

MELODI Workshop – 09/10/2013

Risk communication and risk perception

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Types of stakeholders

- Those who have a genuine concern and interest in the project or problem.
 - Tend to be local.
 - More likely to be affected by the decisions you make.
- Those who represent a more wider community.
 - May be sceptical about nuclear and radiological safety.
 - Have a greater ability to impact and influence those around them.
 - Tend to be more vociferous and may utilise technical specialists themselves.
 - They do however play a very important role in the overall debate.

Stakeholders concerns and aspirations

- Is there a risk or not?
 - Stakeholders generally see the world in black or white.
 - If some risk remains should I not worry?
 - Why cant we or shouldn't we eliminate all risk?
- Once a large investment has been made industry often tries to justify the decision irrespective of potential risk (back fit a safety case for example at all costs).
 - Yucca Mountain, Sellafield.
 - Although the nominated site **may** be suitable the perception will be very different.
- We often talk about long timescales when we discuss radioactive waste disposal or environmental remediation. These timescales are generally incomprehensible to the general public.

Communicating uncertainty



Have we successfully built TRUST!

- Is the scientific community trustworthy (bearing in mind who we are seen to represent)?
- Do we base our decisions on the level of elimination of risk to human health and the environment or on funding constraints?
- When we previously have got it wrong, did we admit to our mistakes?
- Do cultural nuances complicate the engagement process?
- We often tend to compartmentalise the assessment process from the stakeholder engagement.
- Do we “talk down” to people? We are scientists so trust us!

Have we successfully built TRUST!

- Do we have the capability to communicate technical information, uncertainty and risk?
- What do we mean by independent? Can you utilise someone who is truly independent.
- Do we hide behind science and modelling (black box syndrome)?
- Do we set targets in advance and try and meet them or merely undertake our work and defend the results we ultimately produce?
- Do we utilise a different language?

Lost in translation?

Millisievert

ALARP

ALARA

Becquerel

Rem

Picocurie

Dose

Do we acknowledge or ignore different points of view?

- The views of a well known UK academic;
Represents a nuclear sceptic position.
Resides on the European Nuclear Energy Forum - Transparency Working Group.
 - Acknowledging other viewpoints is crucial as there are uncertainties in understanding the internal effects from low doses of radiation.
 - Need to explain better the risks from low dose exposures, especially over time.
 - Uncertainty around genomic instability.
 - Uncertainty around the “bystander effect” (on adjacent cells).

Do we acknowledge or ignore different points of view?

- Uncertainties around the effects on the development stages within the womb and early childhood.
 - Synergistic effects (where we have radionuclides and other chemicals together).
 - Conflicting epidemiological studies (German leukaemia study vs COMARE) – people will be confused.
 - Important to admit when you are uncertain of the answer.
 - TRUST is the key!
-
- How do you deal with uncertainty and complexity in scientific data?

Communication of risk

- We need to recognise that an individual's perception of risk and their perception of control over it differs between those individuals.
 - Industry vs non industry viewpoint on radioactivity would differ.
- Weighing risk against potential benefit – should we stress the benefits?
 - Driving at speed.
 - Unprotected sex with a stranger.
 - Undertaking extreme sports.
 - Walking in the city late at night.
 - Smoking and excessive drinking while pregnant.
 - **Smoking**

What do you see?



Have our views changed?

Resorts.

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Dr. Saubermann's lecture before the Roentgen Society, printed in this number of the "Archives."

DESCRIPTION.

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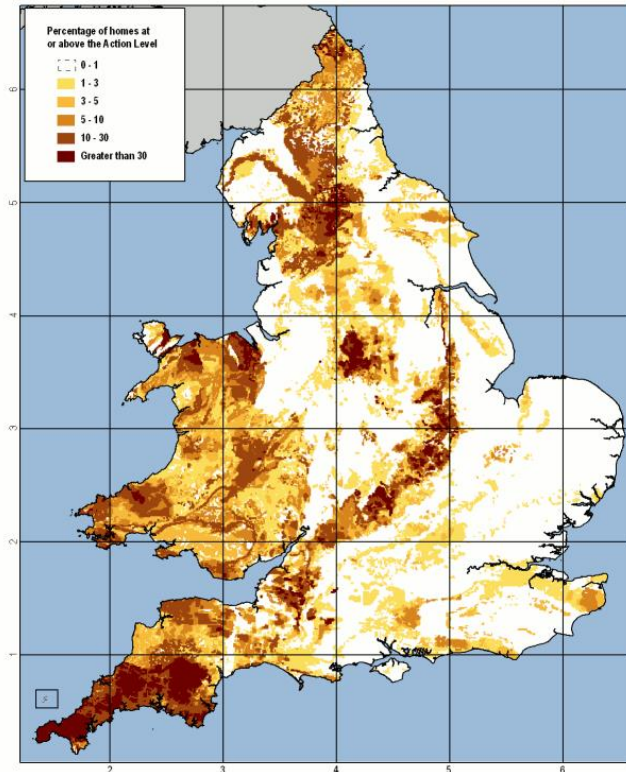


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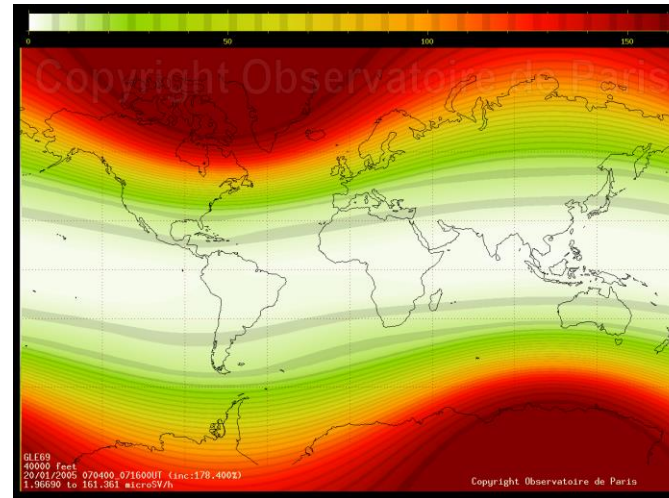
We need to listen more to peoples concerns and aspirations

- My stakeholder engagement experience lies predominantly against remediation, contaminated land, waste disposal and decommissioning.
- We often talk about having to “educate” people – this term can have a very negative effect.
- We try and defend our industry through explaining what we do, how safe it is, the few (if any) fatalities we have – perhaps we need to communicate radioactivity and risk from the other way round.
 - Background radiation.
 - The various uses of radioactive materials.

Radioactivity surrounds us



Overall map of radon Affected Areas in England and Wales (axis numbers are the 100-km coordinates of the national grid)
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Radon potential classification © Health Protection Agency and British Geological Survey copyright [2007]



Cosmic radiation



Brazil Nuts

Radon

Radioactivity surrounds us

Source of Exposure	Dose
Dental X-ray	0.005 mSv
135g bag of Brazil nuts	0.005 mSv
Chest X-ray	0.02 mSv
Transatlantic flight	0.07 mSv
Nuclear power station worker average annual occupational exposure	0.18 mSv
UK annual average radon dose	1.3 mSv
CT scan of the head	1.4 mSv
UK average annual radiation dose	2.7 mSv
USA average annual radiation dose	6.2 mSv
CT scan of the chest	6.6 mSv
Average annual radon dose to people in Cornwall	7.8 mSv
Whole body CT scan	10 mSv
Annual exposure limit for nuclear industry employees	20 mSv
Level at which changes in blood cells can be readily observed	100 mSv
Acute radiation effects including nausea and a reduction in white blood cell count	1000 mSv
Dose of radiation which would kill about half of those receiving it in a month	5000 mSv

Source - Public Health England

Concluding Remarks

- Do we more readily need to acknowledge different points of view?
- How do we increase the level of trust towards the scientific community?
- Do we need to simplify our explanation of risk and change the context through how we explain radioactivity and the potential risk from it?
- Do we act too much like politicians and talk down to people – (I always state that I am a member of the public too)?
- **Ascertaining if social sciences could help with dialogue and communication is a sensible and important goal!**

THANK YOU – ANY QUESTIONS?



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