



Opportunities and challenges in providing and using research based knowledge in legal cases

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strategic RESEARCH

Setting the Scene: Supreme Administrative Court Act [1265/2006]

Section 11

- (1) In the Supreme Administrative Court, two Expert Counsellors on the Environment participate in the consideration of matters referred to in
- the Water Act (587/2011),
 - the Environmental Protection Act (527/2014)
 - the Act on the Organisation of River Basin Management
 - the Marine Strategy (1299/2004),
 - The Expert Counsellors on the Environment also participate in the consideration of corresponding environmental protection and water matters concerning Åland.
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- Note that matters related to the Land Use and Building Act (132/1999) and the Nature Protection Act (1096/1996) do not engage expert councillors

The environmental expert councillors should be able to communicate with the legal professionals

Courts Act 673/2016, Section 9 – Qualifications of expert members of the Supreme Administrative Court

(1) ...an appropriate Master's degree in technology or in the natural sciences. In addition, he or she shall be familiar with the duties falling within the scope of the applicable legislation.

**Theories and facts are interlinked:
“It is a capital mistake to theorize in advance of the facts. Insensibly, one begins to twist facts to suit theories, instead of theories to suit facts.”**



But: many facts are incomprehensible without a theory.

Science in the court is debated intensely in relation to forensic science

“Because objects do not speak for themselves, there is a need for ‘translation’ or ‘interpretation’—forensic rhetoric requires a person (or a set of technologies) to mediate between the object and the forum: to present the object, interpret it and place it within a larger narrative.”

Weizman E. 2011. The least of all possible evils: humanitarian violence from Arendt to Gaza. London, UK: Verso., p. 105

The facts differ in a qualitative way across cases

	Legally simple	Legally complex
Scientifically simple	Cases that should no longer reach the Supreme Administrative Court.	There are many possible legal outcomes, but they have little if any effect on the environment
Scientifically complex	<p>A permit should be granted if and only if the environmental damage is tolerable:</p> <p><i>Does the draining of a bog for peat production deteriorate the status of the water body below 'good'?</i></p>	<p>The legal base offers many interpretations that interact with the interpretation of what environmental effects may arise:</p> <p><i>Should the output be seen as a waste stream or a side product and will one or the other interpretation ultimately cause/reduce environmental damage?</i></p>

The identification of true (environmental) impacts is not equal to the search for a decision in a court case

“Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly” (p. 2798).” Daubert v Merrell Dow Pharm., Inc. [1993] 509 U.S. 579, 596–597.

However: Both will have to accept and deal with uncertainty. For example: what is the risk that an environmental quality objective will be violated?

Uncertainty comes in many shapes and forms

The object of uncertainty

- Facts [categorical variables], Numbers[Continuous variables] or hypotheses [models and assumptions]

Sources of uncertainty

- (1) variability within a population or repeated measures
- (2) computational or systematic inadequacies of measurement
- (3) limited knowledge and ignorance about underlying processes, and
- (4) expert disagreement.

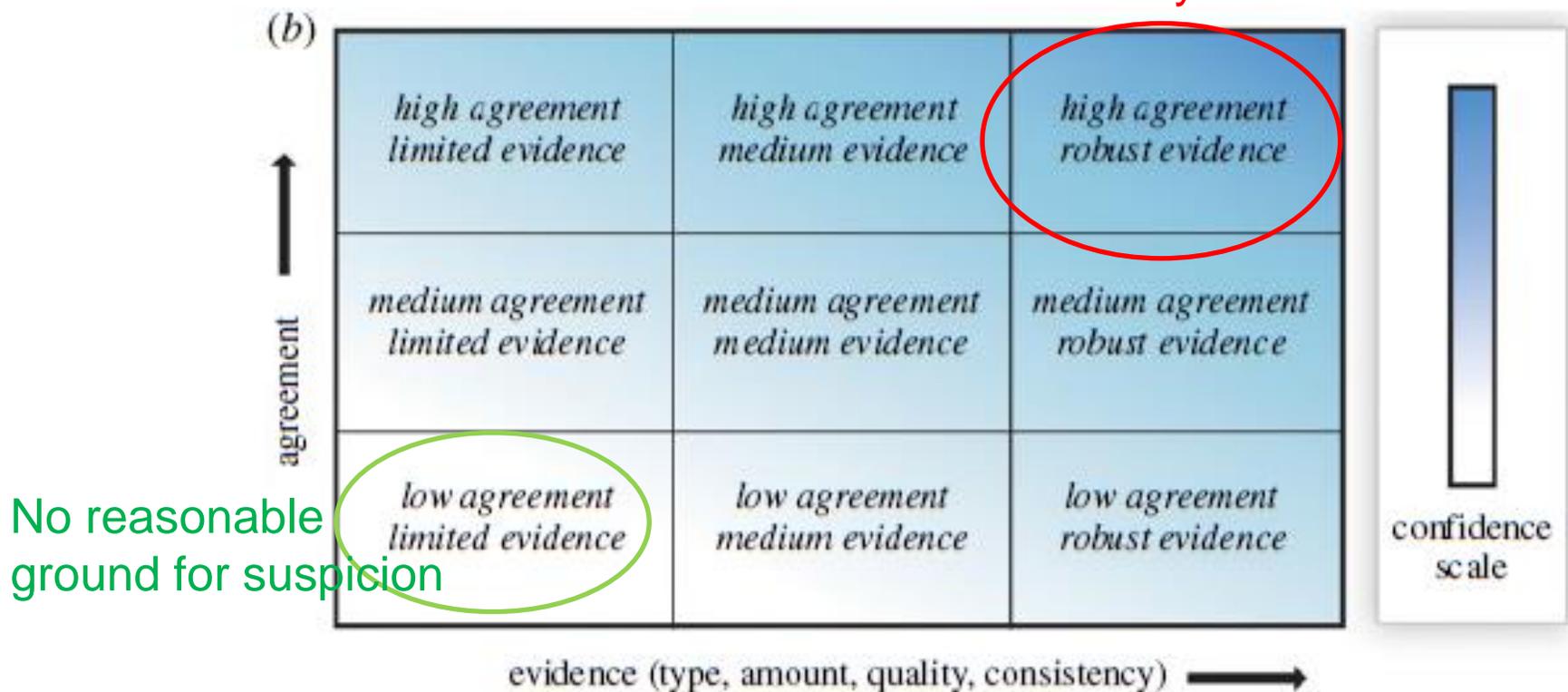
The level of uncertainty: direct uncertainty about facts vs indirect – the quality of knowledge

The magnitude of the uncertainty

van der Bles AM, van der Linden S, Freeman ALJ, Mitchell J, Galvao AB, Zaval L, Spiegelhalter DJ. 2019 Communicating uncertainty about facts, numbers and science. R. Soc. open sci. 6: 181870. <http://dx.doi.org/10.1098/rsos.181870>

The IPCC makes a distinction between agreement and evidence

Beyond reasonable doubt



No reasonable ground for suspicion

Similar: an 11 point scale for uncertainty in legal cases:

Weiss, C. 2003. Expressing Scientific Uncertainty. *Law, Probability and Risk* 2:25-

The current debate on forensic evidence aims at finding solutions that ensure the use of 'appropriate' knowledge

(a) Admissibility of expert evidence

- Should there be criteria and processes for the kind of evidence that can be brought to the court?

(b) Reliability factor

- Should there be methodological standards that ensure a basic reliability?

(c) Rapport between the expert(s) and the court

- Should there be standards of reporting so that forensic evidence is 'scientifically rigorous, but accessible'?

Adapted from: O'Brien E', Nic Daeid N, Black S. 2015 Science in the court: pitfalls, challenges and solutions. Phil. Trans. R. Soc. B 370: 20150062. <http://dx.doi.org/10.1098/rstb.2015.0062>

The Expert Councillors have opportunities to address the challenges of scientific evidence within the court

To do so the expert councillor need to

- **Get the science right by**
 - examining the scientific rigour in the arguments presented
 - recognising the cost-effectiveness of (additional) evidence
 - providing feedback to the regulators/law makers: communicating to identify the appropriate regime of scientific standards
- **Live up to her/his role as expert**
 - "For all branches of the legal profession, it is important that those experts upon whom we rely in court meet the highest standards of their own profession."

Inspired by the statement of The Rt Hon the Lord Thomas of Cwmgiedd. 2014. The future of forensic science in criminal trials. See comment><https://www.judiciary.gov.uk/wp-content/uploads/2014/10/kalisher-lecture-expert-evidence-oct-14.pdf> (accessed 4 September 2019).



“Nothing clears up a case so much as stating it to another person.”

Thank you!

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