

Science, Policy and Freshwater

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The Key Questions

- **What is policy and what is the significance of government policy?**
- **How do we arrive at policy decisions?**
- **Why do many policy decisions seem to ignore rationale scientific analysis?**
- **How can we change that for decisions that really matter?**

Definitions of Policy

Definitions of Policy*

- a constraint on options for action by a social group
- a template that brings order and predictability to decision making
- a trail that a social group follows in order to achieve a destination.

* G. Miller, thesis in manuscript

Government Policy

- **Sets out a path for government decision making that creates the greatest social good and considers that best interests of present and future generations (hopefully)**

Government Policy Includes

- **Legislation**
- **Regulation**
- **Standards and Guidelines**
- **Operational Procedures**
- **Discretionary decisions**

The Point Is ...

- **all aspects of human economic and social interaction are structured to some extent (usually the greater extent) by government policy**
- **all aspects of human interaction with the natural environment from local to global scales are structured by government policy or lack of same**

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Decision Making to Inform Policy

- **There are several means of making decisions in our society ... and science is not a major one**
- **In Law ... facts or evidence are introduced into a forum ... a court or tribunal ... then they are weighed or assessed against some standard ... there is almost always a decision**

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- Things that cannot be valued are externalities and are ignored
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Decision Making to Inform Policy

- **In Politics ... success is measured in votes or the perception of voter intention ... decisions have to be structured to pose the least offence to a constituency of support or they will not stand**

Decision Making to Inform Policy

- **Contrast those to science ... where beyond a few immutable laws all decisions are couched in uncertainty ... 95% confidence ... not certainty**
- **The complexity of concepts is often baffling to the lay person**
- **The message of science is often bad news**

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Why?

- **Why do many policy decisions seem to ignore rationale scientific analysis?**

Why?

- **Why do we issue PTTW for a watershed and then not add them up?**
- Why do we cutback on monitoring for water quantity and quality?
- Why do we refuse to use the watershed as the basis of land use planning?
- Why don't we recognise that there are limits to capacity of the land/ecosystems?

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Public Policy System Failure

These contradictions arise because the broad policy community that affects decisions relating to water is trapped in its own pervasive and perverse mythology.

Public Policy System Failure

Understand that the scientific concepts of ecology and the water cycle do not dominate. Agrarian and Urban Paradigms prevail!

The Dominant Myths

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- **The Myth of Abundance**

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- **The Myth of Detachment**

The Myth of Abundance

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- **There is more than enough water ... just look around**
- **Everyone should use as much as they want – restrictions are foolish**

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Consequently ...

- Measuring and monitoring are an unnecessary extravagance
- There is no need to restrict growth based on water

The Myth of Constancy

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- **The naïve presumption of the stability of climate and the resilience of ecosystems**
- Everything will stay the same and the ecosystem services we rely on will always be there
- The rain will always come; the forests will be there forever

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- **There is no need to monitor**
- **Aquifers are inexhaustible in our lifetime**
- **Droughts are aberrations that will pass**
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- **We are detached from the natural world, not part of the ecosystem**
- We occupy another space that is not nature ... thus, different rules apply
- Our use of the land is a “higher use” ... where it conflicts with natural systems our use must prevail
- Our technology will protect us from failures in our ecological systems

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To Restore a Scientific Rationality ...

- **We must shatter the myths ... alter the paradigm**

Shattering the Myths

- **Myth of Abundance**

- **The abundance of water is an illusion**

- **Lakes are historic accumulations**
- **Many aquifers are declining**
- **Much depends on base flow**
- **Expensive to treat and move**

Shattering the Myths

- **Myth of Constancy**

- **The climate and the ecosystems are changing**

- **The recent past is not the future**
- **There are already many problematic changes**
- **We need to be measuring, monitoring ... watching**
- **We need to be ready to respond**

Shattering the Myths

- **Myth of Detachment**

- We are dependent on the services of the ecosystem

- We are an integral part of the ecosystems we interact with
- Nature is the “highest use”
- Our natural ecosystems are the basis of our economy and our quality of life

To Restore a Scientific Rationality ...

- We must shatter the myths ... alter the paradigm
- Then sell the new paradigm to ...
 - The agricultural community
 - An increasingly urban public
 - A non-scientific bureaucracy
- We must speak with more assuredness and certainty

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IPCC Likelihood Terminology

Likelihood Terminology

Likelihood of the occurrence/ outcome

Virtually certain

> 99% probability

Extremely likely

> 95% probability

Very likely

> 90% probability

Likely

> 66% probability

More likely than not

> 50% probability

About as likely as not

33 to 66% probability

Unlikely

< 33% probability

Very unlikely

< 10% probability

Extremely unlikely

< 5% probability

Exceptionally unlikely

< 1% probability

Under a New Paradigm ...

- **We can reconstruct a better public policy system for water ... informed by science**

Under a New Paradigm ...

- We can reconstruct a better public policy system for water ... informed by science
- And the EBR process can help
 - It's a process through which can call for a review of the need for new public policy or policy mechanisms

For more information ...

**The
Environmental Commissioner
of Ontario**

www.eco.on.ca