



OECD's work on the Safety of Manufactured Nanomaterials

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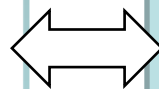
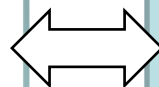
OECD Work on Nanotechnologies

Committee on Scientific And Technological Policy

Working Party on Nanotechnology

Objectives: Applications

Socio-economic analysis of nanotechnology and the facilitation of international collaboration in R&D and S&T policies in the field



Chemicals Committee

Working Party on Manufactured Nanomaterials

Objectives: Implications

Human health and environmental safety implications of manufactured nanomaterials (mainly the industrial chemicals sector)

Working Party on Nanotechnology

Projects:

- Statistics and Measurement
- Nanotechnology Impacts on Companies and the Business Environment
- International R&D collaboration
- Communication and public engagement
- Policy Dialogue
- Global Challenges: Nano and Water

Working Party on Manufactured Nanomaterials

Who participates?

- 30 OECD Member Countries and the European Commission
- Non-members: Brazil; China; Singapore; Thailand; and Russia
- Inter-governmental organizations: WHO and UNEP
- ISO
- Other stakeholders: business/ industry; organized labor; and environmental NGOs



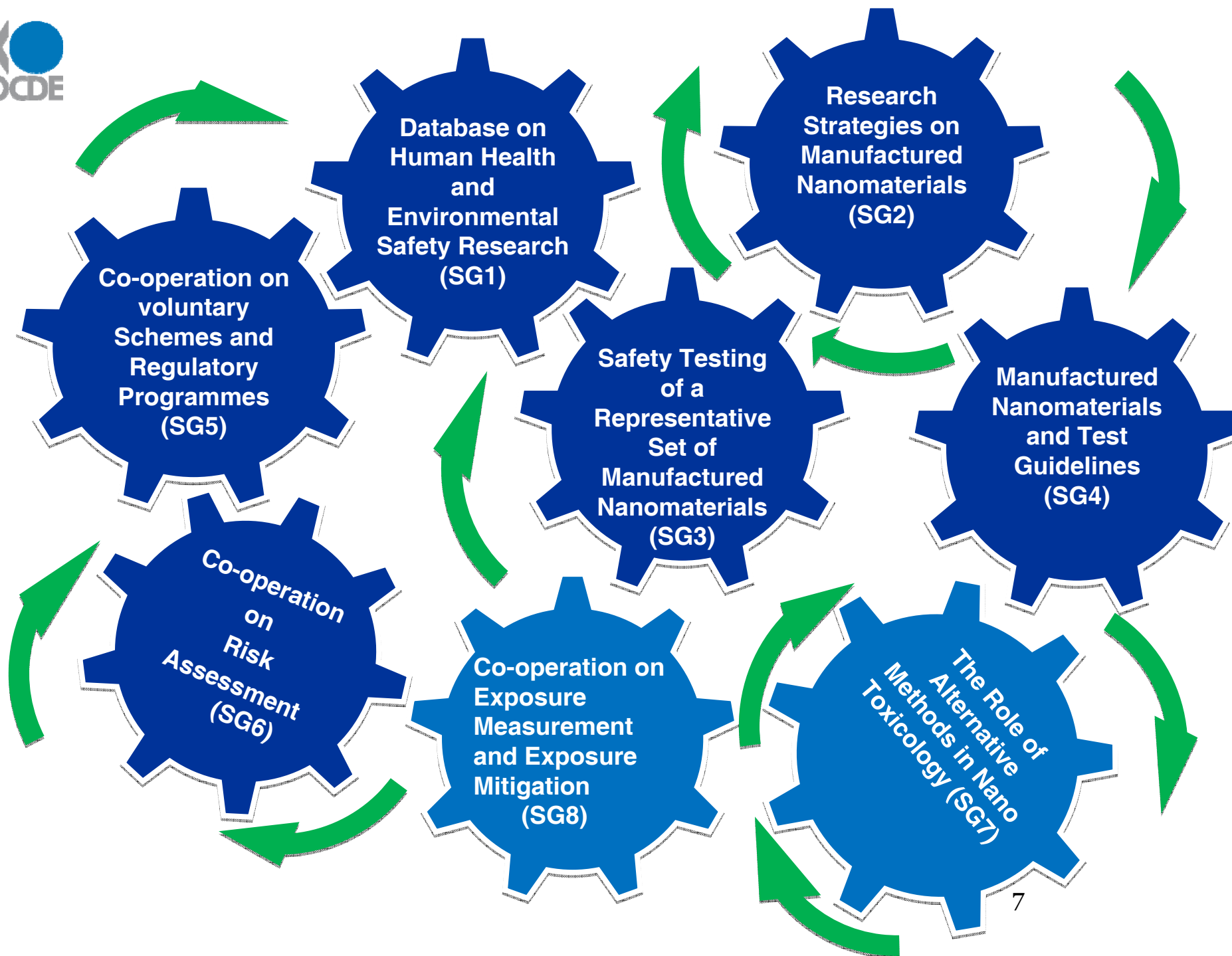
WPMN projects: Highlights/ Next steps

- **Project 1: Database on Human Health and Environmental Safety Research:** Database with research project information – public launch in 2008
- **Project 2: Research Strategy(ies) on Human Health and Environmental Safety Research:** Review of current research programmes has identified research themes which already have wide coverage and those less well covered
- **Project 3: Testing a Representative Set of Manufactured Nanomaterials (MN):** Sponsorship programme for the testing of 14 MNs for 61 endpoints
- **Project 4: Manufactured Nanomaterials and Test Guidelines:** Development of guidance on sample preparation and dosimetry for the testing of manufactured nanomaterials



WPMN projects: Highlights/ Next steps

- **Project 5: Co-operation on Voluntary Schemes and Regulatory Programmes:** Analysis of national information gathering programmes
- **Project 6: Co-operation on Risk Assessment:** Review of existing risk assessment schemes and their relevance to nanomaterials
- **Project 7: The Role of Alternative Methods in Nanotoxicology:** Reviewing alternative test methods which will avoid animal tests and which will be applicable to manufactured nanomaterials.
- **Project 8: Exposure Measurement and Exposure Mitigation:** Development of recommendations on measurement techniques and sampling protocols for inhalation and dermal exposures in the workplace.



Current focus

Safety Testing of a Representative Set of Manufactured Nanomaterials

Objective: To test an agreed representative set of manufactured nanomaterials using appropriate test methods.

Aim: To understand the types of information on intrinsic properties that may be relevant to exposure and the effects assessment of MNs.

In close co-ordination with other OECD work on Chemical Safety: Test Guidelines, Mutual Acceptance of Data

Implementation - Two Stages

Stage 1

Agreement on:

- i) A list of **MNs** (based on materials which are now, or soon to enter, commerce) ; and
- ii) A list of **endpoints** for which these MNs should be tested.

Stage 2

Development of a programme to test MNs for human health and environmental safety

Stage 1:

List of Manufactured Nanomaterials (14)

- ▶ Fullerenes (C60)
- ▶ Single-walled carbon nanotubes (SWCNTs)
- ▶ Multi-walled carbon nanotubes (MWCNTs)
- ▶ Silver nanoparticles
- ▶ Iron nanoparticles
- ▶ Carbon black
- ▶ Titanium dioxide
- ▶ Aluminium oxide
- ▶ Cerium oxide
- ▶ Zinc oxide
- ▶ Silicon dioxide
- ▶ Polystyrene
- ▶ Dendrimers
- ▶ Nanoclays

Stage 1: List of Endpoints

- ▶ Nanomaterial Information/Identification (9 endpoints)
- ▶ Physical-Chemical Properties and Material Characterization (16 endpoints)
- ▶ Environmental Fate (14 endpoints)
- ▶ Environmental Toxicology (5 endpoints)
- ▶ Mammalian Toxicology (8 endpoints)
- ▶ Material Safety (3 endpoints)

Stage 2: Sponsorship Programme


The **sponsorship programme** is an international effort to share the testing of an agreed set of manufactured nanomaterials selected by the WPMN.

Two phases:

- **Phase 1:** To test selected MNs for the selected endpoints (official launch of phase 1: November 2007)
- **Phase 2:** phase 1 will identify those cross-cutting issues or tests that will need further consideration by the WPMN

Sponsorship Programme Work in Progress Phase 1

- Launched November 2007
- OECD Secretariat is the clearing house to ensure co-ordination
- Development of a guidance manual for sponsors to guide the testing
- Workshop in Korea will assist Sponsors in their development of Dossier plans (November 2008)
- Draft Dossier Development Plans to be considered by the 5th WPMN (March 2009)

 OCDE	Lead sponsor(s)	Co-sponsor(s)	Contributor
Fullerenes(C60)	Japan, US		China
SWCNTs	Japan, US		Canada, France, Germany, EC, China, BIAC
MWCNTs	Japan, US	Korea, BIAC	Canada, Germany, France, EC, China, BIAC
Silver nanoparticles	Korea, US	Canada, Germany	Australia, France, EC, China
Iron nanoparticles	China	BIAC	Canada, US
Carbon black			Germany, US
Titanium dioxide	Germany	Canada, Korea, Spain, US, BIAC	France, China
Aluminium oxide			Germany, US
Cerium oxide	US, UK/BIAC	Netherlands	Australia, Germany, EC
Zinc oxide	UK/BIAC	US, BIAC	Australia, Canada
Silicon dioxide		Korea, BIAC	France, EC
Polystyrene			Korea
Dendrimers		Spain	US
Nanoclays			US



Manufactured Nanomaterials and Test Guidelines

Preliminary conclusions and recommendations from the review of the OECD Test Guidelines on:

- Physical Chemical Properties
- Effects on Biotic Systems
- Degradation and Accumulation
- Health Effects

Development of Guidance on:

- Sample Preparation and Dosimetry
- Instillation vs. Inhalation studies



Alternative Methods in Nano Toxicology to reduce Animal Testing

New project to evaluate and, where applicable, validate *in vitro* and other methodologies

Status:

- Review of currently validated *in vitro* methods to evaluate their applicability for testing nanomaterials
- Integration with other projects
- Testing needs to be considered during sponsorship

More information

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