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UK Nuclear Interests: Security,
Resilience and Trident*Benoît Pelopidas and Jutta Weldes*

Over the last eight years, discussions about the UK's national interest have set the goal of building a 'resilient nation' (Omand 2005). The idea of 'resilience' has, or seems to have, superseded 'security' as a primary way of defining the UK's national interest. Resilience was thus at the heart of the Conservative Party platform in 2010 ('A resilient nation') and remained at the core of the two key strategic documents published in 2010: the National Security Strategy (Cabinet Office 2010a) and the Strategic Defence and Security Review (Cabinet Office 2010b). In each, resilience appears as one of the two overarching goals that the UK has set as its national interest. In their foreword to the National Security Strategy, David Cameron and Nick Clegg thus state: 'at home, we must become more resilient both to external threats and to natural disasters' (Cabinet Office 2010a, p. 4).

The requirements of resilience arguably differ fundamentally from those of security in terms of both the scope and the timing of action when confronted with the prospect of disaster. While security is understood as protection and implies preventive action aiming at avoiding disaster, resilience assumes and accepts that its referent object is vulnerable and will face disaster sooner or later. The goal is not to prevent disaster from happening, or even necessarily to delay it, but rather to limit the damage and facilitate recovery. So a re-framing of the UK's national interest from the logic of security-seeking to that of resilience-seeking suggests a major change that will be assessed in this chapter.

Is there actually a shift from security to resilience in the understanding of the UK national interest? This question matters for a variety of reasons, including that the ability to produce national resilience is not, its supporters notwithstanding, unproblematically a 'public good'

(Omand 2005, p. 14). The acceptance of resilience as a public good depends on two factors:

- the consistency between the discourse of resilience and the actual policy put in place in the name of the national interest;
- the acceptance by the public of exposure to danger and its justifications.¹

As we will show, some recent academic analysis assumes that the turn from security to resilience is actually occurring, but that analysis tends to neglect the fact that the two concepts can actually be articulated in multiple ways rather than being strictly opposed. They can be pursued simultaneously, resilience appearing as the goal of plan B when the efforts to keep the nation secure have failed; resilience can appear as a condition for security, in which case security follows from the recognition of the resilient character of a given community; and finally, resilience can be one among many ways to mitigate risk. Clarifying which one of these relationships is used in the framing of the UK's national interest in terms of resilience is key to assessing the scope of the shift from security to resilience.

The debate over the renewal of Trident offers a good case study to assess this shift for three reasons. First, Trident, as the only pillar of the UK nuclear deterrence strategy, has so far been portrayed by the government as a core instrument serving the UK's national interest. The 2013 *Trident Alternatives Review* states explicitly that 'nuclear deterrence has a unique role in deterring extreme threats to the UK's vital interests which cannot be countered by other means' and 'any change to the UK's nuclear deterrent system and/or its posture may have the potential to impact... our... national interests' (UK Cabinet Office 2013b, pp. 3, 9, 13). Second, the debate concerns one of the most important areas of possible change in the UK's strategy to promote its national interests. Third, the discourse of resilience, which was absent from the 2006 Defence White Paper (UK MoD 2006) and not associated with Trident in the 2010 Strategic Defence and Security Review and National Security Strategy, has arrived in discussions about Trident in the *Trident Alternatives Review* published in July 2013 (UK Cabinet Office 2013b).

Nonetheless, we argue that the debate and policy decisions related to UK nuclear weapons demonstrate that the shift from security to resilience is more rhetorical than real both because the framing of Trident is not in fact fully compatible with the requirements of resilience and because other possible systems which could meet

resiliency requirements are neither contemplated nor prioritised. These findings matter for both theory and policy. If we are right, the scholarly worry about a shift from security to resilience does not apply to nuclear weapons policy in the UK. As a consequence, given the destructiveness attached to those weapons and their expected role in the national security architecture, talking about a radical shift from security to resilience in the framing of UK security and nuclear interests is not convincing. In the UK's current strategic planning and understanding of its national interest, the notion of resilience only suggests that there is a plan B in case of a failure of standard security policy, and both are pursued in parallel. In policy terms, we show that the disconnect between the principles of resilience and the practices of nuclear weapons policy suggests that UK policy elites have still not publicly recognised all the risks of major accidents and other mishaps involving nuclear weapons.

To show this, we start by documenting the rise of resilience in the discourse about UK national interests and reflect upon its possible articulations with the concept and goal of security. Our aim is to make sense of what a shift from security to resilience would entail. We then assess the practices of UK nuclear weapons policy, and Trident in particular, in relation to the requirements with which a resilient nuclear weapons policy would need to comply. We conclude by arguing that the current understanding of the requirements of deterrence as a communicative practice both limits the opportunities for conceptual innovation in nuclear thinking and in large part explains the missed opportunity regarding the acknowledgement of the risk of a nuclear accident and the possibility of a consistent shift towards resilience as a national priority.

Redefining UK national interests: From security to resilience?

National interests, whether the UK's or others', are socially constructed. That is,

national interests are social constructions created as meaningful objects out of the intersubjective and culturally established meanings with which the world, particularly the international system and the place of the state in it, is understood. More specifically, national interests emerge out of the representations – or, to use more customary terminology, out of situation descriptions and problem definitions – through which state officials and others make sense of the world around them.

(Weldes 1996, p. 280)

In recent years, various academic and policy literatures have argued that we live in a 'risk society' (for example Beck 1992, 1990) and that we therefore have moved, or should move, from constructing UK (and other) national interests in terms of a 'security' discourse – which focuses on (putatively) objective threats, protection, defence, prevention and/or deterrence – to constructing those interests in terms of a discourse of 'risk' and 'resilience'.

Indeed, prominent academics and public intellectuals talk/write as if they assume that a turn to resilience is in fact occurring. As a result, many debates have focused on the *effects* of such a shift from security to resilience. Responses have been twofold. On the one hand, some scholars have made this shift something to be opposed because moving from security to resilience exposes lives to vulnerability instead of trying to protect them. In other words, resilience would do, or already does, away with security.² On the other hand, security experts and some public intellectuals have embraced resilience and have advocated the shift from security to resilience (for example, Taleb 2012). In either case, the debate takes the shift from security – and threats, protection, defence, prevention and/or deterrence – to resilience for granted, focusing on whether it should be embraced or resisted, based on a discussion of its effects.

This focus on resilience emerges out of the prominence of concerns over risk and uncertainty. It is the 'obsession with risk' (Krahmann 2011, p. 354) and uncertainty in the discourse of 'risk society' that demands we be, or become, resilient. In contrast to what Cameron and Clegg called 'the brutal certainties of the Cold War – with an existential danger that was clear and present' we are now represented as being 'in an age of uncertainty, we are continually facing new and unforeseen threats to our security' (2010, pp. 3–4). In this discourse of 'risk society', the UK must shift its focus from manifest threats to possible risks and, more concretely, to risk assessment, which opens space for framing the UK national interest in terms of resilience (Edmunds 2012; Hammerstad and Boas 2012; Ritchie 2011).

Identifying and prioritising risks requires technologies of risk assessment. Risk can, in this sense, be understood as 'a measure of the level of insecurity calculated by the probability of a hazard multiplied by its impact' (Krahmann 2011, pp. 354–355). The UK National Security Strategy concurs (Figure 9.1): assessing risk, it asserts,

involves making judgements about the relative impact and likelihood of each risk in comparison with others... This methodology involves

consideration of the impact of an event (based on economic consequences, casualties and social/structural factors); and the likelihood of this event occurring over a determined timeframe.

(UK Cabinet Office 2010a, p. 37)

Based on this logic, the UK National Security Strategy announced that ‘we have conducted the first ever National Security Risk Assessment (NSRA) to assess and prioritise all major areas of national security risk – domestic and overseas’ (UK Cabinet Office 2010a, p. 25).³ The NSRA ‘compare[d], assess[ed], and prioritise[d] all major disruptive risks’ to UK national security over the 20 years to come. Specific risks were allocated to three ‘tiers’, with ‘hostile attacks on UK cyber space’, an ‘international military crisis between states, drawing in the UK’, ‘international terrorism’ and ‘a major accident or natural hazard which requires a national response’ comprising the highest-priority Tier 1 risks (UK Government 2010e). A possible nuclear attack – the risk whose realisation Trident is designed to deter – is the first risk mentioned in Tier 2.

The demand for resilience follows directly from this discourse of uncertainties and risk, and especially from technologies of risk

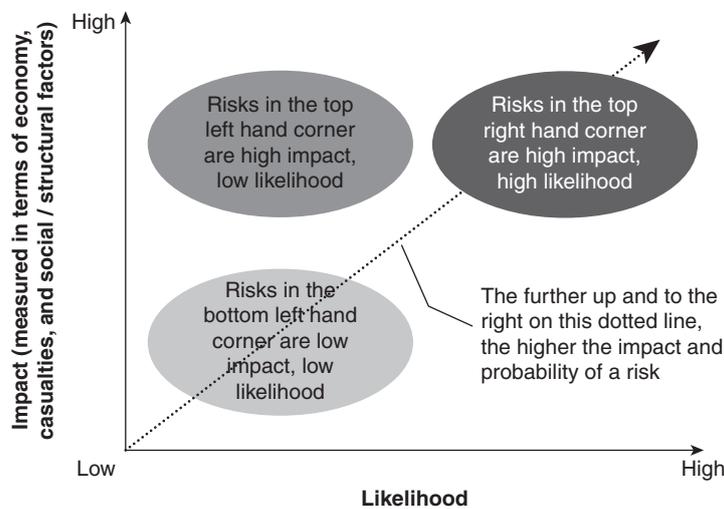


Figure 9.1 From ‘Fact sheet 2: National security risk assessment’ (UK Cabinet Office 2010e) (see <https://www.gov.uk/government/uploads/system/Factsheet2-National-Security-Risk-Assessments.pdf>)

assessment. Because there is no such thing as zero risk (as opposed to the absence of a specific threat) and because the ‘potential range of imaginable risks is infinite’ (Krahmann 2011, p. 356), risk can only ever be managed and/or mitigated. As one former senior UK civil servant put it, ‘we must continue to be honest about risk management – not risk elimination... [We must] not be under the illusion that the risks can be eliminated at any acceptable cost’ (Omand 2005, p. 17). The UK National Security Strategy therefore insists that ‘To ensure that we are able to recover quickly when risks turn into actual damage to our interests, we have to promote resilience, both locally and nationally’ (UK Cabinet Office 2010a, emphasis added).

Resilience offers a ‘science of complex adaptive systems and an operational strategy of risk management’ (Walker and Cooper 2011, p. 143). Resilience requires that states prepare for when security policies – that is, protection, defence, prevention and deterrence – or major infrastructural systems – for example, critical infrastructure like electricity grids and cyberspace – fail, perhaps catastrophically (an example might be the spectacular failure of the nuclear power plant at Fukushima Daiichi in 2011). ‘National resilience’ is therefore ‘the ability to resist, absorb, recover from, or successfully adapt to adversity or a change in conditions’ (US Department of Homeland Security 2009, p. 111). It entails building the capacity ‘to deal with the consequences that are common to most types of emergency, regardless of whether those emergencies are caused by accidents, natural hazards or man-made threats’ (UK Cabinet Office 2013a). The requirement of resilience thus assumes vulnerability and emphasises, correspondingly, the survivability of people and infrastructure, and the mitigation of and recovery from the consequences of the realisation of risk.

At the very least, achieving national resilience requires creating resilient institutions and infrastructure, and a resilient population (Ellis 2010, p. 380). As Cameron and Clegg argued, ‘in an age of uncertainty the unexpected will happen, and we must be prepared to react to that by making our institutions and infrastructure as resilient as we possibly can’ (2010, p. 5). As a result, one of the major national security tasks identified by the Strategic Defence and Security Review was to ‘[p]rovide resilience for the UK’ by providing the ‘security and resilience of the infrastructure most critical to keeping the country running (including nuclear facilities) against attack, damage or destruction’ (UK Cabinet Office 2010b, p. 12).

Resilient populations are also extremely important. According to Omand, resilient populations are those that understand:

- the full range of risks facing the nation;
- the ‘type of protection and preparation that is considered necessary and proportionate’;
- that there are ‘limitations’ in public security; and
- that individuals and communities all have a role to play (2005, p. 17).

As the National Security Strategy put it: ‘Ensuring that the public is fully informed of the risks we face is a critical part of this approach’ (Cabinet Office 2010a, p. 25). In short, the UK national interest requires a resilient UK population that:

- would accept their vulnerability to the full scope of risks, including nuclear risks, and the inability of the state to provide security; and
- would contribute to the mitigation and survivability in the case of realised risks.

Security and/or resilience?

Interestingly, despite quite vociferous arguments defending the claim of a shift in UK (and other) national interests from security to resilience, it is not clear in this discourse – and particularly in the policy documents we examined – what the relationship between ‘security’ and ‘resilience’ actually is. This relationship remains ambiguous and ill-defined, leaving open various potential renderings of the exact relations between these concepts. Are they contradictory, complementary or something else?

As indicated in our discussion of resilience discourse, the academic argument that a shift has occurred from security to resilience suggests that the UK national interest is or should be seeking resilience rather than seeking security. On this interpretation, resilience straightforwardly replaces security as the objective of national strategy and the core national interest. In the UK strategic documents we have examined, however, the UK seeks to be both ‘secure and resilient’. This orientation is confirmed in the core of the National Security Strategy, which says that ‘We must be a nation that is able to bring together all the instruments of national power to build a secure and resilient UK’ (UK Cabinet Office 2010a, p. 10). The Strategic Defence and Security Review similarly sets resilience as the first of two key goals: ‘(i) to ensure a secure and resilient UK by protecting our people, economy, infrastructure, territory and ways of life from all major risks that can affect us directly’ (Cabinet Office 2010b, p. 9).

In this second case, resilience is added to security as a second core national interest. The addition of resilience is necessary, as argued above, because of uncertainty and the unavoidability of risk. In this discourse, the UK national interest in security takes precedence, but resilience kicks in as plan B when security has failed, which it is sure to do at some point given that risks can never be reduced to zero. As the UK National Security Strategy made clear, 'whilst we will focus on early identification and mitigation of risks, we recognise that we cannot expect to eliminate risks altogether' (UK Cabinet Office 2010a, p. 22).

Third, resilience can be interpreted as part of being secure, as when it is claimed that 'we cannot prevent every risk as they are inherently unpredictable. To ensure we are able to recover quickly when risks turn into actual damage to our interests, we have to promote resilience, both locally and nationally' (UK Cabinet Office 2010a, p. 25). Here, the relationship involves the claim that we are more secure if we are also resilient. In this sense, the one objective, security, presupposes achieving the other, resilience. As Sir David Omand has argued in defence of resilience, 'We must work smarter: think strategically, prepare for the worst, ruthlessly target resources at risks [sic] and work with allies and partners to anticipate and prevent threats before they become real. This preparation is *in itself* a form of dissuasion as well as of defense' (2010, p. 13, emphasis added). That is, it is a prerequisite for security.

Finally, a fourth relationship is also possible: resilience can be viewed as one of a variety of means to mitigate risk, which, in turn, is as close to security as we can get in a 'risk society'. According to Omand, 'having a resilience capability framework' is a methodology for 'risk reduction' (2004). Elke Krahnmann argues similarly that risk can be mitigated through a variety of strategies: prevention, pre-emption, avoidance, deterrence, protection and, finally, resilience (2011, pp. 369–370). On this interpretation, resilience is a much smaller part of a wider discourse of uncertainty and risk, which, as noted above, has (supposedly) replaced security as the national interest. This view resembles the UK National Security Strategy claim that 'providing resilience' is one of its eight 'national security tasks': 'Providing resilience for the UK by being prepared for all kinds of emergencies, able to recover from shocks and to maintain essential services' (UK Cabinet Office 2010a, p. 33).

Despite a widespread academic and policy discourse of 'resilience', then, its conceptual relationship to security remains unclear. So, in order to assess the assumed shift from security to resilience in the definition of the UK's national interest, we turn to a focused analysis of nuclear

weapons policy and Trident, which has so far been portrayed by the government as a core instrument serving the UK's 'vital interest'.

UK nuclear policy versus the goal of resilience

What would a resilient nuclear weapons policy look like? Is it consistent with the way UK elites frame both resilience and the role of Trident? The prime minister and deputy prime minister have repeatedly invoked the metaphor of the 'ultimate insurance policy' (Cameron and Clegg 2010, p. 5)⁴ to describe their understanding of the role that UK nuclear weapons are and should be playing in the national security architecture and the promotion of the national interest. The notion of an insurance policy fits with the framework of resilience in several fundamental ways: the two notions are opposed to prevention, they recognise vulnerability, and they focus on *ex post facto* damage limitation. And, as we noted in the introduction, at least since 2013, Trident itself has been framed in terms of resilience.

Beyond those rhetorical tropes, the above analysis suggests that a resilient nuclear weapons policy should be based on two principles:

- it should start by recognising the full scope of nuclear risks; and
- it should aim for maximum survivability.

The first principle requires further elaboration. The full scope of nuclear risks includes the risk of accidents, possibly resulting in the launch of a nuclear-tipped ballistic missile. In this context we can distinguish between technological accidents and accidents resulting from misperception. The first would be in line with the widely shared intuition that there is no such thing as a fail-safe (that is, risk-free) technology and that technological failure does not always result in a desirable outcome like the prevention of unintended nuclear use (Pelopidas 2013b). In the case of nuclear weapons, once the complex and tightly coupled nature of these systems is recognised, as well as the limit of the imagination of the engineers performing the reliability tests,⁵ the causal chain leading to accidents becomes clear. As Charles Perrow writes,

Since nothing is perfect . . . there will be failures. If the complex interactions defeat designed-in safety devices or go around them, there will be failures that are unexpected and incomprehensible. If the system is also tightly coupled, leaving little time for recovery from failure, little slack in resources or fortuitous safety devices, then the

failure cannot be limited to parts or units, but will bring down subsystems or systems. These accidents then are caused initially by components' failure, but become accidents rather than incidents because of the nature of the system itself; they ... are inevitable ... for those systems.

(1999, p. 330; See also Sagan 1993)

One might think that adding redundancy to the system would solve the problem of tight coupling. There are two issues with this line of reasoning, however. While redundancy would definitely address the problem of tight coupling, it would not entirely solve it, and it would address that problem by worsening the other feature of the system which makes it prone to accidents, that is, its complexity (Sagan 2004). It is true that the scenario in which a missile does not go off when it should because of a similar cascade of failures would also qualify as a normal or systemic accident. And in that case, one might argue that no casualties will follow. Several accidents involving British nuclear weapons between 1960 and 1991 described in the July 1992 report by Sir Ronald Oxburgh, the chief scientific adviser at the Ministry of Defence, fall in the category of failures without risk of nuclear explosion (Oxburgh 1992; Schlosser 2013a, 2013b). Even so, the possibility of such an accident should be taken seriously, if the focus on resilience is to be consistent, since an adversary might detect early signs of preparation for a launch and might react to them even if the launch ultimately failed.

Nuclear weapons could also be used as a result of misperceptions. If an enemy launch is detected and the object flies towards one's country, there is a non-zero chance that the response will be nuclear retaliation. As examples indicate – most famously during the NATO Able Archer 83 exercise in 1983 and in 1995 when Russian air defence mistook a meteorological satellite launched from Norway for a submarine-launched ballistic missile from the US (Pry 1999) – mischaracterisation of flying objects can and does happen, and the speed of ballistic missiles limits leaders' ability to realise that a mistake has been made (Podvig 2013). From a UK perspective, such a systemic accident or misperception would lead to a nuclear explosion on its soil if it happened in any nuclear-weapon states whose missiles target the UK. Given that, so far, no protection against a nuclear attack exists (see Pelopidas 2013a), the issue of unauthorised launch is not only a problem of the reliability of the national arsenal. If the accidental launch originated in the UK, it would become a problem only if the enemy identified it correctly as coming from there and decided to retaliate.⁶ In a nutshell, the prospect

for normal or epistemic accidents, in the UK or in any nuclear-armed state targeting it, as well as the prospect for misperceptions, keeps the likelihood of a nuclear explosion in the UK above zero even if one believes that nuclear deterrence works perfectly.

Recognising this vulnerability should be a pillar of a resilient nuclear weapons policy. The second principle, if understood in relation to the goal of building a resilient nation, leads to attaching survivability and the efforts to maximise it to the population itself – or parts of it – rather than only to the warheads as does classical deterrence theory (Cohn 1987). As a consequence, a nuclear weapons policy aiming at resilience should design an infrastructure aiming for maximum survivability and justify its construction in those terms.

Let us now confront those criteria – the recognition of the full scope of nuclear risks and the goal of maximum survivability – with the actual framing of UK nuclear weapons policy. First, the probability of accidental or erroneous launch based on a misperception in the UK or towards it is not acknowledged either in the 2010 strategic documents or in the 2013 *Trident Alternatives Review*.⁷ Only two scenarios possibly involving nuclear use are considered: nuclear terrorism, and an unspecified ‘uncertainty’ against which the existence of British nuclear weapons work as the ‘ultimate insurance policy’ (UK Cabinet Office 2010b, p. 5). In both cases, malicious intent is clearly assumed. In the first case, it is the intentional use of a nuclear device by a terrorist group. Thus, the Strategic Defence and Security Review claims that ‘there is a risk that some countries might in future seek to sponsor nuclear terrorism’ (UK Cabinet Office 2010b, p. 37). Similarly, it is asserted that some actors might seize ‘fissile material’ to build a nuclear device or, possibly, a radiological dispersal device with a view to ‘malicious use’ (UK Cabinet Office 2010b, p. 55, emphasis added). In the second case, the notion of threat, with its underlying intentionality, reappears in spite of the general shift from threat to risks discussed above. In the Strategic Defence and Security Review, one reads that ‘We must not allow states [seeking to support nuclear terrorism] to threaten our national security or to deter us and the international community from taking the action required to maintain regional and global security’ (UK Cabinet Office 2010b, p. 37). So, contrary to the requisites of resilience, the UK nuclear policy as stated in the two 2010 documents as well as the more recent *Trident Alternatives Review* fails to recognise all the risks related to nuclear weapons in practice.

Second, a resilient nuclear weapons policy ought to aim at survivability. If this aim goes beyond the mere survivability of the warheads and

relates to the survivability of the 'resilient nation', one would expect to see expenditures and public policies justified in the name of survivability. Historically, two types of programmes have been developed to achieve this goal: civil defence programmes, that is, underground shelters, and anti-missile defences. One could also imagine other types of shelters, either under water or in space. However, the inefficacy of the civil defence programmes has been well-established (Garrison 2006; Clarke 1999, pp. 30–40) and none of those programmes is currently being considered. To the best of our knowledge, there are also no plans for under water or space shelters.

However, regarding missile defence, the Strategic Defence and Security Review states that the UK 'will ... maintain [its] existing policy of close cooperation with the US and our other NATO allies on ballistic missile defences, and [it intends] to support proposals to expand NATO's role' (UK Cabinet Office 2010b, p. 28) because '[the UK's] strong defence, security and intelligence relationship with the US is exceptionally close and central to our national interest' (UK Cabinet Office 2010a, p. 22). Indeed, the UK participates in the deployment of the US nuclear security architecture in Europe: it hosts one ballistic missile early warning station and the European ground station for the Space-based Infrared System (Stocker 2004, p. v). In early 2012, the Ministry of Defence signed a contract with European missile manufacturer MBDA and charged it with developing a new missile defence system for the Royal Navy (*Guardian* 2012; Richardson 2013); and in March 2013 it was announced that Royal Navy Type 45 destroyers could join future missile interceptor testing conducted by the US missile defence agency (*Defense Update* 2013).

For the UK's participation in that effort to become consistent with the notion of survivability as a feature of resilience, one has to assume that the US will actually engage its anti-missile capabilities to intercept a missile targeted at the UK, and with a high enough success rate that increased UK survivability becomes possible. This consistency has become conceivable because of the evolution of the stated goals of the US missile defence system over the years.

From the peak of Reagan's ambition to make nuclear weapons and the ballistic missiles carrying them 'impotent and obsolete' (1983), by building a shield that the president even considered sharing with the whole world,⁸ the ambitions of the project were diminished and its proponents came to recognise a whole set of vulnerabilities. In other words, the project, based on the logic of defence, became a way to enhance deterrence instead of replacing it (Rosenfeld 2009).⁹ Thus, the justification

for the now-cancelled US deployment of the European phased adaptive approach for its missile defence programme consisted in enhancing deterrence and ‘strengthen[ing] regional deterrence architectures’ rather than replacing deterrence with defence (US Department of Defense 2010, pp. v, 12).¹⁰

All in all, there are two ways to make UK nuclear policy even partially compatible with the criterion of maximum survivability, in spite of the lack of a project to build protected space for the population. The first would put its faith in the US mobilisation of its anti-missile capabilities to protect the UK if it appears to be targeted by a large-scale nuclear attack and to bet on a high enough rate of success to avoid the total destruction of the British Isles. The second scenario is the generally unspoken case of a small-scale nuclear attack on the UK consistent with the scale of the North Korean nuclear arsenal. In that case, the assumption would be that the strike did not destroy all of the UK’s nuclear means of retaliation and these could then be used in the hope of restoring deterrence after its failure.

In a nutshell, the current UK nuclear weapons policy fails to meet the two criteria of resilience – the recognition of the full scope of nuclear risks and the goal of maximum survivability – and shows a lack of consistency between the rhetoric of resilience and the practice of nuclear weapons policy.

Conclusion: Deterrence against resilience?

As we have shown, the existing UK national interest discourse relating to nuclear weapons does not meet the requirements of a resilient nuclear weapons policy. There is no recognition of the full spectrum of nuclear vulnerability (that is, of the risk of accidental launch in the UK or towards it) and nuclear weapons themselves do not guarantee the survivability of the nation in case of a nuclear attack, except in a case in which the enemy only launched a few warheads and is deterred from launching the rest by the prospect of a retaliatory strike. The systems which could have been invoked to limit damage have either been abandoned, as in civil defence, or continue to be supported but as instruments of deterrence rather than defence, for example, US ballistic missile defence and the now-cancelled European phased adaptive approach. Finally, a lot of very optimistic assumptions about the efficacy of the missile defence system and the commitment of the US as an ally are needed in order for these systems to be a meaningful part of a nuclear security infrastructure closer to the imperatives of resilience.

Perhaps, then, some academics and public intellectuals have been too quick to radicalise the opposition between security and resilience and to talk/write as if a turn from the first to the second is actually occurring in defining the UK national interest. More than that, if such a shift is not taking place regarding the weapon system presented as the 'ultimate' security guarantee of the country, one might question what the whole idea of such a turn from security to resilience actually means.

Given that the lack of consistency between the rhetoric of resilience and policy practice comes from an incomplete recognition of the exposure to danger which is created or accepted by this policy, the idea that resilience is a public good appears problematic on both of the grounds we defined in the introduction:

- the consistency between the discourse of resilience and the actual policy put in place in the name of the national interest; and
- the public's acceptance of exposures to dangers and their justification.

This argument also holds if policymakers did discuss nuclear weapons accidents, but did so in secret, because the unjustified exposure to danger remains. Furthermore, this lack of consistency and the failure to recognise the risk of nuclear weapons accidents distorts the construction of the UK national interest regarding nuclear weapons. It privileges a pro-nuclear weapons position by removing the possibility of nuclear accident from public discussion (see, for example, Pelopidas 2011).

Ultimately, the current public discourse on deterrence remains an obstacle to the shift to resilience as a recognition of vulnerability because, as a communicative practice, it has two audiences with apparently contradictory expectations (Pelopidas 2013c). On the one hand, the adversary has to be convinced of the credibility of the retaliatory strike for a deterrent threat to make sense. If he doubts the resolve of the domestic leader, convincing him requires communicating that the situation might spiral out of control so that the retaliatory strike will take place even if the leader is not resolute enough to order it (Schelling 1960, chap. 6; 1966, chap. 3). This is exactly what current policymakers think domestic audiences do not want to hear. Therefore, even in contemporary democracies, populations are not consulted about which cause(s) would justify their exposure to nuclear disaster, so one cannot know what their answer would be. As a result, the imperatives of public acceptability of the discourse of deterrence as understood by political

elites prevent the conditions of a shift towards resilience, which would at least publicly recognise the condition of global nuclear vulnerability.

Notes

1. After all, there are many systems that one might not wish to make resilient, including antibiotic-resistant bacteria, dictatorships, the global banking and bonus system, slavery and neo-liberalism, see Limnios et al. (2012).
2. The peer-reviewed journal *Resilience: International Policies, Practices and Discourses* takes this approach as its manifesto, see also Evans and Reid (2013, 2014) and Neocleous (2013).
3. In the UK National Security Strategy the term 'risk' appears much more frequently than does 'threat': risk and risks appear 478 times, while threat and threats appear only 69 times. The UK also established a National Risk Register (UK Cabinet Office 2012).
4. Following a visit to one of the Royal Navy's Vanguard-class submarines in Scotland, David Cameron reasserted that: 'having that nuclear deterrent is, quite simply, the best *insurance policy* you can have that you will never be subject to nuclear blackmail' (Cameron 2013).
5. For an elaboration of this idea and the notion of 'epistemic accident', see Downer (2011). He defines epistemic accidents as 'an emergent property, a fundamental consequence, of the structure of engineering knowledge. They can be defined as those accidents that occur because a scientific or technological assumption proves to be erroneous, even though there were reasonable and logical reasons to hold that assumption before (although not after) the event.' Most importantly for our argument, he adds that 'Epistemic accidents... are unavoidable because engineers necessarily build technologies around fallible theories, judgments, and assumptions' (p. 752).
6. In agreement with the Russian federation, the US has reprogrammed its missiles so that in case of unauthorised launch, they would head towards the ocean. We could not find evidence of such an attempt from other nuclear-weapon states (Schlosser 2013b, p. 478; Feaver and Thompson Sharp 2010, p. 45).
7. Lord Des Browne of Ladyton confirmed to one of the authors that this was not discussed when he was UK secretary of state for defence (interview with Des Browne, London, 16 October 2013). This is all the more surprising as the risks of accidents at nuclear power plants are recognised in the National Risk Assessment and in the 2013 *National Risk Register of Civil Emergencies* (UK Cabinet Office 2013c, p. 34).
8. Reagan voiced this idea in a meeting in the situation room on 3 February 1986 (Hoffmann 2009, pp. 240–241).
9. The shift from defending to strengthening deterrence as the key rationale for the US ballistic missile defence programme has been all the clearer since the US Congress passed the National Missile Defence project in 1999 with its focus becoming regional threats with a very specific emphasis on Iran and North Korea instead of any possible ballistic missile threat (Rosenfeld 2009, p. 205; US Department of Defense 2010, pp. iii, iv, 13). The focus on strengthening deterrence and not strictly protecting a territory is common to

all current missile defence programmes including the most ambitious ones in the US and Israel, in spite of money invested in the US ballistic missile defence programme and the Israeli Iron Dome, and the claims of supporters of the missile defence programmes. The French president, Jacques Chirac, expressed this very clearly on 19 July 2006 when he contemplated the participation of France in reflections about missile defence (see Kelleher et al. 2013).

10. For an overview of the phased adaptive approach as outlined by Barack Obama in September 2009 and updates on its implementation, see Arms Control Association (2013).