Perception of Nanotechnology Among General Public in Japan

- of the NRI Nanotechnology and Society Survey Project-

The Nanotechnology Research Institute of AIST conducted the first general survey on Nanotechnology and Society in the general public started 1.5 years ago led by Mr Yasumoto Fujita supported by the Director Dr Hiroshi Yokoyama and the Deputy Director Dr Shuji Abe who provided the financial support and technical advice. The Survey was conducted by interviewing through site-visits to 1011 people aged between 20 to 69 years old, within 30 km of Tokyo area during period of Nov. 26 to Dec 14th 2004.
Note that the interviewees are mostly not experts or professionals in science and technology fields (only 2.8% are S & T professionals). However 65.7% of the interviewees have university degrees (Note that Japan`s literacy is one of the highest in the world). About 50% of interviewees are interested in science at school.
About 70% of the interviewees think that they are interested in politics and economy, and about 44% are interested in science and technology.
In terms of what technology and how would impact their lives in 20 years, 80% of the interviewees think that solar energy would improve their lives, 66% think that information technology would improve their lives and about 50% think nanotechnology would improve their lives. See Fig.1 for more details. The 87% of interviewees claimed that the source of S & T information is from television news, 33% claimed from television science program, 31% from internet and 62% from the Japanese popular newspaper.

When it comes to issue of Nanotechnology, about 55.2% of the interviewees claimed that they have heard either frequently or from time to time about nanotechnology. Among all the interviewees, 85.6% hope that that nanotechnology would contribute to the development of healthcare including diagnostics and medicine, 30% expect that nanotechnology would contribute the Japanese economic development and 80.4% hope Nanotechnology could solve environmental problems. And about 71% declared that they saw nanotech news and programs on TV and about 58% claimed they read about nanotechnology on newspaper.

Among all the interviewees, 34.1% claimed that they know about the word of nanotechnology and 20.3% replied that they know its simple explanation. See Fig. 2 for comparison of nanotechnology awareness among Japan, USA and UK. Note that the USA data are from "Public Perceptions about Nanotechnology: Risks, Benefits and Trust" by M.D. Cobb and J. Macoubrie (2004) and the UK data are from Royal Society and Royal Academy of Engineering (2004) "Nanoscience and Nanotechnologies: Opportunity and Uncertainties", Chapter 7.

Regarding to the issue of Nanotechnology Expectation on the benefits and Worry on the Risks on the society, 88% of the interviewees think positive about nanotechnology`s benefit the society. See Fig.2 for the comparison with USA and UK.

About 54.5% of the interviewees feel worried one way or another about the advancement of nanotechnology. Among them, 69% are concerned about the safety issue, 79% are worrying about unexpected outcomes, and 49% are concerned about moral issues.
The interviewees indicated their desires for reliable information on nanotechnology particular related to the areas of health (83.4%) and environment (78.3%), also technical S & T (42.5%) as well as benefits for consumers (39.1%).

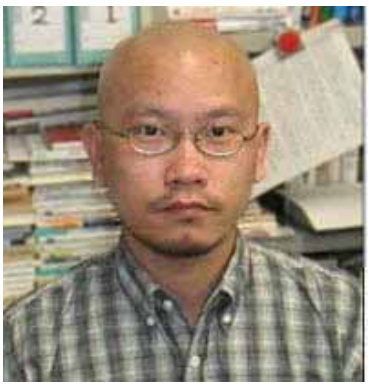
Another interesting finding in the study is that the level of trust in scientists in terms of the nanotechnology related information is the highest (54.1%) among NGO, Industry, Government, TV and other media. And the government received the lowest trust (22.5%). “Scientists are better respected in Nanotechnology by the public compared even with Biotechnology”, Mr Fujita stressed.

Technology	Expectation on Improvement in Life %	No Impact %	Bad Influence %	Donot Know %	Failed to answer %
Solar Energy	80.4	8.2	1.4	10.0	
Information Technology	66.1	5.8	9.7	18.1	0.3
Biotechnology/Genetic Engineering	55.1	3.7	14.9	25.9	0.4
Space Technology	48.1	22.5	4.3	25.2	
Internet	56.1	11.5	15.9	16.2	0.3
Nuclear Energy	31.0	10.3	26.9	31.8	0.1
Nanotechnology	49.2	4.5	2.9	43.3	0.1
Genetic Modified Food	24.7	7.4	40.5	27.3	0.1
Mobile Phones	47.4	22.2	14.1	16.2	0.1

Fig.1 Percentage of Interviewees response to impact of different technologies including nanotechnology (data source from “Questionnaire Survey Report on Nanotechnology and Society” by Dr. Yasumoto Fujita and Dr. Shuji Abe, Sept 2005)

Country	Public Awareness of Nanotechnology	Hopeful of Nanotechnology Benefits
Japan	55.2%	88.0%
USA	48.0%	70.0%
UK	29.0%	68.0%

Fig.2 - Comparison on Nanotechnology public perception in Japan, USA and UK (datasource from the presentation given by Dr Shuji Abe at the AIST Nano & Society Workshop held on Sept. 2nd 2005 at AIST Headquarter)



Mr Yasumoto Fujita received his graduate education at the the Graduate school of History and Philosophy of Science, University of Tokyo. He has been an Adjunct Lecturer at Tokyo Denki University since Sept 2002. He joined the Center for Technology and Society, National Institute of Advanced Industrial Science and Technology (AIST) in April 2003 as a postdoctoral researcher and then continued his research activities at the Nanotechnology Research Institute of AIST since May 2004. His main research interest is Social and Historical Studies of Science and Technology, especially focusing on Nanotechnology and Space Science and Technology. He recently completed the unique report on *Questionnaire Survey Report on Nanotechnology and Society* (co-authored with Dr Shuji Abe) which was discussed in this article. He plans further studies on sociological research of nano-scientists and policymakers. He is planning to continue on direct survey on scientists who are active in the nanotechnology research through site visits/interviews and understand their views on risks, safety of nanoparticles and other nanomaterials as well as policy for regulations.