



30 Years Anniversary Seminar
26 August 2008, Oslo, Norway

Nordic Expert Group for the Criteria Documentation of Health Risks
from Chemicals (NEG)

Origin and Maturation of NEG – A Nordic Effort for Chemical Safety

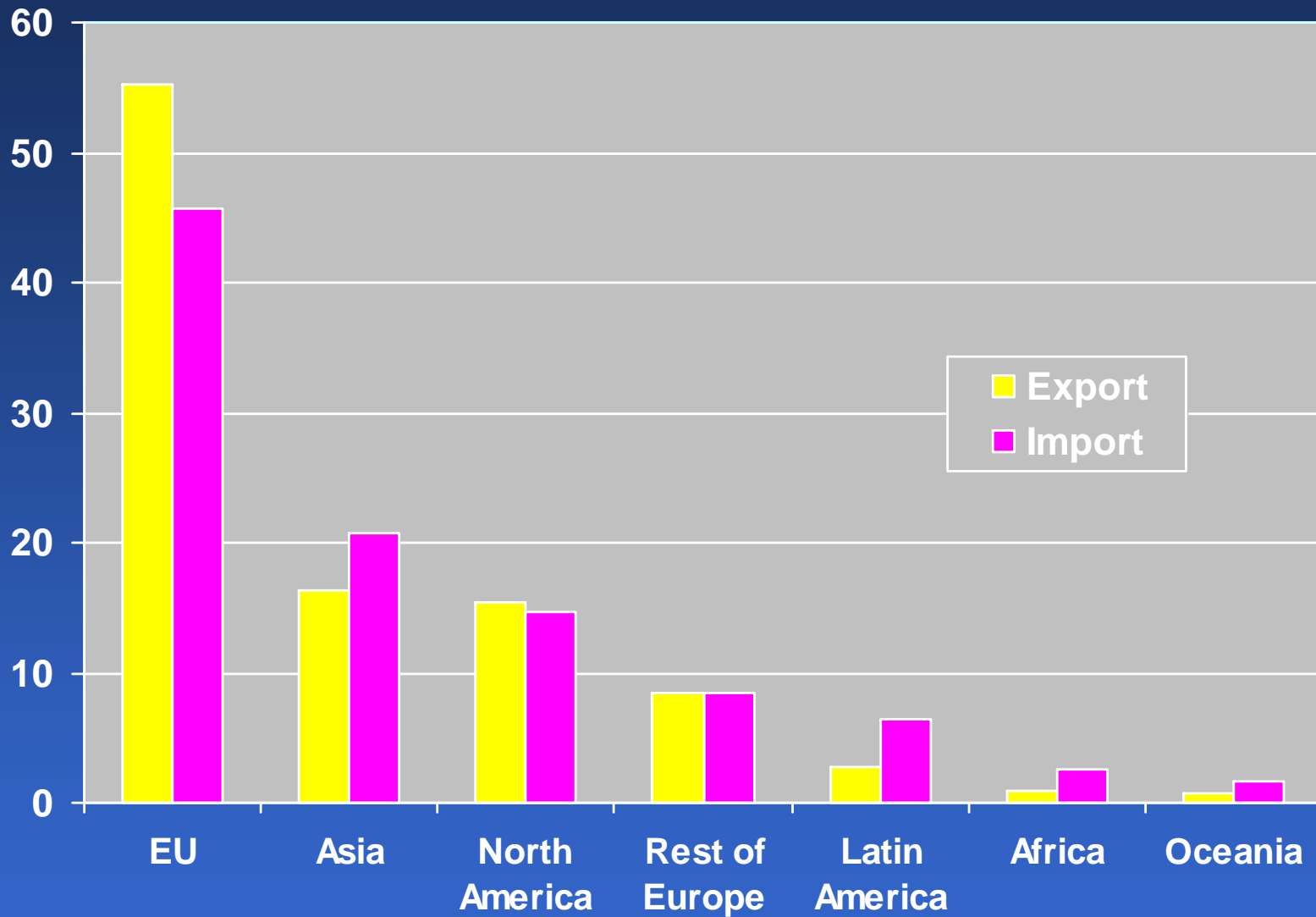
Professor Jorma Rantanen

31 1:09PM

OUTLINE

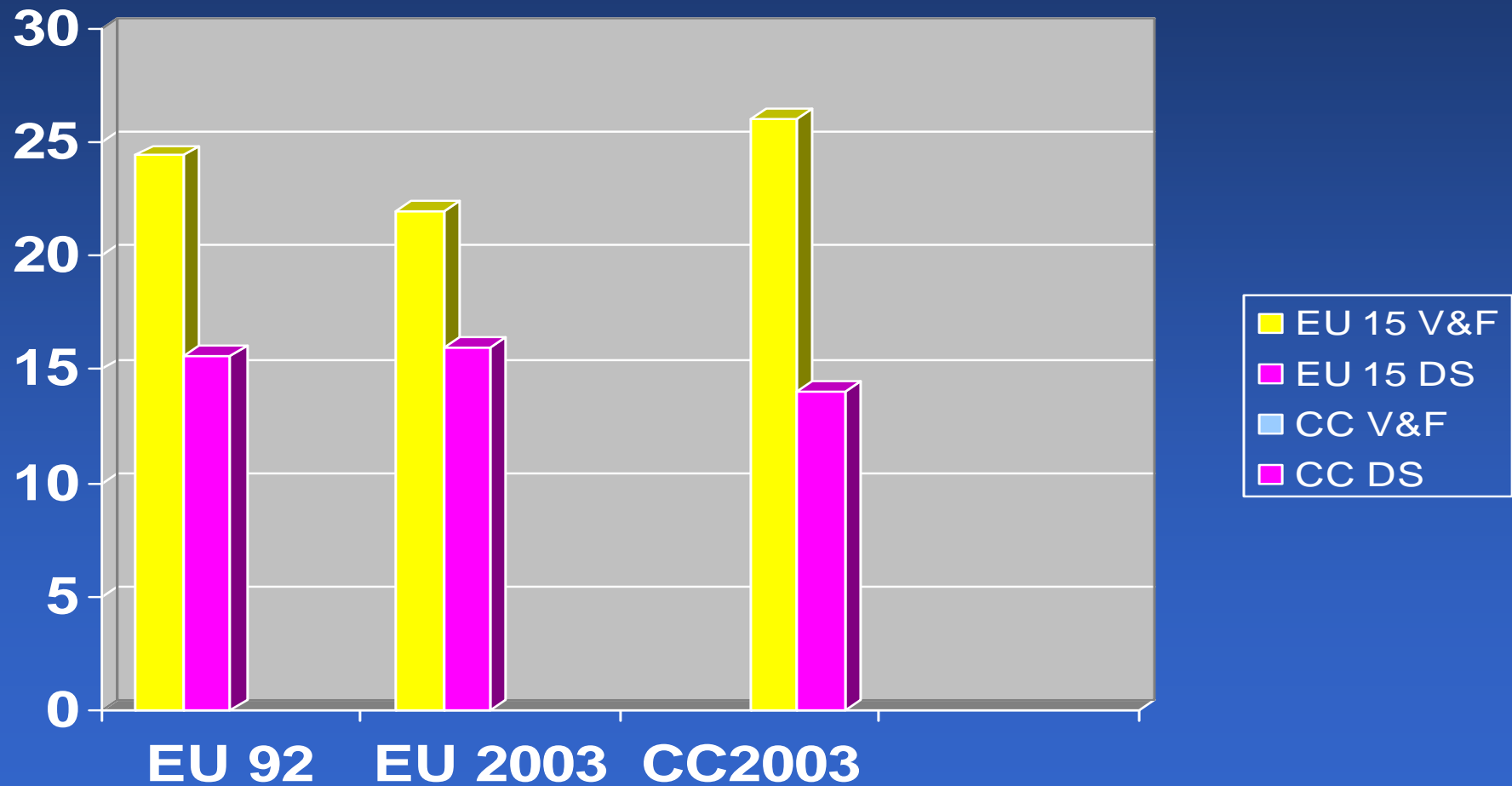
- Short history of Nordic Collaboration
- Policy basis of NEG
- Principles of NEG work
- Impact in the Nordic area
- Impact beyond Nordic borders
- Future challenges
- Conclusions

Export and import of chemicals in different regions of the world



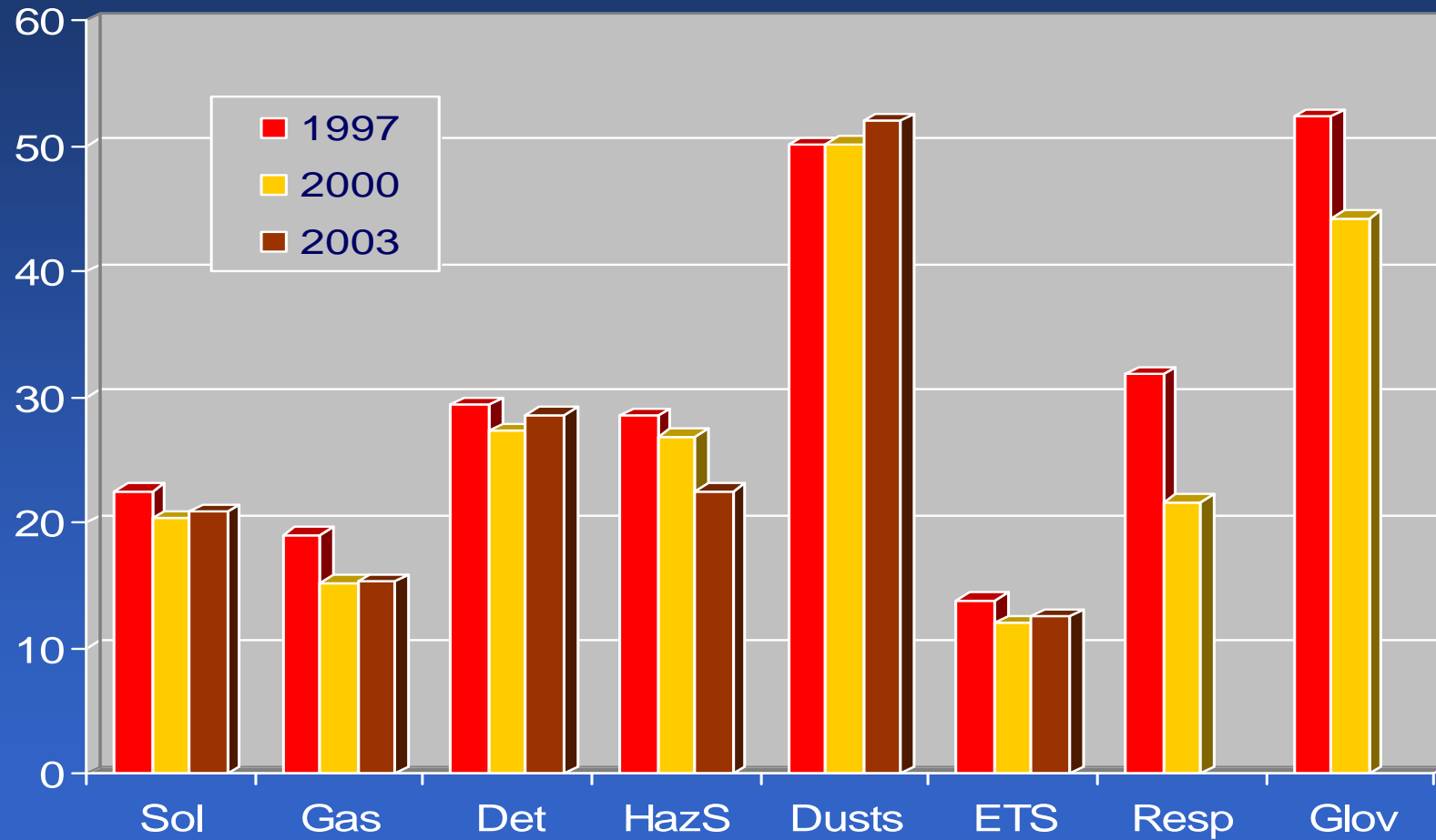
Source: CEFIC 2004

Workers exposed to gases and fumes and handling hazardous substances in the EU and in the CC countries % (Source EUROFOUND 2004)



Exposure of Finnish workers to chemicals 1997-2003

(Source: Piirainen et al 1997, 2000, 2003)



History

- 1952- Nordic Council
- 1962 Helsinki Treaty
- 1971- Nordic Council of Ministers
- 1972 Nordic Working Group on Occupational Medicine
- 1973 Committee of Senior Officials for Work Environment (with Research Group)
- 1984 Working group for Work Environment Research
- 1990 Nordic Work Environment Convention
- 1991 Combining Committee for Work Environment and Committee for Labour Market

History of Nordic WE collaboration

- Safety inspectors convened annually since 1928
- Hygienic laboratories met since 1945
- The First Nordic Congress on Occupational Medicine and Hygiene in 1951
- The second Nordic Congress on Occupational Medicine and Hygiene in 1956
- Since then annually
- Since 1976 Financial support from NMR

Policy

Nordic Work Environment Convention 1990

- Common objectives, collaboration, harmonization
- Continuous improvement of WE
- Exchange of experiences
- Harmonization of regulations
- Common Nordic position in international organizations
- Tripartite collaboration

Convention: Provisions for Research & related activities

Article 9

Nordic collaboration in work environment research shall be further developed through:

- Exchange of experiences,
- Division of work
- Facilitating effective use of resources and research results

Article 10

- Specialist training

Article 11

- Information and documentation

Article 12

- Statistics

Convention Principles

- Safety activities
- OHS
- Authorities
- Employer's primary responsibility
- Safe planning of work
- Equality
- Prevention
- Protection
- Participation and co-determination
- Right to refrain from dangerous work
- WE will be developed in the pace of the social and technical development in the society
- Standards

NEG Principles

Convention: Implementation

- NMR Work Environment Programme
- Regular meetings of High Level Officials (DGs 2x a year)
- Expert Groups (Directors of the Research Institutes, 2x a year)
 - * Initiatives and statements
 - * Research projects (ca 10) on priority areas
 - * Publication of reports
 - * Criteria documents (NEG)
 - * Meetings and seminars (NAM)
 - * Training (NIVA)

Expert Group for Occupational Medicine/Research on Work Environment

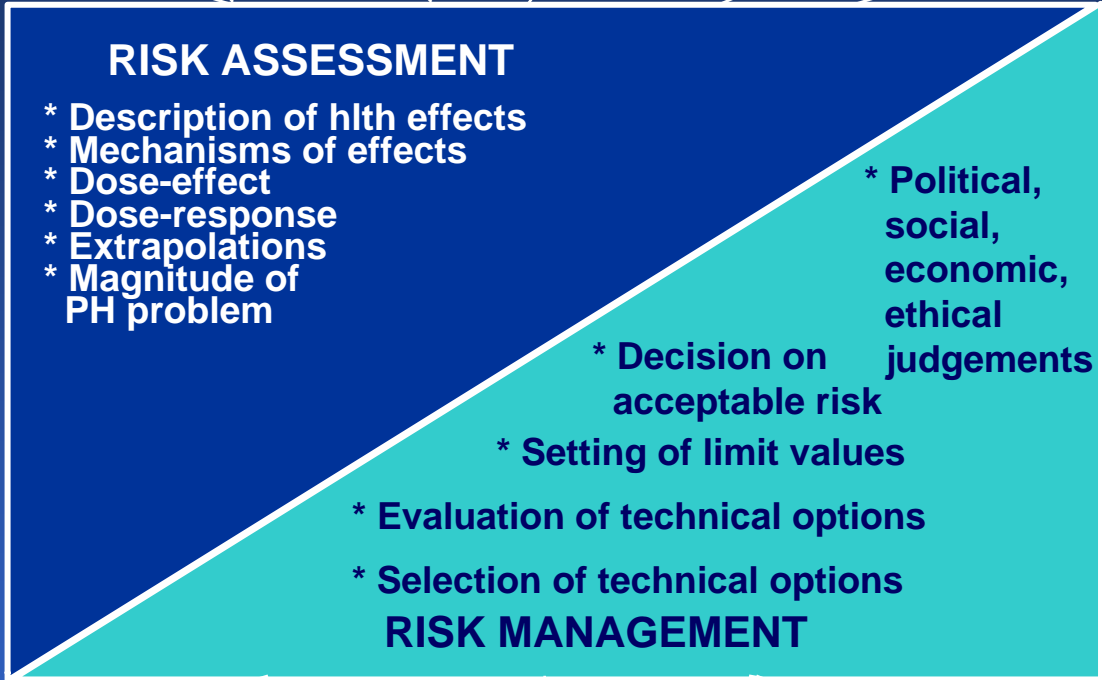
- Making an early research policy plan and initiatives for research projects
- Generating method for setting priority criteria for discussions with policy makers/authorities
- Combining competences, resources and study materials
- Utilising Nordic Institutes as operative arms
- Utilising research results for training programmes
Establishing the system for research management by the FG/NMR

NEG Principles

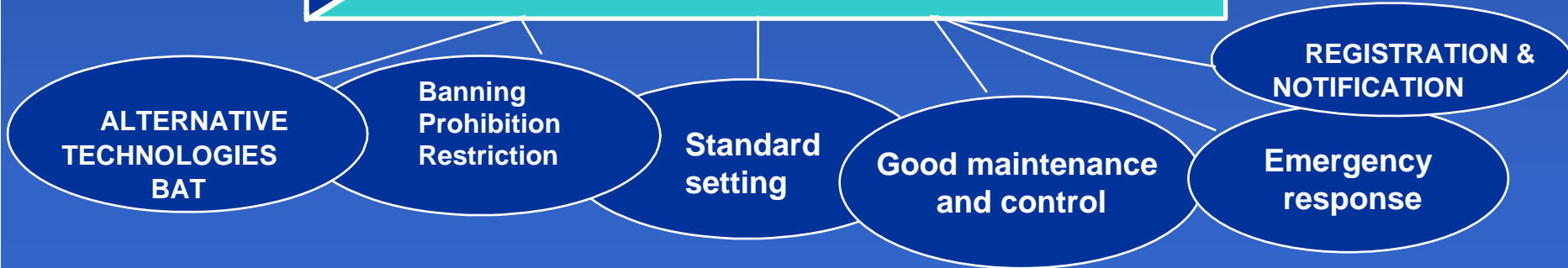
- Nordic relevance
- Priority setting: Intensity x Extent
- Best scientific evidence
- Scientific independence
- Best Nordic experts recruited
- Substances proposed by countries
- No numeric values



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Impact in the Nordic area

Typical Nordic Research Projects in the 1970's

- Criteria Documents, NEG
- Health hazards of wood dust
- Solvents
- Psycho-social work environment
 - Process industry
 - School teachers
 - Nordstress
- Early warning system for mutagens and carcinogens
- Statistics of occupational diseases and symptoms
- Specialist training in occupational medicine and occ. hygiene
- NAM Meeting

Typical Nordic Research Projects in the 1980s

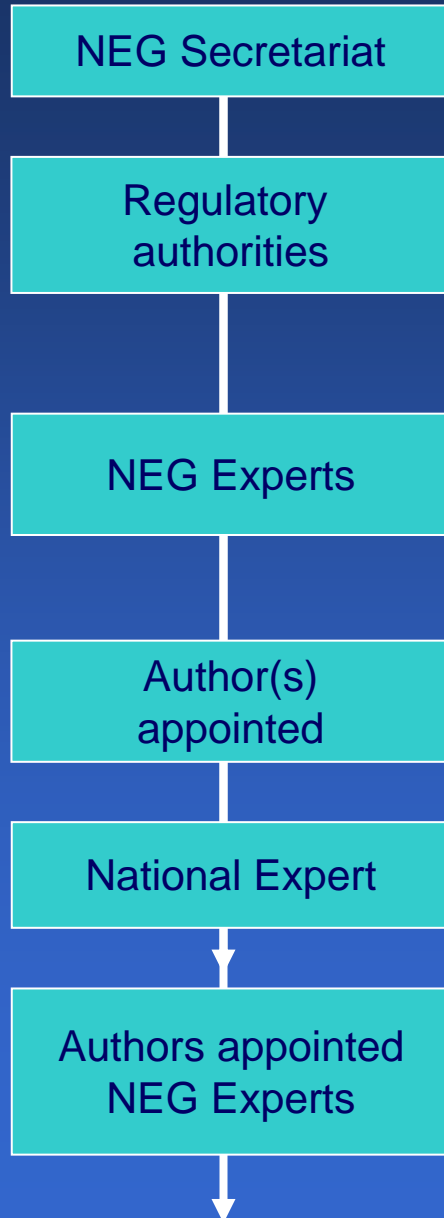
- Criteria Documents, NEG
- Fetal injuries
- Risk assessment on chromosomal aberrations
- Musculoskeletal disorders
- Solvents: Consensus Report on CNS Injuries (+WHO)
- Psycho-social burdens
- Work organization: self-steering groups
- Biological factors (moulds, fungi)
- Prevention of occupational accidents
- Work, health and economy
- Comparative study of occupational mortality
- NAM Meeting
- Scand J WEH
- Spin-off >>>NIVA
- Comparative study of legislation on working hours
- Harmonization of lower level OS&H regulations and guidelines
- Centralised inspection of hazardous technical facilities
- Nordic documentation centre for OS&H Information, SDA

New criteria/Research Strategy 95

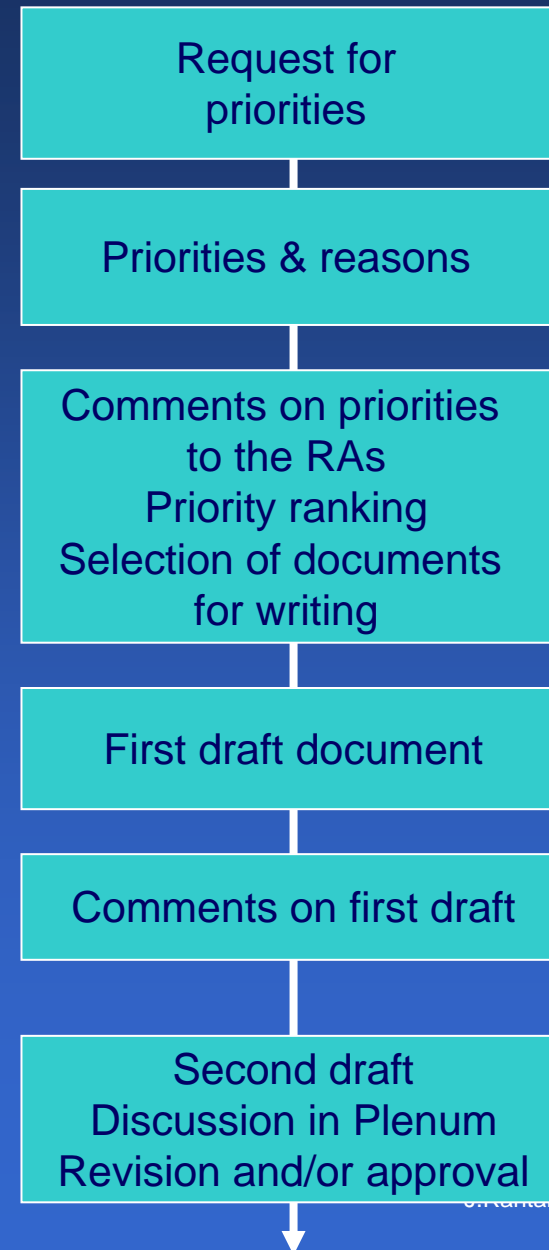
- Scientific quality
- Nordic added value
- NMR Research as a part of total Nordic/national research system
- Practical relevance
- Request/needs of NMR, NCM, ÄKs, Soc Partners
- FG's own criteria
- EU/neighbourhood perspective

The NEG process 1

Actor



Activity



The NEG process 2

Actor



Activity



Typical Nordic Research Projects in the 1990s

- Criteria Documents, NEG
- Criteria Document for physical work load
- Assessment of psychological work load (QPS-Nordic)
- Work environment of ageing workers
- Network for interventions for better work environment for health sector
- Health risks of biofuels
- Questionnaire for work-related dermatoses and relevant exposures
- Physiological indicators for work stress
- Network for isocyanates

Nordic Work Environment Program 2001–2004

Four priorities:

- Full employment: Matching between supply/demand of the workforce
- Good work: Safety in the work environment and in the work life
- Lowering the borders in the Nordic Region: Further strengthening of Nordic collaboration
- Promote the Nordic welfare model, European perspective and Neighbourhood collaboration

Typical Nordic Research Projects in the 2000s

- Criteria Documents, NEG
- Physiological indicators for work stress
- Criteria Documents and Tools for prevention of MSDs
- Questionnaire method for measuring safety climate
- Accident prevention in construction
- Sustainable development and OH&S
- IT pedagogy (NIVA)
- NAM

First ten

10.	<u>Xylene.</u>	1979:35.	Vesa Riihimäki, Kerstin Engström.	Swe.
9.	<u>Diisocyanates.</u>	1979:34.	Per Gustavsson, Birgitta Kolmodin- Hedman.	Swe.
8.	<u>Chromium.</u>	1979:33.	Sverre Langård.	Nor.
7.	<u>Tetrachloro ethylene.</u>	1979:25.	Rolf Bodin.	Swe.
6.	<u>Lead, inorganic.</u>	1979:24.	Henrik Nordman.	Swe.
5.	<u>Methylenechloride.</u>	1979:15.	Ingvar Lundberg.	Swe.
4.	<u>Styrene.</u>	1979:14.	Kerstin Engström, H Härkönen, Harri Vainio.	Swe.
3.	<u>Trichloroethylene.</u>	1979:13.	Tor Norseth.	Nor.
2.	<u>Toluene.</u>	1979:05.	Karl-Heinz Cohr, Jens Stokholm.	Dan.
1.	<u>Formaldehyde.</u>	1978:21.	Birgitta Kolmodin- Hedman.	Swe.

Outputs: Criteria documents published as paper versions and on Internet

- Over 139 criteria documents
- Published in *Arbete och Hälsa* since 1978
- English versions since 1987
- Short versions on internet from 1998
- Can be ordered or downloaded directly as pdf from the Internet



www.nordicexpertgroup.org

Sarjat
Arb

NR 2004:15

The Nordic Expert Group for Criteria Documentation
of Health Risks from Chemicals and The Dutch Expert
Committee on Occupational Standards

136. Cyclic acid anhydrides

Helena Keskinen



Nordic Council of Ministers

SKRIFTSERIE

Sarjat
Arb

NR 2005:13

The Nordic Expert Group for Criteria Documentation
of Health Risks from Chemicals

137. Ammonia

Jyrki Liesivuori



Nordic Council of Ministers

SKRIFTSERIE

Sarjat
Arb

NR 2006:13

The Nordic Expert Group for Criteria Documentation
of Health Risks from Chemicals

138. Microbial volatile organic compounds (MVOCs)

Anne Korpi, Jill Järnberg and Anna-Liisa Pasanen

SKRIFTSERIE

Sarjat
Arb

NR 2006:21

The Nordic Expert Group for Criteria Documentation
of Health Risks from Chemicals

139. Fungal spores

Wijnand Eduard

SKRIFTSERIE

Top production

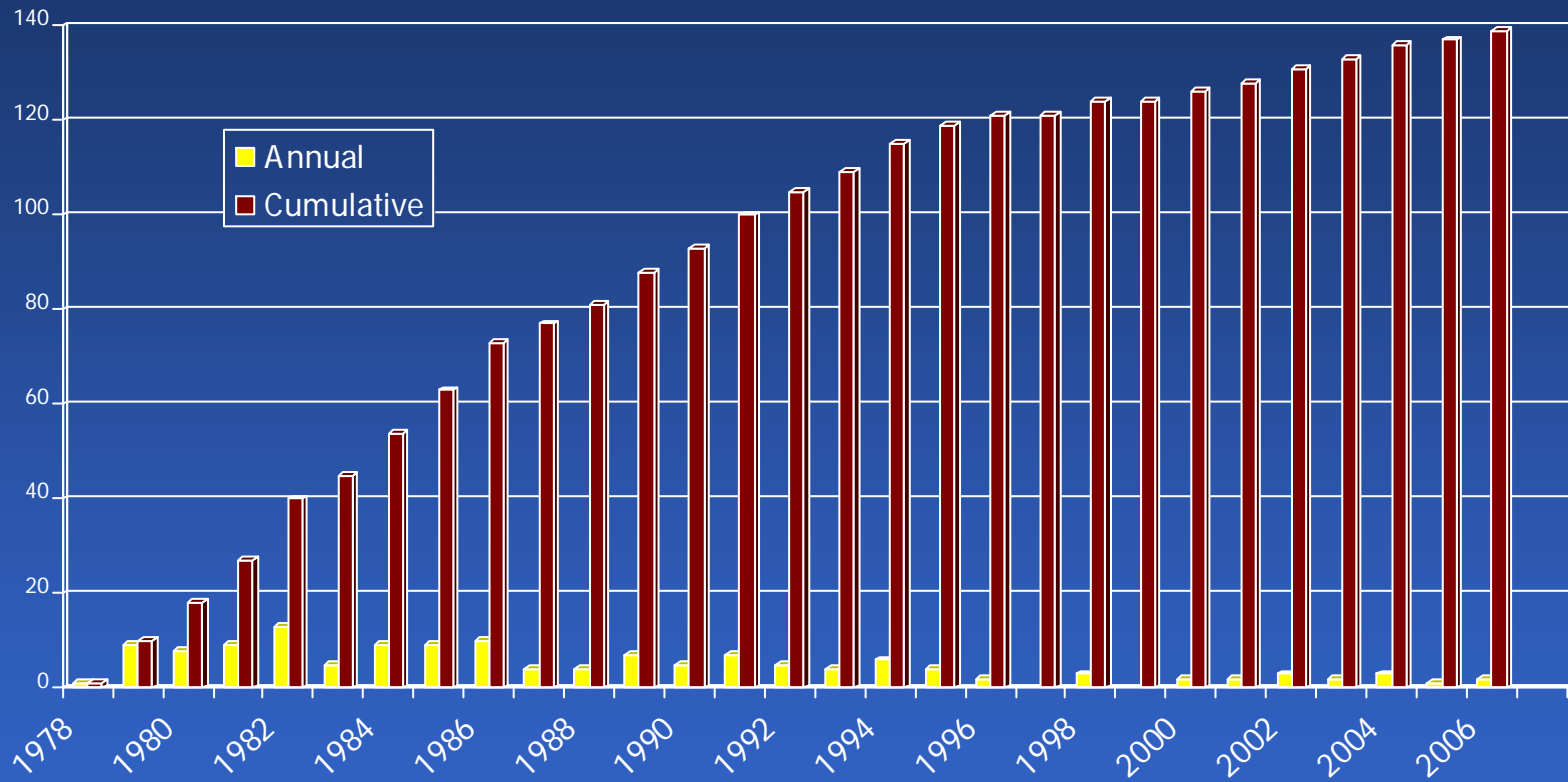
40	<u>Dihydrogen sulphide.</u>	1982:31.	Heikki Savolainen.	Swe.
39	<u>Asbest.</u>	1982:29.	Matti Huuskonen, Antti Tossavainen.	Swe.
38	<u>Dimethylformamide.</u>	1982:28.	Stina Lundberg.	Swe.
37	<u>Formaldehyde.</u>	1982:27.	Birgitta Kolmodin-Hedman, Henrik Nordman.	Swe.
36	<u>Synthetic pyrethroids Permethrin.</u>	1982:22.	Margareta Bystedt, Birgitta Kolmodin-Hedman.	Swe.
35	<u>Refined petroleum solvents.</u>	1982:21.	Ole Ladefoged.	Dan.
34	<u>Nitrous oxide.</u>	1982:20.	Christer Edling.	Swe.
33	<u>Vanadium.</u>	1982:18.	Björn Gylseth, Tor Hansen.	Nor.
32	<u>Cobalt.</u>	1982:16.	Pekka Roto.	Swe.
31	<u>Phtalates.</u>	1982:12.	Kerstin Engström.	Swe.
30	<u>Manganese, methylcyclopentadienyl manganese tricarbonyl.</u>	1982:10.	Gösta Gemne.	Swe.
29	<u>Ethyleneoxide.</u>	1982:07.	Christer Hogstedt.	Swe.
28	<u>Dioxane</u>	1982:06.	Stina Lundberg.	Swe.

Criteria documents

131	<u>Lithium and lithium compounds.</u>	2002:16.	Birgitta Json Lagerkvist and Birgitta Lindell.	Eng.
130	<u>Tin and inorganic tin compounds.</u>	2002:10.	Bente Westrum, Yngvar Thomassen.	Eng.
129	<u>Chlorotrimethylsilane.</u>	2002:02.	Hans Stouten, Fons Rutten, Iris van de Gevel, Flora deVrijer.	Eng.
128	<u>Triglycidyl isocyanurate.</u>	2001:18.	Birgitta Lindell, Johan Montelius.	Eng.
127	<u>Hydrogen sulphide.</u>	2001:14.	Kristin Svendsen.	Eng.
126	<u>1,2,3-Benzotriazole.</u>	2000:24.	H. Stouten, A.A.J.J.L Rutten, I.A. van de Gevel, and F. De Vrijer.	Eng.
125	<u>Toluene.</u>	2000:19.	Grete Østergaard.	Swe.

Criteria documents

N	<u>Substance/agent</u>	Year:Issue	Authors	Language
139	<u>Fungal spores</u>	2006:21	Wijnand Eduard	Eng
138	<u>Microbial volatile organic compounds (MVOCs)</u>	2006:13	Anne Korpi, Jill Järnberg, Anna-Liisa Pasanen	Eng
137	<u>Ammonia.</u>	2005:13.	Jyrki Liesivuori.	Eng.
.				
136	<u>Cyclic acid anhydrides.</u>	2004:15.	Helena Keskinen.	Eng.
.				
135	<u>gamma-Butyrolactone.</u>	2004:07.	Erik Söderlund.	Eng.
.				
134	<u>Penicillins.</u>	2004:06.	Gregory A. Moore och Olle Nygren.	Eng.
.				
133	<u>Tetrachloroethene.</u>	2003:14.	Karel de Raat.	Eng.
.				
132	<u>Formaldehyde.</u>	2003:11.	Anton Wibowo.	Eng.
.				



Outputs 2

- Several NIVA Courses
- Other training events
- Presentations in congresses
- Scientific publications



Gunnar Johanson,
chairman

Vidir Kristjansson

Vidar Skaug

Karin Sörig Hougaard

Jill Järnberg,
scientific secretary

Kai Savolainen

Impact elsewhere

Productivity of OH Research by country 1992-2001

(Navarro & Martin 2004)

Country	N	%	Rank	Per Mill inhab	Rank	PerBillion GDP	Rank
USA	3299	43.64	1	12.37	9	0.43	22
UK	692	9.15	2	11.78	10	0.58	15
Sweden	654	8.65	3	74.41	1	2.78	4
Canada	489	6.47	4	16.57	7	0.82	12
Finland	379	5.01	5	74.20	2	3.22	3
Japan	364	4.81	6	2.90	25	0.08	57
Italy	347	4.59	7	6.06	18	0.31	29
The Netherlands	344	4.55	8	22.1	6	0.94	11
Germany	330	4.37	9	4.05	23	0.16	44
France	292	3.86	10	5.04	20	0.21	37
Denmark	236	3.12	11	45.00	3	1.46	7
Norway	181	2.39	12	41.40	4	1.29	9
Iceland	10	0.13	35	37.16	5	1.37	8
China	128	1.69	13	0.11	62	0.18	40

NEG as a model for pan-European OEL setting?

- Network of European committees
- Produce common CDs in collaboration
- Each country (and SCOEL) use the CDs as point of departure...
- when developing summary documents, proposing health-based OELs and/or setting administrative norms...
- according to national (and EU) policies and regulations

Advantages

- Avoid duplication (if avoidance is needed?)
- Harmonising views and criteria in risk assessment
- Shared burden \Rightarrow more resources \Rightarrow more substances covered
- Introducing Nordic principles to European fora

Beyond Nordic area

- DECOS Netherlands
- NIOSH USA
- Baltic and neighbourhood
- EU

Future challenges

Future scientific challenges: Standard setting

- Prediction of problems & challenges
- Emphasizing health-based standards
- Risk evaluations, criteria documents
- New biological hazards, new microbials, indoor air
- New outcomes MSDs, Stress, Aging, CVDs
- Work-related disorders
- Work in extreme conditions
- Ethnic variation
- Harmonising methods, pooling data
- Implementation in everyday practice

Nanorisks (OECD, NIOSH, HSE)

- Work environment
 - Fire
 - Explosion
 - Catalytic reactions
 - Electrical conductivity
 - ????
- Health
 - Main Routes: Inhalation, oral, skin absorption
 - Modification of toxic reactions
 - Cellular injury, inflammation
 - Fibrosis, granuloma formation
 - COPD?
 - Interaction with medicines
 - ?????

Future policy challenges

- Relaxing regulators and implementators
- Over-emphasized economic dimension
- Promotion of chemical industries
- Compromising scientific independence
- Compromising ethics

EU REACH Enforcement project

Final report 2008

TemaNord 2008:561

Aims of the project were to:

- Identify present enforcement and new needs due to REACH
- Investigate the state of preparation of the Member States and start preparing for the operative work of the Forum
- Elaborate work division, co-operation and information exchange
- Prepare a draft proposal for Rules of Procedure for the Forum
- Develop a compendium of useful enforcement methods

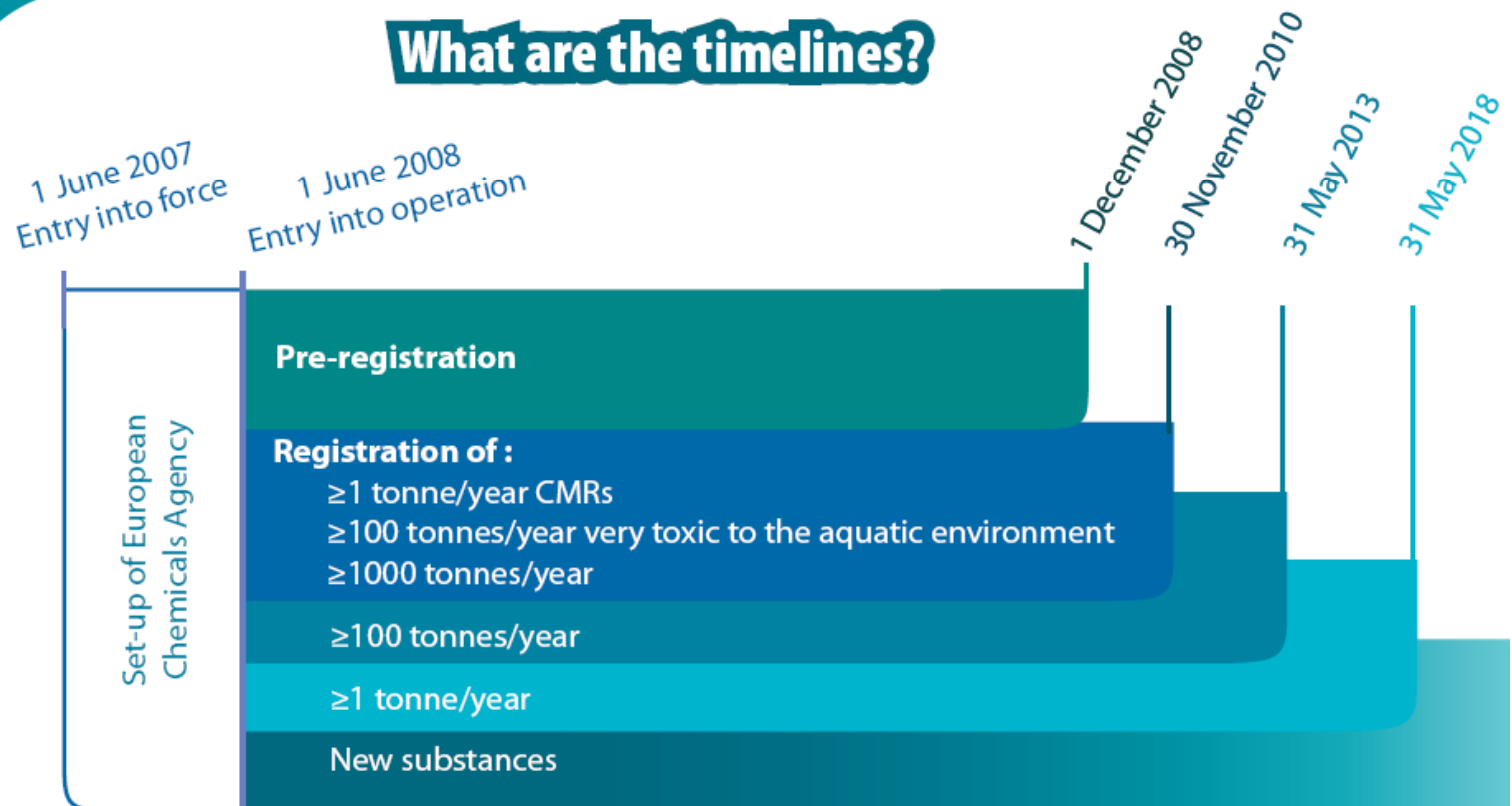
REACH

30 000 Substances by 2018

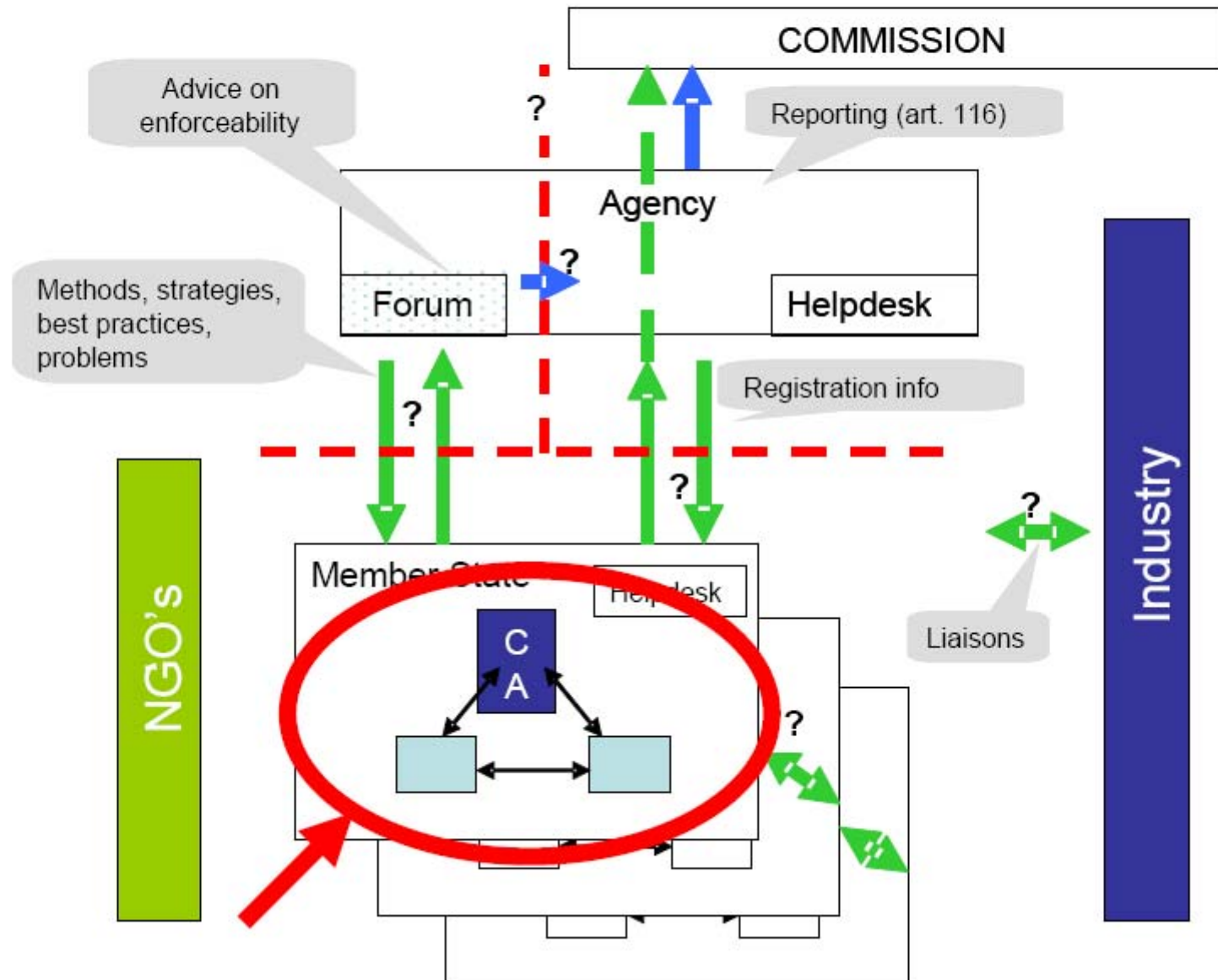
AUTHORISATION – the uses of substances of very high concern

- CMRs (carcinogens, mutagens, and toxic to reproduction)
- PBTs (persistent, bioaccumulative, and toxic)
- vPvBs (very persistent, very bioaccumulative)
- Impact of DNEL and DMEL on the OELs?

What are the timelines?



Which authorities will have responsibilities in the enforcement of REACH?



High

Risk regulation

Zero risk principle

Pre-cautionary principle

REGULATORY APPROACH

Redundant safety

Best available technology (BAT)

Best practicable technology (BPT)

As far as reasonably practicable (ALARA)

As far as reasonable (AFR)

Cost-benefit (C/B)

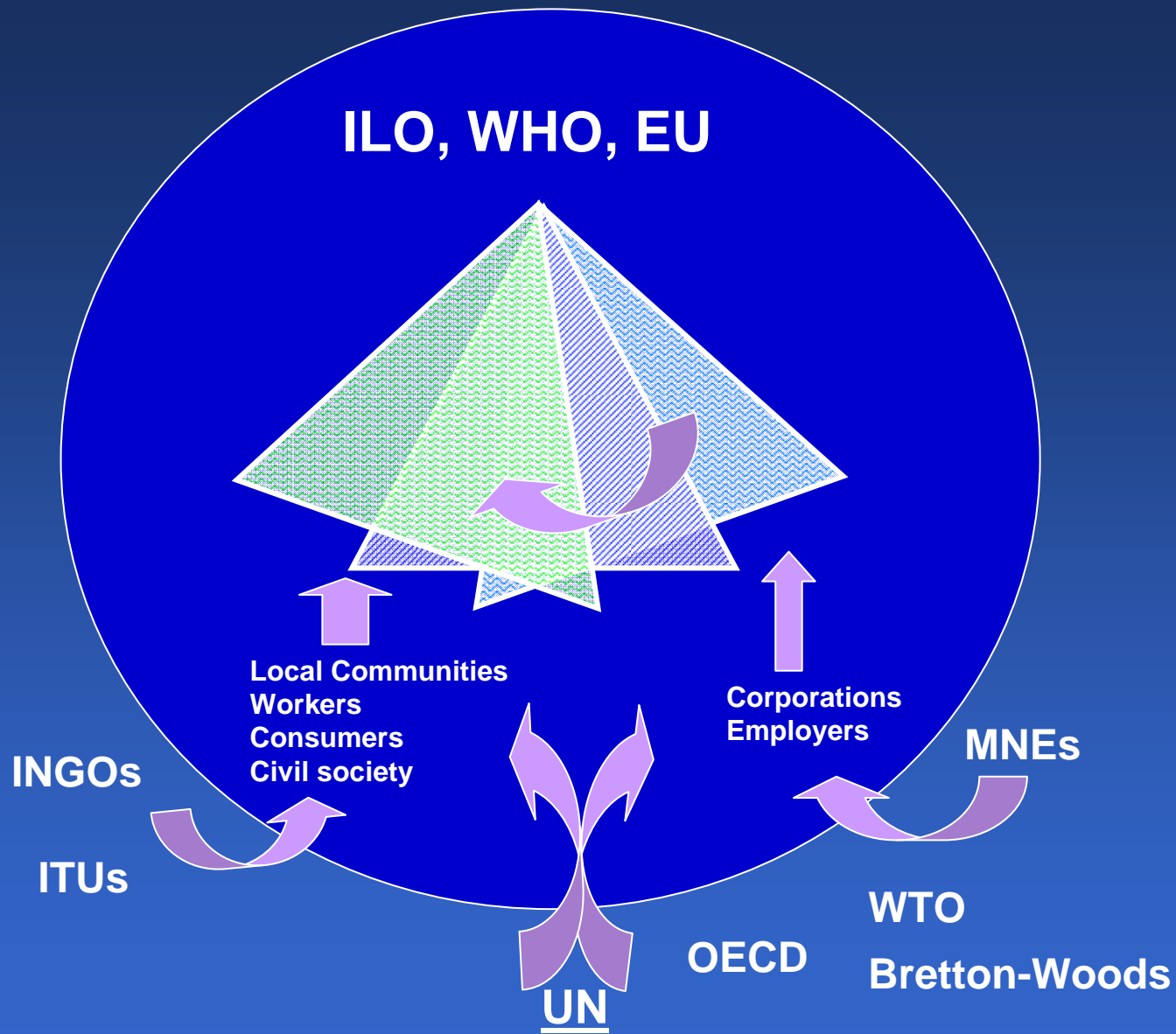
Free choice

VOLUNTARY ACTIVITIES

Level of safety

Low

Protection and prevention principle



Intergovernmental organizations

Conclusions

- Unique collaboration between institutions and experts of five countries
- Response to the policy needs of NC/NCM
- High productivity and relevance with extremely low cost
- Strengthening and intensifying contacts between the Institutions and research groups
- Impact on enforcement, practical prevention and training
- Contribution to EU and international community
- Impact on neighbourhood areas

Recommendations

- NEG work is based on Nordic research
- Research collaboration should be continued and strengthened
- Directors' participation in person in Nordic collaboration
- Contacts to OS&H authorities and Social Partners
- More intensive promotion and public information on NMR Research
- Nordic impact on EU and on New Members
- More NMR budget resources
- Own Senior Officials' Committee for Work Environment
- NEG financing from NMR and on a longer-term basis