Science as a Legal Term or Concept in International Environmental Law

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1. Introduction

Are social sciences scientific?

Distinction between:
- “natural”,
- “behavioural / social”, and
- “applied” sciences
2. General Meaning of the Term “Science”

Science (journal)

From Wikipedia, the free encyclopedia

*Science* is the academic journal of the American Association for the Advancement of Science and is considered one of the world's most prestigious scientific journals.[1][2] The peer-reviewed journal, first published in 1880 is circulated weekly and has a print subscriber base of around 130,000. Because institutional subscriptions and online access serve a larger audience, its estimated readership is one million people.[3] The major focus of the journal is publishing important original scientific research and research.
2. General Meaning of the Term “Science”
2. “Scientific Method”

1. Identification of a “Problem”

2. Hypothesis, model

3. Observation, tests, verification

4. Conclusions that are
   - verifiable, and
   - transparent
2. General Meaning of the Term “Science”: More Critical Perspectives

Arthur Schopenhauer: “science” will always explain one uncertainty with new uncertainties; science will thus never lead towards an understanding of the truth.

Michel Foucault: knowledge / truth is never “neutral” but always interlinked with the specific historic context.

Karl Popper (critical rationalism”):
- unbiased observation is not possible,
- results cannot be “verified” but only “falsified”,
=> science should be content with the rational elimination of errors in its theories / explanations and not in seeking for their verification.
3. The Ritual in Environmental Negotiations

The “standard discussions” in environmental negotiations concerning science and precaution tend to follow the following steps:

• A call for referring to the concept of precaution will trigger a call for “scientific” language

  or:

• A call for referring to the use of science will trigger a call for precautionary language

⇒ Contact Group

⇒ Result: risk management policies should be developed based on appropriate scientific understanding and a scientific risk assessment, while appropriately applying the precautionary approach as set out in Rio Principle 15.
4. The Use of “Science” in International Environmental Law (IEL)

**World Summit Declarations:**

number of references:
- Stockholm Declaration: 6 references in 4 provisions
- Rio Declaration: 3 references in 2 provisions
- Johannesburg Declaration: 0 references

content / connotation of reference:
- science as engine for progress
- science gives power to destroy
- science as tool to identify and solve problems
- science cannot explain all (lack of scientific knowledge)
4. The Use of “Science” in IEL

**MEAs:**

numerous reflections in CITES, CBD, Cartagena Protocol, UNFCCC, Kyoto Protocol, Rotterdam PIC, Stockholm POPs, SAICM, and SPS:

- science as tool to identify and solve problems
- science cannot explain all (lack of scientific knowledge) and:

- science as a value and goal in itself [CITES, CBC]
- further concretization of potential and function of science to identify and solve problems by establishing “scientific and technical subsidiary bodies” by CITES, CBD, UNFCCC, PIC and POPs.
4. The Use of “Science” in IEL:
Composition of “scientific” subsidiaries:

**CITES**: individuals from the six major geographical CITES-regions plus one specialist on zoological / on botanical nomenclature, elected by COP,

**CBD**: open-ended, “government representatives competent in the relevant field of expertise” [Art. 25]

**UNFCC**: open-ended, “government representatives competent in the relevant field of expertise” [Art. 9.1]

**IPCC**: Government representatives (open-ended) and hundred of scientists

**Rotterdam PIC**: 31 government designated experts in chemicals management, appointed by COP [Art. 18.6]

**SPS**: dispute involving science should seek expert advice [Art. 11.2]; SPS committee shall be in contact with others to have best scientific information [Art. 12.3]
4. The Use of “Science” in IEL: Composition of “scientific” subsidiaries:

=> two efforts to ensure “quality” of scientific subsidiary:

⇒ To ensure expertise and competence by members

⇒ To ensure equitable regional representation

**Note**: “independence” of experts is crucial – thus WTO AB in beef-hormones has heavily criticized the AB for selecting 2 scientific experts who had been heavily involved in the risk assessment and establishment of the WHO standards at issue in the dispute from which the EC wanted to deviate!
4. The Use of “Science” in IEL: Practice of WTO AB in the context of SPS:

=> risk assessment does not necessarily have to be quantitative but it can also be qualitative and that governments are not obliged to rely on majority scientific opinion but may base measures on respected sources of divergent scientific opinion.

=> Need of a “reasonable relationship” between science and policy

[EC-Hormones, WT/DS26UAB/R § 194]
4. The Use of “Science” in IEL: The case of chrysotile asbestos in the Rotterdam PIC Convention

=> PIC Chemical Review Committee has concluded that chrysotile asbestos fulfills all the criteria for listing new substances on the PIC list and thus recommended to list chrysotile asbestos in Annex III of the Rotterdam PIC Convention

=> COP, for purely political reasons, was not able to take the necessary consensus decision, postponed decision to next COP

=> At the end, there is nevertheless a political decision!
5. Conclusion: Possible Meaning of "Science" in International Environmental Law
5. Meaning of “Science” in IEL: Summary 4

Role / Function of Science:

- science as a threatening instrument that gives power to destroy (Stockholm);
- science as a general positive instrument and engine for progress (Stockholm & Rio);
- science as tool to identify and solve problems (World Summits and MEAs) => scientific subsidiaries (MEAs);
- science cannot explain all (lack of scientific knowledge), and (Rio & MEAs)
- science as a value and goal in itself (MEAs).

Concrete Use of Science:

- Composition of “scientific” subsidiaries;
- Need of a “reasonable relationship” between science and policy;
- At the end, there is nevertheless a political decision.
5. Conclusion: Possible Meaning of “Science” in International Environmental Law

In international environmental law, science has clearly a supportive role, by:

• providing a common language, common values/criteria;
• basing discussion on rational observable, measurable, verifiable, and “reasonable” (“subject to specific principles of reasoning”) arguments;
• Rationalizing discussion, making it more “technical”, more “objective”, and less political.

=> However, by referring issue to “science” does not become “apolitical”.

=> Benefit of science is not that it delivers “truth” but that it makes arguments falsifiable.
5. Meaning of “Science” in IEL

In the context of precaution, the most important function of science seems to be to provide a
> less-politicized,
> more rational
approach that allows for a more constructive deliberation and that promotes common understanding and political progress.
6. Conclusions

• Benefit of science is not that it delivers “truth” but that it makes arguments falsifiable.
• Referring issues to “science” does not make them “apolitical”.
• “Science” can not replace but help the political decision making.
Referring issues do science: do you want this person to take the final decision?