User Committees and Responsible Research and Innovation

NanoSafetyCluster Review Meeting

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Coördinator:
Dr Pieter van Broekhuizen
IVAM UvA, Amsterdam

This presentation

- Some thoughts about *Responsible Research & Innovation (RRI)*
- NanoDiode: some early experiences of User Committees and workshops on regulatory research

EC framing of *responsible* development of nanotechnologies

- EU should be in the frontline of development
- Contribute to solve persistent societal problems and increase welfare
  - Sustainable development (PPP) /Equality men and women /Improvement of quality of life
- Safe use, without harm for consumers, workers and the environment, along the full product life cycle Safe by Design
  - Ethical acceptability: Compliance EU charter fundamental rights / Products with acceptable risks
- Contribute to *Responsible* Research and Innovation (RRI)
- Involvement of 'all' stakeholders in steering of NTs
- Preferably no new regulations, rather reduction of existing

Responsible Research & Innovation
RRI

RRI: an approach suggesting changes in the way R&I is *driven, carried out and evaluated*.

*"**RRI** is a transparent interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)."*

Von Schomberg (2011)

Some key words for RRI

Anticipatory

- Include new persectives in the R&I process
- Design robust agenda's for risk research and risk management

Inclusive

- Involve stakeholders in the process

Reflexive

- Reflect on ethical, political, social assumptions, raising awareness

Responsive

- Means the capacity to change direction or shape if developments do not match with social needs or are ethical contested

Key question:

How to 'operationalise' RRI ?

Practical problem:

Translation of theoretical notions into practical action.

Operationalising the Precautionary Principle

Leitmotif for governmental- and industrial policy

Precautionary Principle in Keywords

- Likeliness of adverse effects
- Scientific uncertainty
- Priority for workers safety and environment
- Don't wait for the effect to occur
- Proportionality
- Seriousness of the potential effect
- Agreed level of protection
- Deliberative process

Deliberaton between: Government ⟷ Industry ⟷ CSOs

Dilemma of balancing

- Chances/opportunities
- Costs – Claimed Benefits
- Industrial interests
- Desirability product

- Health /Environmental Risks
- Concern level /uncertainties
- Burden of Proof
- Measures / Timing

Consequence of RRI and PP for design and development of R&I

Early stage communication:

- Obtain relevant knowledge on consequences of outcomes and options
- Effectively evaluate outcomes and options in terms of moral values, e.g.
  - *Well-being, justice, equality, privacy, autonomy, safety, security, sustainability, accountability, democracy and efficiency*
- Use these findings as functional requirements for design and development of new research, products and services

NanoDiode - ***Developing Innovative Outreach and Dialogue on responsible nanotechnologies in EU civil society***

Stakeholder engagement in Nanotechnologies, focus on Citizens, CSOs and Downstream Users

14 partners from NL, BE, FR, ES, IT, AT, DE, PO, NO, UK

- Research organizations
- Consultancies
- Employers organizations
- Trade Unions
- Nano Network Organizations
- Consumers organizations
- Artists
- Journalists organizations

Coördinator NanoDiode:
IVAM UvA, Amsterdam
Dr Pieter van Broekhuizen

EU FP7 *NMP-2013 Coordination and Support Action*
www.nanodiode.eu

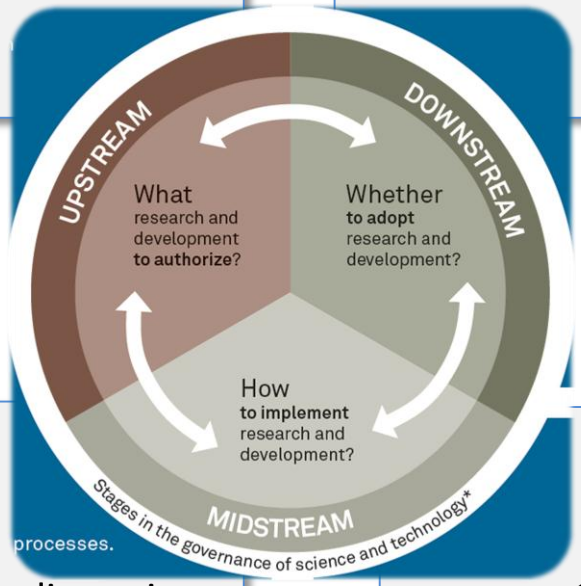
NanoDiode workprogramme

- **European citizens' Surveys and interviews**
  - ✓ views on priorities for NT innovation
- **Multi-stakeholder dialogues**
  - ✓ addressing societal and ethical challenges

DOWNSTREAM ENGAGEMENT

- **Education strategy and action plan**
  - ✓ best practices
- **Capacity Building NT in the workplace**
  - ✓ Workers oriented 'Community of Practice'

UPSTREAM ENGAGEMENT



MIDSTREAM ENGAGEMENT

- **User Committees**
  - ✓ Researchers, CSOs, End-Users discussing research aims and societal needs
- **Regulatory research**
  - ✓ Transparency and confidentiallity

DISSEMINATION

- **Outreach and communication**
  - ✓ Nano Bazar (pop-up stores)
  - ✓ Nano-Gallery
  - ✓ Video clips on nanotechnologies
  - ✓ Creative dissemination activities

Many questions in NanoDiode

- **Dialogue and outreach on the edge of innovation and ethics:**
  - Understanding what *responsible* research and innovation means
  - Do we need the new technology?
  - Can we benefit from it? Who benefits ?
  - What are the risks? Can they be assessed or are we talking about concerns?
  - What are the uncertainties?
  - Can we make the precautionary principle operational?
  - Can we control the risks?
  - Can we influence the direction of research and innovation?
  - Do we get enough information (traceability)?

User Committees in 5 countries

NL: **Nanotechnologies for wastewater treatment**

- Professional water treatment, management and production
- Challenges and risks

IT: **Nano-Silver**

- Nano-Ag for antibacterial, cleaning, disinfection, de-pollution and self-cleaning applications

FR: **Nanotechnologies for new energy resources**

- For professional end-users *and* consumers
- Solar energy – environmental impacts

AT: **Nanomedicine**

- "How can society benefit from medical nanotechnology?"

DE: **Nanomaterials for building and housing**

- Focus on consumers and professional end-users.

Challenges
UC-Water and UC-Ag

Development of water NTs
- Treatment of waste water
- Production of drinking water

Development of nano-Ag NTs
- Professional and consumer products

- Problems to be tackled
- Cause - consequences

- New adverse effects
- Emissions
- Environmental pollution
- Bacterial resistance
- Risk governance frame

- Social issues
- Organizational issues
- Costs / Benefits
- Priorities
- Trust / distrust
- Communication

Assessment of potential beneficial applications ..... a challenge !

Many other issues

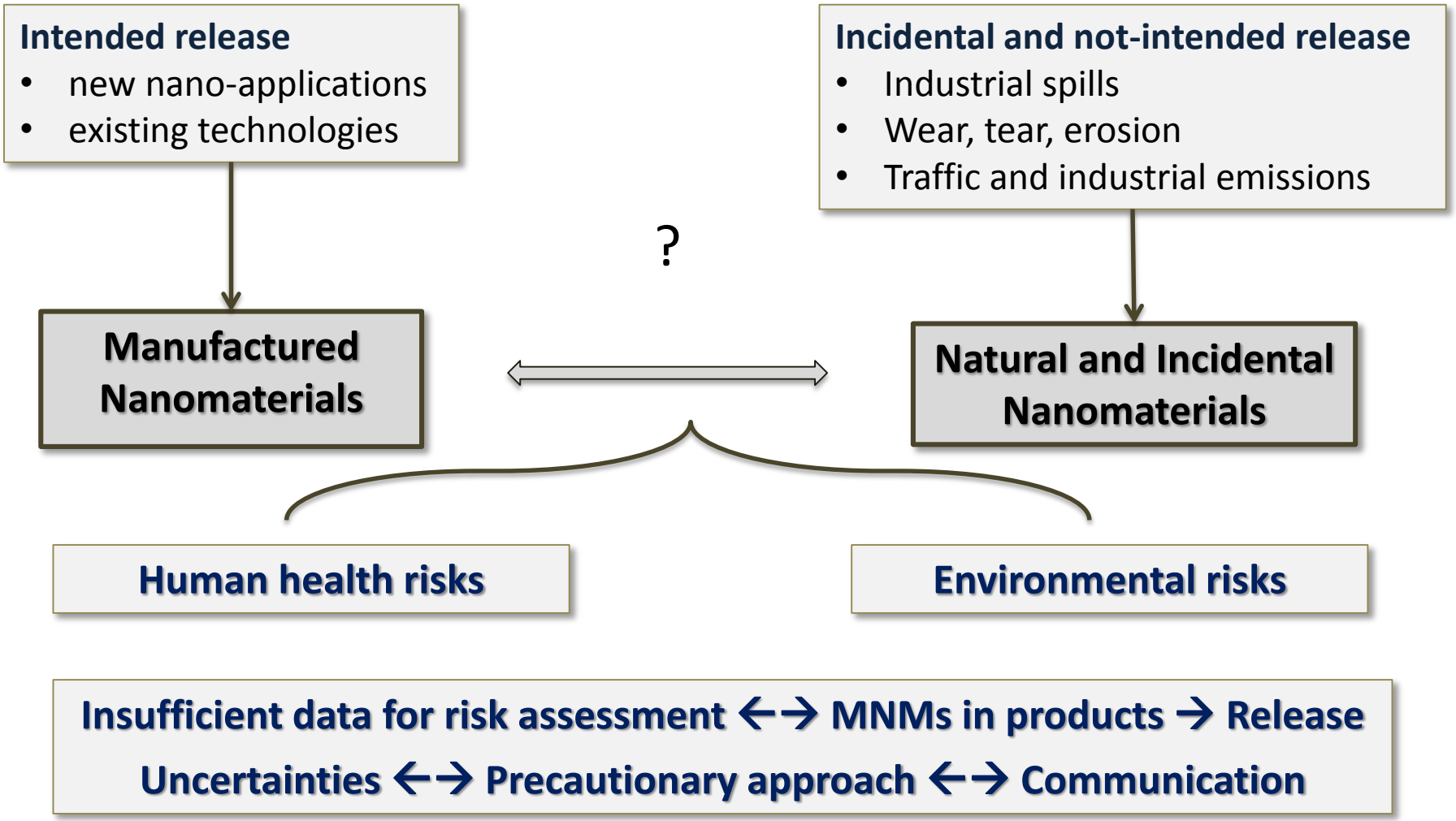
Thorough understanding of
- The technology
- The existing systems
- Materials available

- Practical tests
- Long term efficacy

• Training new skills workers / management / consumer

From Science to Technology
- Fundamental ←→ Applied focus
- Natural + Social sciences approach

Uncertainty and Risks
Risk Assessment



Preliminary conclusions

- For CSOs and downstream-users (DU) **risk issue** remains the dominant item
- Risk discussion predominantly focussed on **1st generation NMs** (2nd and 3rd generation are image forming)
- Currently CSO/DU interest in engaging with **policies** steering science and technology is limited
- For 'nanoscientists' the **fundamental focus** is dominant, little priority for risk research
- **Upscaling** from science to market technology is a key issue (not thought to be a task for the nanoscientist → consequently low orientation on CSOs/DU)
- Poor **communication** of risk researchers with citizens / CSOs /DU
- Task for researchers: **pro-active attitude** towards involving CSOs/DU in research, design and development (also for **risk** researchers)
- E.g. in H2020 projects establish Calls preconditioning **active role** for User Committees
- SDS for nanoproducts: information only on **identified risks**, not on non-identified risks
- Nanomaterials **registries** (FR, BE) and labelling do not inform about safe use
- **Trade Secret Directive** (2015) expected to have a negative impact on transparency
- Industry urgently needs a **'positive' list** of acceptable nanomaterials

Many questions

Much deliberation

Many drawbacks to overcome

Pieter van Broekhuizen

IVAM UvA
Plantage Muidergracht 24
1001 ZB Amsterdam
The Netherlands
00 31 20 525 5080
pvbroekhuizen@ivam.uva.nl
www.ivam.nl

EU FP7 *NMP-2013 Coordination and Support Action*
www.nanodiode.eu