



Australian Government

Chief Scientist

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Launch of the Chemistry Decadal Plan

Icon of Science, Crucible of Change

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**Federation Square
MELBOURNE**

Chemistry: the icon of science

Chemistry is the most iconic of the sciences. And for many of us, it is the gateway drug to an incurable science addiction.

The classical elegance of the conical flask.

The beauty of a balanced equation.

The perfection of the Periodic Table.

That moment when the magnesium strip ignites.

These are wonders that never date.

And how many of the all-time icons of science were chemists?

Alessandro Volta, Louis Pasteur, Alfred Nobel, Marie Curie, Richard Smalley... a small sampling of one of humanity's proudest roll calls.

The United Nations named 2011 the International Year of Chemistry. It's a good start – but it's not enough. A *decade* is more like it – a decade to celebrate, to strengthen and to harness this science for a better life.

Helping governments help chemists to help the country

After all, how often do we see a large and diverse community come together in a single ten year plan like this?

How often do we as a science community pause to articulate the big national challenges; think about the global needs, and put our disciplines into the national context?

Not as often as we should. And not enough to help governments help us in turn.

In my experience ministers do want to be helpful to the communities they represent – even if the noble impulse and the final outcome don't always align. They look to the science community in particular to show them how to make the case for science: to Cabinet, to the Australian people and to other countries.

I am not the Government, but I have been asked to analyse the evidence on its behalf. I look to documents like these to inform me.

And your timing is impeccable. Starting now:

- We are drafting a 10 to 15 year plan for innovation and science investment, through Innovation and Science Australia.
- We are mapping Australia's next-generation research infrastructure needs.
- We are putting flesh on the bones of the National Science and Research Priorities, and highlighting the areas of big opportunity.
- We are reviewing the R&D tax incentives and trying to target them to those who can really use them.
- And as Chief Scientist I will be speaking constantly to students, ambassadors, industry groups and journalists – people who want to hear what this discipline has to say.

I read in this document the fundamentals of a strong case for Australian chemistry. We can generate ideas to use at home and sell to the world.

To name just one: geopolymers cement.

Cement is ubiquitous. We use over four billion metric tonnes globally every year, and every year our consumption grows by another few hundred million tonnes. Producing it accounts for about 5 per cent of carbon dioxide emissions.

But we can make geopolymers cement with up to 80 to 90 per cent less carbon dioxide emissions than if we were making old-school cement by the old-school method.

And we make this low-carbon cement from the chemical activation of two industrial wastes – blast furnace slag (from iron production) and fly ash (from coal fired power generation).

Australian researchers and companies are taking this technology forward, including researchers from the Universities of Melbourne, Monash and Curtin, along with CSIRO, and ANSTO.

I intend to do my utmost to help you pursue these kinds of ideas, to the extent that my role allows.

Making solutions

But this plan is not a document with an intended readership of one. It is a plan that you have committed to carry forward to implementation.

And I can tell you from experience that we won't win students or supporters by selling a problem alone. We only earn the resources we need by showing we can deliver solutions. (Which chemists of all people should know how to do.)

This plan articulates ten Priority Challenges, with substantial overlap with the National Science and Research Priorities. So my challenge to you, as you proceed to the implementation stage foreshadowed in the final chapter, is this:

- Connect those two lists together. Show Government how chemistry fits in the national agenda.
- Find the commercial potential. See what the market needs and where Australia's advantages lie.
- Sell them to students and researchers. Convince them chemistry is their path to success.

And above all: make this potential real in the minds of Australians.

Better living is a mission we can all get behind. Let's prove we have the wherewithal to do it.

THANK YOU