

Onwards Responsibly with Nanotechnology

Current trends in Communicating Nanoethics

Interview with Prof. Dr. Peter Nijkamp, VU, Amsterdam & President of Committee Societal Dialogue Nanotechnology, Netherlands

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Abstract

Professor Peter Nijkamp was the President of the Committee Societal Dialogue Nanotechnology (CieMDN). This Committee was installed by the Dutch government to organise a public dialogue on nanotechnology in the Netherlands, from March 2009 until January 2011. The Committee did not organise the dialogue by itself, but invited civil society organisations and companies to propose their own activities in 35 projects. Based on the outcomes of the projects and on opinion polls at the beginning and end of the dialogue, the Committee proposed an agenda for continuing societal dialogue on nanotechnology. This report was presented to the Dutch government on 27 January 2011 during the final Nanofestival. Peter Nijkamp explains why the dialogue was held now and in this way and draws lessons that can also be useful for EU and other decision makers interested in organising societal dialogue on new and emerging technologies.

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. The series of interviews with opinion leaders is intended to be a compilation of different views on the relevant issues currently in debate from the perspective of a social scientist or ethicist, a natural scientist, and stakeholders from industry and civil society.

Ineke Malsch: Why was the Dutch Societal Dialogue Nanotechnology held in this way and in this stage of the development of nanotechnology?

Peter Nijkamp: The Dutch society has already reflected strongly on what to do with nanotechnology for several years. The dialogue was started because of two considerations: Firstly, nanotechnology is going to be an important prevailing technology. Society should have an idea on what it means and can do for the Dutch society, for good as well as bad. Secondly, we have had discussions on other major technologies such as genetically modified food technology. These broader societal debates have not always been successful. I think the government wanted to avoid a repetition of failure stories from the past. That is also why they said "there ought to be a broad societal dialogue, because nanotechnology is expected to have broad societal impact, including medical, environmental and other consequences. It is important that members of society get familiar with this given the most likely deep penetration of these technologies. The ownership of nanotechnology development is not primarily in the hands of the government but in the hands of society at large: the business sector, the research sector but also the broader society."

From that perspective it was necessary to have a balanced, organised discussion, involving all stakeholders, formal and informal. Government but also other stakeholders including industry should be kept at quite some distance. The debate itself, but also the contents of the dialogue, should be determined by society. No-one should hold the steering wheel, except society itself. That was the main motivation to do it in this unique way.

Ineke Malsch: If you were responsible for the follow-up, what would you keep and what would you change?

Peter Nijkamp: All over these almost two years the Committee has closely monitored the process. We have been very critical and discussed every step carefully. Every step we had to take we discussed the pros and cons. That led to a rather balanced step by step approach, learning from past experiences but keeping in mind the overall aim of the dialogue. Society is at stake here. Society ought to define the menu, and do the cooking themselves. Nanotechnology has a specific nature. It is largely unknown among many members of society, has important economic consequences, and maybe also a series of risks involved e.g. related to nanoparticles. I think in the end we have met the terms of reference specified by the government and fulfilled our mission. I don't think any other approach would have been more successful. This specific approach was fit for purpose and we would do it again the same way next time.

Ineke Malsch: So that is specific for nanotechnology?

Peter Nijkamp: There may be other technologies that are much more in the heart of societal interest. Nanotechnology was largely unknown. People may be more directly in contact with other technologies, which may require some adaptations to the dialogue. But the overall message is the same for all major technologies with societal consequences: Governments should stay at quite some distance. There should be no hidden agenda. Society is at stake and should decide what should be discussed. The Committee organising the debate should not be controlled by the government or the slave of society. It should be an independent mediator to systematise the debate. Society should have the final say. What is specific for nanotechnology is the inclusion of information awareness type activities in our dialogue. The general idea I just sketched is valid for any debate on any technology.

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

Peter Nijkamp: We organised an international workshop with delegates from other countries with their own experience in nanodebates. We wanted to learn from their experiences on the how, what, why and on success stories. Half way through the day the discussion turned and they showed interest in our experiences. They said: we can learn so much from the Dutch experience. This is an interesting novel way of having a dialogue with all members of society. They were increasingly impressed by the presentations and performances of this dialogue. If we had to advise the European Commission or another country, we would say: stimulating a dialogue along these lines given the conditions I just outlined would certainly be an interesting contribution to success.

Ineke Malsch: What are the main outcomes of the dialogue in your view, in particular for policy makers at EU level and in other countries? Why are these outcomes the most important?

Peter Nijkamp: A major element has been the fact that participants, including pupils, elderly and experts, ought to trust the process of the dialogue itself. Some people may distrust the technology because they see many risks. That is fine. But all elements of the technology, the positive and the negative sides have all been completely presented. Whatever was asked could just be put forward. Then people gradually increased their trust in the process. That does not mean they necessarily trust the technology. Any technology brings some risks of course. The process was important. In the final stage of the debate, nobody said that the Committee tried to suppress negative statements or discussion of risks. All information available could be discussed. Anything on the negative and on the positive side was put on the table. Anyone could read it and discuss it.

Because of this, after two years, the opinion of the public of nanotechnology had changed. With some original suspicion, people saw that there was no hidden agenda. Finally people said: we know about the negative sides, but there are also positive opportunities in water management, environmental management, healthcare and socio-economic benefits for the economy at large. With the awareness of all the negative sides, people turned more to the positive side in the end. "We know all the negative issues, but we still would like to get many of the positive things, like medical and environmental science and technology. We know that the negative side is there, and we want to be kept aware of all the negative things and have policy measures in place to cope with the negatives. Public opinion was not a given forever over these two years, but has somehow changed. This is because the information was absolutely transparent and rather comprehensive. Look at the title of our final report, in English translation: A responsible continuation with nanotechnology.

Ineke Malsch: Is that the main outcome: that the public opinion changed?

Peter Nijkamp: The public changed its opinion to some extent because they were held responsible. If there would have been an enquiry on an official statement by the government people would be inclined to be opposed against it. Now, there was no official statement, so people had to formulate their own opinion. If they would say "njet" to nanotechnology they would also throw away the good things: solutions for societal needs, health, environment, etc. They were also held responsible for that type of decision making. That meant they were more careful in formulating their position, not against a government statement. They were more or less put in the driver's seat. They were aware that positive things could be thrown away if they would say no categorically. Therefore they said no conditionally or even yes, provided that... Then they formulated the conditions that had to be met in terms of information provision and preventive measures. That was a very interesting development.

We have extensively looked at all opportunities. They have been clarified to us. Some opportunities are still unknown; there are huge opportunities to be explored. We concluded that there is a positive view on nano. Provided that we are able to restrict and put clear conditions on the negative sides, in terms of risk assessment of nanoparticles, there is no reason to assume that nanotechnology should not be adopted in the Netherlands. At the end of the debate people showed considerable interest in the new chances. What could it mean for cancer research in the medical world? How far can we jump by applying nano in industrial technologies? What could it mean for environmentally sustainable development? The debate turned towards the positive side in the understanding that there would be mechanisms to keep the negatives strictly under control.

Ineke Malsch: Are those the main issues currently in debate on nanotechnology in the Netherlands?

Peter Nijkamp: Yes. Industry and research are aware of the conditions. In the new national NanoNextNL research programme at least 15% has to be spent on risk assessment. There is a clear scope for handling risks, by government decision. This gives more space for looking into the sunny side of nanotechnology, including industrial technology. There is enough opportunity to go ahead with research under conditions of acceptability and sustainability. That will provide an interesting niche opportunity for the Netherlands. The concept of sustainable nanotechnology will be good. Nanotechnology is an important driver of development but it should be considered in the context of sustainable development, including environmental, social and economical sustainability. It should help create a vital society.

Ineke Malsch: Are there any issues that deserve more attention according to you?

Peter Nijkamp: I don't think any issues should get more attention of the government. The research world is very sensitive to developments that help them stay at the forefront. Nanotechnology is a global technology; there is a lot of competition in research. Dutch researchers play an important role. They know their position and can also indicate and find out what is for them the most promising trajectory to remain at the forefront the next years and decades. That is not something the government can decide; the research community has its own responsibility. In the same way, the government can't determine the strategy of industry. That is and should be determined by market considerations. Whatever decision they take in terms of the future, should respect the conditions outlined before. I think this development will be sustainable, because no industry would invest millions in any new product if there was a chance that the product had to be phased out because of a change in public opinion. It is in their vital interest to carefully take into account the results of the dialogue. If they neglected even a small element of the conditions I mentioned, that would put their whole undertaking at risk. That is also the reason why industry felt it was so important to have this dialogue. Now the public opinion and those of stakeholders is more or less known. This clarifies the investment risks of industry. The dialogue was aimed at different target groups: the government, industry, research community, and society at large.

Ineke Malsch: You already mentioned that a wide variety of societal groups have been involved in the dialogue. Which groups do you expect to continue the dialogue after the end of the Committee's work? Perhaps talking to NanoNextNL?

Peter Nijkamp: We see the future of nano as the joint responsibility of society as a whole. No group should be excluded from such a debate. On the other hand, as the development continues, nanotechnology and other technologies such as materials and ICT will continue. The merger of different technologies is also important. At different stages of the development of these technologies, different issues will come up. At some time, the use of nano for security purposes may come up. Then groups with a stake in security issues might get more involved. On other occasions, nano might become an important component in sustainable environmental technology. That could attract attention from interest groups in environmental sustainability. I would see a shifting landscape of interest groups taking responsibility for part of the discussion on nanotechnology. It would not necessarily be the same type of stakeholders all the time. This nanodialogue was held simultaneously in the whole society, but it included a variety of discussions. Everyone could have participated meaningfully in one of the action plans of the nanocommunity. In the future we will have more diversified patterns in the nanodevelopment. This will have implications for the types of discussions and participants. In principle, in the next 5-10 years, all these different groups should be involved at one time or another and in one way or another. There is also interest. All groups feel that their opinion counted. We have listened to them, respected them as citizens. This is also important in the continuation of this dialogue and other dialogues. People trust that everything has been heard and recorded, and there is a positive stimulus for participation in this and other wider debates.

Ineke Malsch: The Committee has given a good foundation for dialogue?

Peter Nijkamp: Yes. It could be important not only for nanotechnology. The principles and foundations for dialogue can also be important for other types of dialogue. Public decision makers and members of parliament originally kept their distance. But when they noticed that this was a good way to engage people in public dialogue, they raised the question: how can we set up other types of dialogues for other types of complex issues, e.g. climate change? Will it also be helpful? It was not our task to answer this directly. In our final report we listed the success conditions of the dialogue. If we carefully look into the success conditions and confront them with the requirements of the dialogue for other technologies, we can easily come up with requirements that have to be met. The model and conditions are applicable to a wider set of problems.

Ineke Malsch: Have you heard what nanodialogue activities NanoNextNL is planning?

Peter Nijkamp: You can't repeat a dialogue on the existing state of affairs. It depends on what new directions are foreseen. They will first look into what is happening in research, industry and European regulations. Then they plan to organise "fit for purpose dialogues". It will also need some time. A dialogue always comes to a natural end. You should not restart a dialogue unless there is a new need for a fresh position. Once there is an official government response followed by a discussion in Parliament, it is possible to determine the next step in a continuation of the nanodialogue.

Ineke Malsch: The government promised their response before the summer. In the report from the committee you noticed that some environmental groups were hard to convince to participate in the dialogue, like Milieudefensie and Greenpeace. Do you think those groups should get involved?

Peter Nijkamp: It is difficult to say that groups should get involved. The dialogue should never be enforced, because that is not fruitful. A dialogue is based on voluntary participation, a complex societal process. Some NGOs have played a very active role, but not all of them. Some felt close by the issues, others said: it is not at the centre of our business. A few of these NGOs, like Milieudefensie and Friends of The Earth, said it is not yet on our agenda. It is not yet an urgent issue and since we have limited resources, we are very cautious in spending our resources. We observe things but will not play an active role. I would assume that if the development of nano proceeds along the lines I sketched before, it would not be that problematic. The strong emphasis on prevention and regulatory principles on the application and toxicity of nano takes away most of the criticism as we have seen. I won't be surprised if they don't play an active role, provided that these conditions are met. Most of the sustainability conditions have been mentioned. If they are met in the follow up of nano, it is less useful to reiterate what has been said before.

Ineke Malsch: You already said that The Netherlands fulfils a niche in the sense that there is so much emphasis on sustainable development. Do you see a similar trend in other countries such as the rest of Europe?

Peter Nijkamp: I believe that The Netherlands has a very strong industrial and research tradition in the area of sustainable development. It would be a great opportunity if The Netherlands insisted on the principle of sustainable nanotechnology. Given what we have seen and heard in the debate, this could be a nice sales label and an important new orientation for nanotechnology. In that respect, there is a good opportunity for the Dutch industry and research community.

Ineke Malsch: You already mentioned the strong emphasis on regulations. 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)?

Peter Nijkamp: There have been two lines in the discussion. A major issue is whether the current Dutch guidelines on top of EU guidelines would be sufficient. Most participants felt that this would be sufficient. Others had some hesitations, and said: perhaps we need stricter rules and guidelines for implications of nanotechnology. It is very difficult to specify what such stricter rules would be because the current guidelines are rather strict already. It was an open discussion that did not lead to a specific outcome regarding the additional requirements that should be enforced by law or the subject of voluntary measures. For the time being the more general guidelines will remain valid. The Netherlands has its own competence to specify more precise guidelines on safety aspects of nano. The general feeling was that this could be sufficient if all the other conditions regarding prevention and information provision were met. There is enough trust.

Ineke Malsch: Continue responsibly with nanotechnology?

Peter Nijkamp: Yes.

Ineke Malsch: How do you see your own role in the continuing nanodialogue?

Peter Nijkamp: I can only speak for myself. I think the Committee including other members have had an interesting experience in reaching awareness of also the positive elements of nanotechnology. The Committee itself, certainly the chairperson, had to play a passive role and not express an opinion on nano. I was just the process manager. Gradually, having been involved in many debates and activities and listening to many people, I have come to the conclusion that, first of all, in the Netherlands we are able to organise a societal debate with high policy relevance in a balanced way. It is a major achievement, also important for the future of our democracy. Secondly, in terms of the substance, my opinion is converging towards the findings in our final report and the results of opinion polls of the Dutch society. If there is complete openness in terms of information provision and reliability of information on all consequences of nano, and if that is put forward in an objective way without hidden agenda, we will be able to cope with the future of nano in a balanced way. Thirdly, there is no reason to advise to stop nano, given the conditions mentioned before.

Ineke Malsch: You stand by the report of the Committee?

Peter Nijkamp: Yes, that has also become my own opinion. A conditional acceptance of nanotechnology: Yes, provided that... Then we list the conditions I mentioned before.

Ineke Malsch: Do you plan to continue working on nanotechnology in your own research?

Peter Nijkamp: Yes. If you have been involved in an extremely interesting and time consuming dialogue, you get fascinated not only by the technology, but also by the process itself and the type of democracy. I will continue to be involved in debates. I will take a few months off and look back a little bit. At some stage the dialogue will be picked up again and I would like to be an active participant in the debate. The latter I could not be before, at least not in terms of substantive opinions.

Ineke Malsch: I look forward to hearing from you by that time.

Peter Nijkamp: Let's see how it works out. I hope it will also be possible to draw lessons that can be adopted by other countries.

Identification

Name: Prof Dr Peter Nijkamp

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Role in debate on nanotechnology, ethics and society:

Peter Nijkamp was the President of the Committee Societal Dialogue Nanotechnology (CieMDN). This Committee was installed by the Dutch government to organise a public dialogue on nanotechnology in the Netherlands. This dialogue ran from March 2009 until January 2011. The Committee did not organise the dialogue by itself, but invited civil society organisations and companies to propose their own activities. Three types of activities were subsidised by the Committee: informing the general public or specific groups including youth, awareness raising and dialogue. Five themes were selected based on stakeholder consultation in the beginning of the dialogue: Health, Food & Healthcare, Nature & Environment / Sustainable Society, Security & Privacy, International Issues, and Sustainable Economic Growth. The 35 selected projects were monitored by the members of the Committee. Based on the outcomes of the projects and on opinion polls at the beginning and end of the dialogue, the Committee proposed an agenda for continuing societal dialogue on nanotechnology. This report was presented to the Dutch government on

27 January 2011 during the final Nanofestival. During that event, Peter Nijkamp said: "The Committee is Dead, Long Live the Dialogue".

Relevant recent publications and projects

Several reports and publications and other outcomes of the dialogue in Dutch can be downloaded from the website of Nanopodium:

<http://www.nanopodium.nl/CieMDN/>

This includes the following reports written by the Committee itself:

- "Naar een maatschappelijke agenda over nanotechnologie," September 2009 (towards a societal agenda on nanotechnology)
- "Nanopodium tussenrapportage," May 2010 (interim report on the first stage of the dialogue)
- Rapport "Verantwoord verder met nanotechnologie," January 2011 (final report of the Committee on the outcomes of the dialogue: Responsibly onwards with nanotechnology)
- Werkverslag CieMDN, February 2011 (report of activities of the Committee)

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).

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