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## Nano: Governance Through Dialogue

### Summary

In the last years, dialogues have become increasingly important for politics and science as well as scientific communication. More and more, they serve as an important feature for the responsible handling of nanotechnology at the national and European level. German speaking states have therefore laid emphasis on dialogues as a tool for communication and information in their nanotechnology action plans.

The projects described in the following were largely initiated by the respective authorities as implementation measures of the national nanotechnology action plans. With the exception of the information meetings, these measures in general took place between experts and decision makers *in camera*. For example, with regard to Austria the experts' group *Nanotechnologie-Informationen-Plattform* is described.

Very seldom have decision makers initiated any public dialogues. One unique dialogue process with citizens is described, namely *publifocus* events in Switzerland, where the results had a direct influence on policy development. In addition to those dialogues which contributed to the national political process, occasionally also smaller dialogue events took place in the context of research projects, for example the focus groups in Germany and Austria of the project *NanoSafety* for the EU Parliament.

### Introduction

The research policy and public discussion on nanotechnology is strongly influenced by dialogue processes, as hardly any other technology. Thinking back to the controversies surrounding green genetic engineering, science on its part is especially keen in underlining the necessity of dialogue in connection with new technologies<sup>1</sup> as a connecting element of science and the public. National governments and the EU Commission particularly emphasize 'new' approaches of the socio-political handling of technology<sup>2</sup> in the context of technology policy. This refers to the use of an instrument for 'good handling' by politicians (*good governance*) of topics of social relevance. Behind the recommendation of the EU Commission to approach new technologies (and new methods) in a socio-political manner is a modern understanding of politics and governance. The modern term governance<sup>3</sup> today does not anymore only mean the exercise of power by the state, but rather the coordination and implementation of appropriate instruments by different state and non-state actors<sup>4</sup>. For the modern understanding of politics it is therefore necessary and desirable to depart from the classic top-down approach by including societal actors, and equally for the 'functioning' of dialogues. It is necessary to create a cycle for this new 'politics of talk'<sup>5</sup>, within which interaction as well as cross-linkage of different societal actors takes place on different levels<sup>6</sup>. Hand in hand with the extension of the understanding of politics (regarding governance), the instruments – as well as actors – for the handling of socio-political topics also expanded by the elements participation and dialogue<sup>2</sup>. This dossier introduces selected events and dialogue processes – based on a recent typification of nano dialogues – and discusses their respective contributions to the governance of nanotechnology.

### Dialogues in nano action plans

The current action plan on nanotechnology of the European Commission<sup>7</sup> as well as numerous national action plans (e.g., Austria, Germany and Switzerland) suggest activities especially in two areas in order to achieve responsible risk management<sup>8</sup>:

1. Intensification of research on environmental and health risks (EHS)
2. Scientifically founded risk communication in order to contribute to an informed public debate.

Dialogue processes constitute the method of choice for risk communication activities. They enable the creation of a connection between societal actors, especially politics, the public, industry and academia and establish a platform for the institutionalised and focused exchange between the communication participants.

### Basic forms of dialogues

On the one hand, dialogues can be used to transpose expert knowledge to the general public and, on the other hand, to explore the interests, wishes and concerns of the population as well as to actively involve citizens in the policy process. The involvement of such concerned groups and actors is essential for the 'functioning' of dialogues, as well as the therefor necessary transparency.

The following case studies will be analyzed according to Hauser *et al.*<sup>2</sup> typology and special regard will be made to the extent of participation. This typology was especially developed with regard to the practice of dialogue processes on nanotechnology in German speaking countries. Hence, dialogues are categorized according to the architecture of the respective processes: On the one hand, this corresponds to the spa-

tial arrangement of active (speaking) and passive (listening) actors, for example in workshops or round table discussions, and on the other hand, to the temporal order of speech. Three dimensions are determined as characteristic features in the determination process of how dialogue processes contribute to the governance of nanotechnology: the factual, social and political<sup>2</sup>.

As noted by Frewer and Rowe<sup>9</sup>, participation is oftentimes not defined precisely. As there are diverging understandings of what participation is, the current dossier focusses on the quality and direction of information flows as essential criteria for the differentiation<sup>9-11</sup>. An essential differentiation which we make in regard of this typology is the relativization of the category 'information dialogue'. Oftentimes, mere information events are termed as dialogues, even though hardly any communication takes place between the actors. However, as we deem information essential for dialogue to be able to take place, we describe this type somewhat weakened as 'information meetings'.

**Information meetings**

The goal is to inform interested persons, concerned persons or the general public and to publish decisions. Possible formats are public lectures or the display of documents for inspection. The flow of information runs from the organizer, e.g., a political/policy-oriented or regulatory institution, to the target group; there is no direct information exchange between the two groups. The main type in this category are information meetings, which have a strict separation (spatial and content-wise) between the lecturer and audience (social). These type of projects serve the public image of nanotechnology (factual). They are strongly geared at an interested, anonymous audience. Information meetings serve the transparency of the process and possibly also create an acceptance for the topic (political). The introduction of dialogic elements can occur in practice though, as the case studies on Germany and Switzerland will illustrate.

**Participatory dialogues**

Through participation the population can contribute to the development, design and execution of political processes (agenda setting, activities for the development of political strategies and decision-making)<sup>12</sup>. Such dialogues permit lay persons to act as critical citizens and to express their political and social wishes (factual). Depending on the

aim, the extent of participation reaches from the co-development of ideas (process and result open) to decision-making by the participating citizens (result open). The information exchange takes place between the respective groups. Possible participation models are citizens' juries, round tables, consensus conferences and planning cells. By the hierarchical equation of lay persons and decision makers or academia, as implied by these sorts of dialogues, the exploration of values, attitudes and feelings of the lay persons is possible (social). The dialogues have less the aim to deal with nanotechnology politically but rather they seek to evaluate the public acceptability of scientific developments and, deriving therefrom, the possibly positive or negative consumer behavior of the invited citizens (political).

**Consultative or stakeholder dialogues**

Consultative dialogues (mostly) serve state institutions as a means to directly have topics negotiated by experts or political decision makers. The results can then be further used in the process of policy development: tasks are delegated to state and scientific institutions which are responsible for certain topic areas regarding regulatory action and research (factual).

The flow of information occurs in one direction, namely from the experts or stakeholders to the organizer. Oftentimes dialogues take place in the shape of a conference: relevant issues are presented in the plenary, then divided into sub-problems which are made manageable in singular sessions or working groups (social). The political approach on nanotechnology is achieved by the introduction of international topics in a national context in the plenary or workshop (political). This constitutes a communication process as well, and in the fitting environment it can deliver an important contribution to the political process. In comparison to the participatory dialogue, this type of dialogue only occurs between experts, stakeholders and the political arena.

**Dialogue processes in German speaking areas**

Non-governmental organizations such as the reinsurer Swiss-Re, the International Risk Governance Council (IRGC) as well as the foundation Risiko:Dialog early made nanotechnology a political topic by managing to convince state actors to initiate a modern regulatory discourse. Different instruments are employed for the socio-political dealing with nanotechnology, especially dialogue processes. These involve diverse social actors and range from information offers to communication processes, and even to participation and decision processes.

In the following, a selection of dialogue processes in German speaking areas will be introduced. The abovementioned ideal types which were identified for Germany, Austria and Switzerland find their application here (see Table 1). The described examples illustrate the plurality of formats and evidence the diverse contributions to governance of nanotechnology; by no means do they constitute an exhaustive list.

In all three states dialogue processes which are not among the listed examples have taken place and still are. To name a few: NanoTrust-Conventions and Risiko:dialog (Austria), the Swiss NanoConvention, the education platform SwissNanoCube (Switzerland), the BASF dialogue forum Nano, the citizen dialogue of the NanoCare project (Germany), as well as a transboundary Nano dialogue through the authorities.

**Table 1:**  
Selected information and dialogue processes in German speaking countries

Type	Germany	Austria	Switzerland
information meeting	nanoTruck	NanoInformationsPortal	Expo Nanotechnologies
participatory dialogue	NanoSafety-focus groups		publicfocus
consultative or stakeholder dialogue	NanoDialog of the NanoKommission	Nanotechnologie- Informations-Plattform	BAG NANO- Dialogplattform

## Austria

The Austrian Nanotechnology Action Plan in its recommendations foresees a central package of measures for “further developing co-operation and reinforcing dialogue and transparency among all the stakeholders, including the public.”<sup>13</sup>

The following described dialogue strives to achieve this aim by diverse approaches. While the Nanotechnology-Information-Plattform primarily unites experts of the authorities, academia and NGOs, its initiative *NanoInformationsPortal* conveys information to the public. Moreover, (selected) citizens participated on the NanoSafety focus groups which were initiated by this research project.

### Informative: NanoInformationsPortal

Initiator: Federal Ministry of Health

Runtime: since the end of 2012

Website: [nanoinformation.at](http://nanoinformation.at)

The Nanotechnology-Information-Plattform (NIP), *inter alia*, takes on the task to pass on information to the public in an understandable form. The members of the NIP offer a knowledge pool on a website – *NanoInformationsPortal* – in a target-oriented fashion. The information provided was gathered and reconciled in working groups organized by the NIP.

The *NanoInformationsPortal* went online on 8 November 2012, constituting a significant milestone in information dissemination for consumers. It is coordinated by the Federal Ministry of Health, and its technical execution is done by the Austrian Agency for Health and Food Safety (AGES).

The website offers extensive and current information on the following topics: *basics, nano products, foods, health, environment, labour, science & research, legal and Austrian nano action plan*. Aside of a general overview on the respective topics, the website also offers more detailed information and links to pertinent studies. The portal also offers consumers the possibility to directly get into contact with the NIP network. It will regularly be monitored and new information will be provided where available.

### Participatory: STOA NanoSafety focus groups

Initiator: Institute for Technology Assessment and Systems Analysis (ITAS), in cooperation with the Institute of Technology Assessment (ITA)

Runtime: 2010-2011

In the course of the project *NanoSafety*, which was conducted under the auspices of STOA (Science Technology Options Assessment-Committee by the European Parliament), *inter alia* the role of dialogues and participatory processes with regard to risk governance was analysed. The empirical part of the project took place in the spring of 2011 in Germany (Karlsruhe) and Austria (Vienna), where two focus groups with randomly selected citizens were convened. The objective was to explore the perceptions, wishes and concerns of the citizens with regard to nanomaterials or nanoparticles. About 15 citizens took part in each of the focus groups, organized as approximately four-hour evening events. In the first part of the discussion rounds, the participants impartially discussed their experiences with ‘nano’, mainly based on their experiences with nanoproducts, and shared their assessments regarding chances and risks of nanotechnology. In the second part of the discussion rounds, the participants were presented with a short ‘info-letter’, describing use and uncertainties in connection with risks in the EHS area. Consequent to this, the participants further discussed what they expected of politicians and regulatory action regarding nanotechnology. The results were summed up and published<sup>15</sup> as a final report<sup>14</sup> for the European Parliament.

### Consultative: Nanotechnologie-Information-Plattform (NIP)

Initiator: Federal Ministry of Health

Runtime: since late 2009

The NIP directly results from the Austrian nano action plan’s recommendation to disseminate to the public balanced out information on safety and risk aspects of nanomaterials in an understandable language<sup>16</sup>. NIP’s partners are all concerned ministries, authorities, a few research institutions as well as stakeholders and NGOs.

The NIP consists of three core elements: it serves as an internal information hub for the concerned actors, as an internal knowledge pool and as an interface to the public. NIP’s partners deal with current questions on regulatory issues, risk and safety of foods and

consumer products, possible effects on the environment and health as well as worker and consumer protection.

An informal but consistent connection has taken place among the diverse experts. Their cooperation serves to reach an effective information exchange among the concerned actors and the compilation of a knowledge pool, but also contributes to the analysis and evaluation of existing knowledge. The agenda of the NIP mainly takes place outside of the public arena, with the exception of the only recently published *NanoInformationPortal* (see above). Currently, possible ways to achieve a permanence are discussed.

## Germany

Some of the cornerstones of the German Action Plan Nanotechnology are communication and dialogue. Not only does it address the dissemination of information for the general public (information mainly being a one-way street), such as the *nanoTruck* initiative by the German Federal Ministry of Education and Research, but it also deals with dialogues with stakeholders and citizens<sup>17</sup> (information exchange). As an example for dialogues with the organized public, i.e. stakeholders, one might name the *NanoDialogue* conducted by the expert group ‘*Nanokommission*’. An example for participatory dialogue can be seen in the *NanoSafety* focus groups which, however, are not part of the action plan.

An overview of all dialogues in Germany at the Laender and federal level can be found in the final report of the *Nanokommission*<sup>18</sup>. These processes main are geared towards stakeholders and experts, to a less extent one can however also find participatory dialogues with citizens (e.g., citizens dialogues *NanoCare*).

### Informative: nanoTruck

Initiator: Federal Ministry of Education and Research

Runtime: since 2004

Website: [nanotruck.de](http://nanotruck.de)

The ‘*nanoTruck*’ is a mobile information and dialogue initiative of the Federal Ministry of Education and Research which has been running since 2004. Its primary objective is to inform interested citizens, especially young people and students, at an early stage on nanotechnology. The focus in the programme

of this road show is to convey knowledge on the basics, fields of application, the innovation potential, chances and risks of nanotechnology in an understandable and clear manner. In addition, education and work possibilities in this area are introduced in the context of workshops, internships, lectures and exhibitions.

Originally, the campaign was only planned for 2004, the 'year of technology' (an initiative of the Federal Ministry of Education and Research), but it was extended due to its huge success. Since 2004, the exhibition vehicle has been touring through Germany and has visited more than 100 locations per year, sometimes also outside Germany. Since its start, the campaign has been overworked a few times, both regarding the methods of presentation (e.g. the design of the exhibition, laser show) as well as content-wise (increased emphasis on dialogue and interaction, e.g. dialogue on current topics such as nanoproducts)<sup>19</sup>. The campaign is accompanied by the nanoTruck-website, provided by the Federal Ministry of Education and Research.

**Participatory:**

see above (STOA NanoSafety focus groups)

**Consultative: NanoDialog of the NanoKommission**

**Initiator:** Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

**Runtime:** 2006-2012 (1<sup>st</sup> phase 2006-2008, 2<sup>nd</sup> phase 2009-2011, expert dialogues 2011-2012)

**Website:** [bmu.de/themen/gesundheitschemikalien/chemikalien/nanotechnologie/nanodialog](http://bmu.de/themen/gesundheitschemikalien/chemikalien/nanotechnologie/nanodialog)

A direct consequence of the German Action Plan Nanotechnology was the setting-up of the NanoKommission in 2006 by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. It encompasses representative of the responsible authorities, industry and NGOs<sup>20</sup>, as well as academics. As a central dialogue platform, it was responsible for the coordination of the NanoDialog on chances and risks of nanotechnology with diverse interest groups from academia, industry, politics, church as well as environmental and consumer associations.

The NanoKommission worked in two dialogue phases 2006-2008 and 2009-2011. In both phases working and task groups with more than 100 experts were founded<sup>21; 22</sup>. The NanoKommission led the groups in their tasks and published their results.

In the *first phase of dialogue* the three working groups on chances in environment and health, safety research and responsible handling of nanomaterials recommendations, both presented and discussed in 2008 in the course of a conference organized by NanoKommission. The results were published in an interim report<sup>22</sup>. Even in the first dialogue phase it was foreseeable that an extensive and balanced evaluation and assessment of chances and risks of nanotechnology was not possible in such a short time.

Thus, in 2009 NanoKommission initiated a *second phase of dialogue*. This extended and deepened the already discussed topics, which were then also represented by four task groups and an *ad hoc* working group

on *Nachhaltige Nanotechnologien – Green Nano*. In February 2011 the final conference of phase II took place, where the results and recommendations were elaborated and discussed, followed by a further report by NanoKommission<sup>21</sup>. The participating groups welcomed the continuation of the dialogue by such topic-related meetings.

In the following, the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety organized four so-called *Fachdialoge* [specialist dialogues] which would enable interest groups to take up some of the main topics of the NanoKommission, but also to address new topics.

**Switzerland**

One of the main focus points of the Swiss Action Plan for Synthetic Nanomaterials<sup>23</sup> is the promotion of the public dialogue on chances and risks of nanotechnology. Hence, there have been several dialogue processes in Switzerland, with stakeholders, experts as well as citizens. One example is the *publifocus* event, which in German speaking areas constitutes a unique opportunity for citizens to participate in policy shaping. A further example for dialogue with the organized public can be seen in the stakeholder dialogue of the Federal Office of Public Health (FOPH). There is also a travelling exhibition on nanotechnology which serves the dissemination of information to the interested public.

**Figure 1 (left): nanoTruck in action**  
(Source: [bos-bamberg.de/?q=content/ank%C3%BCndigung-nanotruck](http://bos-bamberg.de/?q=content/ank%C3%BCndigung-nanotruck))

**Figure 2 (right): the travelling exhibition's container**  
(Source: [frc.ch/wp-content/uploads/2011/10/nano\\_expo\\_231.jpg](http://frc.ch/wp-content/uploads/2011/10/nano_expo_231.jpg))



**Informative: Expo  
“nanotechnologies. Produits,  
promesses, préoccupations”**

Initiator: University of Lausanne,  
Consumer Organization of Suisse  
Romande FRC

Runtime: 2011-2012

Website: [www3.unil.ch/wpmu/nano](http://www3.unil.ch/wpmu/nano)

The French-speaking travelling exhibition on nanotechnology was developed by the University of Lausanne and the western Swiss consumer association FRC. It was supported by the FOPH, the TA-SWISS and the Swiss Academy of Engineering Sciences (SATW).

The travelling exhibition toured from 2011 to 2012 through numerous cities in Suisse Romande. Its objective was to reach interested persons and to initiate a dialogue among citizens, NGO representatives, the media and industry, political decision makers and academia in so-called ‘apéritifs scientifiques’. Visitors could not only visit the exhibition (and its catalogue<sup>24</sup>), but also had the possibility to participate in discussion rounds with representatives of the abovementioned categories. The exhibition concentrated on already available nanoproducts (*produits*) and promises which were made by various actors (*promesses*). Moreover, the expectations and concerns of the public were addressed (*préoccupations*). In 2013, the travelling exhibition is also expected to go to the German speaking areas of Switzerland.

**Participatory:  
publifocus “Nanotechnologien  
und ihre Bedeutung für  
Gesundheit und Umwelt”**

[engl. Nanotechnologies and their  
meaning for health and environment]

Initiator: Centre for Technology  
Assessment (TA-SWISS)

Runtime: 2006

Website: [ta-swiss.ch/publifocus-nanotechnologien](http://ta-swiss.ch/publifocus-nanotechnologien)

In 2006, the Centre for Technology Assessment TA-SWISS conducted five moderated group discussions with randomly selected citizens in different regions of Switzerland according to the so-called *publifocus* approach. The project was managed by TA-SWISS, the Zurich University Winterthur as well as by the Federal Office of Public Health (FOPH) and the Federal Office for the Environment (FOEN). The project was accompanied by a group of experts from science and research, industry, politics, NGOs, the media and society.

The objective of the project on the one hand was to learn more about the wishes, acceptance and concerns of the participants regarding nanotechnology and, on the other hand, to show how informed lay persons assess the possible effects of technologies. Four *publifocus* meetings were visited by interested citizens, the fifth was for stakeholders. As there were numerous agreements in the meetings, it was possible to draw conclusions on the Swiss population.

All meetings were built up in a similar manner: approx. one month prior to the meeting the participants received an individually designed information brochure on nanotechnology. The four hour evening events began with an introductory round and input by the experts. In two discussion rounds, the approx. 15 participants had the possibility to convey their assessments, wishes and concerns on nanotechnology.

TA-SWISS published an extensive final report<sup>25</sup> on these *publifocus* events.

**Consultative:  
BAG NANO-Dialogplattform  
“Konsumenten-Informationen  
zu Nano-Produkten”**

[engl. Consumer Information on  
Nanoproducts]

Initiator: Federal Office of Public Health  
(FOPH)

Runtime: 2009

Website: [www.bag.admin.ch/nanotechnologie/12197/12501](http://www.bag.admin.ch/nanotechnologie/12197/12501)

The NANO-Dialogplattform is a direct consequence of the Swiss nano action plan. In 2009, the FOPH organized four stakeholder workshops which dealt with the question of making conscious purchase decisions of nanoproducts by consumers possible. The NANO-Dialogplattform consisted of 20 representatives of industry associations, retail trade, consumer organisations and responsible authorities. Alongside of the founding of this group, the FOPH also established a dialogue between the relevant actors for the working-out of options for action in regard to transparent consumer information<sup>26</sup>. The process of was accompanied scientifically by the Risk Dialogue Foundation St. Gallen. Experts were invited to give expert inputs on scientific and regulatory developments in the workshops and to discuss these with stakeholders. The original objective to work-out recommendations on a consensual basis was set aside as it became clear within the first three workshops that there was a need for a more fundamental dialogue process. In the

fourth workshop the previous results were discussed and assessed. After this course of dialogues, the contents were further developed throughout several rounds of consultations (written and by telephone) and a final report was published<sup>26</sup>. The members of the NANO-Dialogplattform continued with the dialogue among the stakeholders within the framework of the Swiss Action Plan.

One of the recommendations for action by the NANO-Dialogplattform has already been implemented: the online information platform on nanotechnology *InfoNano*<sup>27</sup> for consumers. The website contains information on the Swiss Action Plan, on applications, regulatory and protection measures, research and on the dialogue with society. Moreover, contact information for possible requests is listed.

**Conclusions**

The typification of dialogues according to *information, participation and consultation* shows a number of objectives, designs of dialogues and involvement of diverse actors which all contribute in different ways to the governance of nanotechnology. One should take a cautious look at information meetings which sometimes might misleadingly be called dialogues. In practice, the different forms of dialogues mostly also are some type of hybrid as the often combine elements of different types (with diverging importance): for example, the Austrian Nanotechnology-Information-Plattform contributes as a group of experts and decision makers to policy shaping [*consultative*] and at the same also runs the Nano-InformationPortal [*informative*].

In all three states, experts and stakeholders as well as political decision makers have contributed and still do to the national political and regulatory shaping. These dialogue processes mostly have taken place and are taking place *in camera*.

There is no involvement of citizens in the national decision making process by means of participatory dialogues so far – with the exception of Switzerland. Citizens primarily remain the target group of various information campaigns, which are aimed at making nanotechnology understandable for them. As modern governance, however, carries with it the objective to not only inform diverse societal group but also to incorporate them into the political process, it would be desirable to accordingly also create more participatory dialogues in the process of political decision making.

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