Submission No 3

INQUIRY INTO NANOTECHNOLOGY IN NEW SOUTH WALES

Organisation: Materials Australia

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The Director
Standing Committee on State Development, Legislative Council
Parliament House
Macquarie Street
Sydney 2000

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Submission from Materials Australia to the Inquiry into Nanotechnology in NSW

Dear Sir,

On behalf of Materials Australia, thank you for the invitation to make a Submission to the Inquiry into Nanotechnology in NSW.

Materials Australia is the professional not for profit national Association which promotes, initiates and conducts a large and varied programme of activities designed to professionally enhance and add value to persons engaged in the broad Materials sectors working in academia, industry, public and private research organizations. It provides opportunities for creating awareness about the role and significance those materials professionals engage in for the ultimate benefit of the wider community throughout Australia as well as internationally.

Its mission allows it to assume a non partisan advocacy of all materials. It also allows Materials Australia to take on the role of 'honest broker' with materials related industries, and our competitive advantage comes from being able to bring together persons and organizations from differing and sometimes competing or conflicting backgrounds in a neutral environment which can ultimately value add to all parties.

Materials Australia has been engaged in the areas of Nano materials and Nano technologies for many years. Its growing interest in Nanotechnology has been a natural evolution arising from the kinds of members the Institute has as its leaders (eg Prof Barry Muddle from Monash Uni, Prof Jim Williams from the ANU, Dr Simon Ringer Director of EMU, Sydney Uni, Prof Mark Hoffman from the UNSW, and Dr Terry Wilks from the Ian Wark Centre are just some of the its governing Council members), as well as from the interests of members and companies that choose to join Materials Australia. Involvement in Materials Australia by those practicing in nanotechnology industries, in research, industry as well as in academia has and continues to shape interest in this field by the Institute.

As an organisation catering to the broad materials community, Materials Australia has also had to be proactive in recognizing where new opportunities such as those arising from nanotechnology and new materials such as nanomaterials are coming from, and has seen the significance in raising awareness of such developments to its members as well as to the wider community.

The Institute believes this experience and our increasingly growing interest in the nanotechnology field allows us to offer practical assistance and possibly collaboration with the strategies and action plans emanating from the Inquiry.

In specific relation to the Terms of Reference, our Institute believes its contribution to the Submission lies in our understanding and experience of areas which relate particularly to items under 1 of the Terms of Reference; viz
f. the level of community understanding of nanotechnology and options to improve public awareness of nanotechnology issues
and to a lesser extent to ;-
a. current and future applications of nanotechnology for NSW and the NSW community
d. the adequacy of existing education and skills development opportunities related to nanotechnology

Overall comments

The challenge ahead for the NSW Government lies in the fact that Nanotechnology spans virtually any and every sector of industry and every material. Nanotechnology is a nebulous technology without clearly defined boundaries or natural barriers, and it is this crossing of traditional boundaries between disciplines that is one area of potential threat to existing conventional discipline areas. Likewise different industry sectors are uneven in their awareness of nanotechnology's potential. Some, like the biomaterials and medical sectors are clearly in the forefront, yet many others are quite uninformed and unaware of the changes that will overtake them unless they take proactive steps to do something to remedy this. This lack of awareness extends to an overall lack of understanding of what nanotechnology is and its potential to value add to particular industry sectors; what nanotechnologies are doing overseas and how this is, and will continue to affect Australian industries. Despite excellent pockets of efforts to overcome this by many individual groups and organizations, the truth of the matter is that there is still general ignorance.

Industry awareness about Nanotechnology is even more lacking in Regional areas of NSW (as it is in every Australian State), because of the difficulty –and lack of interest-by governments as well as others in being serious about organizing large scale professional awareness raising activities in relatively sparsely populated areas compared to the major metropolitan cities like Sydney et al). Last but not least, is the resultant lack of urgency by the majority of industries about even being interested in finding out about this whole area, because of a misguided sense that all of this is too far away in the future and so there is no need to worry, but to just carry on as before.

Materials Australia's strong belief is that informed awareness raising activities with Government and stakeholder partnerships are critical to ensure that Australia's competitiveness is able to match that of overseas industries-before it is too late.

The community at large is likewise virtually totally ignorant of what nanotechnology is and how it can and will impact on its daily activities .The public is/will be the ultimate consumer and end user of goods and products using nano materials and technologies, yet it has largely been ignored and is very much in the dark. There are very good reasons why the community needs to have an active buy-in and to be conscious of the good as well as the risks associated with the new technologies, if for no other reason that to ensure that it is able to sift generalizations and misinformation from disinterested factual information.

Materials Australia's experience is that apart from those whose livelihood and related activities bring them in contact with the new technologies, the rest of the community is totally oblivious and quite disinterested in the new technologies, as they do not perceive this area to have any relevance to their daily lives. The one exception is the Genetic modification of crops matter. The very divisive stance that has developed within the Australian community over this issue would seem to stem from a mishandling of the necessary public awareness and community involvement that should have taken place at the very early stages of the GM matter. Had this occurred it may have resulted in a more transparencies dialogue and understanding which might have resulted in a less acrimonious situation than what has occurred.

Materials Australia's strong belief is that informed awareness raising activities with all stakeholders are critical before any radically new technology is introduced which impinges on the public.

In terms of existing education and skills development opportunities related to Nanotechnology, NSW certainly has a number of Universities which are offering Nanotechnology related courses, and this will grow as the need increases. However, Universities are largely reactive bodies that respond to student demand, but they are not necessarily initiators of a 'push' for demand. Resources are a factor in determining which courses a University will offer as it cannot afford to carry financially unviable student loads. Likewise

Universities would not necessarily see their roles as being in the business of generating community awareness about the value or need for nanotechnology related courses.

TAFE colleges likewise are varied in their responsiveness in offering practical skills training to persons who will increasingly require different skill sets as nanotechnologies begin to assume greater roles in traditional manufacturing industries in virtually every sector of industry. The concern here is that judging the right timing has to be an important factor in ensuring that new technology skills are in place to meet the inevitable need for them as the nanotechnologies begin transforming manufacturing processes.

The other sector that needs focus and emphasis in education about nanotechnology is the primary and secondary school sectors---with the corresponding area of teacher training education as a key to this. Until teachers are themselves aware and understand the place that nanotechnology occupies and its increasing and inevitable role in our society, primary and secondary education in the sciences will not be in a position to reflect this.

Materials Australia believes that the above challenges are ones that do not have instant or short term solutions. It does believe however, that underpinning all efforts at encouraging industry as well as the broader community to be receptive and willing to accept nanotechnology in a responsible fashion, is a need for large scale awareness raising activities on many different fronts-industry sectors-in city AND regional areas, community as well as education and skills training. Such campaigns can only be successful if there is a top down leadership push –with State Governments in the forefront, working in close collaboration with professional associations, educational institutions and industry and others to make it happen.

Options to consider

Materials Australia has pioneered a number of successful initiatives in other States which we know would be equally relevant to NSW, and which could very easily be expanded on a large State wide scale. In each case, our Institute has worked in close collaboration with other partners as well as with the relevant State Departments.

The following vehicles are ones that Materials Australia uses to raise awareness about different materials related issues to targeted industry sectors.

Technology diffusion activities

1. **Industry Days/Conferences**
These kinds of activities allow for tailored content to particular industry sectors and can be either top down, or bottom up events.

Top down events focus on primarily end user corporations and their decision makers. Persuading this group to change their traditional use of supplies in favour of more economical and more competitive value added components for example, creates a stimulus down the supply chain to the vast array of SME suppliers who then have to step up to meet the new requirements. This kind of round table awareness raising is one which suits particular industry cluster groups to be brought together in a more up market Board Room settings, with incentives to participate coming from the presence and participation of the NSW government, plus high profile and acknowledged experts as presenters and facilitators in Q&A sessions. It is these kinds of top down events that Materials Australia recommends the NSW government to consider and ones this Institute would be able to arrange and facilitate.

Bottom up events traditionally concentrate on component and spare parts manufacturers, and all kinds of SME groups. These people also need to be made aware of the significance of what nanotechnology is potentially going to do to their particular industries and companies. They are an integral part of the supply chain and cannot be ignored. Indeed, it is our experience that it is this sector that is most ignorant of anything to do with nanotechnology, and therefore must be 'woken up', before it is too late.

Workshops, national road shows, and a variety of specific industry diffusion activities form the key means of communication. Such vehicles are smaller than a conference, flexible and extremely portable. A good initiative in one location, city or region or in one industry sector can easily be replicated.

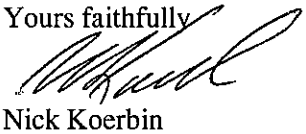
Materials Australia has already had success with a number of specific nanotechnology awareness raising activities. We attach for your information summaries of a number of actual projects that have been successfully concluded in Victoria and are about to be replicated in South Australia. We believe this Inquiry should be aware of them and to seriously consider their adoption in NSW—both in regional areas as well as in the greater Sydney area.

Materials Australia is a not for profit professional association, and so does not have the resources to initiate any large scale Nanotechnology awareness raising activity –for industry or for the community on its own.

We can offer a case study template for the NSW Inquiry to consider, and are willing and able to use our experience in this area to work with the NSW Government to initiate the implementation of our tried and tested awareness raising activities in NSW.

We trust out submission will assist you in your deliberations and we would be more than pleased to expand on this submission if required

Yours faithfully



Nick Koerbin
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