Continue dialogue on nanorisks and regulation

Current trends in Communicating Nanoethics

Interview with Prof. Dr. Armin Grunwald, director ITAS / TAB, Germany

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Abstract

Professor Armin Grunwald has been playing a leading role in the political and stakeholder dialogue on nanotechnology and society for years, in Germany and internationally. In Germany, projects related to nanotechnology by the Technology Assessment Organisations he leads (TAB/ITAS) (2001-11) have played an important role in discussions in the Parliament (Bundestag). These discussions have contributed to the development of government action plans for incorporating promotion of innovation as well as risk assessment, regulation and dialogue. Professor Grunwald considers the discussion on nanorisks and regulation identified already in 2003 an ongoing concern. Some German policy makers and industrialists stimulate early public engagement with nanotechnology as the way to create public acceptance, but Professor Grunwald is sceptical. Under the header of Communicating Nanoethics, ObservatoryNano aims to highlight key findings and developments in current dialogues and public engagement activities at EU level and in Member States and other countries. This way, emerging issues not discussed sufficiently and best practices in communication on ethical and societal aspects of nanotechnology can be identified and brought to the attention of policy makers in the fourth annual report on communicating nanoethics to be published online in the spring of 2012.

Ineke Malsch: TAB was probably the first to systematically assess ethical and societal aspects of nanotechnology[1] in a report published in 2003.[2] What was the reason for engaging in such early warning technology assessment of nanotechnology at that time?

Armin Grunwald: The interesting thing is: I nor any staff members of ITAS/TAB initiated the study on nanotechnology at that time. The German Bundestag (Parliament) identified nanotechnology as a topic. It was a request of Members of Parliament who came to us and asked for a study. It was on the political agenda in 2000 or 2001. It was shortly after the

[1] http://www.tab-beim-bundestag.de/de/publikationen/berichte/ab092.html

[2] TA Swiss published a more limited study exploring ethical and societal aspects of nanomedicine in the same year: http://www.ta-swiss.ch/?uid=91

establishment of the National Nanotechnology Initiative in the USA[3], and in the early stages of the Bill Joy-debate.[4] This debate reached Germany in 2001. The Members of Parliament were aware of the high expectations and innovation potential but also of the possible risks discussed in the Bill Joy-debate. I think this combination of hope and hype, and concerns about risks were the main motivation for the Parliamentary Commission to ask TAB to do the study.

Ineke Malsch: Looking backwards, how do you evaluate this early engagement with nanotechnology?

Armin Grunwald: Yes, it was a really good initiative. There have been many follow-up activities afterwards. Most activities were in the framework of nanotoxicology. In our TAB study it was the first time in Germany that the problem of nanoparticles and possible risks to human health and the environment was addressed. We made many recommendations to create a structure for research on impacts of release of nanoparticles. It had implications for the level of risk research funding. The German ministries made available funding for research into nanotoxicology. That was a very good story. I am not too happy that the study was published only in German. You may be the first to recognise that this study was probably the first. Most people consider the UK Royal Academy / Royal Academy of Engineering study, one year later, to be the first comprehensive study.[5] Not many people outside Germany were aware of our study which had to be published in German. This was a rule of the German Parliament. In the mean time, several other relevant TAB studies have been translated into English. However, to present the first nanotechnology study we organised a public conference in 2003. This was new at that time. Normally the Parliament does not like public participation in Parliamentary Commission work. That was the first time the Parliament organised a public presentation of TAB results and it was one of the first events to bring nanotechnology to the public debate.

Ineke Malsch: What has the subsequent discussion in Germany and internationally contributed to responsible governance of nanotechnology?

Armin Grunwald: The main contribution might be the debate on nanoparticles. Nanotoxicology and the debate on possible regulatory measures is a large debate, in which different stakeholders participate. To the other part of the debate, the more futuristic Bill Joy debate, I don't think Germany has contributed much. Nowadays, this debate has more or less stopped.

[3] http://www.nano.gov/
[4] http://www.wired.com/wired/archive/8.04/joy.html
[5] www.nanotec.org.uk

Ineke Malsch: During the conference on Societal Responsible Innovation (MVI) 18-19 April 2011 in Den Haag[6], you reflected on the particular German context in which Technology Assessment has developed: a strong emphasis on representative democracy inhibiting experiments with direct democracy in the dialogue about science and technology development. Since this year, the ministry for education and research BMBF is stimulating citizens' dialogue about technology and society and has announced citizens' dialogue about nanotechnology.[7] What is behind this apparent change?

Armin Grunwald: There is no change at the level of the Bundestag. TAB studies usually don't include participation and when we do include experiments with participation; Members of Parliament usually don't like it as part of TAB projects. In society in general and other parts in the political system, there is a change. It has to do with the insight that technology developed today will not have acceptance per se. Policy makers are worried about rejection. The nuclear power story is influential. They are worried that this sentiment may spread. The Bill Joy debate has raised concerns in 2003-2004 that nanotechnology may be the next bad story in the communication between science and society. Many people expected that an anti-nano movement would occur. They are initiating debate in the conviction that this will help to actively promote acceptance. This view is common in parts of the political system and in industry. They hope that rejection, controversies and trouble could be avoided by early engagement with citizens and stakeholders. Many expect that participation should be done very early and that acceptance will follow as a consequence. I don't believe in this if it is understood as a simple causality. Public debate is not a technocratic means to create acceptance.

I was a bit surprised by the initiative of BMBF towards citizen's dialogues, which is included in the coalition treaty of the present government of Christian Democrats and Liberal Democrats. In the past, left wing parties were in favour of participation, now right wing parties take the initiative. There is a change in public and political perception of how science and technology should be implemented in society, but this is related to democracy only to a lesser extent. It has more to do with the issue of acceptance.

It is an open development; I don't know where we will be in two or five years. There are groups with a more technocratic understanding have high expectations that acceptance could be created in a socio-technical way by participation. Others are criticising it and think the expectations are too high or wrong. It is an experiment at national level and the outcome is

[6] http://www.nwo.nl/nwohome.nsf/pages/NWOP_7XREMY
[7] http://www.buergerdialog-bmbf.de/ - http://www.bmbf.de/de/nanotechnologie.php - http://www.bmbf.de/pub/aktionsplan_nanotechnologie.pdf

uncertain. I am in favour of organising citizens' dialogue and other activities because of ideals of deliberative democracy. But I am sceptical about too high expectations towards creating acceptance.

Ineke Malsch: Are there remaining issues or aspects of responsible governance that merit further specific public, political or stakeholder dialogue on nanotechnology? Or is a shift in focus needed? If so, in what way?

Armin Grunwald: I am not aware of any large gap or deficit in the debate so far. There is a need for further debate on nanoparticles and nanomaterials in food and food packaging. This has not been debated very well so far. Industry usually does not declare transparently whether nanoparticles might be in the food. In the coming years, a more careful debate should be organised, closer to real developments. BUND, Friends of the Earth Germany published a study in 2008 but this was not picked up in a broader public dialogue. Industry is not very open in this field. The food area could be a field where new approaches should be established.

It might be that nanotechnology as an umbrella term has been discussed sufficiently. It is very broad and has been dissolved into "Convergng Technologies". The discussion might be dissolved into branches, such as on chemical regulation of nanoparticles etc. At a societal level, there is nowadays more interest in Synthetic Biology. Some years ago the focus was on Human Enhancement. Public interest is subject to fashions or "Zeitgeist", and has often little to do with real concerns. Policy makers and advisors, but also organisations like Nanoforum should not follow hypes but stick to real challenges. At ITAS we will continue risk assessment and develop better methodologies. Despite apparently decreasing public interest in mass media, the real challenges remain.

In the TAB report of 2003, we already included a part on risk assessment. But still, there is no good knowledge base on possible hazards and release into the environment. Much research still has to be done in this field. We will continue our efforts to do risk assessment, and the debate on the outcomes is an ongoing field of interest for the international community. At the stage of research and debate on science and policy advice it will remain an interesting field for years to come.

There is also an emerging debate on synthetic biology, related to nanobiotechnology, nanobiology and nanobionics. It combines technology in the more traditional sense with living systems at the interface between technology and life. Nanotechnology, biology and engineering are combined. We will have a continuing debate for years. Synthetic Biology will be the denominator, but this debate could benefit from the findings of the nanotechnology debate. This is the next large debate in the field of emerging science and technology.

Ineke Malsch: It appears that a wide variety of stakeholder groups and publics has been engaged in dialogue about nanotechnology in Germany. Have all relevant groups been included? Which groups should continue to be engaged according to you? In what way?

Armin Grunwald: Many attempts at organising dialogues have been made, but often the organisers had difficulties attracting participants. Nanotechnology is still unknown to many people, and most of them were not really concerned. Personal concern is usually the motivation for participating in any debate. Public debates with citizens were not easy. Debates with stakeholders and civil society organisations have been easier to organise. There has been openness to all relevant groups but I don't know if all of them really participated in these events.

Two types of groups have been engaged: groups who could get into direct contact with nanoparticles through products such as food and maybe textiles and clothing, and groups concerned with release of nanoparticles into the environment, possibly resulting in non-intended consequences. Activities are undertaken in both areas, and these should continue. Probably the discussions should be closer to applications and concrete products in the market. I expect this to happen.

Ineke Malsch: Has a need for particular new regulation or voluntary measures to govern responsible development of nanotechnology become apparent in the dialogue? At which level should such measures be taken (national, EU, global)?

Armin Grunwald: Already in our TAB study in 2003 we addressed the need for regulation. We were convinced that new regulations would be needed. Afterwards this debate disappeared. In 2007, the German government stated that nanospecific regulations would not be necessary. But then, the European Parliament intervened, and the European Commission proposed a code of conduct. Now the debate has re-emerged in Germany.

One or two weeks ago, SRU, the expert commission on environmental issues published its advice to the federal government and made strong recommendations.[8] They propose regulations even in the case of "abstract concerns". This goes further than the precautionary principle, which requires action in case of "reasonable concerns". SRU advises to make it obligatory to declare the presence of nanoparticles in food or other products and suggests defining "procedures of approval" that should be respected before market entry. This is a follow-up of the European debate on the code of conduct for nanotechnology. This report may have real impact. The addressee is the German government, so the impact will be mainly at national level.

[8] www.umweltrat.de

The European Commission should also take notice. Personally I think the European level is more appropriate for regulation, because of European integration and the fact that national borders are not relevant to possible problems with nanoparticles. On the other hand, each country has a different regulatory tradition and different willingness to take risks. Regulation in larger countries could be easier at national level. I would prefer the EU-level.

That is the problem with global governance, there is no addressee who could regulate. There are some activities in transnational and international bodies but these are more platforms for dialogue, exchange and assessment of the state of knowledge. Nanotechnology could benefit from a similar body as the Intergovernmental Panel on Climate Change IPCC that collects and assembles knowledge on nanotechnology risk assessment and publishes annual assessment reports. Nothing like this is happening now. This could be an advice to OECD for example.

Ineke Malsch: What can the European Commission or other governments interested in stimulating dialogue on responsible development of nanotechnology learn from the German experience?

Armin Grunwald: I want to be modest. The German story about nanotechnology has been a good story, but perhaps not the best. Different countries have different traditions on public dialogue, science in society, risk debates etc. It is difficult to translate between them. What could be learned from Germany is that public debate on new emerging fields of science and technology should be started very early, despite the fact that the citizens concerned lack awareness. Dialogue should be started in an open way, not technocratic and industry should be engaged from the beginning. Our chemical industry council DECHEMA has been participating from an early stage and has been open about the risk issue: we don't know the risks but are conducting research. This is an example of good communication without fundamental opposition or criticism. This type of dialogue is the best possible in very early stages and can also be useful for future debates in other countries and areas of research.

Ineke Malsch: How do you see your own role in the continuing dialogue on responsible (nano)innovation?

Armin Grunwald: I have ten years experience in this discussion. In 2000 we had the first discussion in ITAS, then about the potential of nanotechnology for sustainable development. Our first contact was with the chances offered by nanotechnology rather than the risks. As a philosopher I already did most of my work, in publications about nanoethics and the precautionary principle. The next steps should be

taken by risk assessment specialists and regulators. The discussion should be closer to concrete products. I will not be able to contribute much, except for observing the field, and giving advice and interviews. As director of ITAS/TAB I will focus on risk assessment and participate in ongoing public debates, events etc. We will continue our focus on risk assessment. Our responsible staff members including Torsten Fleischer are continuously invited to such events, the NanoKommission[9] etc. We will continue to contribute to public debate in the next years.

Identification

Name:	Prof Dr Armin Grunwald
Function:	Director
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Role in debate on nanotechnology, ethics and society: As leader of ITAS and TAB, Professor Armin Grunwald has been playing a leading role in the political and stakeholder dialogue on nanotechnology and society for years, in Germany and internationally. As physicist and philosopher, he has demonstrated deep understanding of the ethical implications of nanotechnology and of the societal context in which nanotechnology is developing. Grunwald is also a board member of the Austrian NanoTrust project and ITAS is a partner in the international Society for the Study of Nanoscience and Emerging Technologies S.Net.

Relevant recent projects and publications

At ITAS, Nanotechnology is among the focus areas in the research area Innovation Processes and Technology Assessment: http://www.itas.fzk.de/deu/itas-profil/nit.htm

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[9] http://www.bmu.de/chemikalien/nanotechnologie/nanodialog/doc/46552.php

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About observatoryNano

The observatoryNANO project is funded under FP7 for four years from April 1st 2008. Its primary aim is to support European decision-makers with information and analysis on developments in nanoscience and nanotechnology (N&N). It will collate and analyze data regarding scientific and technological (ST) trends (including peer-reviewed publications, patents, roadmaps, and published company data) and economic realities and expectations (including market analysis and economic performance, public and private funding strategies). The ST and economic analysis will be further supported by assessment of ethical and societal aspects, impacts on environment, health and safety, as well as developments in regulation and standardization. Although much of this work will be performed within the consortium, the project is working cooperatively with other initiatives to ensure that effort is not duplicated and that resource sharing and output are maximized. To date liaisons have been established with international organizations including the EPO, OECD, and ISO, and will continue to be established with other relevant organizations such as European Technology Platforms (ETPs), ERA NETs, and other EU-funded projects.
The observatoryNANO project is led by the Institute of Nanotechnology

(IoN) (UK), and includes: VDI Technologiezentrum (DE), Commissariat à l'énergie atomique (CEA) (FR), Institute of Occupational Medicine (IOM) (UK), Malsch TechnoValuation (MTV) (NL), triple innova (DE), Spinverse (FI), Bax and Willems Consulting Venturing (B&W) (ES), Dutch National Institute for Public Health and the Environment (RIVM) (NL), Technical University of Darmstadt (TUD) (DE), Associazione Italiana per la Ricerca Industriale (AIRI) (IT), Nano and Micro Technology Consulting (NMTC) (DE), Swiss Federal Laboratories for Materials Testing and Research (EMPA) (CH), University of Aarhus (DK), MERIT - Universiteit Maastricht (NL), Technology Centre AS CR (CR).
For further information please contact the project coordinator Eleanor O'Rourke eleanor.orourke@nano.org.uk or visit the project website: www.observatorynano.org observatoryNANO is funded by the European Union under FP7. Contract number 218528.