Conflict Resolution 101
The Adani Carmichael Coal Mine & Rail Project in Review:
Towards an Environmental Evaluation & Approval Process Based on Relevant and Reliable Science and Effective Public Participation - not the Politicization of Science

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"The nine most terrifying words in the English language are: - I'm from the Government and I'm here to help".
Ronald Reagan (United States President 1981 to 1989)

Introduction: *Must History Repeat?*

Environmental problems have sometimes been described by analogy to water continually flowing out of a shower faucet.

Control resides at the shower tap.

The traditional role of science for resolving environmental problems has been to mop up the puddles on the shower floor by undertaking research into the nature of the problem — but to have little direct control in resolving conflict.

Politicians (as well as lawyers), in contrast to scientists, have had almost complete control for resolving public interest environmental conflicts.

The challenge is how best
to provide a direct and more effective role for science
to resolve public interest environmental conflicts:
To avoid a scenario where
politics is put ahead of science
when approvals are to be made under environmental legislation.

A case in point has been the controversy and conflict associated with the environmental approval processes for the ***'Adani Carmichael Coal Mine and Rail Project':*** An open-cut and underground coal mine project with a yield of up to 60 million tonnes per annum and a 189km railway line. It will be one of the largest mines in the world. The location of the mine is the Galilee Basin, 160km north-west of the town of Clermont, Queensland.

Application for an environmental evaluation of the project was made to the Queensland Government by Adani in October 2010. The *Environmental Impact Statement* ("EIS") process was undertaken over the period 2011-2013. The report and recommendations of the Queensland Government's Co-ordinator-General on the EIS were released in May 2014.

Our courts recognize that the "*EIS is not a decision-making end in itself … its purpose is to assist the decision-maker.*"

After almost nine years, nine legal reviews
and $3.7 billion in "start-up" costs,
the Adani project was finally given approval
by the Queensland Government on 13 June 2019.

Two key issues - both involving ecosystem management plans – fuelled public concern and controversy. They created a log-in-the road for the Queensland Government's final approval for the Adani project. When combined with other disputed issues, the result was to delay planning and approval: -

- ***The Groundwater Dependent Ecosystem Management Plan***: Sustainability of water resources, local rivers and underground aquifers. Adani had been granted access to the Great Artesian Basin - Australia's most important water resource.

  The ***Great Artesian Basin*** is one of the largest underground fresh-water reservoirs in the world. It underlies approximately 22% of Australia – occupying an area of over 1.7 million km^2 beneath the arid and semi-arid parts of Queensland, New South Wales, South Australia and the Northern Territory. For more than a century it has sustained much of the pastoral and community needs of a fifth of Australia's landmass.

- ***The Black-throated Finch Management Plan***: Destruction and fragmentation of its habitat had significantly reduced its original range. The Galilee Basin, the proposed site of Adani's coal mine, contains the best remaining habitat for the endangered Black-throated Finch.

The question is why it has taken
almost nine years of planning and evaluation
before approval was given for the Adani development proposal.
Could similar problems of conflict and delay occur
for future major developmental proposals?
Must history repeat?

An objective review of the environmental evaluation and approval processes for Adani is warranted. The outcome should be to identify the evaluation and approval process issues that proved to be problematic; and to revise and update these processes, as required, to avoid history repeating.

A problem-solving pathway is outlined for history to not repeat.
The pathway addresses the scientific and public interest concerns that were ignited over time for the Adani project.
The pathway is based on a framework of the accepted concepts and principles for resolving environmental conflicts.
This framework can be applied to facilitate an objective review of the environmental evaluation and approval processes for the Adani project.

1. Information Conflicts: *Causation/Sources*

Limitations in the available information are the primary source of conflict for igniting environmental controversy – particularly when the scientific facts are both numerous and complex.

Information conflicts arise because of scientific uncertainty, an information or database that is incomplete or unavailable, different interpretations of the same information base or different opinions as to what information is "*the best available science*". Reliance on research methodologies for which there are no accepted protocols, intensifies the problem.

Recommendation:

To ensure that all the sources of conflict in the scientific database have been identified and effectively addressed to ensure the integrity of the decision-making process.

2. The Environmental Impact Statement ("EIS"): *Incomplete or Unavailable Information*

Full disclosure of scientific information is a cornerstone of an EIS.

The potential environmental impacts that need to be evaluated for major developmental proposals, in time and space – *economic, ecological and social (including cultural)* – have now become more numerous, complex and diverse.

Compared to the past, society today is now confronted with natural and economic limits that were previously unimaginable. Adani is but one example.

Given the EIS predicts potential environmental impacts, some scientific information for preparing the EIS may well be *"incomplete or unavailable"* for decision-making.

However, in the United States, a Federal Regulation sets out procedures to guide decision-making by Government, in circumstances where *"Incomplete or Unavailable Information"* arises during the preparation of the EIS.

The Federal Regulation comes into force where the EIS identifies the *"Incomplete or Unavailable Information"* that is reasonably foreseeable.

There is no legislation in Australia equivalent to the US Federal Regulation that addresses incomplete or unavailable information when preparing the EIS.

Recommendation:

To consider adopting the United States regulatory model for addressing "Incomplete or Unavailable Information" in preparing the EIS.

READ MORE... ***About the EIS & Incomplete or Unavailable Information ~ The United States Regulatory Model"***

Limitations in environmental regulatory control may also be a source of incomplete scientific information!

The *USA's Endangered Species Act of 1973* has been a model for nature conservation legislation throughout the world. The cornerstones for the regulatory control of threatened species in Australia are based on this statute.

Since 1975, the USA experience highlights the crucial need for conserving threatened species is for the designation of critical habitat and the development and implementation of a recovery plan to keep pace with the listings.

In the United States, the listing of a threatened species and the designation of its critical habitat, are both determined at the same time.

Under the Queensland (and Commonwealth) nature conservation legislation, the assessment and designation of critical habitat is not determined at the same time as a species is listed as threatened – but a later time e.g. when a conservation plan is prepared.

Environmental assessment and decision-making
on sustainable development of natural resources
becomes problematic
where a threatened species is listed –
but the habitat critical for its survival is unknown.
The issues that confronted Adani with the Black-throated Finch
may well be problematic in the future.

Recommendations:

- ***For all listed, threatened wildlife species, the extent that their critical habitat has been fully assessed and designated by the Queensland Dept. of Environment and Science, in accordance with the Nature Conservation Act (1992). This information would offset any concerns of law-science for adequate habitat protection for threatened species.***
- ***To amend the Queensland (& Federal) nature conservation legislation to require the listing of a threatened species, and the designation of its critical habitat, to be both determined at the same time.***

READ MORE *on this topic ...*
from the perspective of an ecology – law linkage.

3. Scientific Uncertainty & The Politicization of Science

Where public interest environmental conflicts involve multiple interest groups holding rigid non-negotiable positions on the use of natural resources, politicization of science can be ignited through the exercise of the sources of

power that are available to each interest group, such as: ***resource power*** *(e.g. financial)*, ***knowledge power*** (e.g. *scientific expertise in the conflict)* and ***associational power*** (*e.g. association with an influential organization).*

What does politicization of science mean? How does it arise?

Politicization of science
means that the interpretation of scientific information
is shaped for political gain
in a way that distorts its true meaning.

Contrary to a long-held misconception, science does not generate exact knowledge with logical certainty. Where there is inherent uncertainty in the available scientific information in a public interest environmental dispute, it can act as the trigger for the politicization of science.

The aim is to create doubt that widespread scientific consensus exists: Widespread consensus within the scientific community - following peer review and publication - is one enduring test for the acceptance of scientific findings.

Where widespread scientific consensus is in dispute, divergent expert scientific opinion will emerge to support the particular position and agenda of competing interests for the use of natural resources in public interest environmental conflicts: The scene is then set for science to become politicized.

Recommendation:

To consider options for evaluating
divergent expert scientific opinion
based on the objective criteria of science:
Testability, objectivity and impartiality ***e.g. relevant & reliable science.***

3. Sustainable Development: *Statutory Purpose*

As part of the legal framework for approval of Adani, an environmental authority was required: Queensland's *Environmental Protection Act (1994).*

The ***object of this Act*** is not merely environmental protection. It is very significant to recognize that the object has two elements: To ***protect Queensland's environment*** while allowing for development in a way that ***maintains ecologically sustainable development***.

A sustainable solution requires the multiple and competing objectives of sustainable development – *environmental, economic, social (including cultural)* – to be assessed and balanced *equitably*.

Equity ensures a sustainable solution
does not place an inordinate weight
on any one of these objectives.

The conversation in Australia on Adani, in 2019, placed an inordinate focus on ***jobs OR the environment*** - rather than seeing it as a ***classic sustainable development problem*** to resolve: *And, in turn, failing to consider its multi-objective framework as the basis to evaluate the feasibility of an outcome that focussed on* ***jobs AND the environment***.

A fact not widely recognized is that, following the *Rio Declaration on Environment and Development (June 1992),* Australia led the world by developing and implementing an innovative national environmental policy setting out the guiding principles and applications for sustainable development.

The policy was drawn up and agreed to by all levels of Government in Australia – Federal, State, Territory and Local: The ***National Strategy for Ecologically Sustainable Development (December 1992).***

The ***National Strategy's 'Guiding Principles*** provide the framework for evaluating major developments in the context of sustainable development.

Recommendation:

To consider adopting the National Strategy's Guiding Principles as objective criteria to systematically evaluate sustainable development.

5. The Science-Law Linkage: *Managing Litigation Risk*

The boundaries for the scientific evidence and information required for decision-making for approvals sought for major development proposals, like Adani, are set by the questions of law in Queensland's environmental legislation.

Where public interest environmental conflicts involve fiercely competing development and environment interests, and the underlying causes of conflict remain unresolved following public participation, the underlying source of resentment persists. This may later become a trigger for litigation.

Managing litigation risk requires an effective linkage between law and science to provide a cross-disciplinary approach to facilitate environmental decision-making.

In this regard, two strategies to manage the risk of environmental litigation risk justify consideration: -

The first strategy for making real progress is to integrate law and science for managing and resolving public interest environmental conflicts: By ensuring that the ***scientific evidence and information*** conforms to the standards and criteria of science.

For law to achieve the appropriate degree of environmental regulatory control, adherence to the legal meaning for prescribed scientific terms and concepts, as defined in legislation, is crucial. But what if no legal meaning is prescribed – a real hazard when the environment is in issue?

*The **Queensland Department of Environment and Science** described its assessment of the Adani groundwater management plan (and the **management plan for the Black-Throated Finch**) as being **"...based on the best available science [knowledge]".** Reliance on this concept is very much the norm in Australia by science - and politicians.*

But exactly what does this concept mean? Its meaning is not defined in Queensland environmental protection or nature conservation legislation.

A prudent path for the decision-maker to take in these circumstances would be to define what meaning has been given to this concept. A poorly defined, or vague, meaning for the concept would make decision-making problematic; it could also lead to inconsistency in future decision-making.

A further problem is
what weight should be given to this concept
when the "best available science"
is incomplete or unavailable?

The second strategy is to ensure ***scientific terms and concepts,*** that are prescribed as questions of law in environmental legislation, have a ***statutory meaning*** that is consistent with their accepted scientific usage.

*For example, consideration of the **"standard criteria"** - as prescribed in Queensland's Environmental Protection Act - forms part of the decision-making framework for the approval of an environmental authority.*

*The "standard criteria" rely on scientific terms and concepts for assessment including: **"conservation", "biodiversity", "ecological integrity"** and **"inter-generational equity".***

But there are no legal meaning for these concepts in this statute! And they are all complex scientific concepts having multiple elements.

- ***There may also be divergent scientific opinion as to their meaning.***
- ***Sometimes our courts find constructing the meaning of scientific terms and concepts, not defined in a statute, can be problematic.***

Recommendations:

To consider the following strategies to manage or reduce litigation risk:

☑ ***By replacing "best available science" – a concept open to many interpretations – with the United States Supreme Court's legal meaning for "relevant and reliable scientific evidence".***

☑ ***Where a statute fails to define a key scientific term or concept, a policy guideline should be implemented, linked to the statute, setting out its scientific meaning, with objective criteria for its evaluation. This approach would facilitate our courts recognizing the policy as a relevant consideration for achieving the object of the statute***

6. Effective Public Participation: *Public Trust and Government*

An effective public participation process is also a cornerstone for an EIS.

The general approach by Government to resolve controversy over scientific information in a public interest environmental conflict is public participation.

The choice of the participation process to involve the community to neutralise polarised public opinion and maintain public trust is crucial.

Where public participation is ineffective, the unfortunate outcome is a *red corner ~v~ blue corner* scenario. *Competing interests* for the use of natural resources maintain their opposing ***positions*** on the issues, making conflict resolution highly improbable.

The alternative? A public participatory process that provides the community with the opportunity to focus on their ***interests*** i.e. their ***needs or concerns*** they seek to have satisfied for the conflict to be resolved.

The link between ***effective public participation concepts*** and its ***goals***, is a well-accepted body of knowledge within the social sciences.

Achieving these goals should be a bottom line for Government to resolve public interest environmental conflicts; and to avoid a potential collision with competing interests for the use of natural resources on public participation.

READ MORE... ***About Some Goals of Effective Public Participation.***

Recommendation:

To adopt the following criteria to systematically and objectively evaluate the effectiveness of the public participation process: Criteria that resonate with the accepted body of knowledge from the social sciences.

To what extent did the public participation process:

- ***Comply with the goals for effective public participation?***
- ***Provide meaningful involvement for all competing interests for the use of natural resources: Community, development and environment?***
- ***Facilitate public trust and confidence in Government?***
- ***Restore, or enhance relationships between competing interests for the use of natural resources and Government?***

CONCLUSION: *Defining a Future Role for Science*

Finding a solution for the future role for science requires an understanding of the sequential stages, and their purpose, for resolving public interest environmental conflicts:

- ***Conflict Assessment ➔ Conflict Management ➔ Conflict Resolution***

CONFLICT ASSESSMENT: *Environmental Assessment & Public Participation*

The first stage commences with the proponent seeking environmental approval for a proposed development. Government response is to link the form of the environmental assessment required under regulatory control to the significance of the proposed development's potential environmental impacts.

An EIS will be one of the regulatory options considered.

Following the completion and publication of the environmental assessment, Government will commence some form of consultation or public participation process to involve the community. Comment sought on the proposed development is based on a two-way process of information exchange between Government and the community.

The views expressed in the submissions received from the community are not binding on Government in its decision-making process.

One outcome of the public participation process is to enable a preliminary scoping exercise to be undertaken by Government: The identification of the issues in dispute and to rank them in order of priority; as well as identifying issues where common ground exists.

CONFLICT MANAGEMENT - *RECOMMENDATION*
A Dominant Role for Science in Environmental Problem-Solving

Conflict management is crucial for resolving conflicts over scientific information – and the foundation to provide the scientific information that will be applied to facilitate decision-making in the final stage - ***conflict resolution***.

The approach in Australia to review disputed factual issues for controversial environmental conflicts has been for Government to rely on constituting panels of independent scientific experts on an ad hoc basis; or establishing lawyer-led Royal Commissions or Commissions of Inquiry.

But the findings and recommendations arising from all these pathways are not binding on Government.

However, there is an alternative model which can be distinguished from these models for managing information conflicts in Australia.

A model based on the fact that environmental disputes involve multiple competing interests for the use of natural resources – *community, development and environment*: Effectively resolving environmental problems created by conflict over scientific information requires ***shared responsibility and joint action***. That is, by meaningfully involving scientific experts of Government and competing interests, in a way, leading to a sense of ownership in the outcomes.

The model is the Scientific Roundtable.

The scientific roundtable is a structured process for evaluating and resolving divergent viewpoints on scientific and technical issues in environmental conflicts. It has been developed and used by the author for conflict management, where conflict resolution is undertaken, external to and independent of the courts.

Principles and concepts from conflict management and alternative dispute resolution processes are applied to provide the framework for the scientific roundtable.

The representatives at the scientific roundtable would be a panel of scientific professionals, having expertise in the subject matter of the conflict. The scientific experts would be nominated by each specific natural resource interest group to act for and to represent them.

The key issues in dispute, plus any common ground, that were identified in the conflict assessment stage would be reviewed by the scientific roundtable experts; then revised as appropriate, prioritised and endorsed to become the agreed list of issues; and so the focus for the next phase of conflict management.

The purpose of the scientific round table
is for the scientific experts
to reach agreement by consensus
for each disputed factual issue identified in the scoping exercise.

Outcomes from the Scientific Roundtable include:

- *Conclusions on disputed issues where agreement is consistent with all relevant and reliable scientific data and/or scientific opinion;*
- *Where agreement cannot be reached by the experts on a disputed issue the non-binding opinion of the dispute resolver would be provided;*
- *Areas of scientific uncertainty for a specific issue, including where there is a lack of information, must be identified — especially where it would lead to conclusions being seen as speculation.*
- *A number of alternative pathways may be suggested where the available scientific information associated with a specific issue in dispute is either uncertain, incomplete or unavailable.*

READ MORE... About Environmental Conflicts and Divergent Scientific Opinion: *The Scientific Round-Table & Conflict Management ~ Concepts.*

CONFLICT RESOLUTION: *Government the Ultimate Decision-Maker*

The final stage is directed at a collaborative process of problem-solving by Government agencies responsible for the regulatory control of the developmental project.

Factual issues are not in dispute for resolving conflict for this stage. The foundations for conflict resolution foundation are built on the scientific roundtable outcomes and conflict management.

For history to not repeat,
it would be prudent for Government
to consider the following observation
when undertaking this stage:

"How can we best resolve issues of major controversy between groups holding opposing, yet sincerely held, opinions in ways that most nearly satisfy the principles of the democratic ordeal ... solutions from which all parties can emerge with some sense of gain and certainly with the knowledge that their views have properly been taken into account by the ultimate decision-maker.....where responsibilities are to the general public interest and not merely to a sectional group".

Former Governor-General of Australia, William Hayden (1991)