

Submission
No 6

INQUIRY INTO NANOTECHNOLOGY IN NEW SOUTH WALES

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To: Legislative Council Standing Committee on State Development
The Parliament of NSW
From: Craig Linn
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Submission to: Inquiry into Nanotechnology in NSW

Submission Summary

This brief submission relates to just two of the Committee's terms of reference, specifically:

- b. the health, safety and environmental risks and benefits of nanotechnology*
- c. the appropriateness of the current regulatory frameworks in operation for the management of nanomaterials over their life-cycle*

These two terms of reference are of particular importance as:

- our current understanding of the health and environmental risks health posed by *nano* size particles is extremely limited; and,
- at both federal and state levels Australia lacks a regulatory framework that can satisfactorily deal with this new technology.

In summary this submission recommends that an indefinite moratorium be imposed on the commercial release of nanotechnologies until both of the above points have been satisfactorily resolved; that is, the technology has been proven safe (not assumed safe), and a specific and comprehensive regulatory framework has been established.

Precaution and the need for a Moratorium

In September 2007 the Australian Government Productivity Commission released a staff working paper by Weier and Loke titled "*Precaution and the Precautionary Principle: two Australian case studies*". While this detailed paper of course contained all the classic and standard definitions of the *Precautionary Principle* it also made a few clear observations of the principle itself. The following from page 2 is particularly relevant to the case of nanotechnology:

"Precaution involves being alert to possible future dangers and exercising an appropriate level of caution or prudence to safeguard against, or ward off, possible harm in advance of danger."

In this context, it is imperative that the standing committee recommend a moratorium on the commercial release of nanotechnologies as this is the only way to be certain that we can "*safeguard against, or ward off, possible harm in advance of danger.*"

Actions related to Terms of Reference b) and c)

The following actions are recommended in relation to item b) of the terms of reference

"b. the health, safety and environmental risks and benefits of nanotechnology"

- All risk assessment should be determined by independent research, decisions should not simply be based on information provided by the companies proposing the technology or supplying the product.
- Commercial release should be constrained by clear conditions of use, with this being policed by an independent Inspectorate that can impose significant penalties for non-compliance. Where worker and consumer health is involved self-regulation is not enough.
- All products and processes approved for commercial release should be the subject of ongoing independent health and environmental monitoring including the establishment of

comprehensive monitoring databases that are publicly accessible after auditing. This monitoring must include pre-release/pre-exposure checks of the environment, workers and consumers to act as a baseline, as well as ongoing regular checks. This regular health monitoring should occur within the context of a long term epidemiological study that examines possible effects on offspring. That is we should be actively looking for the unusual.

- All nano materials should be labelled and safe use guidelines developed and provided to all workers. These guidelines should be nano specific and there should be no assumption that guidelines for existing materials are adequate for the same material when in nano form.
- All products that utilise nano technology or materials in either the product or its wrapping should be clearly labelled so that consumers are well informed. This is of critical importance in the case of foods, beverages, and creams/lotions that come in contact with the skin; in these cases the product should be prominently and boldly labelled as containing nano materials.

The following actions are recommended in relation to item c) of the terms of reference

“c. the appropriateness of the current regulatory frameworks in operation for the management of nanomaterials over their life-cycle”

- The regulatory definition of nano should include all particles capable of cell penetration, therefore it should include particles up to 300 nm in size, not just those up to 100 nm which is what is often cited as a defining characteristic of nano technology.
- A nano technology specific regulatory framework (implemented by specific act(s) of parliament) should be developed. We should not rely on extensions or additional regulatory clauses being added to existing legislation or regulations – nano technology is highly unique and requires its own unique legislation.
- The act and regulatory framework needs to be comprehensive, and as such needs to cover all possible issues of this technology. It thus needs to address the following, to name just a few:
 - the differentiation of securely contained research, product development, contained testing, controlled product/process releases, and full commercial release;
 - how independence of assessment can be assured, and what proof of safety (rather than assumption of safety) is required of a process/product proponent;
 - how will liability be addressed, particularly in regard to unwanted contamination where a party did not purchase or want nano content that now contaminates their environment or their body;
 - the establishment of a Nano-Technology Inspectorate, possibly implemented via its own separate act;
 - comprehensive labelling requirements for both raw materials and final consumable items;
 - work place practice regulation - this needs particular care as we are dealing with particles that cannot be seen in a dispersed state and are capable of cellular penetration;
 - the transportation and storage of nano based materials, with particular regard to spillage issues in the case of raw materials in dispersible form;
 - the recycling and long term waste storage of nano materials, particularly those that are deemed to be hazardous but still acceptable for commercial release.

Submitted for the Committee's consideration.

Yours sincerely,

Craig Linn