

Friday 17 September 2010

US security risk analysis flawed

Expert assessment finds “seriously deficient” science behind security policies



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Serious flaws in the way terrorism risks are analysed and presented by the US Department of Homeland Security (DHS) were pointed out this week in a review penned by an expert committee set up by the National Research Council.

In response to a request by US Congress, the committee was appointed in October 2008 and spent 15 months looking at how the DHS uses risk assessment to inform its policy decisions. It covered a range of issues from modelling to social aspects of risk. To reflect the Department’s remit, the experts focused their review on threats from terrorism.

“The committee concluded that the basic framework of risk analysis used by DHS is sound but that the operationalization of that framework is in many cases seriously deficient,” they write.

The DHS is responsible for most aspects of security in the country, giving support to governmental and private institutions that have a role in reducing the threat of terrorism and natural disasters. It uses risk analysis to guide decisions about anything “from high-level policy choices to fine-scale protocols that guide the minute-by-minute actions of DHS employees”.

But after looking at six examples of these methods, the committee found they were untested and too poor to guide the Department’s decisions. “Moreover, it is not yet clear that DHS is on a trajectory for development of methods and capability that is sufficient to ensure reliable risk analyses other than for natural disasters,” writes the committee.

It found the Department’s risk analysis methods outdated, oversimplified and incomplete. “Until these deficiencies are improved, only low confidence should be placed in most of the risk analyses conducted by DHS,” write the experts in the report.

They outlined recommendations to help DHS risk analysts improve how models are developed and used, encouraging tested practices and the building of in-house expertise as a long-term objective.

Criticisms of current practice stretch from the suitability and validity of analytical models to the assumptions on which they are based, the uncertainties associated with them, and aspects of risk not easily captured with available data. They included how results and unknowns are communicated to the government and to the public.

The committee advised the Department to put in place a well-staffed and funded risk communication strategy to not only provide information, but to help people cope better with the risk of a potential terrorist threat.

It also urged the DHS to be open about the criteria behind funding decisions, and state explicitly that grants for security-related projects are prioritised based on the population density associated with a security threat.

The committee found the Department lacking in transparency and “immature” at describing the uncertainties that come with risk analysis models, which can arise from missing data and insufficient knowledge, among other reasons. Most models it uses are too complex and poorly documented, according to the report, and some “imply false precision, which can give the impression of certainty when it does not exist”.

Where sources of imprecision were evaluated, they were “rarely mentioned by DHS risk analysts during the committee’s meetings and site visits,” adds the committee.

It also found that when assessing the risk to infrastructure targets like airports and hospitals, the DHS often failed to go beyond physical, easily-quantified aspects of their vulnerability. “Little attention has been paid to secondary economic effects or to an attack’s effects on personal and group behaviours—impacts that could be significant and may be the primary goals of terrorists.”

Noting the current state of risk analysis at the Department, the committee warned against a tendency to conduct ‘integrated’ analyses to compare different threats, saying it would be impractical and “likely to be inaccurate and misleading”. It recommends that the DHS pursues ‘comparative’ analyses instead, because they don’t rely on a shared measure of risk.

Committee members opposed the idea of establishing a national risk officer, which was put forward by a high-ranking DHS official. They said the job is too complex to be managed effectively without the involvement of a diverse group of experts and organisations.

Reference and link

1. National Research Council Committee to Review the Department of Homeland Security's Approach to Risk Analysis. Review of the Department of Homeland Security's approach to risk analysis. National Academies Press, 2010. [Report](#)
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