Timeline

Nanotechnology Policy and Regulation

in Canada, Australia, the European Union, the United Kingdom, and the United States

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Explanatory Note

This timeline outlines important events related to nanotechnology policy and regulation in Canada, Australia, the European Union, the United Kingdom and the United States with an emphasis on developments since 2000. For the purposes of this timeline, Nanotechnology is a term used to describe the manipulation of matter on the molecular scale. For background purposes, the research team has also chosen to include broader developments in science policy as well as significant events outside of the focus regions where deemed appropriate. Please help us keep this timeline accurate and up-to-date by providing comments to info@regulatorygovernance.ca.

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Timeline – Nanotechnology Policy and Regulation (Canada, Australia, the EU, UK and US)

Event	Who	When	Description	Relates To
"There's Plenty of Room at the Bottom"	Richard Feynman (Nobel Laureate)	1959	Lecture at CalTech makes first mention of some of the distinguishing concepts in nanotechnology (but predating use of that name). Feynman described a process by which the ability to manipulate individual atoms and molecules might be developed, using one set of precise tools to build and operate another proportionally smaller set, so on down to the needed scale.	Background
Term nanotechnology is coined	Professor Norio Taniguchi	1974	The term nanotechnology was coined by Professor Norio Taniguchi as the processing of separation, consolidation, and deformation of materials by one atom or by one molecule.	Background
Scanning Tunneling Microscope (STM) invented	Gerd Binnig and Heinrich Rohrer (IBM Zurich Research Lab)	1981	An STM is a microscope that uses a tiny stylus to "feel" the surface of objects too small to be viewed by conventional microscopes or even powerful electron microscopes. It is widely used in both industrial and fundamental research to obtain atomic-scale images of metal surfaces. Binnig and Rohrer were awarded the Nobel Prize in physics in 1986 for the invention of the STM.	Background
Discovery of buckminsterfullerene – "buckyballs"	Robert Curl, Richard Smalley, and Harold Kroto	1985	Discovery of new forms of the element carbon - called fullerenes - in which the atoms are arranged in closed shells. The number of carbon atoms in the shell can vary, and for this reason numerous new carbon structures have become known. Clusters of 60 carbon atoms, C60, were the most abundant. Curl, Smalley and Kroto jointly won the Nobel Prize for Chemistry in 1996.	Properties/ Hazards
The Atomic Force Microscope (AFM)	Gerd Binnig, Christoph Gerber, and Calvin Quate (IBM Zurich Research Lab)	1986	The AFM is being used to solve processing and materials problems in a wide range of technologies affecting the electronics, telecommunications, biological, chemical, automotive, aerospace, and energy industries. The AFM not only images the surface in atomic resolution but also measures infinitesimal forces at nano-newton scale.	Properties/ Hazards
Engineer Eric Drexler publishes book *Engines of Creation: The Coming Era of Nanotechnology* and co-founded the Foresight Institute	Eric Drexler	1986	In this book, Drexler proposed the idea of a nanoscale assembler that could copy itself, and coined the term "grey goo" to describe what might happen if such a hypothetical self-replicating version of nanotechnology went out of control. Also in 1986, Drexler co-founded the Foresight Institute, a California-based non- profit organization which sought to educate society about both the potential benefits and risks of nanotechnology. The impacts of his early predictions remain in the collective conscious even today.	Background

Event	Who	When	Description	Relates To
Nanoscale materials in personal care products	Ego Pharmaceuticals Pty Ltd. (Australia)	1988	First use of microfine titanium dioxide in a cosmetically acceptable sunscreen. A US survey (released Oct 10, 2006) identified 9,800 every day personal care products containing nano-scale ingredients or ingredients that may contain a nano-scale fraction.	Exposure/ Methods/ Monitoring
Key paper *Regulating Nanotechnology Development* published by David Forrest (MIT)	David Forrest	1989	Paper was originally written for a course on Law, Technology, and Public Policy at the Massachusetts Institute of Technology. In it, Forrest demonstrates an uncanny degree of foresight, especially given that nanotechnology was at a very early stage of development at the time it was written.	Social/ Policy/ Regulation
Regulatory actions in nanotechnology	Japan, China, US	1990s	Japan, China, and the United States were the first countries to initiate new regulatory regimes that governed nanotechnology R&D. In 1990 Japan announced its formal commitment to funding nanotechnology research and China initiated its ten-year "Climbing Project on Nanometer Science" (1990-1999). The following year, the NSF initiated and funded the first US federal nanotechnology program (on Nanoparticle Synthesis and Processing). These three initiatives were precursors to many new government agencies and regulations in each country regarding the funding, development, and application of nanotechnology.	Social/ Policy/ Regulation
Carbon nanotube discovered	Dr. Sumio Ijiima (NEC)	1991	Carbon nanotubes are expected to become a key material in ultrafine devices of the future, because of their unique electrical characteristics, and their extraordinarily fine structure on a nanometer scale. Research is being conducted throughout the world targeting the application of carbon nanotubes as materials for use in transistors and fuel cells, big TV screens, ultra-sensitive sensors…	Properties/ Hazards
Nobel Prize for Chemistry	Robert Curl, Harold Kroto, and Richard Smalley	1996	Prize awarded in recognition of 1985 reporting of carbon fullerenes.	Background
First safety guidelines released by Foresight Institute	Foresight Institute (US)	1999	The *Foresight Guidelines* are designed to address the potential positive and negative consequences of nanotechnology in an open and scientifically accurate manner. The objective is to provide a basis for informed policy decisions by citizens and governments, and guidelines for the responsible development of productive nanotechnology. The guidelines originated from a 1999 workshop and have been revised many times since – the current version (6) is dated April 2006.	Social/ Policy/ Regulation
Cautionary article on nanotechnology published in *Wired* magazine by Sun Microsystems co-founder Bill Joy	Bill Joy	2000	Sun Microsystems co-founder and prominent American scientist Bill Joy argued that technological advances in the fields of genetic engineering, robotics, and nanotechnology posed significant risks that threatened the very existence of the human species.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
President Clinton announces creation of US National Nanotechnology Initiative (NNI)	Bill Clinton	2000	Goals of the NNI are to: (1) maintain a world-class R&D program; (2) facilitate transfer of new technologies into products; (3) develop educational resources, a skilled workforce, and the supporting infrastructure to advance nanotechnology; and, (4) support responsible development of nanotechnology. The 2007 Budget provides over $1.2B for the multi-agency NNI, bringing the total investment since the NNI was established in 2001 to over $6.5B.	Social/ Policy/ Regulation
National Institute of Nanotechnology founded	National Institute of Nanotechnology (Canada)	2001	Announcement of the NINT on the Univ of Alberta campus as a partnership between NRC and the University. NINT is a multi-disciplinary institution involving researchers in physics, chemistry, engineering, biology, informatics, pharmacy and medicine.	Social/ Policy/ Regulation
NanoQuébec is founded	NanoQuébec	2001	NanoQuébec is a not-for-profit organization funded through a combination of federal and provincial government monies, with a mission to strengthen innovation in nanotechnology with the goal of ensuring solid and sustained economic growth for Quebec and Canada.	
Creation of the Canada Nanobusiness Alliance	Canada Nanobusiness Alliance (CNBA)	2002	A trade association involved in establishing a Canadian National Nanotechnology Initiative, and in fostering nanotechnology commercialization in Canada and throughout the world.	Social/ Policy/ Regulation
Center for Responsible Nanotechnology founded (US)	Center for Responsible Nanotechnology	2002	CRN's mission is to (1) raise awareness of the benefits, the dangers, and the possibilities for responsible use of advanced nanotechnology; (2) expedite a thorough examination of the environmental, humanitarian, economic, military, political, social, medical, and ethical implications of molecular manufacturing; and (3) assist in the creation and implementation of plans for responsible use of this transformative technology. CRN published its first paper in Jan 2003: *Safe Utilization of Advanced Nanotechnology* (http://www.crnano.org/safe.htm)	Exposure/ Methods/ Monitoring
US President George W. Bush continues support for development of nanotechnology	George W. Bush	2003	Federal funding increases for nanotechnology and is signed into law as the 21st Century Nanotechnology Research and Development Act. US Federal investment in nanotechnology research has increased steadily over the years: the 2009 budget for the US National Nanotechnology Initiative is US $1.5 billion.	Social/ Policy/ Regulation
UK Government launches its nanotechnology strategy	UK Government	2003	The strategy pledges £45 million per year toward nanotechnology research for the period 2003 to 2009.	Social/ Policy/ Regulation
Publication of report *From Genomes to Atoms: The Big Down*	ETC Group	2003	Ottawa-based ETC Group (formerly known as RAFI and famous for coining the term *terminator technology* in the GMO context) published the report: *From Genomes to Atoms: The Big Down*. ETC's concerns spanned intellectual property rights, the concentration of corporate control, biological warfare, and the convergence of technology into synthetic biology; the group proposed a moratorium on nanotechnology.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
Publication of report *Mind the Gap: Science and Ethics in Nanotechnology*	Joint Centre for Bioethics (JCB) at the University of Toronto	2003	JCB calls for increased investment in economic, legal and social aspects and regulatory research into nanotechnology. Their paper *Mind the Gap: Science and Ethics in Nanotechnology* cautioned that there was a risk of derailing the potential benefits of nanotechnology, including for developing countries, if the study of the economic, legal and social aspects of nanotechnology did not catch up to the speed of technology development.	Social/ Policy/ Regulation
The Better Regulation Task Force releases a report *Scientific Research: Innovation with Controls*	Better Regulation Task Force (UK)	January 2003	This report recommended that the UK Government should encourage public debate regarding the risks posed by nanotechnologies and should take a lead over any issues of risk management to emerge from nanotechnologies.	Social/ Policy/ Regulation
International Council on Nanotechnology (ICON) is founded	International Council on Nanotechnology (ICON)	2004	ICON is a partnership between the nanotechnology industry, government, academia and select other organizations. ICON's activities are focused on the promotion of effective nanotechnology stewardship, and include the production and dissemination of information, outreach activities, the strategic identification of knowledge gaps, and research to fill such gaps.	Social/ Policy/ Regulation
Patent creation class for nanotechnology	US Patent and Trademark Office	2004	US Patent and Trademark Office creates Class 977 for Nanotechnology patents.	Social/ Policy/ Regulation
Publication of *Nanoscience and Nanotechnologies: Opportunities and Uncertainties*	The Royal Society and The Royal Academy of Engineering (UK)	2004	July 2004 report in response to the UK Government's request in June 2003 for an independent study of nanoscience and nanotechnologies. Some recommendations coming from the report: • The release of manufactured nanoparticles and nanotubes into the environment [should] be avoided as far as possible until more is known about environmental impact • Undertake a series of lifecycle assessments for the applications and product groups arising from existing and expected developments in nanotechnologies • Industry should assess the risk of release of nanoparticles and nanotubes contained in the innovation and design process of products and materials • Ingredients in the form of nanoparticles [should] undergo a full safety assessment by the relevant scientific advisory body before they are permitted for use in products • Establish an interdisciplinary centre to research the toxicity, epidemiology, persistence and bioaccumulation of manufactured nanoparticles and nanotubes as well as their exposure pathways, and to develop methodologies and instrumentation for monitoring them in the built and natural environment	Exposure/ Methods/ Monitoring

Event	Who	When	Description	Relates To
The US EPA Science Policy Council creates a cross Agency Nanotechnology Workgroup	Environmental Protection Agency (EPA)	December 2004	This group was charged with examining the potential environmental applications and implications of nanotechnology. In February 2007, this group released the US EPA Nanotechnology White Paper, a document which outlines the potential benefits of nanotechnology for the environment, discusses the challenges inherent in the risk assessment of nanomaterials, and makes a number of recommendations with respect to future research needs, pollution prevention and environmental stewardship, collaborations, governance, and training.	Environment and Regulation
"Implications of Nanotechnology for Environmental Health Research"	National Academies (US)	2005	Publication of the proceedings of a Roundtable on Environmental Health Sciences, Research and Medicine. In describing the Canadian perspective, a Health Canada participant states that "a substance-by-substance risk assessment approach may not be effective… Scientists will need to update their risk assessment methodologies to create a multidisciplinary approach including industry; different levels of government; different types of researchers in chemistry, physics, and biology; and research regulatory scientists."	Exposure/ Methods/ Monitoring
"Canadian Stewardship Practices for Environmental Nanotechnology"	Report by Science-Metrix for Environment Canada	2005	The study examines current research in nanotechnology related to environmental applications, includes a comprehensive review of world strategies and policies to reconcile stewardship issues associated with the development of nanotechnologies, and proposes recommendations to help Environment Canada in targeting environmental applications, maximizing benefits, and minimizing the potentially negative impacts generated by nanotechnology developments.	Exposure/ Methods/ Monitoring
The PMSEIC releases a report that provides an overview of nanotechnology and its potential benefits, including potential future gains for the Australian economy	Australian Prime Minister's Science, Engineering and Innovation Council (PMSEIC)	March 2005	In this report, PMSEIC outlined their key findings and recommended that the Australian Government should examine options for implementation of a national strategy regarding nanotechnology that would ensure an appropriate regulatory framework which safeguards the health and safety of Australians	Social/ Policy/ Regulation
Project on Emerging Technologies is founded	Woodrow Wilson International Center and the Pew Charitable Trusts (US)	April 2005	The Project seeks to ensure that as nanotechnologies advance, risks are minimized, public engagement remains strong, and the potential benefits of these new technologies are realized. Papers/reports are accessible at: http://www.nanotechproject.org/ - among which (for example): • Nanotechnology: A Research Strategy for Assessing Risk • An Investigation into how nanotech start-up firms deal with uncertain environmental and health issues related to the production, distribution, and use of their products. These reports are highly relevant to this the Council's assessment.	Exposure/ Methods/ Monitoring Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
ISO Technical Committee TC229 (Nanotechnologies) is established	International Organization for Standardization (ISO)	June 2005	The Committee is chaired by the UK, and Working Groups are established for Terminology and Nomenclature (Canada, Convenor), Measurement and Characterization (Japan, Convenor), and Health, Safety and Environment (United States, Convenor).	Social/ Policy/ Regulation
European Commission adopts the Communication, "Nanosciences and nanotechnologies: An action plan for Europe 2005-2009"	European Commission	June 2005	The communication outlines a number of commitments with respect to nanotechnology research and development and establishing an effective dialogue with stakeholders. The Action Plan also underlines a number of commitments with respect to international collaboration on nanosciences and nanotechnologies. In the interests of protecting public health, safety, the environment and consumers, the Action Plan states that risk assessment related to human health, the environment, consumer and workers should be responsibly integrated at all stages of the life cycle of the technology, starting at the point of conception and including R&D, manufacturing, distribution, use and disposal or recycling.	Exposure/ Methods/ Monitoring Social/ Policy/ Regulation
"Opportunities and Risks of Nanotechnologies"	OECD (International Futures Programme) and the Germany-based Allianz Group (insurers)	July 2005	Among the conclusions of the report: • With respect to health, environmental and safety risks, almost all concerns that have been raised to date are related to free, rather than fixed manufacture nanoparticles. • A risk assessment for bulk materials is not sufficient to characterize the same material in nanoparticulate form • It is inevitable that in future manufactured nanoparticles will be released gradually and accidentally into the environment • The implications of the special properties of nanoparticles with respect to health and safety have not yet been taken into account by regulators. A review of current legislation and continuous monitoring by the authorities is needed • More funding for independent research on risk issues is necessary	Exposure/ Methods/ Monitoring
National Nanotechnology Strategy Taskforce (NNST) is established within the Australian Department of Industry, Tourism and Resources	Australian Department of Industry, Tourism and Resources	July 2005	The NNST taskforce delivered their report outlining "Options for a National Nanotechnology Strategy" to the Australian Government in June 2006. Among the recommendations outlined therein were governance options for overseeing the implementation of the strategy and coordination across government departments, establishment of a forum to look at health, safety, and environmental issues, and a recommendation that the Government should undertake an assessment and gaps analysis of current regulatory frameworks.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
Hearing on: "Environmental and Safety Impacts of Nanotechnology: What Research is Needed"	US House Committee on Science	November 2005	Examined concerns about environmental and safety impacts of nanotechnology and the adequacy of related research programs and plans. Witness testimonies are available online.	Exposure/ Methods/ Monitoring
National Industrial Chemicals Notification and Assessment Scheme (NICNAS) issues a voluntary Call for Information to industry to provide information on the uses and quantities of nanomaterials being manufactured or imported for industrial purposes, or for use in cosmetics and personal care products	Australian Government Department of Health and Ageing	February 2006	With this call, the Australian Government became the first international government to undertake a voluntary reporting scheme. However, very few companies responded to this call for information. With some additional prodding from the regulatory authority, a total of only about 20 companies eventually responded to this voluntary initiative. Approximately one-third of those surveyed indicated that the nanomaterial(s) were only being used for research purposes.	Exposure/ Methods/ Monitoring
Federal Workshop on the Health and Environmental Implications of Nanoproducts	Interdepartmental Steering Committee for the Health and Environmental Implications of Nanoproducts (Canada)	March 2006	Discussed regulatory science needs for nanotechnology. Recommendations from the workshop included: • Formation of federal working group on regulatory science issues; • Enhance partnerships and linkages with stakeholders; • Develop risk management strategies and foresight capacity; • Engage in key international activities, particularly OECD and ISO; and • Develop a communication strategy for government, public & stakeholders	Social/ Policy/ Regulation
"Nanomaterials in the Workplace: Policy and Planning Workshop on Occupational Safety and Health"	RAND Corporation (US)	April 2006	Report concludes that the U.S. government is providing insufficient funding and other resources to understand and manage risks that nanomaterials pose to the health of workers in the rapidly growing nanotechnology industry.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
Report of the OECD Workshop on the *Safety of Manufactured Nanomaterials: Building Co-operation, Co-ordination and Communication*	OECD	April 2006	The main recommendation of the workshop (held in Dec 2005 in Washington, D.C.) was to establish a Working Group to consider how best to organise future activities to manage and assess nanomaterials for environment, health and safety. It was recommended that the Woodrow Wilson Centre's database (see above) be eventually taken over by OECD's Chemicals Programme. Canada, in response to the pre-workshop questionnaire, states, for example, that: • Canada has not adopted an official definition of nanomaterials. • To date, there has been only limited research related to characterization and risk assessment of properties specific to nanomaterials. • The majority of research work in the areas of risk assessment related to environmental safety and human health are supported by: o NSERC - the Nanotechnology Innovation Platform Awards, which supports projects to understand the physicochemical basis of the toxicology and environmental impacts of nanoparticles and nanomaterials, as well as social and ethical inquiries; and o CIHR – which funds nanomedicine research with special emphasis on: cellular and molecular measurement and imaging; clinical and diagnostic imaging; interaction between biological systems and materials; drug delivery and targeting; and ethical, economic, environmental, legal and social issues.	Properties/ Hazards
National Institute of Nanotechnology		June 2006	Official opening of a new building housing NINT on the University of Alberta campus.	Background
FoE calls for a moratorium of nanomaterial-containing products	Friends of the Earth (FoE)	June 2006	According to the FoE, over 720 products containing nanomaterials are being released for public consumption without adequate testing. It believes nanoproducts exist in a regulatory vacuum as there are no laws that monitors it.	Social/ Policy/ Regulation
"The Risk Governance of Nanotechnology: Recommendations for Managing a Global Issue"	International Risk Governance Council (IRGC) (Geneva)	June / July 2006	International forum in Zurich, Switzerland, where IRGC presented its risk governance recommendations to an invited audience of delegates from governments, industry, research and academia, NGOs and international organisations who were given the opportunity to comment on, add to and influence the final recommendations. This followed the IRGC's white paper on 'Nanotechnology Risk Governance' , which applies the IRGC risk governance framework to nanotechnology, identifies some preliminary risk governance deficits, and proposes overarching recommendations for the management of those deficits.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
The FDA (US) establishes the Nanotechnology Task Force	Food and Drug Administration (FDA)	September 2006	The Task Force was charged with outlining regulatory approaches that would allow the continued development of nanotechnology while ensuring that FDA-regulated products containing nanotechnology were both safe and effective. In July 2007, the Task Force released a report which contained a review and analysis of nanotechnology-related science and policy issues falling under the FDA's jurisdiction. Among the recommendations contained in this report were recommendations to issue guidance to stakeholders, in order to provide greater predictability for industry and to ensure the protection of public health.	Social/ Policy/ Regulation
"Environmental, Health, and Safety Research Needs for Engineered Nanoscale Materials"	The Nanoscale Science, Engineering, and Technology Subcommittee of the National Science and Technology Council's Committee on Technology (US)	September 2006	The document identifies environmental, health, and safety (EHS) research and information needs related to understanding and management of potential risks of engineered nanoscale materials. The document will be used by Federal agencies participating in the National Nanotechnology Initiative to inform and guide research programs.	Exposure/ Methods/ Monitoring
"Nanotechnology: Assessing the Environmental Risks for Australia"	The Earth Policy Centre (EPC) (Univ of Melbourne)	September 2006	EPC was established in 2005 to put to use research conducted by Australian university students on environmental and sustainability policy issues. The main recommendations of the report are that an immediate moratorium be implemented on the commercial release of nanomaterials; and that a national regulatory authority be established to ensure that the risks of nanomaterials are effectively managed.	Exposure/ Methods/ Monitoring
The Working Party on Manufactured Nanomaterials (WPMN) is established by the OECD Chemicals Committee	OECD	September 2006	The WPMN coordinates international collaboration relating to the human health and environmental safety aspects of manufactured nanomaterials, in order to assist in the development of safety evaluation protocols for nanomaterials.	Exposure/ Methods/ Monitoring
IEC establishes the Technical Committee 113 (Nanotechnology – Standardization for Electrical and Electronic Products)	International Electrotechnical Commission (IEC)	October 2006	The committee is composed of 15 participating members and 11 observer members. The purpose is to develop standards for electrical and electronic products and systems with nanotechnological aspects. Also created are Joint Working Groups to facilitate coordination between IEC 113 and ISO Technical Committee 229 (Nanotechnologies).	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
EU-funded Nanologue project aims to establish a common understanding concerning ethical, legal, social aspects of nanotechnology and to facilitate a Europe-wide dialogue among science, business and civil society.	European Union	November 2006	Based on extensive research and stakeholder consultations, the 21-month collaborative project (now complete) developed several products to enhance the dialogue about ELSI aspects of nanotechnology applications, including the pamphlet, released in November 2006, entitled "The Future of Nanotechnology: We Need to Talk".	Social/ Policy/ Regulation
Regulatory approach for nanomaterials under the Canadian Environmental Protection Act	Environment Canada and Health Canada	December 2006	Proposed regulatory regime for nanomaterials, targeting mainly industrial substances, is being considered by the New Substances Program of Environment Canada and Health Canada in two phases: Phase 1 (fall 2006 – fall 2008): Inform industry that "new" nanomaterials are subject to notification under the New Substances Notification Regulations and develop a voluntary program to obtain data from industry to build a knowledge base for nanomaterials. Phase 2 (fall 2008 – fall 2010): Resolution of standard nomenclature and terminology by ISO TC229 and establishment of specific data requirements for nanomaterials under the current notification regulations.	Social/ Policy/ Regulation
An independent regulatory gaps analysis for nanotechnology is completed by Cardiff University, "An Overview of the Framework of Current Regulation affecting the Development and Marketing of Nanomaterials"	Cardiff University	December 2006	This comprehensive report took the approach of mapping current and future foreseeable applications of nanomaterials against existing UK regulatory frameworks that might govern the lifecycle of nanomaterials. In this report, the authors noted two main regulatory issues: regulatory gaps arising in situations where thresholds have previously been established to govern whether or not materials or products fall within the scope of the regulation, and what to do when a nanomaterial represents a variation of a bulk substance that is already well regulated and understood (e.g. nanosilver versus silver).	Regulation
The Berkeley Municipal Code is amended to introduce new measures regarding manufactured nanomaterial health and safety	The City of Berkleley (US)	December 2006	These amendments require facilities that manufacture or use nanomaterials to disclose in writing which nanomaterials are being used as well as the current toxicology of the materials reported (to the extent known) and to further describe how the facility will safely handle, monitor, contain, dispose, track inventory, prevent releases and mitigate such materials.	Regulation

Event	Who	When	Description	Relates To
UNESCO published report *The Ethics and Politics of Nanotechnology*	UNESCO	2006	UNESCO labeled two issues: the grey goo risk scenario proposed by Drexler and the use of nanotechnology to achieve post-humanism (or trans-humanism) as distractions in the economic, legal, and social impacts context.	Social/ Policy/ Regulation
Canada releases its comprehensive Science & Technology (S&T) Strategy "Mobilizing Science & Technology to Canada's Advantage"	Government of Canada	2007	With respect to nanotechnology, the S&T Strategy notes that the challenges and opportunities of nanotechnology are yet to be fully realized. The Strategy calls for support of nanotechnology by strong science and effective regulation to protect human health and the environment while supporting Canadian competitiveness.	Social/ Policy/ Regulation
The Working Party on Nanotechnology (WPN) is established by OECD's Committee for Science and Technology Policy	OECD	2007	The objective of the WPN is to advise on emerging policy issues related to science, technology, and innovation, and to promote international co-operation to facilitate research, development, and the responsible development and use of nanotechnology.	Social/ Policy/ Regulation
ICTA releases "Declaration Principles for the Oversight of Nanotechnologies and Nanomaterials"	International Center for Technology Assessment (ICTA)	2007	The Declaration Principles for the Oversight of Nanotechnologies and Nanomaterials was signed by a broad coalition of civil society, public interest, environmental and labour organizations and has since been endorsed by nearly 70 groups spread over six continents.	Social/ Policy/ Regulation
The final report of the NEG, entitled "Democratic Technologies?" is published	Nanotechnology Engagement Group, UK (NEG)	2007	This report looks at six projects in the UK that sought to engage the general public in a dialogue on nanotechnology. Based on their analysis of these projects, the NEG concluded that upstream public engagement on issues of science and technology was beneficial because it: informed and aligned science policy and research with public needs and aspirations; made science governance more transparent; put science into context by encouraging reflection by scientists on the broader implications of their work; created more active and scientifically aware citizens; and helped to overcome negative preconceptions and to break down cultural barriers between scientists, the general public, and decision makers.	Social/ Policy/ Regulation
"Nanotechnology White Paper"	U.S. Environmental Protection Agency	February 2007	The paper assesses the environmental applications and implications of nanotechnologies with a view to guiding the EPA's regulatory and surveillance activities.	Environment and Regulation

Event	Who	When	Description	Relates To
OECD/Academies Workshop on environmental, health and safety impacts of manufactured nanoparticles	Various Academies and OECD Working Party on Manufactured Nanomaterials; Dortmund, Germany	March 2007	Principal conclusions were: (1) Exploratory research into the fundamental mechanisms of interacts between nanomaterials and biological material will help to verify test protocols and develop new methods in predi8ctive toxicology. Targeted research is needed to ensure adequate understanding of nanomaterials that are close to market; (2) A panel of reference nanomaterials needs to be selected and made available to researchers for the development and validation of toxicity tests and characterisation methods; (3)There is an immediate need for validated methods for characterising nanomaterials that have been tested by several research groups before being adopted; (4) Further development, standardisation and validation of *in vitro* testing is likely to be required before these can be used as toxicity screens for inhaled fine and nanosized particles; (5) The OECD could develop standards of practice for environmental and health research on nanoparticles, enabling laboratories to produce comparable results. (Ref: The Royal Society (UK) Policy Document 13/07)	Exposure/ Methods/ Monitoring
Council for Science and Technology publishes its independent review "Nanosciences and Nanotechnologies: A Review of Government's Progress on its Policy Commitments"	Council for Science and Technology (UK)	March 2007	In this report, the Council for Science and Technology concluded that progress on many commitments had been good, but criticized progress on governmental research commitments, particularly with regards to toxicology and the health and environmental impacts of nanomaterials.	Social/ Policy/ Regulation
Commission de l'éthique de la science et de la technologie in Québec issues a position statement "Ethics and Nanotechnology: A Basis for Action"	Commission de l'éthique de la science et de la technologie (Québec)	April 2007	This position statement contains a comprehensive analysis of laws and regulations currently in place, both in Canada and in Quebec, to manage the potential risks of nanomaterials throughout the product life cycle. With respect to the regulation of nanotechnology, the Commission finally recommended that the Quebec Government, guided by the principle of precaution and from the perspective of sustainable development, be concerned with all phases of the life cycle of a product derived from nanotechnology or containing nanometric components, and that in this respect it should integrate the concept of life cycl into all policies where such an approach is appropriate, in order to avoid any damaging impact of technological innovation on health and the environment.	Social/ Policy/ Regulation
ISO publishes a special issue of *ISO Focus* on Nanotechnologies	International Organization for Standardization (ISO)	April 2007	The special issue includes articles by Canadians: Dr. Clive Willis (Convenor, ISO/TC 229, Nanotechnologies/WG 1, Terminology and Nomenclature) "Nanotechnology the Terminology Challenge" and Dr. George Wolbring (University of Calgary, member Canadian Advisory Committee for ISO/TC 229, Nanotechnologies), "Social and ethical issues of nanotechnologies".	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
International Union of Food, Farm and Hotel Workers (IUF) calls for a moratorium on the use of nanotechnology in food and agriculture	International Union of Food, Farm and Hotel Workers	March 2007	The resolution was passed during their March 2007 meetings in Geneva. The IUF represents workers in more than 300 unions in 120 countries.	Social/ Policy/ Regulation
The New Substances Division at Environment Canada issued an advisory note clarifying the requirements for nanomaterials under the New Substances Notification Regulations (NSNR)	Environment Canada	June 2007	According to this advisory note, a nanoscale form of a substance already listed on the DSL would be classified as a new substance under the NSNR if it possesses unique structures or molecular arrangements (such as carbon nanotubes), as would nanosubstances not already listed on the DSL. Nanoscale forms of substances already on the DSL without unique structures or molecular arrangements, however, are considered existing and are therefore not subject to the Regulations.	Regulation
Environmental Defense – DuPont Nano Partnership releases NANO Risk Framework	Environmental Defense – DuPont Nano Partnership	June 2007	The intent of the framework is to define a systematic and disciplined process that can be used to identify, manage and reduce potential environmental, health and safety risks of nano-scale materials across all lifecycle stages to help ensure that nanotechnology's benefits are maximized while the potential risks are effectively assessed and managed.	Environment and Regulation
"Nanotechnology: A Report of the U.S. Food and Drug Administration Nanotechnology Task Force"	U.S. FDA	July 2007	"A general finding of the report is that nanoscale materials present regulatory challenges similar to those posed by products using other emerging technologies. However, these challenges may be magnified both because nanotechnology can be used in, or to make, any FDA-regulated product, and because, at this scale, properties of a material relevant to the safety and (as applicable) effectiveness of FDA-regulated products might change repeatedly as size enters into or varies within the nanoscale range. In addition, the emerging and uncertain nature of the science and potential for rapid development of applications for FDA-regulated products highlights the need for timely development of a transparent, consistent, and predictable regulatory pathway" (FDA 2007: ii).	Regulation

Event	Who	When	Description	Relates To
Environment Canada and Health Canada jointly issue a "Proposed Regulatory Framework for Nanomaterials under the Canadian Environmental Protection Act, 1999"	Environment Canada and Health Canada	September 2007	This proposed framework seeks to address nanomaterials in a manner which ensures the responsible introduction of nanomaterials to the Canadian market through a program which scientifically assesses and appropriately manages any potential risks. The document proposes a two phased approach to the development of a regulatory framework for nanomaterials.	Regulation
"Principles for the Oversight of Nanotechnologies and Nanomaterials"	International Center for Technology	January 2008	A coalition of over 40 civil society groups endorsed a statement of principles calling for precautionary action related to nanotechnology. A report outlining risks and cautions associated with nanotechnology. *"Hundreds of consumer products incorporating nanomaterials are now on the market, including cosmetics, sunscreens, sporting goods, clothing, electronics, baby and infant products, and food and food packaging. But evidence indicates that current nanomaterials may pose significant health, safety, and environmental hazards. In addition, the profound social, economic, and ethical challenges posed by nano-scale technologies have yet to be addressed ... 'Since there is currently no government oversight and no labeling requirements for nano-products anywhere in the world, no one knows when they are exposed to potential nanotech risks and no one is monitoring for potential health or environmental harm. That's why we believe oversight action based on our principles is urgent' ... This industrial boom is creating a growing nano-workforce which is predicted to reach two million globally by 2015. 'Even though potential health hazards stemming from exposure have been clearly identified, there are no mandatory workplace measures that require exposures to be assessed, workers to be trained, or control measures to be implemented,' explained Bill Kojola of the AFL-CIO. 'This technology should not be rushed to market until these failings are corrected and workers assured of their safety'"*	Environment and regulation

Event	Who	When	Description	Relates To
Nanoscale Materials Stewardship Program (NMSP)	FDA	January 2008	The U.S. EPA launched a program that asks industries to submit available information about the nanomaterials that they manufacture or use. The voluntary program, called the Nanoscale Materials Stewardship Program (NMSP), was intended to provide basic information to help guide regulatory decisions. In the 7 months since its launch, 22 companies have reported to EPA, but critics say that the program is creeping along and that the human-health and environmental risks of this rapidly growing technology remain uncertain.	Regulation
Consumers Council of Canada releases the report "Nanotechnology and Its Impact on Consumers"	Consumers Council of Canada	February 2008	With support from Industry Canada Office of Consumer Affairs, the report was prepared with the intention of providing consumers in Canada with objective information on nanotechnology. A key aspect of this study was a survey of the Canadian public and consumer representatives. This survey found that 70% of those survey lacked awareness of nanotechnology, although a majority of Canadians (despite their lack of awareness) were generally optimistic regarding the technology and had few concerns about risks.	Social/ Policy/ Regulation
EC produces a "Recommendation on a Code of Conduct for Responsible Nanoscience and Nanotechnologies Research" circulated to all Member States	European Commission	February 2008	Consistent with the EU approach, this Recommendation was developed in consultation with the public. The stated aim of this Code of Conduct is to promote integrated, safe and responsible nanosciences and nanotechnologies research in Europe for the benefit of society as a whole. The Code is underpinned by the principles of: meaning, sustainability, precaution, inclusiveness, excellence, innovation, and accountability. The intention of this document is to guide the actions of Member States in the formulation and implementation of both innovation and regulatory research strategies in individual jurisdictions.	Social/ Policy/ Regulation
Ministerial Group on Nanotechnologies issues a Statement by the UK Government about Nanotechnologies	Ministerial Group on Nanotechnologies (UK)	February 2008	This document outlined a vision for nanotechnologies, as follows: "The vision of the UK Government for nanotechnologies is for the UK to derive maximum economic, environmental and societal benefit from the development and commercialisation of nanotechnologies, and to be in the forefront of international activity to ensure there is appropriate control of potential risks to health, safety and the environment. Furthermore, the Government committed to openness regarding its activities and transparency regarding any uncertainties in the science. With respect to the regulation of nanotechnology, the Government noted the need to manage the potential risks associated with nanotechnology within the context of a proportionate regulatory framework".	Regulation

Event	Who	When	Description	Relates To
Noblemen Group publishes report *Innovation at Risk: Intellectual Property Challenges and Opportunities*	Noblemen Group	May 2008	The report provides a detailed study of various IP challenges facing the equipment and materials industry and offers recommendations for improving the situation. The white paper is based on a survey of 49 SEMI member companies representing 56 percent of the total annual sales of the entire equipment and materials industry.	Environment and Regulation
ICTA led a coalition of consumer, health and environmental groups in filing a legal petition with the US Environmental Protection Agency	International Center for Technology Assessment (ICTA)	May 2008	The petition demands that the regulatory agency exercise its authority pertaining to the regulation of pesticides to prevent the sale of consumer products containing nanoparticles of silver for antimicrobial purposes.	Environment and Regulation
SCCP releases a document entitled "Opinion on Safety of Nanomaterials in Cosmetic Products"	Scientific Committee on Consumer Products (EU)	March 2008	This Opinion outlined a number of areas where, at the time, there remained inadequate information on the risks associated with nanoparticle use in cosmetic applications. In addition, SCCP recommended that the safety of insoluble nanomaterials in sunscreens should be evaluated.	Exposure/ Methods/ Monitoring
"Nanotechnology and Its Impacts on consumers"	Consumer Council of Canada	March 2008	The report contains information on what products contain nanotechnology, why they are different, benefits and risks associated with technology. This represents consumer response to the growing prevalence of nanotechnology.	Environment and Regulation
After almost a year of study and comment, the Working Group of the European Responsible Nano Code released its *Seven Principles of the Code* and an accompanying series of *Examples of Good Practice*	Royal Society, the Nanotechnology Knowledge Transfer Network, Insight Investment, and the Nanotechnology Industries Association	June 2008	The Responsible Nano Code is a partnership among the Royal Society, the Nanotechnology Knowledge Transfer Network, Insight Investment, and the Nanotechnology Industries Association who's goal is to "explore the societal and economic impact of the technical, social and commercial uncertainties related to nanotechnologies."	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
The European Commission issues a Communication on Regulatory Aspects of Nanomaterials	European Commission	June 2008	This Communication was prepared in response to a commitment by the EC to conduct a regulatory review of EU legislation in relevant sectors of relevance to nanotechnology. As outlined in this document, the regulatory challenge is therefore to ensure that society can benefit from novel applications of nanotechnology, whilst a high level of protection of health, safety and the environment is maintained. The Commission concludes that, overall, risks related to nanotechnology can be dealt with under the current legislative framework, but that certain modifications may be required in light of new information becoming available, for example with regards to the threshold volumes applicable in certain legislative documents.	Social/ Policy/ Regulation
The report "Review of Possible Impacts of Nanotechnology on Australia's Regulatory Frameworks" (Monash University) released to the public	Monash University	July 2008	As part of the public announcement, the Australian Government also released a position statement on nanotechnology. Entitled "Australian Government Approach to the Responsible Management of Nanotechnology", this statement provides an overview of Government policy regarding nanotechnology development and regulation. The Government concludes that there has so far been no demonstrated need for a specific regulatory system for engineered nanomaterials.	Regulation
CCA releases a report entitled "Small is Different: A Science Perspective on the Regulatory Challenges of the Nanoscale"	Council of Canadian Academies (CCA)	July 2008	This report from the CCA Expert Panel on Nanotechnology was prepared for the Government of Canada in response to a request originating from the Minister of Health. This report concludes that existing Canadian regulatory approaches and risk management strategies are sufficient to deal with the assessment of nanomaterials, with a few caveats. For example, the expert panel noted the need for greater investment in regulatory-relevant research, particularly research associated with the risk assessment of nanomaterials. In addition, the panel stated that attention should be paid to addressing outstanding regulatory issues such as: regulatory triggers, regulatory capacity, and governance models for the coordination of nanotechnology-related activities among federal regulatory agencies, between the federal and provincial levels of government, and among international regulatory agencies.	Exposure/ Methods/ Monitoring
WPMN produces "List of Manufactured Nanomaterials and List of Endpoints for Phase One of the OECD Testing Programme" related to safety testing of nanomaterials	OECD Working Party on Manufactured Nanomaterials (WPMN)	July 2008	The WPMN has developed and agreed upon a priority list of fourteen representative manufactured nanomaterials that will be the focus of further investigation. The document also contains a list of approximately 60 endpoints dealing with the identification of nanomaterials, their physico-chemical properties and characterization, environmental fate and toxicology, mammalian toxicity, and material safety.	Exposure/ Methods/ Monitoring

Event	Who	When	Description	Relates To
PEN releases report "Nanotechnology Oversight"	Project on Emerging Nanotechnologies (PEN)	July 2008	The report outlines a proposed regulatory agenda relating to nanotechnology for the incoming US President.	Regulation
Nanotechnology Recent Developments, Risks, and Opportunities	Lloyds Group of London	August 2008	Wallace agreed the insurance industry is carefully following both the science and politics of nanotechnology, trying to develop a strategy that addresses its unique aspects and inherent risks. "Insurance companies and reinsurers are ahead of the curve in terms of risk projection, risk identification, quantification and management, but that's who they are and what they do," Wallace said. "The big challenge is coming to grips with the fact that there is a considerable amount of ambiguity and uncertainty associated with the commercialization of nanotechnology." A Lloyd's of London **report** this year warned insurers to be careful when evaluating new products because of the lack of data on long-term effects on human health and the environment. "In the past, a vacuum of regulation has proved unhelpful to insurers," the report says. "Lack of regulation is never helpful to liability insurers and the insurance industry should lobby for clarity."	Environment And Regulation
Consumer Product Safety Commission	Project on Emerging Nanotechnology	August 2008	The Consumer Products Inventory—an inventory of nanotechnology-based consumer products maintained by the Project on Emerging Nanotechnologies (PEN), based in Washington D.C.—contained over 800 products or product lines. These products were being produced by 420 companies located in 21 different countries. The number of products listed in the database as of February 2008, a mere six months earlier, was just over 600 products.	Regulation
Consumer Product Safety Commission	Project on Emerging Nanotechnology	August 2008	The inability of the Consumer Product Safety Commission to carry out its mandate with respect to simple, low-tech products such as children's jewelry and toy trains bodes poorly for its ability to oversee the safety of complex, high-tech products made using nanotechnology, according to a report written by consumer product expert and Harvard lecturer E. Marla Felcher.	Regulation

Event	Who	When	Description	Relates To
EU Commission Calls for Information On Use of Nanoparticles in Cosmetics	The Bureau of National Affairs	September 2008	Public information on nanoparticles in cosmetics is lacking and industry should provide more details about the use of such ingredients, the European Commission said in a consultation document published on its website. According to the document, which issued a call for companies to provide voluntarily information on the use of nanoparticles in cosmetics, there is an "urgent need" to improve the flow of information on nanomaterial use. Unless this is done, it will be "hardly defendable for industry and authorities to assert that cosmetic products containing nanomaterials are safe." The document said that the limited information currently available publicly indicates that a number of nanoscale substances are used in cosmetics, including titanium dioxide, zinc oxide, fullerenes (C60), silicon dioxide, lipids, vitamins, and cerium oxide. Due to the lack of information, however, it is difficult for scientific authorities to assess the safety of these ingredients, especially when in cosmetics used on burnt or irritated skin.	Regulation
National Science Foundation in partnership with the US EPA announced awards to two Centers for the Environmental Implications of Nanotechnology	National Science Foundation and US EPA	September 2008	The centers will look at the interactions between nanomaterials, the environment, plant and animal life, and will as part of their mandate translate any knowledge thus obtained into evidence-based risk assessment strategies.	Environment and Regulation
EPA issues a Notice in the Federal Register that they consider carbon nanotubes to be a chemical substance distinct from graphite and other allotropes of carbon already in the TSCA Inventory	Environmental Protection Agency (EPA)	October 2008	As a result of this notice, carbon nanotubes are considered new substances under TSCA, and become subject to the Premanufacture Notices reporting requirements described above.	Environment and Regulation

Event	Who	When	Description	Relates To
RCEP published a report entitled "Novel materials in the environment: The case of nanotechnology"	UK Royal Commission on Environmental Pollution (RCEP)	November 2008	This report contains a number of observations regarding the toxicology and fate of nanomaterials, functionality, and adaptive governance. Overall, the Commission recommended that governance approaches to the regulation of nanotechnology should be based on the functionality of materials, rather than particle size or mode of production, as this is the key consideration when evaluating potential environmental and health impacts.	Environment and Regulation
EPA begins to promulgate Significant New Use Rules (SNURs) under TSCA for certain nanoforms	Environmental Protection Agency (EPA)	November 2008	Under the significant new use provisions of the *Toxic Substances Control Act* (TSCA), such regulatory action by the EPA requires persons intending to manufacture, import, or process chemical substances for an activity that is designated as a significant new use under the statute to notify EPA of their intent at least 90 days prior to commencing that activity.	Environment and Regulation
US National Research Council releases report "Review of the Federal Strategy for Nanotechnology-Related Environmental, Health and Safety Research"	US National Research Council	December 2008	The report is critical of the federal government's lack of attention to date on EHS issues associated with nanotechnology. The National Research Council panel was critical of the US National Nanotechnology Initiative approach to regulatory-relevant EHS research, as outlined in their February 2008 National Nanotechnology Initiative Strategy for Nanotechnology-Related Environmental, Health and Safety Research.	Environment and Regulation
A study funded by the Quebec-based IRSST is released concerning worker safety entitled "Best Practices Guide to Synthetic Nanoparticle Risk Management"	Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST)	January 2009	The study report aims to provide information and best practices relating to the management of potential risks associated with nanotechnology in the workplace. The authors of the report recommend taking a preventative approach, even a precautionary approach, to the avoidance of nanoparticle exposure.	Exposure/ Methods/ Monitoring
Member of the European Parliament (MEP) Carl Schlyter brings forward a *Draft Report on regulatory aspects of nanomaterials* to the Committee on the Environment, Public Health and Safety of the European Parliament	Committee on the Environment, Public Health and Safety of the European Parliament	January 2009	This draft Report contains the text of a Motion for a European Parliament Resolution on regulatory aspects of nanomaterials. The Motion contained within this draft Report calls for labeling of consumer products containing nanomaterials, the urgent development of adequate testing protocols to assess the hazards of and exposure to nanomaterials over their entire lifecycle, the development of ethical guidelines, a potential limitation of patent rights in order to avoid stifling innovation, among other aspects.	Regulation

Event	Who	When	Description	Relates To
The DTSC (California) issues formal information request letters	California Department of Toxic Substances Control (DTSC)	January 2009	The letter were sent to a number of manufacturers, requiring information on firms' activities relating to producing or importing carbon nanotubes in California, and on who may export them into the State. This followed DTCS's announcement of its intention to exercise the regulatory authority granted to them through new sections of the Health and Safety Code adopted in 2006.	Regulation
SCENIHR releases an *Opinion on the Risk Assessment of Products of Nanotechnologies*	Scientific Committee on Emerging and Newly Identified Health Risks (EU)	January 2009	In this document, they recommend adopting a case-by-case approach to the risk assessment of nanomaterials until such a time as a general approach to the identification of hazards associated with nanomaterials is within reach.	Exposure/ Methods/ Monitoring
French government tables first mandatory information gathering scheme that will extend to all nanomaterials	French government	January 2009	Legislation tabled contains, under Article 73, the requirement that any person manufacturing, importing, or placing nanoparticle substances onto the market must periodically declare to the administrative authority the identity, quantities and uses of these substances.	Regulation
National Nanotechnology Initiative Amendments Act of 2009 passed by the House of Representatives	US House of Representatives	February 2009	Act contains measures for additional funding and research into the environmental, health and safety risks of nanotechnology.	Environment and Regulation
British House of Lords Select Committee on Science and Technology launches an inquiry on the use of nanotechnologies and nanomaterials in the food sector	British House of Lords	February 2009	The Committee focused on the following areas: food products, additives and supplements; food contact packaging; food manufacturing processes; animal feed; pesticides and fertilizers; and products that may come into contact with food, such as food containers and cooking utensils.	Environment and Regulation
The US *Toxic Substances Control Act* (TSCA) is revisited in a series of hearings by the Subcommittee on Committee, Trade, and Consumer Protection of the US House of Representatives Committee on Energy & Commerce	Subcommittee on Committee, Trade, and Consumer Protection of the US House of Representatives Committee on Energy & Commerce	February 2009	Among the first witnesses to appear before the Subcommittee was J. Clarence (Terry) Davies, a Senior Advisor to the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars. According to his testimony, TSCA has both strengths and weaknesses as it pertains to the regulation of nanotechnology. Among the strengths of TSCA, Davies noted, are its broadness and potential flexibility; its reporting mechanisms, which allow the EPA to require manufacturers to immediately notify them of new information pertaining to substantial risks associated with a particular chemical; and the general cost-benefit framework of TSCA. However, Davies also noted that TSCA additionally contains a number of very difficult, perhaps impossible, requirements that must be met before a chemical can be regulated.	Regulation

Event	Who	When	Description	Relates To
European Food Safety Authority releases the Scientific Opinion on the *Potential Risks Arising from Nanoscience and Nanotechnologies on Food and Feed Safety*	European Food Safety Authority	March 2009	In this report, the EFSA Scientific Committee concludes that while it is currently possible to apply internationally accepted risk management approaches to the case of engineered nanomaterials, that in the short term future it will nonetheless be necessary to assess each nanomaterial on a case-by-case basis. The basis for this opinion was that current data gaps and a lack of validated assessment methodologies are such that the risk assessment of specific nano products is subject to a high degree of uncertainty.	Exposure/ Methods/ Monitoring
The European Parliament adopts a legislative resolution amending, under first reading, a revised Novel Food Regulation	European Parliament	March 2009	The proposed amendments call for the development of nano-specific test methodologies as a matter of urgency, and further specify that novel foods containing nanomaterials should not be allowed to enter the market until such a time as these test methodologies have been developed. Given that such methodologies do not yet exist, should these amendments be adopted, this would essentially amount to a moratorium on nanomaterials in food products – the first moratorium on nanomaterials to be seriously considered in any of the five jurisdictions examined in the current report.	Regulation
The French government passes the Grenelle Law n°2 – first law requiring mandatory reporting on nanomaterials	Government of France	August 2009	Article 73 states that within two years, there will be compulsory reporting to the authorities concerning quantities and uses of nanomaterials and a supply of that information to the public and consumers.	Regulation
A PEN poll shows 9 out of 10 Americans want to know more about the development of new technologies, including nanotechnology	Project on Emerging Nanotechnologies (PEN)	September 2009	1,001 US adults were surveyed by Peter D. Hart Research Associates for PEN. Thirty percent of respondents "have a heard a lot" or "some" about nanotechnology.	Social/ Policy/ Regulation
Final report of US/EU research collaboration is published: *Securing the Promise of Nanotechnologies Towards Transatlantic Regulatory Cooperation*	Chatham House, the London School of Economics, the Environmental Law Institute, the Project on Emerging Nanotechnologies	September 2009	The report addresses the question: What should the EU and US do to promote more effective and convergent regulation of nanomaterials? The report concludes that there is a need to establish a scientific basis for risk assessment of nanomaterials, that governments on both sides of the Atlantic need to increase funding into the risks of nanomaterials, but that there is no overwhelming case for international safety and labelling requirements. The OECD is identified as an important forum for regulatory coordination, but there is a need for more transparency in governance and the inclusion of developing countries.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
The EC announces it will review all legislation and regulations relating to nanomaterials by April 2011	European Commission (EC)	October 2009	The EC undertook this work in response to the House's request for a review of all legislation and regulation in respect to health and environmental safety issues related to nanomaterials over their life cycle.	Social/ Policy/ Regulation
European conference *Nanomaterials on the Market: What Regulaors Need to Know* held in Brussels	European Commission (EC)	October 2009	The event was a stakeholder conference concerning the EC study on reporting requirements under REACH, their adequacy and how information should be gathered from the industry.	Social/ Policy/ Regulation
Centre for Nano Safety is launched	Napier University (UK)	November 2009	The Centre is part of Edinburgh Napier's School of Life Sciences. It is one of the first in the UK that brings together nano-science safety research across human, environment, reproductive health and microbiology.	Exposure/ Methods/ Monitoring
The Australian National Industrial Chemicals Notification Scheme (NICNAS) launches a public consultation on a on nanomaterials regulation strategy	Australian National Industrial Chemicals Notification Scheme (NICNAS)	November 2009	The Australian government's "Proposal for Regulatory Reform of Industrial Nanomaterials" addresses the regulation of nanoforms, existing and new chemicals, and proposes an integrated approach for industrial nanomaterials within the NICNAS framework as Australia's long term strategy.	Social/ Policy/ Regulation
The European Union Council approves an updated *European Cosmetics Regulation*	European Union Council (EC)	November 2009	The approved regulation requires manufacturers of new cosmetic products that contain nanomaterials to notify the EC and provide information six months before the product is released on the European market. The text was originally adopted by the European Parliament in March 2009.	Regulation Exposure/ Methods/ Monitoring
OECD releases *Preliminary Guidance Notes on Sample Preparation and Dose Symmetry for the Safety Testing of Manufactured Nanomaterials*	Organization for Economic Cooperation and Development (OECD)	December 2009	The report offers guidance on the preparation of samples used for safety testing of manufactured nanomaterials. In December 2010 a new draft of the document should be released after comments from experts have been integrated.	Exposure/ Methods/ Monitoring

Event	Who	When	Description	Relates To
Health Canada announces the adoption of the Interim Policy Statement on Health Canada's Working Definition for Nanomaterials	Health Canada	January 2010	The policy statement establishes a transparent working means of identifying nanomaterials and provides Health Canada with a consistent set of approaches across the department. The working definition is intentionally broad and will be applied more specifically in each regulatory program area. In preparing the *Interim Policy Statement on Health Canada's Working Definition for Nanomaterials*, Health Canada sought the informal feedback of some international stakeholders, industry trade groups, standards associations, and other Canadian federal departments.	Regulation
British House of Lords Science and Technology Committee releases report *Nanotechnologies and Food*	British House of Lords	January 2010	The report criticizes the food industry for failing to be transparent about its research into the uses of nanotechnologies and nanomaterials, urges the Government to fund research into potential health and safety risks arising from the use of nanomaterials in the food sector. They recommend that the Food Standards Agency maintain a publicly available register of food and food packaging containing nanomaterials, and calls for nanomaterials to be defined clearly in food legislation to ensure that all uses of nanomaterials in food are subject to appropriate risk assessment procedures.	Regulation
Nanotechnology Safety Act of 2010 is introduced	US Senate	January 2010	US Senators Mark Pryor (D-AR) and Benjamin L. Cardin (D-MD) introduce the *Nanotechnology Safety Act of 2010*. The act proposes a program managed by the Food and Drug Administration (FDA) that would assess the safety of nanotechnology in consumer products and set forth best practices for companies who are using nanotechnology.	Regulation
US EPA proposes reporting rules for chemical companies who manufacture, process or import multi-walled carbon nanotubes	US Environmental Protection Agency (EPA)	January 2010	The rules are to be finalized by the end of 2010 and indicate that the US EPA is moving towards using its existing authority to obtain risk data. A rule concerning mandatory reporting for single-walled carbon nanotubes was already announced in December 2009.	Exposure/ Methods/ Monitoring
The 2011 budget request for nanotechnology safety research comes to $116.9 million – three times more than was invested in 2006	US Government	February 2010	The Food and Drug Administration (FDA) and the Consumer Products Safety Commission (CPSC) request nanotechnology specific funding for the first time as part of the National Nanotechnology Initiative (NNI) budget request.	Exposure/ Methods/ Monitoring

Event	Who	When	Description	Relates To
Australian government announces National Enabling Technologies Strategy, which allocated $38 million AUS over four years towards safe developments in nanotechnology	Australian Government	February 2010	The new strategy establishes a Stakeholder Advisory Council to advise government.	Social/ Policy/ Regulation
The EC consultations on a new Action Plan for Nanotechnology close	European Commission (EC)	February 2010	The EC's Directorate General for Research held a public consultation about a new action plan for nanotechnology in the EU, focusing on the 2010-15 time frame. The summary report will be available in May 2010.	Social/ Policy/ Regulation
Last debate takes place as part of French public consultations on nanotechnology	Commission particulière du débat publique Nanotechnologies (CNDP)	February 2010	The CNDP organized a four-month discussion series in various cities where the public could debate with experts advances and dilemmas in nanotechnology. The final summary will be available in late April 2010. Many of the public debates were disrupted by environmental groups who believe the events were a "greenwash" and one-sided.	Social/ Policy/ Regulation
Peter Julian, NDP MP, tables Bill C-494 in the Canadian House of Commons	Peter Julian, New Democratic Party (NDP) Member of Parliament (MP), Canadian House of Commons	March 2010	The private Members' bill proposes that nanotechnology be included in the *Canadian Environmental Protection Act*, and would require the Health and Environment Ministers to develop a national strategy to guide the safe development of nanotechnology based on the precautionary principle. It would include risk assessments before products can enter the marketplace and a public inventory of nanomaterials in Canada.	Regulation Exposure/ Methods/ Monitoring
UK Government publishes *Nanotechnologies Strategy: Small Technologies, Great Opportunities*	UK Government	March 2010	The strategy was published following the Government's 2009 response to the Royal Commission on Environmental Pollution's report, *Novel materials in the Environment: The case of Nanotechnology*. It specifically suggests: a website to inform the public on Government nanotechnology work, a Nanotechnologies Collaboration Group, a Ministerial Nanotechnologies Leadership Group, and a new industry reporting scheme covering nanomaterials and products that contain them.	Social/ Policy/ Regulation

Event	Who	When	Description	Relates To
UK FSA accepts House of Lords Science and Technology Committee recommendation to implement a confidential database on nanotechnology research in the food industry	UK Food Standards Agency (FSA)	March 2010	The House of Lords committee argued that a database is necessary to steer the development of risk assessment procedures and to help set research priorities concerning the safety of nanotechnology. The recommendation called for mandatory industry participation. The FSA also accepted the recommendation that they create a public list of food and packaging products than contain approved nanomaterials.	Exposure/ Methods/ Monitoring

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The Regulatory Governance Initiative

The Regulatory Governance Initiative (RGI) at Carleton University builds on the proven track record of Carleton's School of Public Policy and Administration to develop regulatory capacity and competence through research, education, and dialogue. Its scope is regulatory policy, governance, and management. Its approach is holistic and problem-driven. The RGI assembles expertise from the humanities, social and natural sciences as needed. For most projects, practitioners in the private, public and nonprofit sectors collaborate with scholars from the RGI network.

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