



EUROPEAN
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“Recommendation to the Member States on a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research” Argentine-Brasilian Conference Buenos Aires, 27-28 August 2008

**European Commission
Research DG**

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Recommendation to the Member States on a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research

1. Nanosciences and Nanotechnologies:
Introduction: Issues and concerns
2. Why a Code of Conduct?
3. The Code of Conduct



NANOTECHNOLOGY. WHAT IS AT STAKE?

- Ethical acceptability of technology
- Early identification of benefits and risks
- European and international research cooperation and governance



LESSONS FROM THE GMO DEBATE

- Early intervention of society in RTD Stage (does not mean that policymakers blindly follow polls but do actively engage on these issues)
- Early involvement of all stakeholders
- Creating regulatory oversight and certainty



NANOTECH IS DIVERSE

Human Health



Nanomedicine

Detectors/surveillance



Security

Environment



Safety



(PROSPECTIVE/CURRENT) ETHICAL ISSUES

- Human enhancement- ICT brain implants, augmentation of senses, retardation of ageing
- Predictive Nanomedicine: growing gap between diagnosis and possible therapy
- Surveillance and Detection: Balance between privacy and security



(PROSPECTIVE) CURRENT RISK ISSUES

- Mainly: Safety of nanoparticles
- Application of Precautionary Principle
- Implementation of Code of Conduct



FUTURE SCIENCE/SOCIETY ACTIONS AND CHALLENGES

- Involving civil society actors in nanotech research
- Acceptability of Technology: consumer product satisfaction is crucial
- Map regulatory needs at EU and international levels



European Commission policies

- Adoption of European Strategy for Nanotechnology (May 2004) and Action Plan (June 2005) emphasising the need for a “safe, integrated and responsible development of N&N.
- Announcement of adoption of Code of Conduct at international level
- Implementation of International Dialogue, but failed to adopt a CoC



Drafting of the Code

- DG Research invited experts from Member States
- Consulted Forum of National Ethics Councils (27 EU MS) and the EGE
- Published an internet-based consultation on a draft code (concluded in September 2007)



1- Nanosciences and Nanotechnologies Commission's activities:

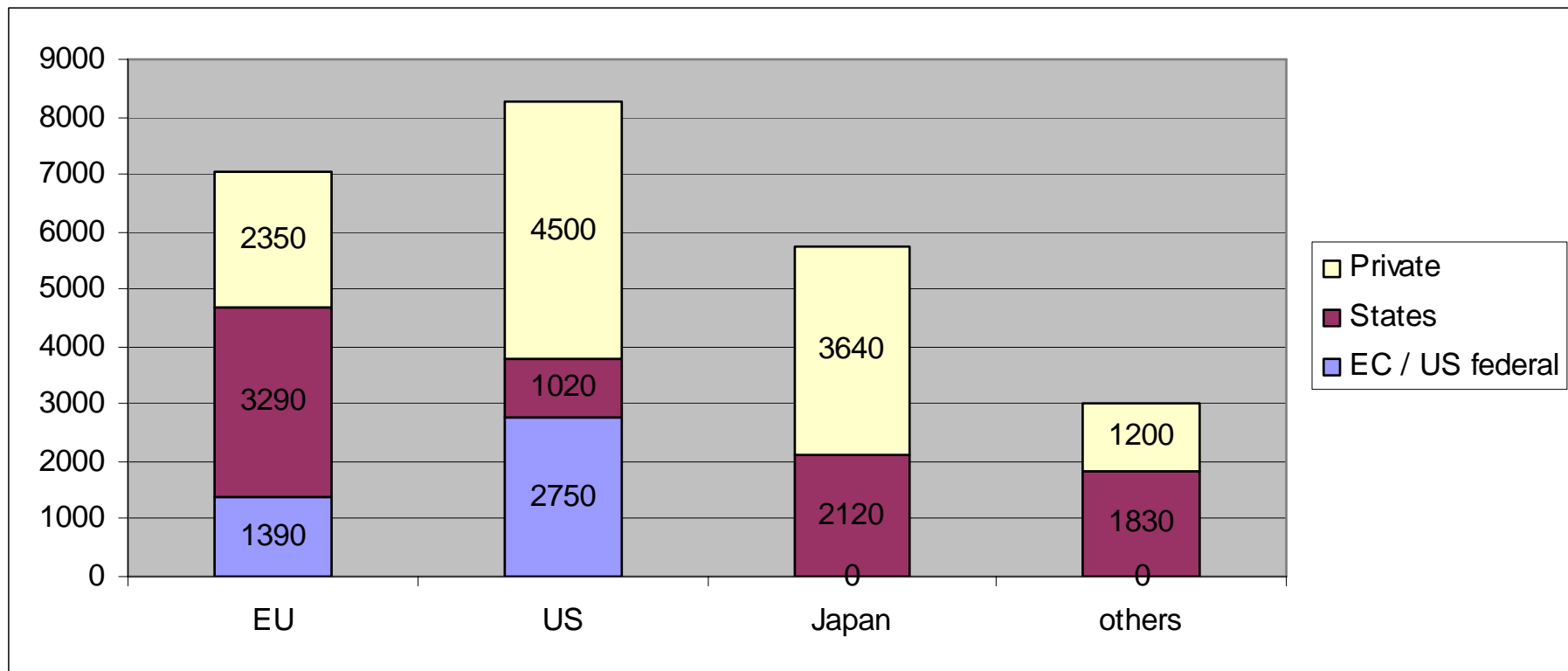
FP6: 1.4 billion €, 550 projects

The Commission accounts for **1/3 of Europe's
public funding in N&N**

and has become the **largest "N&N funding
agency"** worldwide



Nanosciences and Nanotechnologies Commission's activities:



Source: European Commission & Lux Research

2004
~6.4 Billion €

2005
~8.4 Billion €

2006
~9.2 Billion €





Nanosciences and Nanotechnologies Commission's activities:

CO-OPERATION	32413
-Health	6100
-Food, Agriculture and Biotechnology	1935
-Information and Communication Technologies	9050
-Nanosciences, Nanotechnologies, Materials and new Production Technologies	3475
-Energy	2350
-Environment (including Climate Change)	1890
-Transport (including Aeronautics)	4160
-Socio-economic Sciences and Humanities	623
-Space	1430
-Security	1400
IDEAS (European Research Council)	7510
PEOPLE	4750
CAPACITIES	4097
JRC	1751

FP7 Budget: 50521 M€





1- Nanosciences and Nanotechnologies

Commission's activities:

Almost **60 activities** in the **calls opened in 2007** were *directly* relevant to N&N

Several themes and specific programmes

300-400M€ funding estimated for **2007**, increasing after 2008

In total: **doubling** of the rate of funding expected over duration of FP7 compared to FP6

FP7 Budget: 50521 M€





1- Nanosciences and Nanotechnologies

Citizens ask:

Is it safe?

Is it ethical?

Are citizens fundamental rights guaranteed?

Will it remain so in the future?



3- Why a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research?

A Recommendation from the Commission to the Member States in the field of N&N research constitutes a **strong political signal** in line with its previous commitments.

The harmonisation of laws of the Member States being excluded from research policy, the Community can use **non-binding instruments**, such as recommendations (Art. 211 of the EC Treaty), to fulfil the tasks and obligations enshrined in the Treaty.



3- Why a Code of Conduct for Responsible Nanosciences and Nanotechnologies Research?

The Recommendation, through the Member States, addresses **all stakeholders** in N&N Research,

Proposes the **adoption and promotion of a Code of Conduct** for Responsible N&N Research (both private and public laboratories)

Calls for the application of the Precautionary Principle to N&N Research.



4- The Code of Conduct

GENERAL PRINCIPLES

- (1) Meaning
- (2) Sustainability
- (3) Precaution
- (4) Inclusiveness
- (5) Excellence
- (6) Innovation
- (7) Responsibility



EC recommends Member States

- be used as an instrument to encourage dialogue at all governance levels among policy makers, researchers, industry, ethics committees, civil society organisations and society at large
- Inform the EC on first results by 30 June 2008
- Cooperate with EC to monitor and review the Code biannually



4- The Code of Conduct

ACTIONS TO BE TAKEN

- Good governance of the N&N research
 - Stakeholders awareness,
 - Favouring an inclusive approach
 - Key priorities
 - Prohibition, restrictions or limitations
- Due respect of precaution
 - Protection of people
 - Reduction of uncertainty
- Wide dissemination and monitoring



4- The Code of Conduct

ACTIONS TO BE TAKEN

- Stakeholders awareness,
Open and pluralistic forum for discussion
 - Make information accessible and understandable
 - Share best practices in N&N research
 - Scientific peer-review
 - Scientific integrity
 - Application of existing laws and regulations
 - **Applying ethical review requirements**



Applying ethical review requirements

How to approach proposals involving Nanosciences and Nanotechnologies (N&N) in Ethical Review?

The Ethical Review Panel should report in the ERR:

- Any violation of **fundamental rights or fundamental ethical principles**, at either the research or development stages;
- Fundamental rights implications of any possible restrictions on **informed consent** and on **publication of research results** related to human health;
- Particularly relevant for ethical review of **dual-use** linked to N&N research.



Applying ethical review requirements

Nanosciences and Nanotechnologies (N&N) and Ethical Review

- Specific research activities aiming to gain a better **understanding** of ethical, legal and societal impacts of the new fields opened by N&N;
- Degree of **awareness** of researchers of the Code of Conduct for Responsible N&N Research itself and of the opinion of the EGE on the ethical aspects of nanomedicine;
- The extent to which the future implications have been taken into account, notably through participatory **foresight** processes involving ethical committees;



The Code of Conduct

ACTIONS TO BE TAKEN

- Favouring an inclusive approach
 - Inclusive discussions
 - Participatory foresight exercises
 - Open N&N research



The Code of Conduct

ACTIONS TO BE TAKEN

–Key priorities

- N&N standards (terminology, measurement, reference)
- Risk assessment, metrology and standardisation
- Priority to protection
- Balanced assessments



The Code of Conduct

ACTIONS TO BE TAKEN

- Prohibition, restrictions or limitations
- Violation of fundamental rights or fundamental ethical principles
 - Non-therapeutic enhancement of human beings leading to addiction or if illicit (cheating in sports etc.)
 - As long as risk assessment on long-term safety not available, deliberate intrusion of nano-objects into the human body



The Code of Conduct

ACTIONS TO BE TAKEN

– Protection of people

- Specific health, safety and environmental measures
- Apply existing good practice in classification and labelling
- Risk assessment and funding
- Monitoring potential social, environmental and human health impacts



The Code of Conduct

ACTIONS TO BE TAKEN

– Reduction of uncertainty

- Understanding the potential risks
- Understanding fundamental biological processes
- Understanding ethical, legal and societal impacts



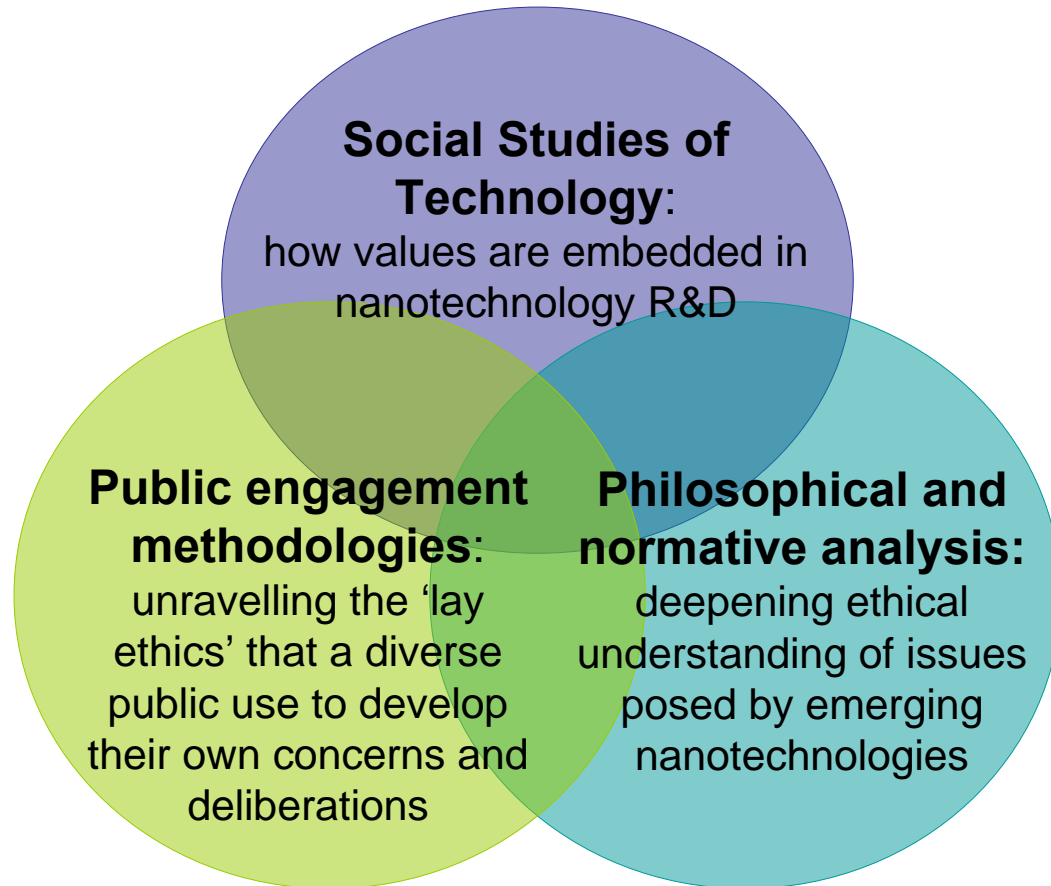
The Code of Conduct

ACTIONS TO BE TAKEN

- Wide dissemination and monitoring
 - Wide dissemination of the Code of Conduct
 - Awareness of all relevant legislation
 - Monitoring at national level and synergies



Forthcoming Analysis: "DEEPEN" project





DEEPEN APPROACH

- To understand how ethical reflexivity may be built into the development of nanotechnology innovation
 - Through collaborative empirical research with nano-enactors including nano-scientists, corporate representatives and government officials involved in the practice of shaping nanotechnological trajectories
 - Through empirical research aimed at uncovering the tacit ethical and political choices and dilemmas embedded in nanotechnology R&D practices
 - Through the design of novel collaborations with nano-enactors and their publics in order to foster greater ethical reflexivity



NanoCap

NanoCap

Discuss and deepen the understanding of NGOs and trade unions on nanotechnology on

- Environmental issues
- Occupational health and safety issues
- Ethical issues
- Critical assessment of benefits

Inbetween outcome: *The European Trade Union Confederation (ETUC) adopted a first resolution on nanotechnologies and nanomaterials at its recent Executive Committee meeting. The key demand: the precautionary principle must apply to nanotechnologies*



NANOPLAT: Objectives

- **Evaluate selected deliberative processes in Europe. These evaluations will both have a general NS&T perspective, but will concentrate on the value chain of consumer goods and services.**
- **Identify the needs and interest of relevant stakeholders along this value chain, especially focusing on producers, consumers, NGOs and the civil society.**
- **Develop a deliberative and science based platform for a stakeholder dialogue The main elements of the platform are:**
 - a) the content,
 - b) the participants,
 - c) the physical and technical solutions and arenas and
 - d) the responsibility for a permanent platform.
- **Formulate Recommendation for research and political actions.**



References

FP7: http://cordis.europa.eu/fp7/home_en.html

FP7 Calls: <http://cordis.europa.eu/fp7/dc/index.cfm>

http://cordis.europa.eu/nanotechnology/src/eu_funding.htm

Nanotechnology Homepages:

http://ec.europa.eu/nanotechnology/index_en.html

<http://cordis.europa.eu/nanotechnology/>

Nanotechnology and Society:

<http://ec.europa.eu/research/science-society/>

Nanosciences and Nanotechnologies Policy :

<http://cordis.europa.eu/nanotechnology/actionplan.htm>

More on nanotechnology:

