

# Mad Cows, Hurricane Sandy, and Why We Need Strong Science Assessors

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Last month in **Berlin**, I participated in the 10<sup>th</sup> anniversary conference of the **German Federal Institute for Risk Assessment** – the [Bundesinstitut für Risikobewertung \(BfR\)](#). The BfR is one of a number of European organizations that [Catherine Geslain-Lanéelle](#), executive director of the [European Food Safety Authority \(EFSA\)](#), characterized at the conference as "**the children of Mad Cow disease**." This group of siblings includes the EFSA, departmental chief scientific advisors in the **UK**, and others. These organizations, and the conditions under which they were created, remind us that if science is to be well used in policy and politics, then strong institutions are necessary. This is a lesson continuously relearned, most recently in the **United States** in the aftermath of **Hurricane Sandy**.

In the 1990s, as the **British** public became aware that bovine spongiform encephalopathy (BSE) among cattle was being transmitted to humans, the initial response of government scientific advisory bodies was to downplay the risk. Many remember the cringe-worthy [spectacle](#) in 1990 of the UK Agriculture Minister **John Gummer** feeding his young daughter a hamburger in public to demonstrate the safety of British beef. Fewer, however, remember *Nature* magazine conveying a similar message not long afterwards – admitting some risks, but claiming "the raw materials of cattle feed are now tightly controlled, while there are rigorous inspections of meat sent for sale." Such claims were "nonsense" according to [University of Newcastle](#) historian **John Fisher** who explained that, contrary to *Nature's* assertion, "the gap between regulation and actual practice was glaring" throughout the early 1990s.

The result of this gap, when broadly recognized, was public panic and, ultimately, reform of the mechanisms of science advice in the **UK** and across **Europe**, including creation of the institutions characterized as the "**children**" of **Mad Cow disease**. Such reforms were designed not only to improve the scientific basis for judgments of risk, but also to fortify public trust in government science bodies and to better ensure that **scientific information** had a legitimate role to play in decision making.

Like any large family, the children of **Mad Cow disease** have attained differing degrees of success. In many respects, the **BfR** stands out as a model of best practices. Its [2010 Guidance Document for Health Assessments](#) deserves to be widely emulated and its recommendations put into practice wherever governments seek to institutionalize expert input on scientific questions. By contrast, the **EFSA** has recently faced allegations of conflicts of interest, and the chair of its management board was forced to resign earlier this year due to contemporaneous service on the board of a **food science** advocacy group.

In the **UK**, a recent **House of Lords** report on the establishment of **Chief Scientific Advisors** across government departments appeals to the same "trust us, we're scientists" mode of advice that arguably

contributed to the **Mad Cow** affair in the first place. Clearly, the establishment of institutions with a mandate to assess science is no guarantee of success. Constant evaluation and oversight are necessary.



Aerial view of the damage caused by Hurricane Sandy to the New Jersey coast. Source: New Jersey Army National Guard

In the **United States**, the importance of having strong **scientific institutions** is one lesson to be drawn from the aftermath of "**Hurricane Sandy**," which caused tens of billions of dollars in damage along the northeastern coast.

In 2011, in the aftermath of **Hurricane Irene's** severe impacts in **New England**, a number of state governments decided to take steps to better align the risks of living on the coast with the costs of insurance – a policy that most would agree makes good sense. At least five states, including **New York** and **New Jersey**, enacted legislation to create what is called a "[hurricane deductible](#)" feature of insurance policies. Normally, when a homeowner suffers property damage, s/he is responsible for the initial cost of repairs and insurance covers costs above this amount. The homeowner's responsibility is typically a small amount compared to the value of the home: perhaps \$2,000. The idea behind the "**hurricane deductible**" feature was to dramatically increase the initial homeowner responsibility, thereby exposing the homeowner to a much higher loss in the event of a disaster – in some cases as much as \$25,000 or more.

While different states have different rules, in general the "**hurricane deductible**" would apply only if the event causing the damage was in fact a "hurricane." And here is where the trouble begins.

The US government agency that tracks hurricanes and issues warnings is the [US National Hurricane Center \(NHC\)](#). As **Sandy** approached the **New Jersey** coast as a hurricane in late October, the NHC recategorized Sandy just one hour before the storm made landfall as a "[post-tropical cyclone](#)." Officially, the storm was no longer a hurricane.

The consequences of the **NHC's** decision to recategorize Sandy were financially significant, as it meant that the "**hurricane deductible**" would no longer apply to those who suffered damage from the storm. As a result, individual homeowners' shares of the losses decreased by an order of magnitude, and the insurance industry's liabilities increased by many billions of dollars.

In the immediate aftermath of **Sandy's** landfall, reports surfaced about potential lawsuits from the insurance industry over Sandy's reclassification. Governor of New Jersey [Chris Christie](#) sought to head off such claims by issuing an executive order that legally defined the storm as not being a hurricane. Senator [Charles Schumer](#) of New York wrote a letter to the [National Weather Service \(NWS\)](#) [requesting](#) that they keep Sandy defined as a "**post-tropical cyclone**" and reminding the agency of the costs to his constituents of their decision. For its part, the National Weather Service had created an ad hoc committee to investigate its performance on Sandy, to be cochaired by an external critic of the agency's performance and recategorization. The NWS immediately reversed course and canceled the investigation committee, only to reconstitute it comprising only NWS employees.

Whatever role science might have played in the implementation of the "**hurricane deductible**" clause, such a role is no longer feasible. Decisions about who bears the costs of **Sandy's** property damage will likely be made politically, based on the competing interests and political power of those with the most at stake. This outcome can be traced to the 2011 passage of legislation by the states that created the "hurricane deductible" concept – arguably a useful idea in principle – but then tying its implementation to **scientific judgments** that are not at all tailored to the needs of a regulatory, legal, or legislative process. The lack of institutions fit for that purpose means that the intent behind the notion of a "hurricane deductible" has been thwarted.

The same important lesson should be learned from our experiences with the responses to **Mad Cow disease** and to **Hurricane Sandy** – to be successful, policies that depend on **scientific judgments** require strong **scientific institutions** that can render those judgments. The experiences of the "children" institutions of the Mad Cow experience born to **European governments** tell us that effective science arbitration is not easily put into practice, even when a need is recognized. **Hurricane Sandy** reminds us of what can occur when such a need goes unrecognized. The continued effective use of **science in policy making** means that we must remain ever vigilant to the integrity of institutions that sit at that interface.

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