slovic, a leading academic in risk perception and communication, proposed the following tendencies that affect breakdown in trust[[11]](#footnote-11):

1. Trust destroying events are more noticeable than positive events;
2. Negative events carry more weight than positive events;
3. Information sources relating to negative events can be perceived as more credible than positive news;
4. Once distrust has been established this is likely to only breakdown further. This occurs through avoidance of distrusted sources or due to bias that then perceives any new information from a negative perspective.

Public engagement should be a vital component in emergency planning preparedness, in order to attain an awareness of the perceptions that determine public attitudes and responses to risks. Risk communication is an important element in achieving an effective emergency response. Largely determined by public trust in institutions but also the perceptions of the hazard itself, there are gains that can be made in this respect in emergency preparedness in order to develop and build trust, providing a foundation in which information can be communicated more effectively.

To understand the benefits and effectiveness of countermeasures and restrictions introduced in response to the COVID-19 pandemic, it is important to identify and measure the impacts introduced as a result. Any measures introduced should be proportional and any direct health benefits need to be measured against any psychosocial and economic impacts. One clear example of unintended and disproportionate response to the COVID-19 pandemic was seen in the impacts experienced with non-COVID health care. Early in the restrictions during 2020, millions of cancer screenings were missed[[12]](#footnote-12), creating the potential for a public health crisis due to missed opportunity for early diagnosis. Here is a clear example of more hazardous risk choices being taken in society and in organisations caused by an avoidance of risks associated with COVID. As discussed earlier, safety measures can often be determined as a measure of the risk itself and result in misinterpretation of the severity of the risk, which may lead to poor judgement in risk choices due to associated dread.

When looking at behavioural impacts and the role of the individual, coercion should not be used[[13]](#footnote-13),[[14]](#footnote-14),[[15]](#footnote-15) as a mechanism for ‘incentivising behaviours’ or ‘ensuring compliance’. This is not only illegal in courts of law but immoral. SAGE published a paper based on coercion of the general population (along with the policy of ensuing media and social media restriction and prescription) which can be seen as against libertarian principles and against the will of the rational man [[16]](#footnote-16) . “An individual’s choice is voluntary if it was not made because no other acceptable alternative was available”[[17]](#footnote-17). The lack of acceptable choice is worsened by any removal of an alternative choice consisting of that which the person has a fundamental human right to do. By removing the acceptable alternative choice, coercion is implicit. As well as being unconscionable, working against human nature has a tendency to cause long term mental health risks and misunderstanding of risk by the individual (as previously discussed).

Ensuring interdisciplinary teams create evidence-based policy and implement this, not using policy driven by narrative, is key to decision makers understanding of the situation and further downstream impacts. This must be the preliminary route before deciding on mechanisms to communicate to the population. Remembering that we live in a liberal society and as such we have to expect the individual to decide his own risk and limitations. Many philosophical authors have addressed the theory of rights and the state, including Nozick and Rawls to mention just two [[18]](#footnote-18),[[19]](#footnote-19). If we move away from our traditionally libertarian approach, we risk creating a ‘nanny state’ where individual risk perception and critical thinking is driven by narrative/media/ government not the individual. I think we can all agree we would want to live in a democracy rather than a hazardous alternative.

Use of statistics and numbers within risk management and disaster/hazard communication must be evidence based and not follow a policy of continual methodological adaption or change, especially where proven methodology exists[[20]](#footnote-20). It is easy to degenerate trust and cause incorrect risk perception within the population by production of poor data and lack of transparency. Mitigation must be proportional to the risk, not proportional to the narrative. Transparency of policy and data during COVID has become an embarrassment to the Government and sown distrust in disaster planning capability[[21]](#footnote-21). This because the initial modelling was not evidence based[[22]](#footnote-22), could not be reproduced and was highly inaccurate. and the modelling that was done was subject to the [[23]](#footnote-23)and presented flaws within modelling due to organisational issues which then led to poor output, lack of evidence-based modelling and lack of evidence-based policy.

1. https://www.hse.gov.uk/managing/theory/alarpglance.htm [↑](#footnote-ref-1)
2. Covello, V. T. (1998, March). Risk perception and communication. In *Proceedings of the North American conference on pesticide spray drift management* (pp. 161-186). [↑](#footnote-ref-2)
3. Hagl, M., & Kouabenan, D. R. (2020). Safe on the road–Does Advanced Driver-Assistance Systems Use affect Road Risk Perception?. *Transportation research part F: traffic psychology and behaviour*, *73*, 488-498. [↑](#footnote-ref-3)
4. Paek, H. J., & Hove, T. (2017). Risk perceptions and risk characteristics. In *Oxford Research Encyclopedia of Communication*. [↑](#footnote-ref-4)
5. Bennett B, Repacholi M, Carr Z. (2006) Health effects of the Chernobyl accident and special health care programmes. Report of the UN Chernobyl Forum Expert Group “Health”. Geneva: World Health Organization [↑](#footnote-ref-5)
6. Ichiseki, H. (2013). Features of disaster-related deaths after the Great East Japan Earthquake. *The Lancet*, *381*, 204. [↑](#footnote-ref-6)
7. Gigerenzer, G. (2006). Out of the frying pan into the fire: Behavioral reactions to terrorist attacks. *Risk Analysis: An International Journal*, *26*(2), 347-351. [↑](#footnote-ref-7)
8. Covello, V. T. (1998, March). Risk perception and communication. In *Proceedings of the North American conference on pesticide spray drift management* (pp. 161-186). [↑](#footnote-ref-8)
9. Williams, D. R. (1998). *What is safe?: the risks of living in a nuclear age*. Royal Society of Chemistry [↑](#footnote-ref-9)
10. Chryssochoidis, G., Strada, A., & Krystallis, A. (2009). Public trust in institutions and information sources regarding risk management and communication: towards integrating extant knowledge. *Journal of Risk Research*, *12*(2), 137-185. [↑](#footnote-ref-10)
11. Slovic, P. 1993. Perceived risk, trust, and democracy. Risk Analysis 13, no. 6: 675–82. [↑](#footnote-ref-11)
12. https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30638-0/fulltext?rss=yes [↑](#footnote-ref-12)
13. Olsaretti, S. (2004). *Liberty, desert and the market: A philosophical study*. Cambridge University Press. [↑](#footnote-ref-13)
14. Wertheimer, A. (1987). *Coercion*. John Wiley & Sons, Ltd [↑](#footnote-ref-14)
15. Garnett, M. (2017). Coercion: the wrong and the bad [↑](#footnote-ref-15)
16. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_data/file/887467/25- options-for-increasing-adherence-to-social-distancing-measures-22032020.pdf [↑](#footnote-ref-16)
17. Olsaretti, S. (1998). Freedom, Force and Choice: Against the Rights‐Based Definition of Voluntariness. *Journal of Political Philosophy*, *6*(1), 53-78. [↑](#footnote-ref-17)
18. Nozick, R. (1974). *Anarchy, state, and utopia* (Vol. 5038). New York: Basic Books. [↑](#footnote-ref-18)
19. Rawls, J. (2001). *Justice as fairness: A restatement*. Harvard University Press. [↑](#footnote-ref-19)
20. https://committees.parliament.uk/work/570/data-transparency-and-accountability-covid-19/publications/written-evidence/ [↑](#footnote-ref-20)
21. https://committees.parliament.uk/work/570/data-transparency-and-accountability-covid-19/publications/written-evidence/ [↑](#footnote-ref-21)
22. Lords Select Committee on Science and Technology Afternoon Session – Corrected oral evidence: The Science of COVID-19 (London, 2 June 2020) [↑](#footnote-ref-22)
23. Lords Select Committee on Science and Technology Afternoon Session – Corrected oral evidence: The Science of COVID-19 (London, 2 June 2020) [↑](#footnote-ref-23)