House of Lords, Science and Technology Select Committee
Nanotechnologies and Food

Dr Chris Groves (ESRC Centre for Business Relationships, Accountability, Sustainability & Society)

1. What is the public perception of nanotechnologies and food?

It should be noted, first of all, that available evidence tends to suggest that awareness of the existence of nanotechnology in general has changed little from a low level a few years ago. For example, in 2006, 42% of Americans surveyed had not heard of nanotechnology (Peter D. Hart Research Associates 2006), with this actually increasing to 49% in 2008 (Peter D. Hart Research Associates 2008). As a result, evidence of public concerns about different applications of nanotechnologies has generally only been available from deliberative exercises which include extensive briefing sessions to get participants "up to speed" with current and potential future developments. As a result of such exercises, there is evidence that participants often express significant concern about food applications, particularly where nanomaterials are actually present within foods rather than simply used within packaging materials. A survey for the Woodrow Wilson Institute indicates that only 7% of Americans would buy nanofood now, with 29% not wanting to buy it at all, and 62% wanting more information on risks and benefits, vs 12%, 73% and 13% for food containers (Peter D. Hart Research Associates 2007). Evidence from research in Switzerland suggests that people may be hesitant to buy foods which either contain nano-additives or use packaging which contains nanomaterials or nanostructures (Siegrist, Cousin et al. 2007). But research has also indicated that it is not so much "technologies" that are the subject of trust or mistrust, as the institutions whose are seen as having the responsibility to ensure that technologies are applied in ways which produce benefits and avoid risks. Survey data from Germany also indicates that mistrust of regulators and industry could be particularly significant with respect to nanofoods, as low trust of these groups is correlated with high rates of rejection of the use of nanoadditives in food (Halliday 2007).

2. What do you think should be the aim of public engagement? Is the aim of public engagement activities to encourage the dissemination of information and inform debate on the issue, or to help guide research agendas, and inform public policy?

While dissemination of information is a vital need, in relation to emerging technologies it is vital to avoid projecting propositions about either risks ***or*** *benefits of prospective technological applications as surrounded with certainty. The extent of uncertainties around both the EHS implications of specific applications and their social implications should also form a central theme of public engagement. Whatever forms public engagement activities take, they should, as far as possible, avoid positioning the public as merely a passive recipient of information (whether said information concerns actual/potential hazards or benefits). Research suggests that the often ambivalent responses of publics in deliberative exercises circle around what they suspect that scientists, business and regulators* ***do not*** *know and perhaps cannot know about the applications of nanotechnology. With this in mind, engagement needs to focus on how to build consensus around the purposes for which technologies can and should be used, and how much uncertainty (including, but not limited to, known and determinate risks) society is collectively prepared to bear in pursuit of these ends. This implies that engagement needs to have some degree of input into shaping research agendas and regulatory policy, even extending to passing judgement on the social legitimacy or otherwise of a given application.*

3. Submissions from Which? and others note the need for more government research on what the public think about the issues surrounding nanotechnologies and food, and for more effective consumer engagement specifically focused on food. Is the Government doing enough to understand public attitudes to food and engage the public on the issues surrounding nanotechnologies and food?

   In the UK, the issues surrounding nanotechnologies and food have to date been the subject of one of the "Nanodialogue" events (funded mainly through OSI's Sciencewise scheme, organised by Demos and the University of Lancaster), which produced a report in 2007. More research is undoubtedly needed, but this also needs to be framed within a more systematic and long-term vision for the purpose of public engagement (see responses to Qs 4 and 6 below).

4. The Responsible Nanocode initiative has suggested the establishment of a permanent 'Nano Commission' style organisation to engage stakeholders and advise government on issues. Do you support this suggestion?

   No. First of all, there are questions to be asked about such an organisation's remit, and whether it makes sense to, once again, attribute a specious unity to "nano". In operating, such a body would have to respect the vast degree of differentiation between different nanotechnologies and their applications. This is reflected in the different issues which affect businesses who operate within distinct industry sectors. There will be different potential benefits, risks and social concerns to consider for different sectors. Consequently, it would at least be necessary to organise different working groups under the aegis of such a Commission. Further, research has suggested issues of trust, risk and uncertainty, and social purposes are key to understanding how publics assess technological applications – these are not unique to nanotechnologies. With synthetic biology already been touted as "the next nanotechnology", it would make more sense to talk of an organisation whose remit was identified as e.g. "Emerging Technologies" or "Responsible Innovation, which would seek to situate broader processes of technological development in the context of multi-stakeholder debates over social priorities.

5. Is it primarily the responsibility of Government to run public engagement activities? What public engagement work do you think industry should be undertaking, given that the BRASS Centre has noted that the industry have been criticised over the lack of transparency regarding the presence of nanomaterials in food and food packaging?

   While the Government will inevitably have an important coordinating, and to some extent, financing role to play, it is necessary for industry to assist in organising engagement programmes and events in conjunction with public and academic partners. There is no reason to expect that individual businesses that are not already involved in systematic proactive public engagement (mostly in the pharma sector, but also in some cases in the chemical industry, e.g. BASF) to undertake extensive activities. For smaller companies, costs are prohibitive and expertise lacking; for larger consumer-facing companies, such activities are often located "downstream" in the product development process. Instead, the setting up of sector-specific collaborative bodies should be undertaken (Leatherhead Food is, for example, already involved in such efforts for the food sector). Such efforts may assist with overcoming the barriers to communication which have been evident in the food sector, but also elsewhere. Such bodies would have an important role to play in e.g. engaging business in considering the benefits of wider stakeholder engagement.

6. What are the ways, practices or mechanisms to integrate public views into research strategies to allow public opinion and concerns to inform future research priorities and directions? The EPSRC recently conducted some engagement activities concerning nanotechnologies and healthcare. Do you think that this is an example of good practice?

   In terms of its methodology and approach the EPSRC exercise appears to have benefited from some of the lessons presented in the NEG's report from 2007 (with the extent of uncertainty about benefits and risks being at the forefront of the debates.. However, it is not clear from the report available from the EPSRC website (http://www.epsrc.ac.uk/ResearchFunding/Programmes/Nano/RC/ReportPublicDialogueNanotechHealthcare.htm) how far participants were informed about the purpose of the engagement exercise and what influence their participation might have on future research. Nonetheless, the specific application and case-study based approach used here provides a useful example of how such studies may be undertaken. More broadly, while individual exercises may represent examples of bad or good practice, it is arguably necessary to support whatever deliberative exercises are undertaken with a clear vision and commitment to systematic and iterative dialogue, with the possibility of allowing its focus to evolve as potential applications become more concrete. If planned and undertaken under (for example) the aegis of something like a "Commission for Responsible Innovation", such a longer term process might look to move from providing input on research priorities (with EHS and socio-economic research included alongside physical/life science work), to assessing the design of individual applications, to providing guidance on what (if any) limits should be drawn around technological development based on specific concerns (e.g. over the limits to privacy).

7. What are the best ways/practices mechanisms to integrate public views and concerns into policymaking (upstream dialogue) to ensure that public opinion and concerns inform the regulatory framework?

   See response to (6) above.

8. Do you think that products made using nanotechnologies or containing nanomaterials should be labelled at the point of sale, and do you think that this will be useful to consumers?

   Labelling may have a role in allowing customers to make informed choices about the products they purchase, and may be seen as part of a response to moral issues which surround the marketing of products where uncertainties surround the possibility of harmful effects. However, reliance on labelling ***alone*** *as a means of providing information to consumers is highly problematic, as it shifts questions about the social acceptability or legitimacy of a product very far downstream. Current public awareness of nanotechnologies is at low enough a level that such a measure would arguably not give consumers much useful information. It is far more important that industry and regulators should pursue openness and transparency through other avenues. If such a strategy is pursued, it should be undertaken only with coordinated information support, e.g. a website (funded perhaps by the EU) which outlines the state of the art with respect to EHS assessments of given ingredients, with transparency about the current limits to knowledge (with the URL provided prominently on the label). The objections made by cosmetics companies to the usefulness of labelling are in this respect quite valid. There is, for example, a distinction to be made between e.g. products which contain fullerenes and ones which contain nanoscale TiO_2, but simply requiring all such products to carry a "nano" label would go against the need to reflect the variousness of nanomaterials. Labelling has a vital role in setting the conditions for informed consent, but it must be located carefully within an overall strategy which has better upstream engagement for its basis.*

9. The Government has stated in its response to the Royal Commission of Environment Pollution's report on Novel Materials that it has now commissioned a pilot initiative 'to provide public access to a balanced source of information on nanotechnologies, including research, products and regulation'. The pilot will be based around an interactive website. Do you think this would be useful? What additional information should be provided to consumers this way?

Yes (see response to Q.8 above). Part of the "balance" any such resource should manifest would have to include, as mentioned previously, discussion of the current limits to knowledge. This would mean that the website would have to be viewed as an aid to reflection about nanotechnologies (and technologies) more widely, rather than simply being about "what nanotechnologies are", what they "will" do to shape the future, and "what risks there are". It would have to be viewed as a resource for opening up and supporting critical reflection, rather than a sort of nano FAQ. For example, to support such an approach, it would also arguably be necessary to provide resources to illustrate how far, in other areas of our lives, we deal with difficult-to-assess risks and open uncertainties (to encourage people to think about why, for example, they are happy to own and use a mobile phone despite continuing EHS uncertainties).

10. The FSA is currently considering developing a register of nano-derived foods and food contact materials. Do you think such a register would be justifiable and helpful? Do you think it should be voluntary or mandatory?

Such a register would be useful, but only if (i) due consideration is given to how it can best be developed as part of an integrated approach from government both to the dissemination of information and consultation, and (ii) thought is given to how such a register can be supported to ensure wide compliance. In other words, neither asking for submissions, nor requiring them, can ***by itself*** *be a solution. It would arguably be necessary, for example, to accompany such an initiative with new institutional arrangements of the kind mentioned above in response to Qs 4, 5 and 6 above, in order to secure both public and industry assent. The nature of the register itself would also need careful consideration: would it simply be a database of products and manufacturers, or would it also provide information on characterisation of materials, the extent of relevant toxicology, and so on? The more information that is required, the more costly compliance would be, which would of course disincentivise both larger and smaller companies from pursuing food nanotechnologies. Any new regulatory measures therefore need to be accompanied by reflection on how best compliance can be supported (with e.g. incentives of access to expert advice, or even grants to aid compliance activities or seed money for collaborative research between companies or between companies and academia). Should an adequately supported scheme be made possible, then incentivised voluntary compliance followed by mandatory compliance after a suitable period (e.g. 2 years) might be appropriate.*

References

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