

Nanotechnology Knowledge Cluster Meeting – May 31, 2007

This knowledge cluster meeting attracted approximately 15 participants from a range of sectors

After a welcome and introductions Susan Holtz, Senior Policy Analyst at CIELAP and author of the discussion paper, suggested that we go over the paper. She clarified that the paper was a distillation and personal analysis of the elements that should be contained in a policy framework and it offered CIELAP's perspective on how that framework should look. The paper is intended to be useful to those working in the area – to help them advance the issue. The analysis ought to be seen in the context of sustainable development; Nanotechnology has enormous positive potential, however much remains unknown relating to potential hazards, environmental fate, etc... We need to be able to figure out a framework that will allow us to proceed responsibly.

A major discussion that came up was that there is currently no standard definition for Nanotechnology. The group generally agreed that we couldn't let this problem slow us down. A definition should be decided upon now for regulatory purposes and reviewed as time goes on. The US is looking to accept a definition of 100 nm for biophysical reasons. It's appalling that Canada hasn't yet accepted a definition.

Comment - One argument for not labelling is that it's too difficult to trace sources.

Response - This is not true in nanotechnology – we're talking about deliberate addition / manipulation of nanomaterials; there should be no problem tracing the sources.

Comment that highlighted the challenges for regulators - It would be a challenge to regulate gold, for instance, because you'd need 100 different regulations – 1 for each size depending on the reactivity.

Comments on paper:

- The precautionary principle must be embedded in the goals statement.
- We could request an official international treaty on nano
- Mandatory labelling would likely be a good thing to push
- We need publicly funded science – there is a trend of public-private partnerships but they don't necessarily work; money speaks
- We need the training for the health of front line workers
- We may need an international treaty to ban nanotechnology use in weapons.
- There has been a lot of work done in Quebec by the Ethics Commission of Science & Technology.
- What is missing is the notion of lifecycle model that includes nano-intermediaries, nano particles embedded in other systems, etc...
- Would like to see document raise concept of an opt-out. For ethical reasons people should be able to opt-out and not be forced to use products that contain nano. We also need an emergency strategy and policies for adverse reactions; accountability.

Question - What has happened since CIELAP's workshop in March 2007?

A – Health Canada liked the workshop & paper and wants to see it distributed. CIELAP hopes to hold a workshop in the fall to build on this discussion.

Comment - CIELAP needs to figure out its aim and what it wants to achieve with this workshop. We also need to figure out where we can be most effective.

Comment – The government held a meeting 1 year ago to determine and plan what areas to promote in terms of R&D and how Canada should be participating in its development. They looked at a number of

areas including medical health care, biofuels, water, etc... Canada is #5 or 6 in the world for R&D talent. We're the only country without a national strategy on nano convergence, however, and the gov is still debating whether one is needed.

Comment – The government doesn't have a budget for NE3LS (Nanotechnology Ethics, Environment, Economic, Law, Society). The downstream people don't appear to be involved in the early discussions. A major concern is the lack of expertise on the drug development side. Most action is knee-jerk reaction. We need to get out of the reactionary mode.

Comment – A major problem is that there's no inventory. No one even knows who is an expert in what. Some groups have identified close to 800 nano products if you include intermediaries.

Discussion – A discussion came up about what is a nanoparticle and what should we be worried about. If you look biologically there are nanomaterials in products even if they have not been deliberately introduced (eg. Platinum in meds). What is a nanoparticle? They are free-floating particles in and of themselves rather than already bonded molecules. When free molecules float around they can be highly reactive and dangerous. However, many other nanoparticles are created when bonds degrade and the small particles begin to free float – whether or not they were created to do so.

Comment - Could we come up with a definition that defines the issue rather than looking purely at size? Eg. persistent; potential to cause harm. We may not need to focus on whether or not it was created by nano processes.

Discussion - Why is it so difficult to say that if a substance could be harmful it needs to be regulated?

- But how do you regulate a dynamic system? These particles can be benign at one time and incredibly harmful the next.
- If you're going to deliberately introduce something at the nano level why is it so difficult for us to regulate and require that it shows no harm?
- Problem – who is going to do that and monitor it?

Comment - When biotech was introduced people said “well, it's no different from what we already have so why should we regulate it?” But this shouldn't hold up as an argument. There are many things that exist in nature that we regulate eg. Lead.

Comment – We need to be extra cautious about the introduction of nano to the creation of new life forms. We should perhaps push for a moratorium on the convergence of these technologies.

In the lab we are seeing a convergence between nanotechnology and biotechnology. From a regulatory perspective this raises many harder questions than just regulating nano on its own. Where does this development fit?

Comment – With reference to the Dupont & Environmental Defense paper. There are some people who reject the whole paper because they are critical of the self-regulation approach. We shouldn't immediately reject it because we could mandate the approach rather than use it in a voluntary fashion. We need a way to manage risk.

Comment – The public doesn't understand nano – we need education! People need to be engaged right from the beginning otherwise they'll cry foul and development of nano may become difficult. These technologies can offer incredible advantages; we need to keep the public engaged.

Comment – Re: Lead agencies – once things are taken on by the government they get bogged down and are often unduly influenced by industry; ethics can go out the window. We need government leadership but we also need to take a role in helping inform the government and steer them towards needed regulations.

Comment – We should find out what is happening in different departments and provincial ministries. If we knew what provincial initiatives were taking place we would be able to encourage the federal government to get moving on the issue (given that it's bubbling elsewhere).

Suggestion – Why don't we try to organize a public statement; it could be based on the paper. This would be brought to industry and other players in addition to NGOs. We would then be able to seek media interest; perhaps hold a press conference. The goals would be to mobilize public opinion and get governments moving.

Comment – A problem is that provinces are responsible for health care while the feds are responsible for most nano regulation.

Question - What would make a future workshop useful? What should CIELAP pursue?

- Continue to build and strengthen networks across the country; encourage more meetings
- Need leverage; negative reaction from the public to the detriment of development is good leverage.
- We need to be clear that we shouldn't get bogged down in definitions
- Push forward a regulatory framework and present the government with solid ideas - as a group.
- Encourage people to get involved with Jack's group – Foresight directory. Now is a good time (it's in the scoping phase).
- Note – look up other organizations - many can be found on CIELAP's site at http://www.cielap.org/NanoWorkshop_links.html.
- We should look at what other governments are doing.
- We have a lot of expertise in-country (ETC group, others). We could collectively do very good, professional work with broad appeal. We need things to move!

CIELAP's next Knowledge Cluster meeting will hopefully be held at the end of September 2007.