

SENSITIVITY AUDITING: Engaging the “EXTENDED PEER COMMUNITY”

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the European Commission's
in-house science service



insignificant digits

“The workshop exposed a great number of examples that show that there is indeed a serious problem. This becomes apparent in a variety of contexts: indicators and models’ assumptions; rhetoric concealed in the apparently bare number; the fabrication of numbers in order to run otherwise un-runnable models; indicators that are affected by type 3 error, i.e. *indicating* irrelevant or confounding state of affairs; or phenomena described at the workshop as “quantifauxcation”, “hypocognition”. **The importance of knowing who is generating those numbers and deciding what needs to be measured, for what purpose and context, as well as the world-views that are sustaining such numbers, calls for urgent societal enquiry involving a broad range of actors.**”

Significant Digits: Responsible use of Quantitative information, 2015



- Two tasks today
 - to situate ‘public engagement’ in the context of ‘sensitivity auditing’ (why we need it when we look into the quality of models - or other quantifications - and how it can be planned)
 - To situate ‘public engagement’ in the context of impact assessment in particular to Tool #50 ‘Stakeholder Engagement’ – a story to be continued...



sensitivity auditing

“the set of rules presented here for sensitivity auditing presupposes that an *extended peer community* is identified and involved in the sensitivity auditing of the mathematical modelling.”

Useful recipes for sensitivity auditing which are proposed here are:

- 1. Check against rhetoric use of mathematical modelling;
- 2. Adopt an “**assumption hunting**” attitude;
- 3. **Detect Garbage In Garbage Out (GIGO)**, in the extended definition of Funtowicz and Ravetz (1990);
- 4. **Find sensitive assumptions before these find you;**
- 5. Aim for transparency;
- 6. Do the right sums;
- 7. **Focus the analysis on the key question answered by the model, exploring holistically the entire space of the assumptions.**



post-normal science

[post-normal science:: Funtowicz & Ravetz]

“a methodology of inquiry that is appropriate for cases where ‘facts are uncertain, values in dispute, stakes high and decisions urgent’ ”

- Involvement of an “extended peer community” consisting of all those affected by an issue who are prepared to enter into dialogue about it.
- This extension is necessary for assuring the quality of the process and of the product



quality assurance by an “extended peer community”

Reflexive process through which quality of processes or products are enhanced by integration of different *knowledges*

(‘extended facts’, ‘local knowledge’, ‘vulnerability’, ethics, imaginaries, expectations)

In practice, inclusion of an extended peer community (those affected and affecting or caring about) the issue of concern to supply **KNOWLEDGE** in order

TO ENHANCE UNDERSTANDING of the problem and **POTENTIAL RESPONSES**



“extended peer community”

how do we ‘construct’ it?
how do we engage it?



David L. Morgan

Planning Focus Groups

Democracy
in Practice
Public Participation in
Environmental
Decisions

Thomas C. Beierle and Jerry Cayford

Democracy in Practice: Public Participation in Environmental Decisions

Developing...

Planning Focus Groups

The Focus Group Guidebook

Analyzing & Reporting Focus Group Results

Moderating Focus Groups

Community Members in Focus Groups

Morgan

Justice & Jamieson

Facilitator's

FACILITATOR'S FIELDBOOK

Sam Kane

with

Lenny Lind, G.

Sarah Fisk and

Foreword by A.

A Participatory Example

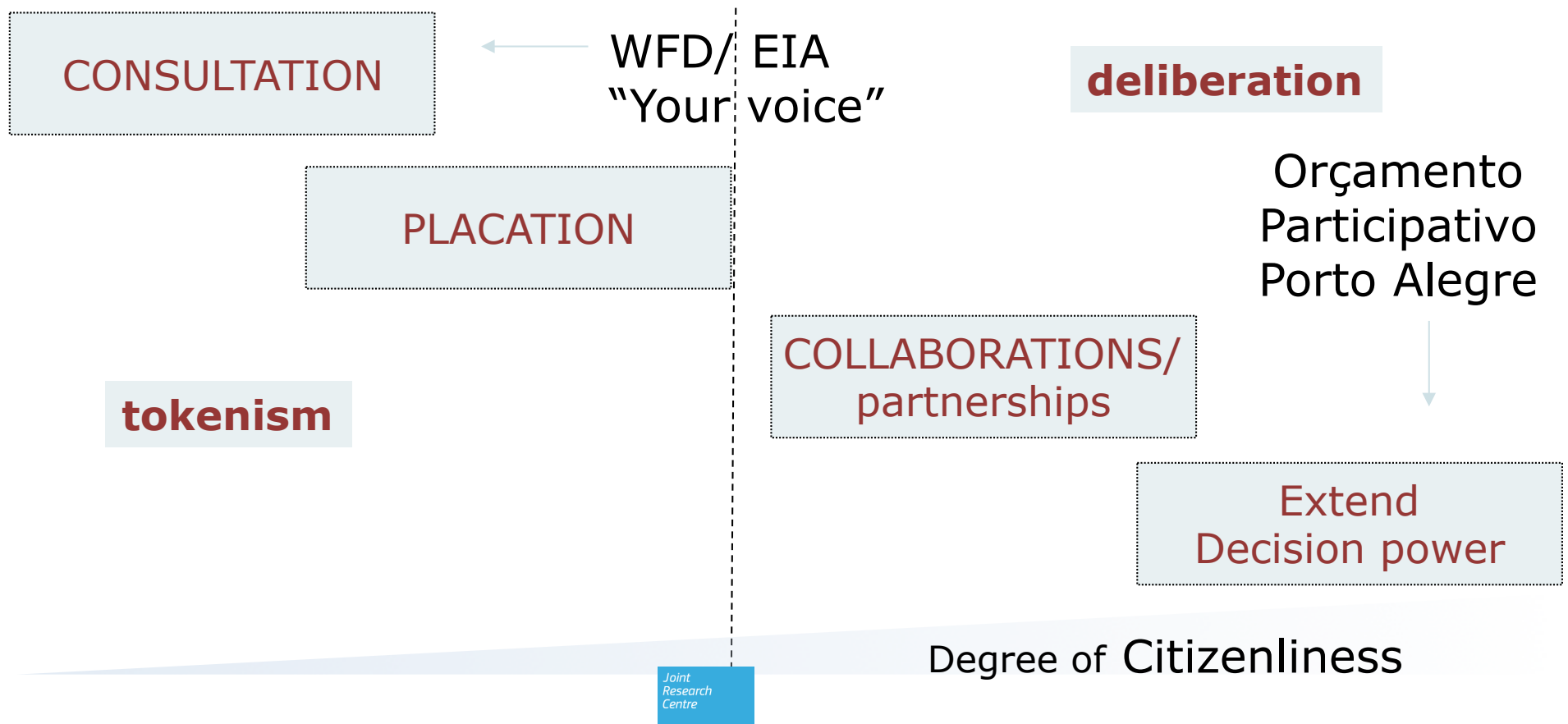


some definitions

- ▶ “participation is genuinely **feel part** of something”
Healthy Living Centre
- ▶ “efforts that people make in order **to influence** public policy decisions” *G. Stoker, Univ. Manchester*
- ▶ “the organised effort **to increase control** over resources and regulatory institutions on the part of groups and movements hitherto excluded from such control” *UN RISD*

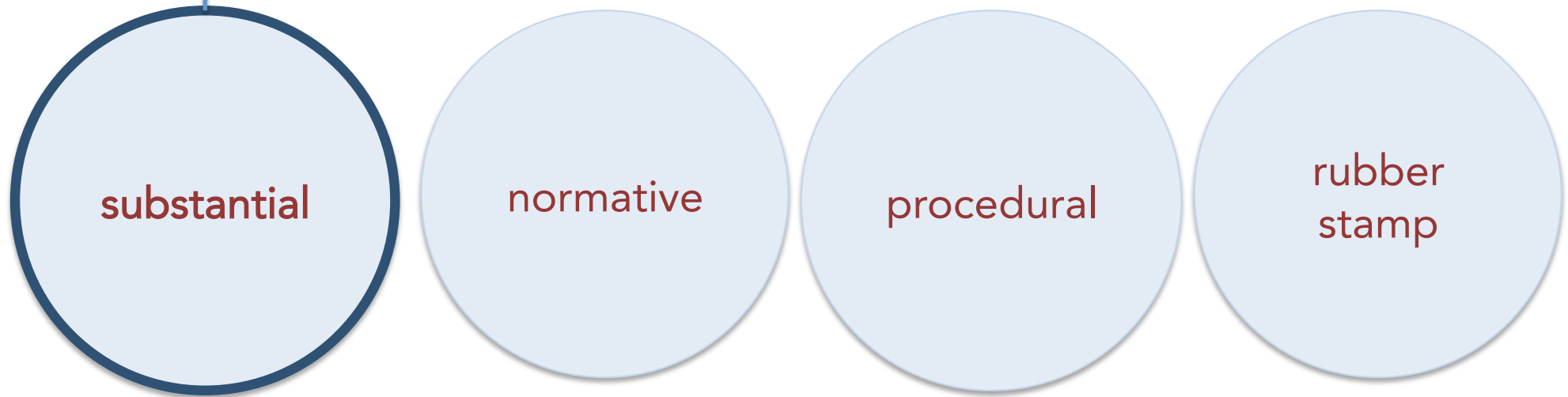
“We [are] still reluctant to say in definitive terms what public engagement is and how it should be conducted. **We feel clearer about *what it isn't...***” *J. Stilgoe – Nanodialogues Project, DEMOS*

There are a myriad of classifications: probably the oldest is due to **Sherry Arnstein** published in 1969 based on *degree of engagement/ degree of agency*



all seem to be conducive to **quality**

- social robustness
- share responsibility
- avoid type III error





‘some traditions and emerging practice’

- involvement of wider public constituencies in both scientific and environmental governance has been encouraged as a means of:
 - maintaining the **legitimacy** of policy making in the face of uncertainty
 - making **public knowledge and values available** because often they confront, complement expertise (Michael and Brown, 2005 and others)
- Responsible Research and Innovation – the “Engagement” pillar



public engagement

Involvement of relevant actors

[publics, stakeholders, interest groups,
community concerned, the *getroffenen*]

into a reflexive process...

Process should allow the structuring of participants
knowledge, values, etc. into relevant input to the research/
evaluation/decision/policy process...



organisation

→ Public engagement needs to be an ORGANISED
[invited] process for **Sensitivity Auditing, *Impact
Assessment, etc.*** ←

[institutional arrangements, identification of relevant
actors, setting up of agenda, venue, genuine
influence in policy]



organisation

CONTEXT:

▶ In what context is public involvement required? [Research, policy or legal requirement, etc...; At which stage of a process is the participatory process taking place [**TIMING**]?)

▶ Context determines:

- expected outcomes and therefore *contract* with participants
- WHO the participants are
- participatory method
- the level of involvement of participants in the “process”



organisation

“PARTICIPANTS”:

Who are the participants?

Issues to consider:

- Identification of participants (stakeholders, social actors, “getroffenen” (suffers), those concerned)
- Recruitment criteria
- Participatory Method
- Number of participants
- Tokens and agreements



organisation

PARTICIPATORY METHOD:

Choice depends on:

- ▶ context,
- ▶ participants,
- ▶ issue under scrutiny,
- ▶ desired outcome (including institutional impact)
- ▶ timing, costs, etc.



inconvenient questions?

On GMO's

According to the results of an EU-funded study (Marris *et al.* 2001), food safety is not prominent in the list of citizens' concerns on GMOs. Instead the questions included:

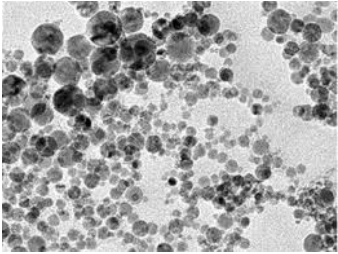
- “1. **Why** do we need GMOs? What are the benefits?
2. **Who** will benefit from their use?
3. **Who** decided that they should be developed and how?
4. **Why** were we not better informed about their use in our food, before their arrival on the market?
5. **Why** are we not given an effective choice about whether or not to buy and consume these products?
6. **Do regulatory authorities have sufficient powers and resources to effectively counter-balance large companies who wish to develop these products?”**



inconvenient questions?

On Organic Foods

A recent example, is what Bittman (2013) described as an exercise of misdirection on organic foods. A Stanford study (see Smith-Sprangler et al. 2012) focuses on a trivial aspect of the organic versus conventional comparison, i.e. the **poorly defined “nutritious” aspects of organic food, whilst that is not the primary reason why people acquire organic food, i.e. the presence of pesticides and anti-biotics.**



nanodialogues

On nanotechnologies (Stilgoe, 2007)

1. Precaution: in certain areas of application not to be used until more is known with regards their long-term effects
2. Verifiability: it should be mandatory to publicly declare the results of tests, good or bad – freely available
3. Monitoring and regulation needs to be done by a broad group of people, not only regulatory but also civil society
4. Can we detect nanoparticles?
5. Can we reverse releases of unwanted nanoparticles in the environment and the body?



in other words

- ★ **Issue framing**
- ★ **Values (ethics)**
- ★ **Governance**

And not so much *risk* or *impacts*, it's what these experiences seem to indicate be the concerns of citizens involved.

See authors like: Wynne, Jasanoff, Felt, De Marchi, etc.



questions for SA of models...

“Sensitivity auditing, [...] is a wider consideration of the effect of all types of uncertainty, including structural assumptions embedded in the model, **and subjective decisions taken in the framing of the problem**”

- Who set the questions that the model is supposed to give an ‘answer’ to?
- Who is asking the questions from the model?
- What affordances are expected?
- Who sets risk and thresholds?
- Who decides what scenarios are the relevant and actionable ones for policy making?



“from” auditing “to” collaborative practices

- Participatory modelling
- Multi-criteria evaluation
- Scenario workshops



deeper engagements in modelling affairs

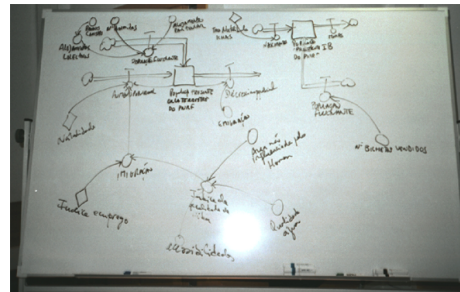
- “Participatory Modelling”
 - d'Aquino, P., Le Page, C., Bousquet, F., & Bah, A. (2002)
 - Hare, M., Letcher, R. A., & Jakeman, A. J. (2003)
 - Yearley, S., Cinderby, S., Forrester, J., Bailey, P., & Rosen, P. (2003)
 - Videira, N., Antunes, P., Santos, R., & Gamito, S. (2003)
 - Castelletti, A., & Soncini-Sessa, R. (2007)
 - Videira, N., Antunes, P., & Santos, R. (2009)

Natural resource management, river basin management, water governance, etc.



participatory modelling

Involves the construction of models, where variables and linkages emerge from the discussions, making use of computer techniques.



Participatory Modelling



deeper engagements in modelling affairs

- Participatory multi-criteria evaluation
 - De Marchi, B., Funtowicz, S. O., Lo Cascio, S., & Munda, G. (2000)
 - Munda, G. (2004)
 - Salgado Paneque, P., Corral Quintana, S., Guimarães Pereira, A., del Moral Ituarte, L., & Pedregal Mateos, B. (2009)
 - Kowalski, K., Stagl, S., Madlener, R., & Omann, I. (2009)

Water governance, energy options, landscape and agriculture options, etc.



participatory multi-criteria evaluation

Involves the construction of an impact matrix of criteria and alternatives throughout the discussions taking place; exploratory; mapping of knowledge and preferences.



to be continued...

Thank you!

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Public Engagement Hub