

Press release: The future of nanotechnology – we need to talk

New report says we need to talk now about nanotechnology and what we want from it if we are going to avoid public backlash.

- For immediate release -

Riots on the street, polluted drinking water and mass fish deaths? Or a source of carbon free energy, enabling the EU to meet its Kyoto targets whilst powering our homes and business?

These are just some of the features of scenarios developed through the Nanologue project, a 21-month EU funded project looking at the social, ethical and legal implications of nanotechnology.

Speaking about the project, Volker Türk, Project Co-ordinator from the Wuppertal Institute says “Results from the Nanologue project show that we have a choice in how technology develops – but the choices we make now will have considerable consequences for the future. During the past 21 months, Nanologue has raised a lot of interest among experts as well as civil society actors. We have helped to prepare the ground to enhance the dialogue on ethical, legal and social aspects of nanotechnologies. The scenarios, tools and practical project results will facilitate to translate the ongoing discussion into action.”

One of the project’s main results is the report *The future of nanotechnology: We need to talk*. It consists of three scenarios of how nanotechnology will have developed by 2015:

- In the first scenario, Disaster Recovery, a lack of regulation results in a major accident. Public concern about nanotechnology is high and technology development is slow and cautious.
- In the second scenarios, Now We’re Talking, strong regulation and accountability systems are in place. The technology has been shaped by societal needs and strong health and safety concerns.
- The last scenario, Powering Ahead, entails scientific progress which occurs faster than expected. Nanotechnology is making a real impact, particularly in energy conversion and storage.

The scenarios were developed through consultation with scientists and other experts in the field of nanotechnology and should assist people interested in nanotechnology to think about its place in society in a structured way.

“It’s important that we learn the lessons from the introduction of GM,” says Hugh Knowles, sustainability advisor at Forum for the Future and one of the authors of the report.

“In that instance there was a total lack of forward thinking while the science was being developed and people weren’t consulted on the issues that really mattered.”

At the relatively early stage of the development of nanotechnology, there is still the opportunity to put systems in place that maximise the benefits of nano-related products and minimise the risks of manufacturing, using and disposing of them.

“But such systems must be developed through informed dialogue involving the key stakeholders” believes Hans Kastenholz of EMPA.



The report is just one of the deliverables from the Nanologue project. Another is a web-based tool - the NanoMeter - that allows researchers and product developers to understand the societal impacts of their applications during product research and development in a quick and easy way.

“Offering the most relevant societal implications identified during the Nanologue project the NanoMeter serves as a useful starting point to guide the internal discussion during the development phase of new products and technologies” explains Holger Wallbaum of triple innova.

“Both tools – the Nanotech 2015 scenarios and the Nanometer – can be helpful guides to a sustainable and successful future of nanotechnology”, adds Volker Türk.

The report and the NanoMeter can be found at www.nanologue.net.

For more information on the Nanologue project please contact Volker Türk on +49-202-2492-152 or at volker.tuerk@wupperinst.org or one of the project partners.

Notes to the editor

Nanoscience is a convergence of physics, chemistry, materials science and biology, which deals with the manipulation and characterisation of matter on length scales between the molecular and the micron size (scale of 0.1 nm to 100 nm).

Nanotechnology is an emerging engineering discipline that applies methods from nanoscience to create products and control processes on the nanometre scale.

Aiming to bring together current leading research on the social, ethical and legal implications of nanotechnology the **Nanologue team** has provided a common ground for a discussion by assessing important ethical legal and social aspects of nanotechnologies with the help of literature studies and stakeholder interviews and workshops.

The Nanologue results provide guidance for various stakeholders, including developers of nanotechnology, on how to address the issues to the wider benefit of both society and the economy (see www.nanologue.net).

The following results are now available to facilitate future dialogues on ethical, legal and social aspects of nanotechnology applications:

- **Definition** of important ethical, legal, and social aspects (ELSA).
- Literature review: **Analysis of past discussions** on ethical, legal and social aspects of nanotechnology.
- Looking closer: **Background** Study on important ethical, legal and social aspects with regard to the application fields **energy, food packaging** and **medical diagnostics**.
- Status quo of the discussion: **Opinions** by researchers and civil society (results of interviews and stakeholder-workshops)
- **NanoMeter**: Tool for quick online assessment of ethical, legal and social implications in the research and development phase of nanotechnology projects.
- Analysis of trends and driving factors: **Nanotech 2015** – Scenarios what the future might look like (available as pamphlet and as short summary under www.nanologue.net).

The Nanologue project has been funded by the European Union as a Specific Support Action in the NMP work programme (Nanotechnology and nanosciences, knowledge-based multifunctional materials, new production processes and devices) of the sixth framework programme ('FP6-2003-NMP-TI-3-main'). Nanologue was led by Wuppertal Institute in Germany and featured consortium partners EMPA (the Swiss Federal Laboratories for Materials Testing and Research) in Switzerland, Forum for the Future in the UK and triple innova of Germany. The project lasted 21 months.



Volker Türk of Wuppertal Institute says:

Science Centre
North Rhine-Westphalia
Institute of Work
and Technology



Institute for Culture
Studies

**Wuppertal Institute for
Climate, Environment and
Energy**

"During the past 21 months, Nanologue has raised a lot of interest among experts as well as civil society actors. We have helped to prepare the ground to enhance the dialogue on ethical, legal and social aspects of nanotechnologies. The tools and practical project results will facilitate to translate the ongoing discussion into action."

The **Wuppertal Institute for Climate, Environment and Energy**, (www.wupperinst.org) founded in 1991, is committed to application-oriented sustainability research and has long-term experience in **assessing opportunities and challenges of technologies**. Based on interdisciplinary research results and scientists' professional know-how, the institute possesses large experience in developing methods and shaping new research fields in networks and across disciplines and institutions. By researching for politics, economy and society the institute plays a wide reaching meditative role. As member of the interdisciplinary Science Centre North Rhine-Westphalia, including the Institute for Work and Technology it is part of a larger international network of institutes focusing on the (sustainability) assessment of technologies.

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Hans Kastenholz of EMPA says:

"We are at a relatively early stage in the development of nanotechnology and so we have an opportunity to put systems in place that maximise the benefits of nano-related products and minimise the risks of manufacturing, using and disposing of them. Such systems must be developed through informed dialogue involving the key stakeholders. Tools, like the Nanometer and the Nanotech 2015 scenarios, which have been developed in the Nanologue project, will give guidance in strategic planning and exploring possible futures in the development of nanotechnology."

EMPA (www.empa.ch) is the ETH (Swiss Federal Institutes of Technology) domain's institution for multidisciplinary research into sustainable materials and systems engineering. As an independent, neutral research institution, EMPA solves selected tasks and problems of a scientific and technical nature. EMPA is most **active in nanotechnology** and is generating new knowledge, new materials and new applications and is transferring this know-how to potential users. Nanotechnological reliability factors play a major part in EMPA's research.

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Hugh Knowles of Forum for the Future says:

"Media coverage of nanotechnology has tended to be either hugely negative or absurdly positive. The aim of this project has been to engage in a more responsible and productive debate, where both the risks and opportunities associated with nanotechnology can be assessed sensibly."



Forum for the Future

Founded in 1996 the UK's **Forum for the Future** (www.forumforthefuture.org.uk) is a leading sustainable development charity. Our aim is show that a sustainable world is both possible and desirable. We work with leading organisations in both the public and the private sectors to bring this about.

Hugh Knowles

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Prof. Dr.-Ing. Holger Wallbaum of triple innova says:

"The development and distribution of nanotech products poses new challenges in terms of dialogue and risk management. Large investments are significantly put at risk if R&D activities lack the examination of relevant societal implications. Offering the most relevant societal implications identified during the Nanologue project the NanoMeter serves as a useful starting point to guide the internal discussion during the development phase"

triple innova (www.triple-innova.com) founded in 2002, is a Pan-European applied research and training organisation on triple bottom line (TBL) tools, methods and innovation concepts for enhanced global product network management. It works on awareness raising about the importance of an integrated understanding of social, cultural, environmental and related legal aspects among decision maker in business, academia and politics. It develops solution-oriented concepts to investigate in technical and organisational TBL improvement opportunities in a single organisation and in a network of organisations. It helps to facilitate communication and information sharing in interdisciplinary and intercultural networks.

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