

Simpósio Minérios & Radioatividade

NORM: Gerenciamento do Ponto de Vista da Proteção Radiológica

Data: 18 a 20 de agosto de 2014

**Local: Instituto de Radioproteção e Dosimetria,
Rio de Janeiro**

Stakeholder involvement in NORM issues – public communications

Envolvimento de stakeholders em assuntos relativos à NORM –
comunicação com o público

Nick Tsurikov, Australia



THE PROBLEM

“Precautionary principle”: in dealing with potentially hazardous technologies the benefit of the doubt must go to the public and not to technologies.

The combination of this principle with the uncertainty about health effects of low level ionising radiation means that a theoretical possibility of “a small dose may cause harm” is transformed into an axiom “a small dose ***most definitely will*** cause harm”.



THE PROBLEM (continued)

→ Over-regulation results in billion dollar costs, despite Linear-No-Threshold dose response model still being just a hypothesis, not a conclusively proven fact.

“Each human life hypothetically saved by implementing the US Nuclear Regulatory Commission’s regulations costs about \$2.5 billion. Such costs are absurd and immoral when compared to the costs of saving lives by immunisation against measles, diphtheria and pertussis, which in developing countries range between \$50 and \$99 per one life saved.” (Z. Jaworowski, 1998)



THE PROBLEM (continued)

- Deep mistrust between the radiation protection profession and the public.
- From one side, those who have the knowledge are not trusted by the public to tell the whole truth, because they are seen as being mainly concerned with their jobs and funding.
- From the other side, the general public is considered by scientists as not being able to understand technical complexities of ionising radiation and the effects of exposure.



THE PROBLEM (continued)

Results:

- Other professionals (often unfamiliar with relevant issues – psychologists, doctors, politicians, etc), “interest groups” and the media, all posing as experts, readily fill in this communication vacuum with minimal or no resistance.
- Radiation has now become a scarecrow, replacing werewolves and vampires... → Numerous comics and movies full of radioactive monsters, government conspiracies, evil scientists, contamination and world destruction, all associated with nuclear disasters.



THE PROBLEM (continued)

At the same time radiation protection professionals place emphasis on publishing in scientific journals and presenting findings at conferences. That leaves little time for communication with the general public.

As long as researchers keep on concentrating their efforts on communicating only within the scientific community, they will continue to be seen as socially isolated “secret” societies, speaking in their own language and using strange equipment for unknown (and therefore potentially harmful) purpose.



Extreme points of view – public:

“I have not consented to any additional radiation exposure, and I draw no personal benefits from it”.

The flaw: in a democracy, not everyone's opinion can be conclusive, but everyone's interests should be considered. If everyone reserved the right to control all decisions, no decisions could ever be made.

“No nuclear expert and no industry scientist should be believed – all of them have vested interests.”

The flaw: the assumption of bias on the part of others is itself biased.



Extreme points of view – professionals:

“Since the public does not understand radiation, the public should not make decisions about radiation.”

The flaw: the general public may be wrong and irrational in its fear of radiation, nevertheless the public has the right to be wrong, at least to some degree, in a democracy.

“People should accept low-dose radiation exposures because, for example, they receive more radiation from a year of frequent airline flights”.

The flaw: It is incorrect to assume that there are no ethical differences between involuntary risks like those from a ‘radiation’ facility, and voluntary risks, like flying.



We are not helping either...

There are different limits and thresholds for:

- Workers and the public,
- Nuclear power, medicine, radon, and exposures from naturally occurring radioactive materials,
- Transport and processing/storage of the same material,
- Transport of the same material (such as concentrates of copper or tantalum containing uranium),
- Planned and existing exposure situations.

Plus:

(a) Radiological units are confusing (Sv, rem, RAD, Gy, Bq, Ci, cpm, etc.)

(b) People are not comfortable with prefixes (pico, micro, milli, mega, giga)



Think about your words

2009 Safety
and Health
Conference
'Raising the Bar'

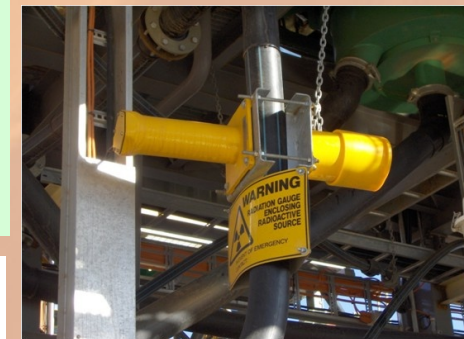
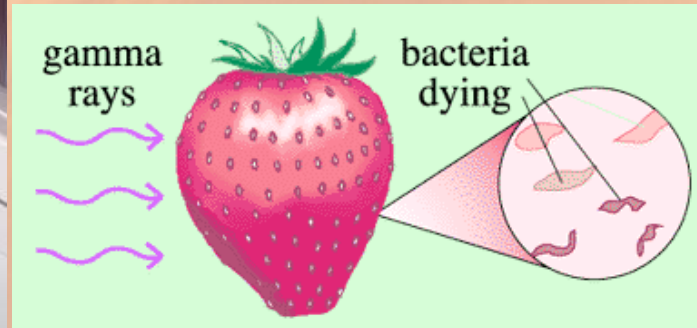
9-10 March 2009
Hyatt Regency Perth

Always check if a word can have a double meaning – depending both on the language and on the local culture



Reality is nothing Public perception is everything

“Good” radiation



CT scan risk higher in WA

Kate Emery, The West Australian
Updated August 12, 2013, 2:30 am



Risk higher: WA patients exposed to higher levels of radiation than patients in other countries. Picture: Ken Maley/The West Australian



Stakeholder involvement in NORM issues – public communications

Reality is nothing Public perception is everything Even better radiation...



Soak in relaxing and therapeutic hot springs

MISASA HOT SPRING

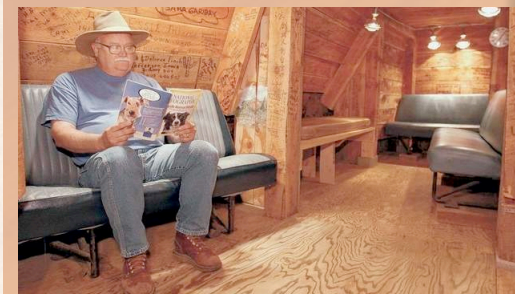
Enjoy special radium hot springs.

Good to bathe in, good to drink, and good to inhale. Hot springs in Misasa provide both physical and mental relaxation. It is said that on the morning of the third day of a stay at Misasa Onsen we feel invigorated. ("Misasa" literally means "three mornings" in Japanese.) The nostalgic atmosphere surrounding the old therapeutic baths adds to our comfort.



Misasa Hot Springs is good for your health: Why Misasa Hot Springs is famous for its healing properties

Misasa hot springs contain one of the highest levels of radium in the world. Radon is a weak radioactive gas produced by the decay of radium. When inhaled into the body, radon improves the metabolism and boosts the immunity and our natural healing power. The fantastic illumination of the Japanese-style lodgings and this "radiation hormesis effect" are familiar to both tourists and people visiting for health treatment purposes.



Corporate / high level management

Sometimes making incomprehensible statements



“It is unlikely any progress [on climate change] would emerge from the Major Economies Forum by way of detailed programmatic specificity.”

(Kevin Rudd, Australian Prime Minister, 2009)

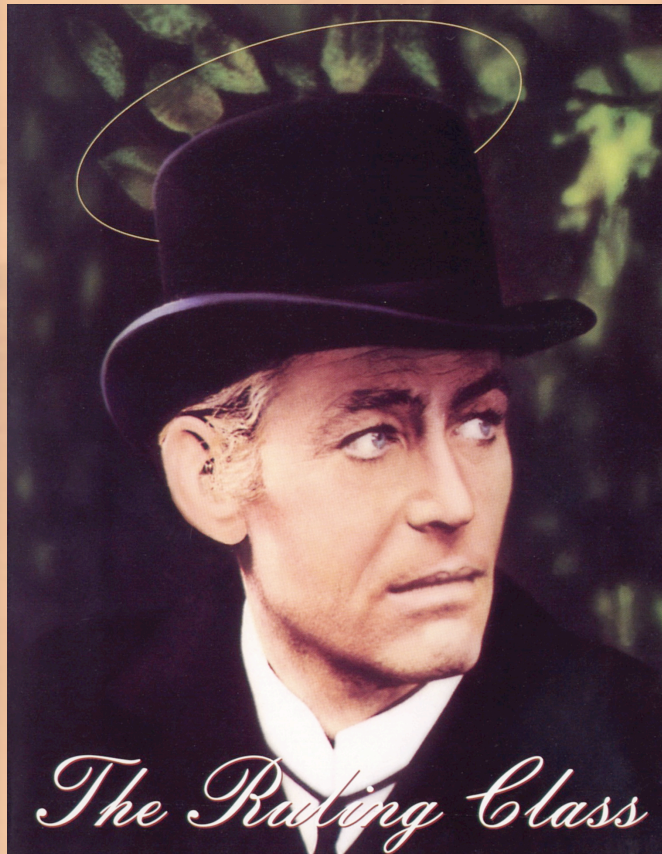
“Rudd-speak confuses Germans, Aussies”, from news.com.au, 9 July 2009



Corporate / high level management

More and more, people in the high levels of management lacking technical knowledge (lawyers, accountants, politicians...) are ignoring both the concerns of general public and the technical advice.

Generating mistrust and resentment...



Ten definitive methods of how to turn this:



Into this:



Method No.1

Do not have a multi-skilled public communications team

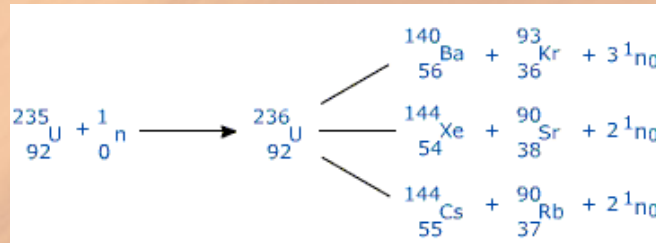


...and have team members who are either afraid of public speaking or are overconfident



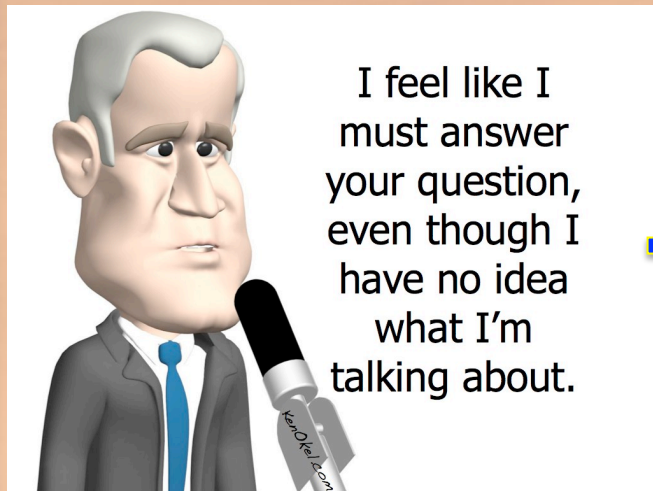
Method No.2

Outsource all public relations to a PR company without supervision: they, as a rule, will have no understanding of the subject.



$$\lambda N = \lambda N_0 \exp(-\lambda t)$$

$$A = A_0 \exp(-\lambda t)$$



Method No.3

Allow 'political managers' make technical statements – they usually have no clue either



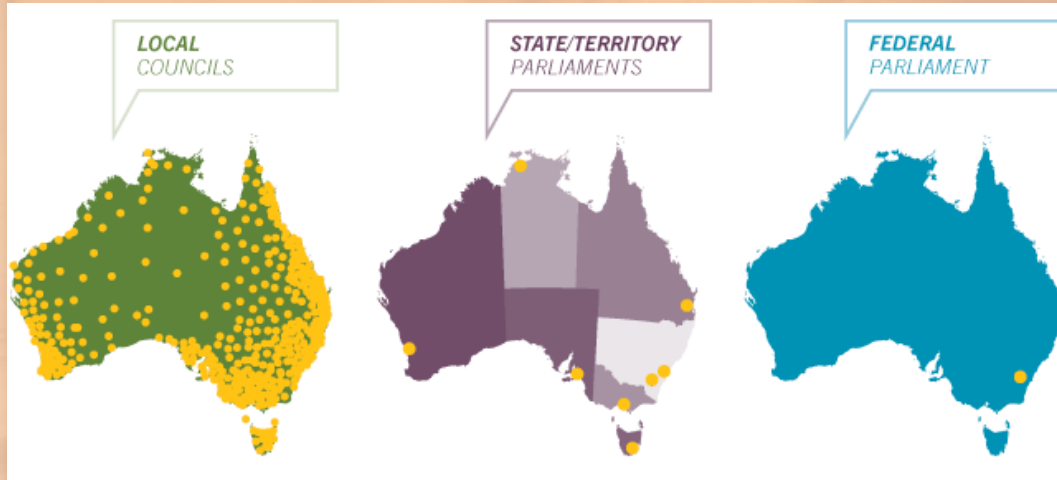
Result:



Stakeholder involvement in NORM issues – public communications

Method No.4

Forget about local politicians and deal only with the central government



Association of Mining Related Councils



Method No.5

Have only 'approved' local public meetings (typically with older residents) and forget that most educated, vocal and environmentally conscious youth is studying in universities elsewhere and extensively use social media.

Corporate communications approach with lengthy vertical chain of approvals does not work.



Use of social media:

- Allows you to get your message across quickly enough to preserve credibility as an information source
- Supports understanding of what information people are seeking



Method No.6

Provide information that you're not sure is correct or verified:

After any public statement is made and put on record, there is no going back and retracting it, ever.

Step 1: "Is your material radioactive?" – "No, it most definitely is not."

Step 2: "Really? Our MP says that it is." – "Oh... wait... It is radioactive... we forgot..."

Step 3:



Method No.7

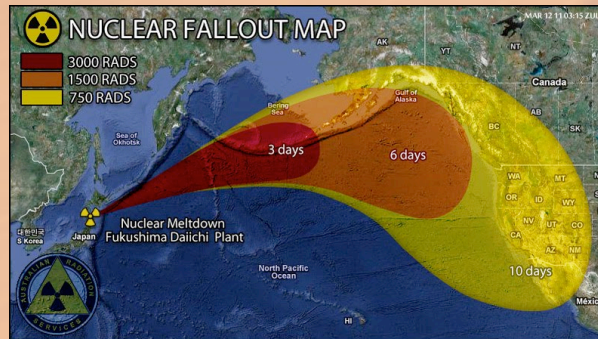
Restrict or ban locals from visiting the site.



Method No.8

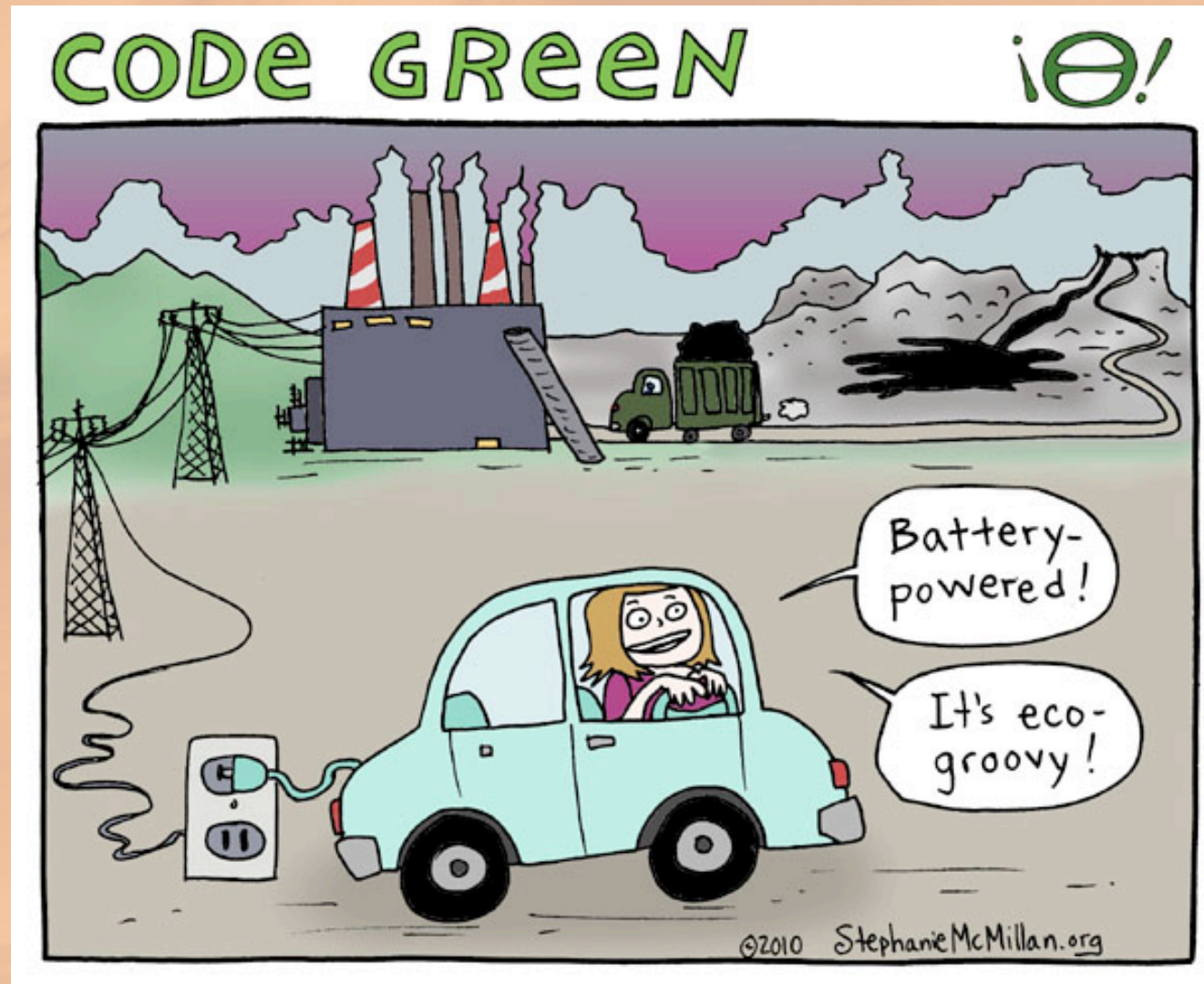
Do not educate all employees properly – it is the uninformed that usually spread the rumors around.

Do not allow employees to freely talk to the public (creates impression that you have something to hide)



Method No.9

Completely ignore integral and associated environmental issues whether perceived or not.



Method No.10

Be unprepared to discuss highly technical issues and explain them to almost illiterate people (possibly at the same meeting).

Four types of people, in order of difficulty of communication:

1. Technical and medical specialists,
2. Illiterate people,
3. People opposing uranium/nuclear *in principle*,
4. Indoctrinated people.

None of the above groups should be ignored.



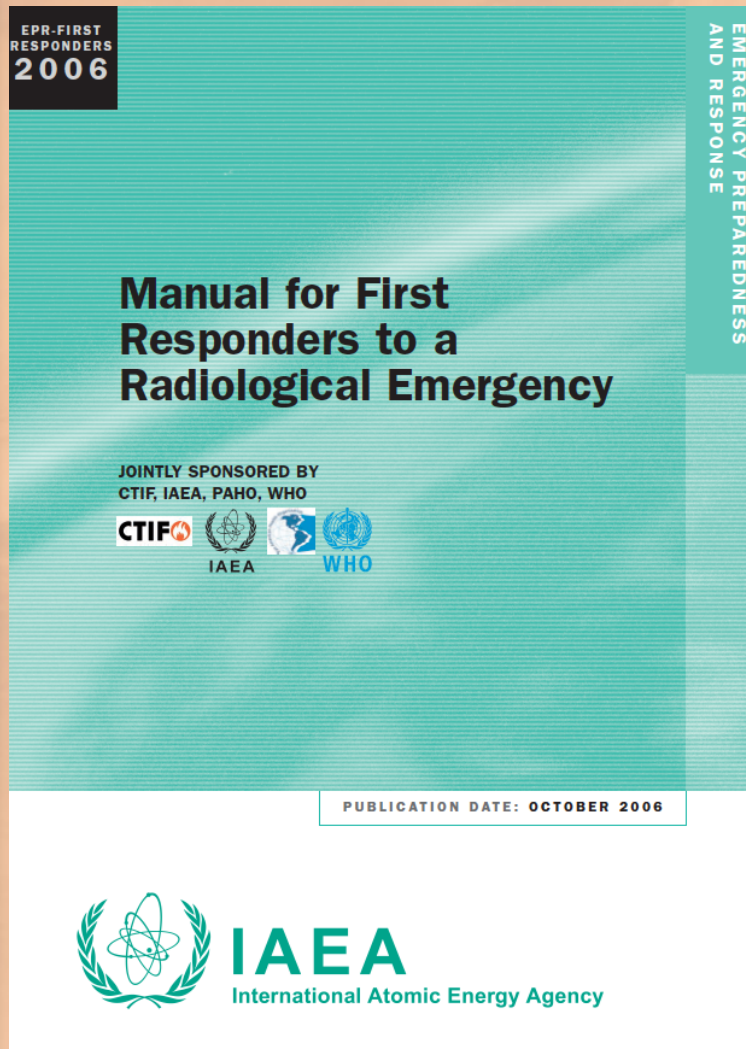
Method No.10

Example of management of NORM tailings:

1. **Technical and medical specialists:** charts of solubility of ^{238}U , ^{234}U , ^{232}Th , ^{230}Th and ^{210}Pb depending on pH and chemistry, diagrams of the processing of tailings treatment to immobilize ^{226}Ra , chart of half-life of ^{228}Ra , description of liners used in construction, drawings of tailings covers to eliminate ^{222}Rn and ^{220}Rn emanation and erosion in the foreseeable future.
2. **Illiterate people:** exactly the same information but without any technical details and terminology.
3. **People opposing uranium/nuclear *in principle*:** the opposition must be respected and acknowledged and emphasis placed on the actual levels of exposure, now and in the future.
4. **Indoctrinated people – most difficult** and in many cases will require face-to-face communications.



Conclusion



“All serious nuclear and radiological emergencies have resulted in the public taking some actions that were inappropriate or unwarranted, and resulted in significant adverse psychological and economic effects.

These have been the most severe consequences of many radiological emergencies.

These effects have occurred even at emergencies with few or no radiological consequences and resulted primarily because the public was not provided with understandable and consistent information from official sources.”



Thank you for your attention

nick@calytrix.biz

