

Climate change and natural resource management – the roles of science

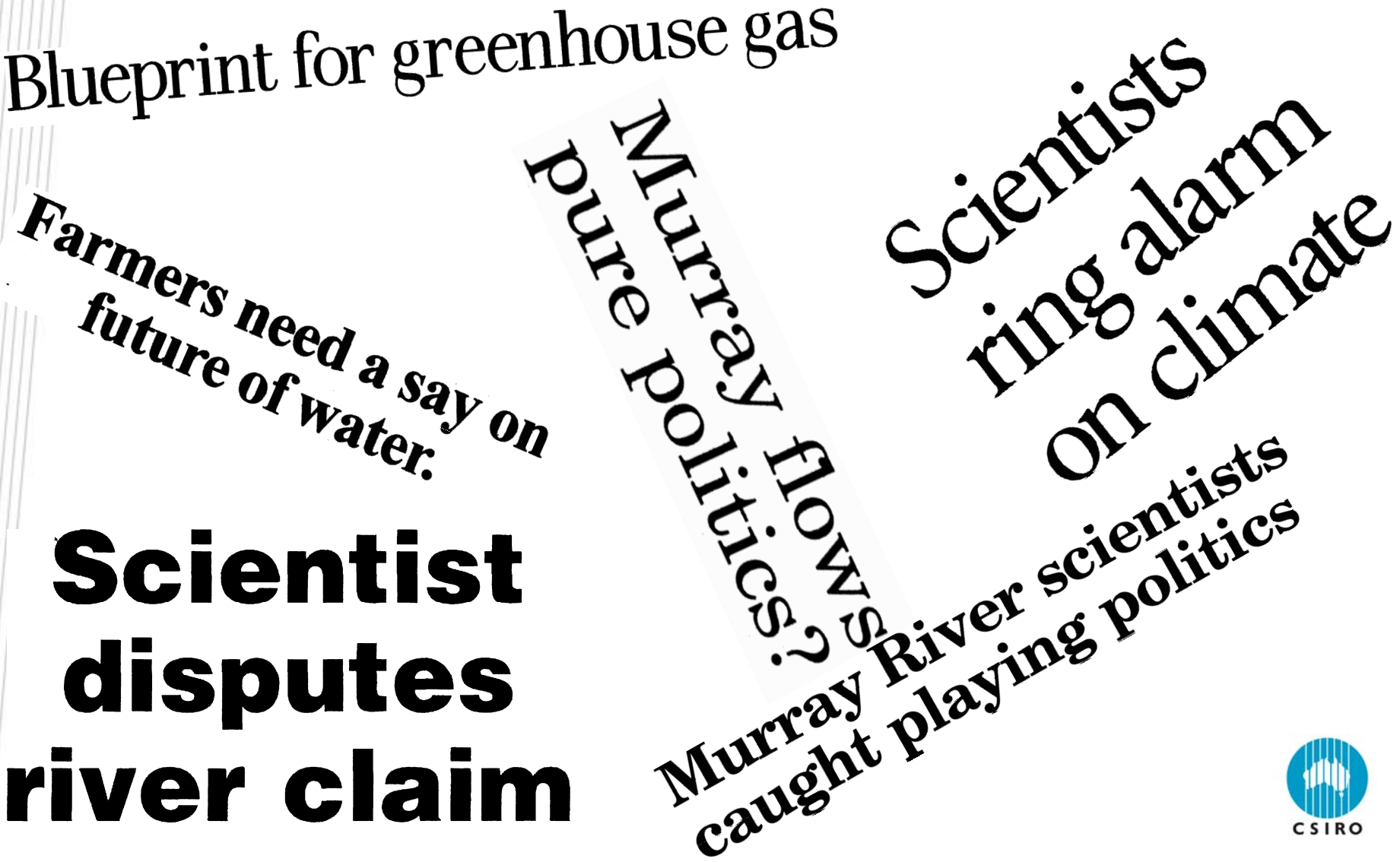
Steve Morton

May 2009

Science and the major moral and political challenges of our time

- **What stance should science take in relation to the major issues facing the nation?**
- **When, or should, science take sides?**
- **How can science best find its way into policy-making when the circumstances are the subject of intense political debate?**
- **Should different science agencies approach these matters differently?**

Science, the media, and politics



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Funding likely to dry up, scientists warn

FARMERS will face a less sympathetic community in the future if radical new farming practices designed to survive droughts are not introduced soon, scientists have warned.

Two or three droughts from now farmers may be asked to repay the community's contributions to supporting their industries.

"The story of drought is a big issue," said CSIRO Sustainable Ecosystems Division chief Steve Morton. "My own perspective is that we have a limited amount of time left because the community is now starting to ask for radical changes.

"People are asking: why are we paying this segment of the community to get through the drought," Dr Morton said.

"It won't be too much longer before the farmers are asked to repay it. Drought assistance is being rorted with no accountability of where the money is going."

Dr Morton added: "This is not an anti-farmer diatribe."

Australia's current youth were not as connected to the land as the older generation, he claimed.

"They may not be as sympathetic and willing to subsidise this sector in the future. It will only be two or three droughts away that the time will come," he said.

The rural sector needed to start developing agricultural systems that are sustainable and able to withstand drought.

Dr Morton is developing new models on sustainability.

"We are looking at research and development into systems that reflect the Australian environment," he said. "I am not being negative about farmers — but we will continue to ignore this issue at our peril."

"It won't be too much longer before the farmers are asked to repay it. Drought assistance is being rorted with no accountability of where the money is going."

Dr Morton added: "This is not an anti-farmer diatribe."

WINDS of change . . . a top scientist is calling for a radical reassessment of the way droughts are handled in the future. Picture: **Anthony Weate**

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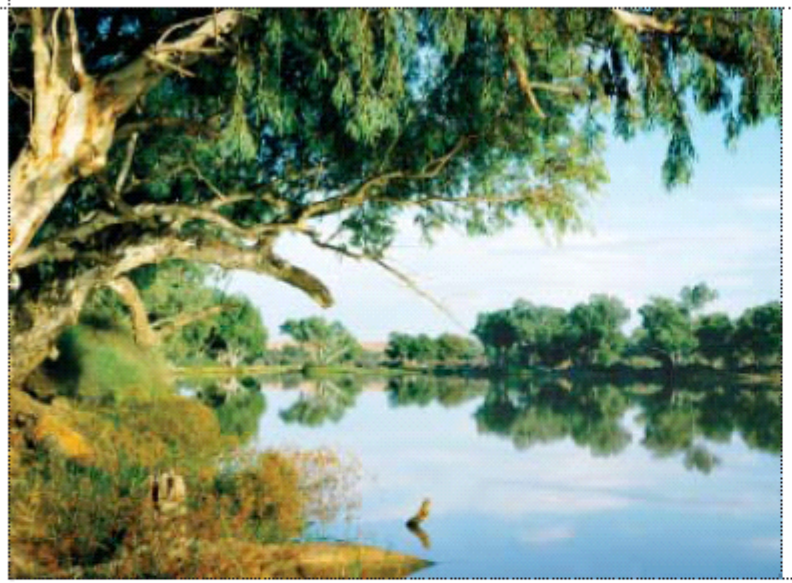

BLUEPRINT FOR A LIVING CONTINENT

A WAY FORWARD FROM THE WENTWORTH GROUP OF CONCERNED SCIENTISTS

1 November 2002

The Wentworth Group is convened by WWF Australia
Saving Life on Earth

The Wentworth Group: the upside

- **Important scientific insights brought to bear at a critical time in a fevered national debate**
- **Scientists demonstrating a proactive sense of community responsibility**
- **Some policy-makers pleased to receive public support in difficult areas of policy**

The Wentworth Group: the downside (for my Organisation)

- **Short-term justification notwithstanding, CSIRO risks its reputation as provider of dispassionate scientific advice to Government and the public**
- **If too frequently directly linked to lobby groups, CSIRO will become perceived as partisan**
- **Bureaucrats and politicians rely on CSIRO for scientific and technical advice in difficult areas of policy, and must have confidence in its non-partisan stance**

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Nature 439 - 23 February 2006

Culture of fear reigns at Australian research lab

SYDNEY

Claims from Australian scientists that they have been gagged in discussions of climate change have revealed a culture of fear at the nation's leading research laboratory.

An investigative television programme aired by the Australian Broadcasting Corporation on 13 February claimed that three prominent climate scientists from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) were censored in discussions of climate change and energy research.

Against the backdrop of the Australian government's refusal to back the Kyoto Protocol on climate change, there has been a public outcry over this and other media reports of political interference in the prominent research agency, which publishes high-impact studies on climate change. Political opponents have called for an independent inquiry into the allegations. On 21 February, the CSIRO announced a review of how it provides scientific input into policy development.

Graeme Pearman, a CSIRO veteran and former chief of the agency's atmospheric research division, says that in 2004 he was advised to withdraw his name from a report by the independent Australian Climate Group that recommended targets for reducing greenhouse-gas emissions.

Steve Morton, chief of CSIRO Sustainable Ecosystems, and Pearman's manager at the time, admits that he asked Pearman not to participate but denies that scientists are censored. "We encourage our scientific staff to

M. YOUNG/GREENPEACE/AAP

In the streets: Sydneyites protest at Australia's refusal to ratify Kyoto.

"Anyone who has a baby and a mortgage would be crazy to speak out."

What does it all mean….

- Science**: Systematic pursuit of knowledge**
- Policy**: Decision to commit to a course of action**
- Politics**: Bargaining, negotiation and compromise in pursuit of desired ends under contested conditions – who gets what, when and how – who wins, who loses**
- Values**: Shared commitment to a particular goal**

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What it does not mean….

- **It does not mean that we should view science as an activity to be kept separate from policy and politics**
- **It does not mean that science should withdraw from involvement in contested political issues**
- **It does not mean that science should disconnect itself from society**
- **It does not mean that scientists are at the mercy of politics**
- **It does not mean that we withdraw from seeing science as a key resource for facilitating complicated decisions**

Roles of information in developing consensus through politics

- **Evaluating (information-driven)**
- Help assess alternatives
- Comprehensive
- Rational
- Enlightenment
- Technocratic

- **Science powerfully useful**

- **Rationalising (value-driven)**
- Help justify choice
- Selective
- Emotional
- Power
- Pluralist

- **Science powerfully useful BUT at serious risk of conflation with values**

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Different roles for scientists

Pure scientist	Science arbiter	Issue advocate	Honest broker
Not interested in policy or politics	**Helps with information-driven assessment**	**Pushes evidence in favour of particular policy options**	**Provides evidence to clarify consequences of policy options**
Stays away	**Evaluating data only**	**Rationalising: acts to reduce scope of choice**	**Rationalising: acts to clarify or expand scope of choice**

Roger Pielke Jr., 2007, *The Honest Broker: Making Sense of Science in Policy and Politics*, Cambridge University Press

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The Stealth Issue Advocate…

- **Stealth issue advocacy mostly found where one claims to be serving as "Science Arbiter" or "Honest Broker" but instead acts to reduce scope of choice according to unrevealed values**
  - "Being above the fray"
  - "Trust me, I'm a scientist"
  - "Swimming without getting wet"

- **"Stealth issue advocacy poses threats to the scientific enterprise … scientists seeking political victories may find this strategy expedient but over the long-run it may diminish the constructive role of scientific expertise"**

  (Pielke)

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How does an individual scientist choose?

- **Ethos:**
  - what you feel is right
  - what you see as your primary motivation for doing science

- **Your employer:**
  - the roles most commonly played by the institution in which you work

Principal policy roles for individual scientists in different institutions

Government agency	CSIRO	University
Science arbiter Honest broker	Pure scientist Science arbiter Honest broker	Pure scientist Science arbiter Issue advocate Honest broker

Trade-offs among the institutional roles

Government agency	CSIRO	University
* Mainline input to policy * Very limited ability to speak about policy in public	* Speak with CSIRO's authority, and so exert strong influence on policy * CSIRO's Charter constrains speaking about merits of policy (past or present)	* Freedom to speak without constraint * Less influence on policy because usually speaking only as an individual

Sometimes the Honest Broker gains satisfaction…

Most significant policy-related roles among institutions

Government agency	CSIRO	University
Science arbiter Honest broker	Pure scientist Science arbiter **Honest broker**	**Pure scientist** Science arbiter **Issue advocate** Honest broker

My personal approach

1. **A pronounced set of value-driven beliefs**

2. **A strong belief in the significance of science and of rigorous thought**

3. **Nevertheless, a sense of science's limits in human affairs**

4. **A consequent belief in the democratic process**

My ethos… or, rather, its antithesis

Our technological civilisation produces a continuing stream of problems of a most complex technical character. Only a small proportion of the population is capable of understanding issues of this sort, even if they were to make the effort. Many elected representatives are in the same situation. The experts must in the end be trusted. To submit such matters to the ballot box, the street demonstration, or the politician who has a divine conviction that he understands technical problems, can only lead to trouble and possible disaster

Phillip Baxter, December 1975

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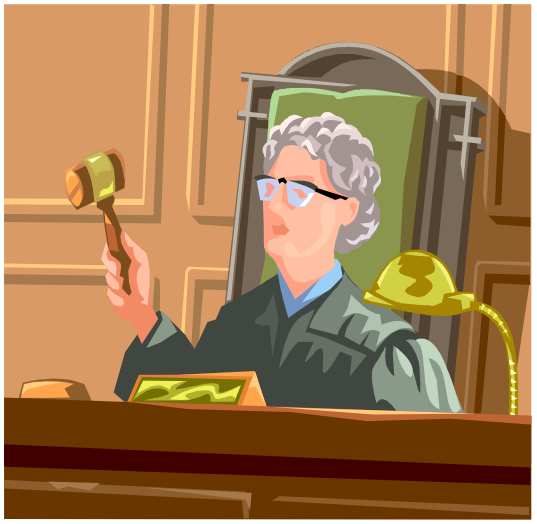
Why I strive to act as Honest Broker

1. **A pronounced set of value-driven beliefs**
2. **A strong belief in the significance of science and of rigorous thought**
3. **Nevertheless, a sense of science's limits in human affairs**
4. **A consequent belief in the democratic process**
5. **A compulsion to do the most difficult job (!)**
6. **… and a fit between my institution and my desires**

Historians and the process of judgement



- ***The historian, if he is true to his calling, must take sides on the moral issues which confront him in his research and teaching; but his place is not on the judicial bench. His place is in the witness box*.**

Keith Hancock, 1972

- ***Historians share Darwin's credo, from* The Descent of Man*: "We are not concerned here with hopes and fears, only with truth as far as our reason allows us to discover it." I would like them to take their epitaph, much less modest than it sounds, from Darwin too: "I have given the evidence to the best of my ability."***

Inga Clendinnen, 2006

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Science matters!

- **A major contributor to every big challenge and opportunity facing Australia, not just climate change or natural resource management**
- **And yet science is almost always just one among many contributors to public affairs…**
- **In this increasingly important task, I urge careful thinking about how each of us wishes to contribute to policy and public debate**

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