and stated in advance. What seems to be the most general aim is to establish long-term trust and understanding between the parties involved – this can be just as important as reaching consensus. These are a few initial practical recommendations from experimenters which we are offering and our work will obviously continue and produce a summary and an OECD publication in 2009. Thank you.

JEAN JOUZEL

Thank you Jean-Pierre. I would like to thank all the members of the OECD group, especially Frédéric Sgard and Stefan Michalowski. I have taken note of the fact that relationships between the scientific community and society will inevitably need to change and also the need for a two-way approach. It is clear that we must not stay in our ivory towers. I'm on the side of the scientists, but I do not entirely subscribe to the idea of science at the service of society. By contrast, I do subscribe fully to the idea of science at the heart of society. I believe that this is what is important, which is your message to some extent, along with fairly clear messages on how to organize it, although the three phases are perhaps a little rigid as things do not always go that way. However, the main idea is to construct dialogue involving all the players in a planned and responsible manner.

The OECD and CESE are not the only groups reflecting on this dialogue between science and society. There is an expression gaining ground at the moment - at least among researchers – in our daily life, where the phrase "knowledge society" is on everybody's lips. This leaves me somewhat sceptical. Ulrike Felt, Professor of Sociology of science, at Vienna University is going to demonstrate to us how to take this concept seriously and how Europe wants to take this notion seriously.

ULRIKE FELT

Taking European Knowledge Society Seriously

Thank you very much for inviting me to share the main ideas of a report produced as outcome of one-and-a-half year of collaborative work of an expert Group on science and governance to the Science, Economy, and Society Directorate of the European Com-

mission. I have been the rapporteur of this group gathering the ideas that I will present to you here. "Taking European knowledge society seriously" was chosen as title for the report, as we did not want to fall into the trap of simply deconstructing the concept of knowledge society underlying European policy discourse, and to claim that the problem lies solely in this conceptualisation. Much more we aimed at reflecting what it would mean to take the idea of a knowledge society seriously; what consequences would this have on actions to take, on how we understand contemporary societies and imagine our technoscientific futures. That is what we tried to capture in this report.

The point of departure stated in our mandate from the European Commission was to reflect on ways how policy makers could respond to a perceived public unease with science. This public unease was apparently resistant to remedial efforts – as the mandate continued to argue. The dense communication exercises performed to convince the public of the key-role of science in contemporary societies did not hinder the questioning of techno-scientific expertise as a key engine in policy-making. Starting from this diagnosis, the central challenge addressed to the working group was to reflect on the involvement of a democratic civil society in European science and governance as a remedy to this situation. The idea was to bring together insights from the broad field of science technology studies (STS), to assess the current challenges and discuss

future strategies with regard to science and governance.

"Taking knowledge society seriously" would thus mean to address the challenges raised by subscribing to this idea. Where do the larger issues arise that should be addressed, and who should be involved in dealing with them? What the report did not want to do is offering "best practice" recommendations, but much more wanted to trigger a rethinking process through pointing at the complex culturally rooted entanglements between science and society. Thus we decided to address science and governance through dealing with those notions that were at the heart in European policy discourse.

We identified four such key notions, which we investigated more closely: innovation, its directions and distribution; risk and science as well as its normative dimensions; ethics, European normative politics and the role of experts; and finally European publics, their formations, their performances, and their encounters.

Further, two crosscutting issues emerged. First, we addressed the question of how contemporary societies learn, and more generally what does learning in the context of European knowledge society actually mean. Second, we focused on imaginaries and master narratives framing any of our potential futures as they are important cultural vehicles through which ideas of progress get linked to science and technology

in specific ways. The aim of the report was thus to contribute to a different and broader conceptualization of the issues at stake in European science and governance and maybe to the building of a more robust, open and sustainable form of knowledge society.

Let me turn to the first issue: innovation. Indeed here two important ways of approaching innovation were addressed. On the one hand, we identified what we called an "economy of techno-scientific promises". In such a regime of innovation the focus all too often lies on merely financial short-term return-on-investment, implying a rather narrow vision of technoscience and societal development. On the other hand, taking knowledge society seriously would mean to think in terms of more distributed forms of innovation including modes of collective experimentation, i.e. to "invent" new forms of collaboration between economic and social actors in the process of innovation. At stake is thus to develop a vision of how these two regimes of innovation might cohabitate in a fruitful way. It thus seems essential that policy makers do not simply subscribe to a "more and faster innovation policy" as often performed in contemporary policy discourse. Much more we highlighted that direction matters. Yet we were also concerned with the distributedness of innovation, the importance of involving multiple actors and of allowing for divers innovation roads to be considered as success. This is a clear promotion of diversity in innovation pleading for an experimental approach, for testing

different options instead of investing only in a few narrow and highly publicized ones. In short: it was about moving away from focusing on the "3 % target" (3% of GDP for R&D) as an aim in itself and to considering more carefully where to invest. Concerns should thus be less about mere increase, but about directions to take, ways of producing innovations, and about underlying values. Finally, it seems essential to make the move from risk governance towards innovation governance, thus considering the innovation process as a whole, asking much broader questions and not restricting reflection to potential risks that might emerge at the end of an innovation chain.

In what follows I would like to bring together two lines of discussion, namely on risk and ethics, both being in our understanding highly normative issues. Even though our institutionalised ways of dealing with risk are strongly science-based, we elaborated on the multiple ways, in which public values actually enter the domain of "scientific risk". Thus risk turns into an important normative issue, which can no longer be simply dealt with by taking merely technoscientific knowledge into account. The philosophy and the taken-for-granted categories that shape our institutional cultures of dealing with risk thus need questioning and risk science has to be put back into a normative and political debate.

Moving to ethics and science, it appeared crucial to reflect the debate on shared Euro-

pean values: Do we actually have a common value base? How do we imagine a European ethics to take shape? Taking a concrete example like the stem-cell controversies in different European countries, one can easily see how different the conceptualisations of ethics are across European countries and how rigid the border-lines between different value systems can be. Where would such a debate on "European ethics" then lead us to? How would we deal with the often-addressed tension between the ideology of "rapid tech-noscientific progress" and the comparati-vely "slow democratic response"? Is this a problem and if so for whom? Yet also should draw our attention to the practice of how ethics is dealt with: it has actually become an established expert domain, leaving very little space to any kind of civic deliberation. Furthermore on the level of governance of S&T it remains often rather unclear how an ethical opinion of such expert ethics bodies relates to legal and regulatory elements. Thus the big challenge lies in moving beyond narrow expert deliberation and opening up the process in which ethical questions are posed and answers formulated to much broader participation.

Thus the central issue at stake for both, risk and ethics, is to facilitate the nurturing and maturing of more open and creative ways of dealing with these complex tech-noscientific issues.

The previous speaker has already ad-dressed the problem of notions such as "pu-blic", "society" or whatever we use to cap-ture those who encounter S&T. Two points seem important to make here. First, in po-licy discourse we can observe an important shift: from education through science to engagement and dialogue of citizens with science. Yet looking at actual practice, e.g. at the way contemporary consultations are organized, one can diagnose that educating the citizens still remains central, "allowing" citizens to participate in the definition and resolution of a problem only after having in-formed them. Thus the turn to engagement and dialogue does not necessarily mean that the citizen-expert is a fully accepted figure and that the dominance of the education-through-science model has disappeared. Second, it is essential – and an issue of responsibility – to understand that publics are not simply out there, but get formed and performed in these public engagement exercises as, for example, ordinary citizens, stakeholders, patients, or consumers.

Yet it is also important to introduce a number of differentiations. First we should distinguish between invited and uninvited forms of public participation. In the case of GMOs, for example, the uninvited forms of participation were much active in driving change than any invited form. Second the difference between private and public are-nas needs consideration. Who actually gets access to dialogue or participation? Third, we have to distinguish between participa-tion of citizens more generally speaking and of stakeholders? Using the stakehol-

der notion would mean going for the idea of already formed interest groups within society and letting them speak in the name of society. What then about those who do not have access to or are part of these modes of assembling and claiming power? Fourth, the moment when participation happens needs attention as it matters in important ways. And, finally, to come back what was discussed earlier, we need to consider whether deliberation is about issues of risk or about innovation? Across all these differentiations it seems essential not to forget that "the public" holds rather nuanced visions – with important cultural variations – on when and what kind of participation makes sense to them, and it is definitely not participation for the sake of participation they are aiming at. Thus we need to consider more carefully the political place these forms of engagement actually have within a given technopolitical culture and question which issues are open to such forms of deliberation and civic engagement.

Before concluding, a few thoughts about learning and imaginaries. Actually one of the characteristics of communications around technoscientific issues is their lack of making visible how knowledge is produced, what claims can be made on its basis and which not. That is why we speak of a "habit of concealing the contingency of scientific knowledge". Making visible the connections between knowledge and its contexts is thus essential to grasping how societal imaginations and future scenarios frame our scientific choices. Yet we also have to understand that learning and un-learning are somehow related, i.e. emphasising certain ways of framing issues means both pushing aside other ways of conceptualising the world around us and narrowing down possible choices. Finally, having grounded contemporary societies so deeply in science and technology actually means that society and our larger environment have become a laboratory. As a consequence we call in our report for more collective experimentation with broader societal involvement and participation in deciding on what kinds of experiments we engage in as well as on the protocol along which the experiments take place.

Shifting our attention to what we called imaginaries and master narrative, we underlined their fundamental and often underestimated ways in which they tacitly define the horizons of possible and acceptable action in knowledge societies. They impose certain orders, they distinguish issues from non-issues, actors from non-actors. These imaginaries and narratives are historically rooted and thus we need to understand previous experiences and how they tie into imagined futures. The growing density of rather narrowly focused communication from policy makers can thus be interpreted as a felt need to produce one coherent narrative of European futures, yet concealing that tacitly this narrows down possibilities of imagining alternative futures. These master narratives are about speed and progress always expressing the fear of being overtaken by

others. They are about objectivity and rationality, allowing little space for other kinds of knowledge and explanations. They are about the public that is generally staged as a problem to be dealt with, rather than as a rich resource of experiences and imaginations. And finally unintended consequences are the dominant narrative of failure, not considering innovation as a much wider societal process. Given their centrality, we need to reflect on these narratives and imaginaries driving science and technology policy, and to create space to the development of alternatives.

In conclusion I would like to stress that policy issues to be dealt with are never simply out there, but their substance, their meaning, and their implications are in essential ways humanly constructed. This means that we need to broaden the notion of responsibility but also to make choices about what is to be considered as a problem and how to create solutions more collective. Yet there is evidently no single best way to do so. To summarize, opening up the processes of innovation – i.e. putting contingencies back into our understanding of what science can deliver; acknowledging the highly normative dimensions of both risk and ethics; engaging with citizens in the decision making, but also paying more attention to the ways in which we imagine and narratively frame these developments -- could actually make an essential contribution to building a different, more open, maybe more robust and sustainable

form of knowledge society in Europe. Thank you very much for your attention.

Jean Jouzel

Thank you, Ulrike Felt, for a very comprehensive portrait of this European vision, which is very necessary because it is clear that Europe has a key role to play and is creating a scientific community. The manner in which dialogue is established at a European level is very important. You have mentioned the growth of innovation, the role of expertise, ethics, relations between science and democracy. I suggest now that we take some time to ask Ulrike some questions to establish a short dialogue. You have forms in your conference kits if you would like to submit written questions.

From the audience

I represent the French CGT trade union. I am the head of the trades union Research, Higher Education and Employment Group. On the basis of the very interesting debate between citizens and other parties I would like to pick up on what was said by François Ailleret and Jean-Pierre Alix. This conference is obviously very important, but from our organization's point of view, we

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Ulrike FELT

wonder if it would not have been interesting to have achieved a better balance of participants. We have a large number of famous scientists, but if we actually want to have this dialogue between science and society then what all the speeches over these two days need is representatives of society. Admittedly François Ailleret, president of the Productive Activity in Research and Technology Unit did this to some extent, but greater diversity would have been desirable. In conclusion, I'd like to turn to Jean-Pierre Alix's presentation on the OECD. In my organization, I take part in the work organized by the OECD. What is interesting at the OECD level is that the different parties involved do not carry the same weight either. The OECD listens to the government representatives in particular and not enough to social stakeholders. With regards the process launched within the framework of the World Science Forum, a suggestion made by my organization is that although it is taking place within the OECD framework it would be desirable to make room for social stakeholders other than researchers and the scientific community. Thank you.

JEAN-PIERRE ALIX

You are right. This is a good criticism. We never have enough representatives from the civil society, trade union organizations, NGOs, etc. This is a problem which exists throughout Europe. I can assure you that we made great efforts to contact them and invite, as we thought that they would take part in actual the discussions and you can see the result before you today. However, it is wrong to exaggerate as there are not just scientists in the auditorium today. There are also many people whose work involves scientific policy, which you may say is not very far from science, but it is part of the mediation process between science and society. You can speak to them if you like. We will try to do better next time. I think we have made some progress compared to the previous state of debate. Perhaps we are lacking in any serious analysis of how to involve the parties concerned - representatives of civil society. It has to be in their interests to act and they must engage in a dialogue in which their point of view is taken into account The Grenelle de l'environnement conference which has just taken place is a case in point. In discussions with Madame Pécresse whilst preparing this conference, I learned that she would like to launch something similar. She asked us specific questions about the topics which needed to be discussed, the methodologies for debate and how to make this a European debate and to broaden it with exchanges. Now I think that we are all responsible for this - you and us.

As regards your question to the OECD - the OECD has a specific status. It is an international agreement which means that governments have seats there and give orders to OECD. It is quite normal for the OECD

to turn to governments when it is working and to present its work in forms which will be efficient for the governments which will receive its recommendations. Nevertheless, I would like to highlight two new things in this working party: this topic in itself is an overture to dialogue with society and I think that it is positive that the OECD is concerned about it. I would like to point out that the European Science Foundation is carrying out a similar exercise next year. Why do we need all these structures? Because the "science in society" question is not a natural question in our current systems. They were constructed in two modes for historic reasons. The first mode was policy-driven from 1945: if we take the best and give them money, then they will produce. This is the traditional model. The second mode, started at the beginning of globalization in the 70s when research became a component of competitive advantage in economic competition. Companies would have groups or departments dedicated to research. All the developed nations were doing this. The issue of public opinion or society - the terms are new and still somewhat vague - is emerging and requires thought because we are experiencing symptoms and crises such as GM crops, etc. However it has not yet been sufficiently tested and explored theoretically to be sufficiently usable, to become a full pillar of scientific policy. This is what we are trying to do. We are trying to build scientific responsibility gradually by discussing our point of view. I think that ideas will progress. It is our duty to move towards new state of affairs. So please help us!

Ulrike Felt

Thank you for this question. I think it is essential as the usual discussion formats are highly academic and often stay on a fairly general level. We also have to admit that not everybody is interested in discussing science and society – neither citizens nor scientists. We are generally interested only in specific aspects. Thus we need open offers for participation, create adequate spaces and develop skills to communicate, yet without necessarily imposing engagement. And we should not overlook that more than 90% of the research carried out stays below "the radar of public scrutiny" and that attention is actually directed by the media and other actors to a minute proportion of what is going on in research. What is lacking however is the readiness to enlarge our reflection on science and society issues, to focus less on narrow technoscientific issues seen as problematic and more on how technoscience works in general. This means that involvement should not start when there is "a problem", but engagement should also be framed in positive terms, and happen at moments when creativity is needed to ask questions and develop solutions. And probably we would also have to care about spatial arrangements and have settings which invite for participation and dialogue.

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Discussion

FROM THE AUDIENCE

I am representing the All European academies. I would like to ask a question to Madame Ulrike Felt. I listened carefully to her interesting exposé. She brought important concepts on the table, specifically the concept of cultural contingency and the contextualization of science. I can appreciate that for the political use or the application of science, even for public understanding or education. But do I hear of the group a sort of farewell to universality of science and scientific laws? In other words, the foundations of the posts of clear fundaments of science. Could you comment on that?

ULRIKE FELT

Actually I do think we have to consider cultural contingency in knowledge production. It doesn't mean a farewell to the role of science as you described it. But it means considering that the knowledge we are producing in science rests on certain conventions, on agreed upon ways of approaching issues and on practices in producing answers. And as long as we agree on these conventions, we can produce common understandings of how things work in the world. But the point is that these shared conventions are deeply rooted in a certain cultural understanding of how to ask ques-

tions, of how to validate knowledge, or of what is acceptable evidence. Saying that context matters, doesn't mean that there are no shared ways creating knowledge and of advancing. We have to admit that the way we know is also connected to the way we live in the world. In my research, I have collaborated a lot with scientists trying to understand how they make choices in which directions to continue their research. And it is fascinating to observe how they actually bring in their previous experiences and their broader imaginations of the kind of environment they are part of, and how that gets reflected in the knowledge they produce. So in that sense, I personally do think that we have to consider that asking questions and finding answers in science is a cultural activity. This does not mean dissolving the very idea of science. But we have to admit that universalism in the way you are referring to is a construction, that this concept has a history, was born in specific constellations and plays a particular role in the advancement of science. In that sense it is all the more important to grasp what the functioning mechanisms of science are as well as deal creatively with the contingencies research is always confronted with.

FROM THE AUDIENCE

I teach at the University of Technology at Compiègne. And I teach a course in scien-

tific communication. I would like to tell you about something that happened to me not long ago with my students who are studying engineering. I think it is very instructive. I gave them a case study on nanotechnologies in which I asked them to think about the answer a cosmetics firm might give if there were protests from the general public on discovering that there were nanotechnologies in some of their sun creams. I received a number of presentations and reports from my students, one of which generated a very interesting debate amongst the students. I asked them to put themselves in the position of the Board of Directors of the company in question and one of the answers offered was that they would infiltrate scientific circles in order to publish papers favourable to their position - as everybody knows that it is easy to by-pass reading panels - and that they would undertake extensive lobbying with the many and various different authorities. This shocked me in moral terms because I had spent a number of hours explaining the merits of participatory democracy and had devoted an entire lecture to knowledge sharing. Ultimately, I, will leave you to reflect on the conversation which we had together which was to say that if they had come up with this solution, taking climate change as an example, then they had only half believed what I said about knowledge sharing and participatory democracy. Every day in their daily lives, on television, they did not really have the feeling, even as engineers and people who would hold important positions in different

companies that everybody was playing the game. This is also the feeling I get when I take part in public debates with the Commission nationale du débat public [National Commission for Public Debate] where I see the strong distrust on the part of all parties gathered around the table. It would seem to me to be extremely important today as we are discussing knowledge sharing and democracy to understand that we have a long way to go and that if we want to put measures in place for knowledge sharing and scientific communication then I think that we must find a radical new paradigm on a political level. We must take this particular issue seriously and offer guarantees, particularly to our young people.

Jean Jouzel

Thank you for this story. We suggested this dialogue because we feel that we have a long way to go. Thank you to everybody who has taken part. I would now like to invite Jean-Gabriel Ganascia who lectures in computer science at Paris-VI University, and who was one of the kingpins in the preparation of this conference, to sum up this morning and to announce the workshops which will take place afterwards.