Interface Between Public And Environmental Health Regimes: Which Paradigm And In Whose Best Interests?

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“Global Integrity at the Tipping Point: Imminent and Ongoing Threats to the Ecological, Social and Cultural Evolution of the Planet”

Aegean Institute of the Law of the Sea and Maritime Law
Panteion University of Social and Political Sciences
Rhodes, Island of Rhodes, Greece, June 21 – 26, 2014
Alberta Energy Regulator (AER)  
Proceeding No. 1769924  
into Odours and Emissions in the Peace River Area, Alberta, Canada

This work was prepared under contract to a participant in the Inquiry, but my report was not presented as evidence or discussed at the hearing. My client has provided me with approval to publish in the interest of advancing the discussion with respect to health science.
Our focus in epidemiology is on community health; on the prevention of disease, disability and premature death in communities.

We study health problems with a view to developing policy interventions to correct the problem.
Baytex and four other companies use a method of heating bitumen in above-ground tanks to extract oil, and residents have complained of odours, feeling sick, and other issues from living near the site. The Baytex tanks use open venting.

Shell decided in advance not to contest the health complaints.
My task was to ... evaluate two independent health risk assessment reports commissioned by the AER for the hearing:

• one that adopted linear reductionist methods (by Davies)
• the other that used more of a post-normal science approach (by Sears).
A Baytex promotional video

Operating Responsibly in Peace River
Click Here to Learn More
Baytex Facility, Peace River, Alberta, Canada
Brian Labrecque and his cousin Alain Labrecque left their homes near Peace River because of fumes from bitumen processing they say are causing their health problems.
Families that have evacuated the area
There are many competing interests in the work done by epidemiologists
TEFLON?... LINKED TO BIRTH DEFECTS?

DON'T WORRY, THE ACCUSATION WON'T STICK.
... maintain, enhance, and promote health in communities worldwide ... work to protect the public health interest above any other interest ...
But, what are we up against?

- What creates/drives misconduct in science?
- What tempts scientists away from the pursuit of truth?
- How does misconduct derail scientific discourse?
- How does misconduct influence public policy and hence population and global environmental health?
- Confrontation, and the challenge of speaking truth to power!
“Corporations create 80% of our GNP. They, of all entities working, have the most potential for good or evil in our society.”

Judge Miles W. Lord, 1982
“Industry’s offensive against the regulation of health and safety hazards uses academics to downplay or deny the seriousness of the hazards...”

Clayson and Halpern

J. of Public Health Policy

September, 1983
A couple of more recent exposés ...
June 7, 2013

- In a powerful decision, a New York appeal court has found that eleven articles, published in scientific journals, were potentially part of a crime-fraud. The articles, financed by Georgia-Pacific, were intended to cast doubt on the capability of chrysotile asbestos to cause cancer.
• Industry Muscle Targets Federal
  “Report on Carcinogens” July 30, 2013

• “Industry attacks on Public Health research have become more strident.”

  Linda Birnbaum, Director, US-NIEHS
Classical techniques that skew results: from biased methods to junk science

- Linear reductionism without post-normal science to complement quantitative methods
- Under-powered studies
- Inadequate follow-up methods
- Inadequate follow-up time
- Contaminated controls
- Unbalanced discussion
- Selective disclosure of competing interests
A Five-Step Linear Paradigm:

1. **A hazard assessment:** do potentially harmful pollutants exist in the area?

2. **A vulnerability assessment:** if so, could people/animals be exposed to them?

3. **A health risk assessment:** if so, is there epidemiologic evidence for effects, given exposure?

4. **A risk management plan:** if so, how will we manage the problem?

5. **A risk communication plan:** and, how will we communicate with the community of stakeholders?
Epidemiology is, more and more, recognizing the need for new methods and concepts in order to contribute usefully to studies relating to complex environmental interactions ...
Newtonian vs. Complexity Paradigms

- Reductionism vs. Holism
- Predictability vs. unpredictability
- Linear vs. non-linear
- Uncertainties acknowledged
- Deterministic vs. non-deterministic
- System equilibrium vs. instability
The Dominant Paradigm

The Contextual Narrative

The Role of Impartial Science in the Public Interest
Post-Normal Science Toolkit—8 tools

- Integrated Assessment
- Participatory methods
- Integrated Scenario Analysis
- Ecological Footprint Analysis (EFA) and Disaggregated EFA
- The DPSEEA model
- Product Life-Cycle Analysis (PLCA)
- I=PAT
- Kuznets curves
A structured process of dealing with complex issues, using knowledge from various scientific disciplines and/or stakeholders, such that integrated insights are made available to decision-makers”

— Rotmans, 1998
A systems-based perspective

Holistic and integrated (disciplinary) approach, providing perspectives for addressing complex health issues

Greater emphasis on understanding processes (pathways) than on prediction (cause and effect)

Interdisciplinary approach is required

Makes explicit multiple interactions that exist between natural, economic and social systems
Participatory Methods

- Policy exercises and focus groups

- Linked to ‘post-normal science’ (Functowicz and Ravetz, 1994)

- Involvement of relevant stakeholders
Focus groups elicit preferences, opinions, and viewpoints

Participatory modeling allows stakeholders to explore the implications of their ideas

In scientist-stakeholder workshops, a research agenda can be formulated

By stakeholders identifying key issues, a range of possible futures can be explored

In policy exercises, participants assume different roles to simulate a decision-making process
Summary

Integrated Assessment: Interdisciplinary approach provides understanding of cross-linkages and pathways under complexity

Participatory Methods: Provides a mechanism for broadening our understanding of complex issues
The AER Decision:

- Baytex must install pollution gear
- Regulator sets four-month deadline
Despite the Energy Regulator handing down a four month timeframe to energy company Baytex to cap its emissions, litigation by the Peace River families displaced from neighbouring lands will continue legal action against the company.

A statement from Baytex says the company “has continually worked to lower its environmental impact and to reduce emissions from all its operations”

But in the meantime, the venting continues, and Keith Wilson, a lawyer who represents those families says according to court documents; Baytex is making $45,000 a day net profit.

“While these families have been out of their homes, Baytex has generated a profit of forty-five million dollars,” Wilson says.

“The simple reality is they have a financial incentive to continue to open vent,” he says.

Wilson says the fight for compensation after two years of health complaints will be a long one.

“This is probably going to be a five to seven year trial and it’s a frightening thought for these families to have to continue to fight this out for that much more time, it’s just wrong, it shouldn’t be happening,” Wilson says.

Stakeholder and Community Relations director for Baytex, Andrew Loosley, says the company will defend itself against the litigation.

“They’ve filed a lawsuit against us and we’re going to vigorously defend our interests,” Loosley says.

Loosley says Baytex has already begun installing vapour covers and says it will continue to make the changes the AER demands.

Baytex and four other companies use a method of heating bitumen in above-ground tanks to extract oil, and residents have complained of odours, feeling sick, and other issues from living near the site.
Recommendations

1. Improve basic ecological, economic, sociological, geopolitical, and systems thinking in the education of students of epidemiology.

2. Insist on qualitative, as well as quantitative, approaches when any attempt is made to address complex problems that involve health and multiple stakeholder interests.
Conclusions

The complexity, post-normal quantitative and qualitative approach taken by Sears - as opposed to the liner-reductionist, quantitative approach of Davies - is more credible, especially in light of the failure of Davies’ predictive modelling to bear out that which happens in the real world.
Main messages

• Epidemiology is an applied science that bridges work with animal systems (i.e., toxicology) to health policy.

• The scientific paradigm used in risk assessment can pit industry against regulatory frameworks. Which paradigm is correct?

• Both the traditional quantitative approaches, as well as qualitative, post-normal, integrative approaches are equally valid approaches in applied science.

• It is the dominant narrative that needs to change if public health is to be protected through policy interventions.
Discussion