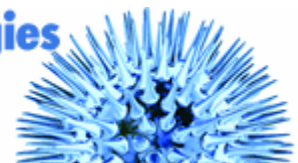
# Breakout Session 3

## Environment

Facilitator: Tero Eklin

Nanotechnologies
International Workshop
26-28 February 2008



# ”The big picture”

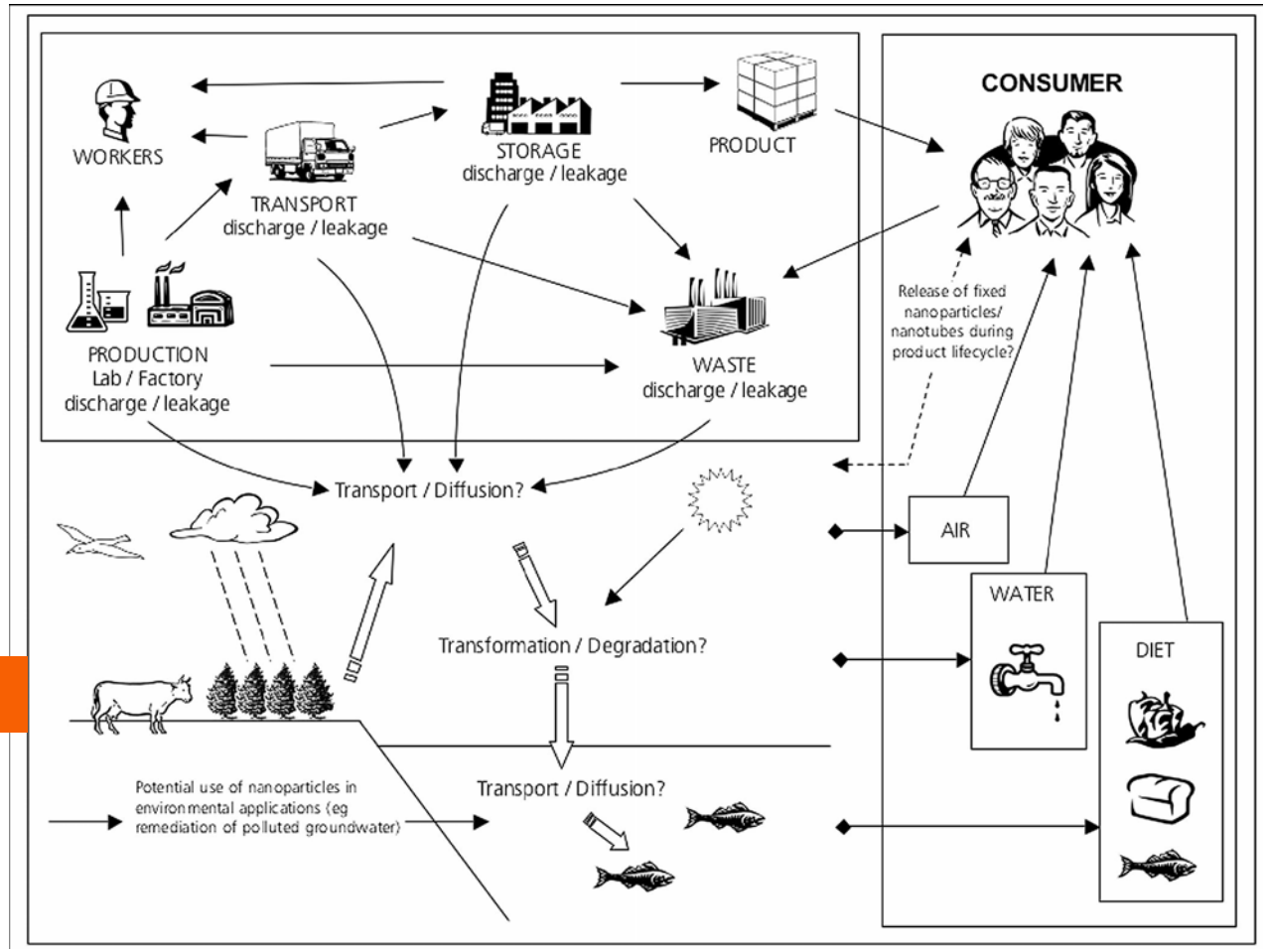
-Ecotoxicity
-Fate & degradation
-Phys. Chem. properties

SAMPLING

RISK EVALUATION

METROLOGY

MONITORING

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# Existing documentary standards

- None was identified under metrology topic

However, following work items were discussed do they fall within the scope:

- **ISO DIS 15900: Determination of Particle Size Distribution – Differential Electrical Mobility Analysis for Aerosol Particles**
- **ISO PWI 27891: Validation and Calibration of Aerosol Particle Number Counters – or – Calibration of Condensation Particle Number Counters**

# Documentary Standards Needs

- Identify MNP characterization measurands including those corresponding to OECD Endpoints. 7
- Standard method to disperse solid nanomaterials in aqueous solutions – protocol for use of surfactant for liquid dispersion. 5
- Standardized method for sample preparation for in vitro and in vivo toxicity testing including use and application of surfactants 4
- Check applicability of standard P-chem analytical methods for MNP 3

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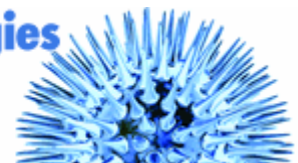

- Guideline on sampling, transport, conditioning etc for aerosol — 2
- Determine applicability of current methods to evaluate effectiveness of Personal Protective Equipment, filters and environmental protection equipment — 2
- Method to distinguish engineered NP from ambient natural background (both air and liquid media) — 2
- Method to generate NP aerosols for inhalation toxicity test, calibration of instruments and testing of PPE, Filter etc — 2
- Develop reference materials for the 14 represented NP materials identified by OECD — 2
- Guideline for measuring NP exposures, including subtraction of background aerosols (both occupational, environment) — 2

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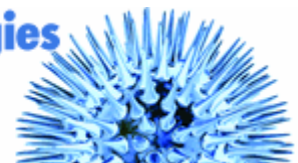

- Guideline for determining its oxidative reduction potential 1
- Creation of Repository of information on NP guidelines 1
- Methods to determine environmental partitioning (air, water) 1
- Determine applicability of current methods to sample NPs in air, water 1
- Determine applicability for existing protocols for Toxicity testing 1
- Standardized methods for surface area for NP in condensed phases. 1

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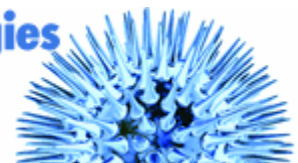

| | |
|---|---|
| • Determine NP concentration in liquids | 1 |
| • Define NP methods that should be measured (i.e. size) | 1 |
| • Define terminology for nanoparticle vs molecule | 1 |
| • Develop guidance for developing data for OECD endpoints | 1 |
| • Standardized method for occupations exposure measurement | 1 |
| • Guidance for measuring dermal exposure (occupational and consumer) | 1 |

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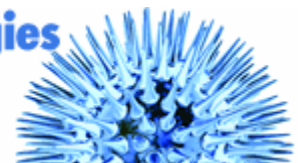

- Key questions - measurement 0
- Standardized measurement particle distribution in liquids 0
- Method to maintain sample stability of water, soil, and biological mediums 0
- Guidance on large scale release of NP into environment 0
- Method to determine morphological state of measured particles 0

# Barriers – facilitator's view

- Resources
- Cooperation
- Maturity of methods  -> Need for PNR, CNR?

# Resources

- Existing resources

- Resource challenges

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