Chaîne de valeur des nanotechnologies selon Lux Research

Nanomaterials	Nanointermediates	Nano-enabled products
• 2009 market size: $1 billion	• 2009 market size: $29 billion	• 2009 market size: $224 billion

1.	Ceramic nanoparticles	1.	Coatings	1.	Automobiles
2.	Carbon nanotubes	2.	Composites	2.	Construction
3.	Nanoporous materials	3.	Catalysts	3.	Consumer electronics
4.	Graphene	4.	Drug delivery systems	4.	Personal care products
5.	Metal nanoparticles	5.	Energy storage	5.	Marine
6.	Nano-encapsulation	6.	Sensors	6.	Aerospace
7.	Fullerenes	7.	Therapeutics	7.	Sporting goods
8.	Dendrimers	8.	Displays	8.	Food and agriculture
9.	Nanostructured metals	9.	Memory	9.	Industrial equipment
10.	Nanowires	10.	Solar cells	10.	Textiles
11.	Quantum dots	11.	Filters	11.	Defense

Bradley, J. 2010. «Nanotech's Evolving Environmental, Health, and Safety Landscape». In *NanoSafe 10, International Conference on Safe production and use of nanomaterials*. Grenoble (16-18 nov.).

1. Identifying and removing the barriers that need to be removed for business growth

Some of the major barriers…

- The inefficiency of the current technology transfer process;
- The necessity of risk assessment guides and risk protocols for industry;
- The costs for environmental, health, life-cycle analysis and safety testing;
- The commercial viability question related to nanotechnology-based products;
- Consumer issues, media and public perception;
- Unmet training needs;
- Gaps in policy and infrastructure;
- Gaps in support mechanisms (financing, IP, etc.);
- Gaps in metrology, standards, and investment into tools.

… identification is the easy part

Disclaimer: Note that these slides are not legally binding and do not represent any commitment on behalf of the European Commission

Fostering co-design and co-production of knowledge under Future Earth

futurearth
research for global sustainability

FUTURE HEALTH ?

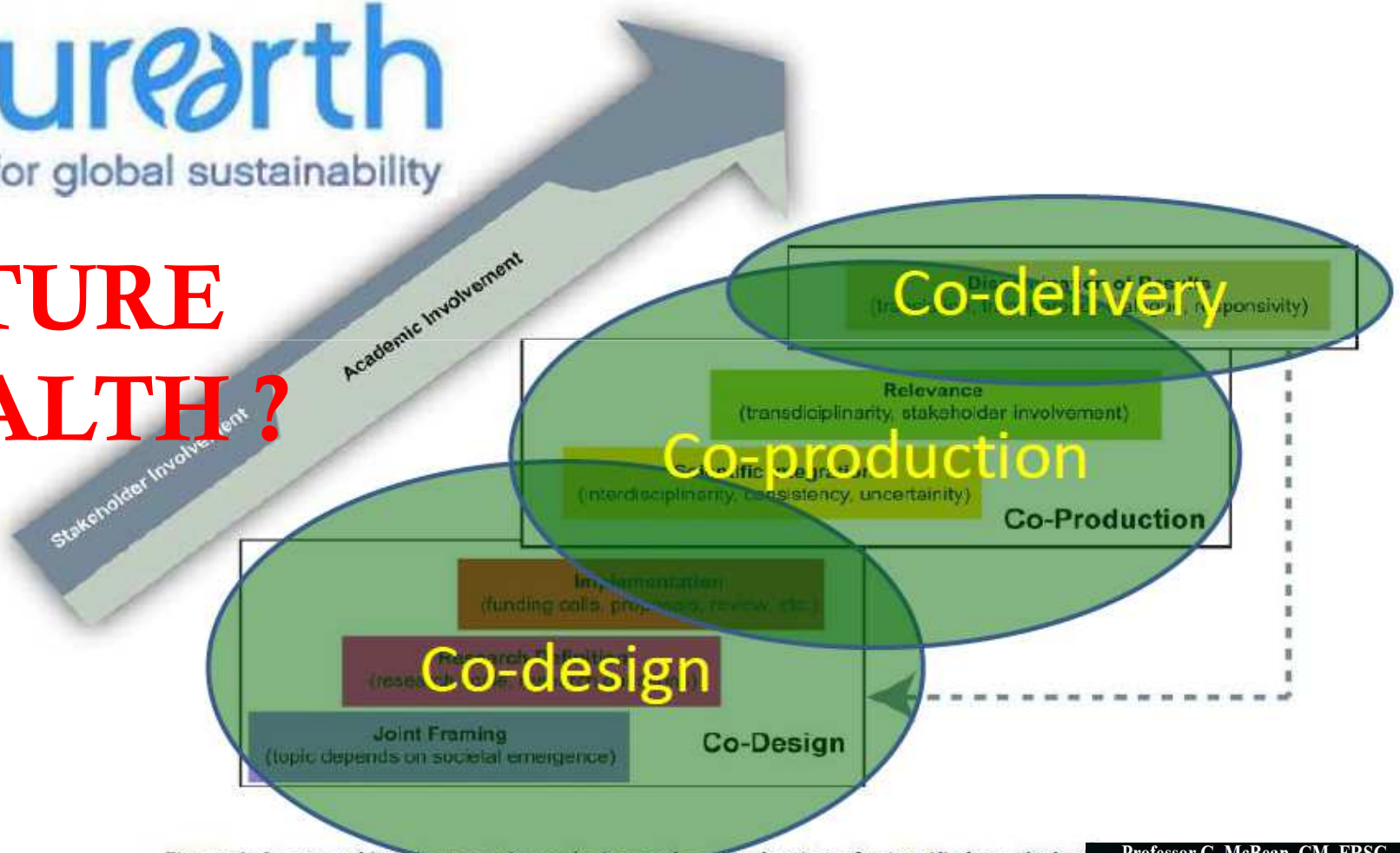

Figure 1: Steps and involvement in co-design and co-production of scientific knowledge

Professor G. McBean, CM, FRSC
Western University, Canada
President-elect, International Council for Science
President, START International

MERCI

So *The Economist* has made a stab at a global comparison of carbon-mitigation efforts. Chart 1 is the result. It ranks 20 policies and courses of action according to how much they have done to reduce the atmosphere's stock of greenhouse gases. We have used figures from governments, the EU and UN agencies. As far as we know, this exercise has not been carried out before.

To slash or to trim

1

Emission reductions by policies/actions, bn tonnes CO_2 equivalent

Policy/Action	Cumulative emissions	Period	Annual emissions*
Montreal protocol[1]	135.0bn	1989-2013	5.6bn
Hydropower worldwide[2]	2.8bn	2010	2.8bn
Nuclear power worldwide[2]	2.2bn	2010	2.2bn
China one-child policy[3]	1.3bn	2005	1.3bn
Other renewables worldwide[2]	600m	2010	600m
US vehicle emissions & fuel economy standards†[4]	6.0bn	2012-25	460m
Brazil forest preservation[5]	3.2bn	2005-13	400m
India land-use change[6]	177m	2007	177m
Clean Development Mechanism[7]	1.5bn	2004-14	150m
US building & appliances codes[4]	3.0bn	2008-30	136m
China SOE efficiency targets[8]	1.9bn	2005-20	126m
Collapse of USSR[9]	709m	1992-98	118m
Global Environment Facility[10]	2.3bn	1991-2014	100m
EU energy efficiency[11]	230m	2008-12	58m
US vehicle emissions & fuel economy standards‡[4]	270m	2014-18	54m
EU renewables[11]	117m	2008-12	29m
US building codes (2013)[12]	230m	2014-30	10m
US appliances (2013)[12]	158m	2014-30	10m
Clean technology fund[13]	1.7bn	*project lifetime*	*na*
EU vehicle emission standards[14]	140m	2020	*na*

CATEGORIES:
Energy production
Transport
Other regulations
Global treaties
Land & forests
Other

See following panel for sources and explanations

*Annual emissions are cumulative emissions divided by the relevant period. The estimate for the current emissions avoided under the Montreal protocol is eight billion tonnes of CO_2e. The annual figure for the collapse of the USSR refers to the years 1992-98. †Cars and light trucks ‡Heavy trucks