Environmental Evaluation of Development Proposals
Case Study: the Adani Project ~ A Need for Review?
Environmental Impact Statements & Scientific Uncertainty: A Decision-Making Aid or the Decision End Point?

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Disclosure Statement

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Why does this issue still pose significant problems for decision-making and major developmental projects in Australia, given the origin of environmental impact assessment ("EIA") was 1969?

One reason was that it became a log-in-the road for the Adani project by causing inordinate delays for environmental evaluation and approval - almost 9 years: In particular, the management plans for an endangered species and the groundwater dependent ecosystem.

Also, the Adani history of conflict, litigation and delay is likely to repeat if the EIA process is not critically reviewed by the Queensland Government.

In 2016, the conflict, litigation and delays associated with the Adani project became the subject of a plan by the Queensland Government to reform the mining project approval process:

The reform took a top-down approach
that focussed on the need to tighten up and expedite a legal process
that enabled complainants to delay a project "endlessly" through litigation
- *rather than a reform directed at the source of the problem:*

The need to effectively address
the sources of scientific uncertainty in the EIS
which would confound the integrity of the decision-making process.

A good illustration of the problem of scientific uncertainty for the Adani Project were the conservation issues for the endangered Black-throated Finch. The management plan for this endangered species was finally approved by the Queensland Government on 31 May 2019.

However, a news story, two weeks earlier, reported on SBS TV on 17 May 2019 titled, ***"No-one knows true status of Adani Finch"*** referred to findings of a rigorous research article on the Black-throated Finch by an expert team of conservation biologists published online on 16 May 2019[1]. The findings reported by SBS TV included:

- "A shortage of information on the present population size and distribution creates uncertainty about its conservation status"; and
- "Uncertainty about distribution means knowledge of the bird's optimal habitat is likely to be biased or incomplete".

The question that should be the subject of any review
of the Adani environmental evaluation and approval process
is that why, at the 11th hour -
after almost 9 years of planning and environmental evaluation -
significant scientific uncertainty
still persisted for these key conservation issues:
Issues that could only confound approval decision-making.

The Environmental Impact Statement ("EIS") & Information Conflicts

Whilst the goal of an EIS may be to ensure that decisions which may have adverse environmental impacts are made on the basis of full information, the reality may be quite different.

The reason? Limitations in the EIS arising from scientific uncertainty that affect the accuracy of predicted impacts. This problem will be exacerbated and flow on to the community, if there is no public access to environmental monitoring data; as well as no means for the public to assess whether the predicted environmental impacts were actually correct.

The accuracy of predicted impacts
can be determined by an environmental impact audit
that compares
the impacts predicted in the EIS prior to development,
with the actual impacts that occurred
following approval and development of the project.

An early example of an environmental impact audit, published in 1991, indicated that the "*average accuracy of quantified, critical, testable predictions in environmental impact audit in Australia to date was 44 ± 5% … At present, in Australia at least, our predictions are less than 50% accurate on average and over two orders of magnitude out on occasions*[2]".

Almost two decades later, the findings from a UK study[3] that audited 865 predictions from 28 UK projects granted planning permission, resonate with the findings of the Australian study.

- Only 488 (56%) of the 865 predictions could be audited. Of these, 383 (79%) were deemed "*accurate*" or "*nearly accurate*"; and 21% were "*inaccurate*";
- The remaining 377 (44%) predictions could not be audited; and
- Six impacts were unpredicted.

The UK study is significant in its "overall picture": Only 383 predicted impacts of the 865 predictions in the EIS were "*accurate/nearly accurate*": A 44% accuracy – equivalent to the Australian findings 20 years earlier.

But the UK study is invaluable
as it pinpoints the main reasons for the inaccuracy:
Lack of data (as is the case for Adani and the Black-throated Finch),
vague or ambiguous predictions and
the time-course dependency for causation of impacts had not run.

Comment:

i. ***An EIS is required to alert the decision-maker, members of the public and the regulatory agency to the impacts of the development proposal on the environment and the consequences to the community inherent in the carrying out, or not carrying out of the activity.***

ii. ***However, scientific uncertainty created by Information deficiencies such as inaccurate, incomplete and inaccessible information may make full access to information in the environmental impact assessment process - and the communication of the uncertainty that exists - problematic.***

iii. ***Almost 50 years has passed since the EIA process was introduced and became the norm to evaluate major developmental proposals. However, the potential environmental impacts in time and space – economic, ecological and social (including cultural) – have now become far more numerous, complex and diverse. As a result, the accuracy of predicted potential impacts can become questionable.***

> ***The United States statute, the National Environmental Policy Act of 1969 ("NEPA"), signed into law on 1 January 1970, was an innovative and pioneering environmental statute.***
>
> ***NEPA is regarded as possibly being "the most successful legal export in history" as it has been a model for environmental impact assessment in over 100 countries.***
>
> ***A major procedural step under NEPA to address limitations in the available scientific information in an EIS was a Federal Regulation that addressed "Incomplete or Unavailable Information": 40 CFR 1502.22.***
>
> ***But there is no legislation in Australia equivalent to this US Federal Regulation to address incomplete or unavailable information when preparing an EIS!***

The United States 40 C.F.R. Sections Section 1502.22
The EIS and "Incomplete or Unavailable Information"

The United States *40 Code of Federal Regulations Sections 1502.22* sets out procedures to guide decision-making by a Government agency, in

circumstances where *"Incomplete or Unavailable Information"* arises during the preparation of the EIS:

When an agency is evaluating "*reasonably foreseeable significant adverse effects"* on the human environment "*and there is incomplete or unavailable information, the agency shall always make it clear that such information is lacking":*40 C.F.R. 1502.22

Two alternative "scenarios" are defined in this Federal Regulation to address the lack of information in these circumstances: Either the overall costs of obtaining the lack of information are not exorbitant, or the costs are exorbitant or the means to obtain it are unknown.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the ***overall costs of obtaining it are not exorbitant***, the agency shall include the information in the EIS.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because ***the overall costs of obtaining it are exorbitant or the means to obtain it are not known***, the agency shall include within the EIS:

- *"A statement that such information is incomplete or unavailable;*
- *A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;*
- *A summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and*
- *The agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.*
- *For the purposes of this section, "reasonably foreseeable" includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason".*

Conclusions:
Conflict Management & Incomplete or Unavailable Information

i. *Australian courts recognize "the EIS is not a decision-making end in itself …its purpose is to assist the decision-maker". For the EIS be an effective aid for decision-making, scientific uncertainty arising from incomplete or unavailable information must be addressed to offset future conflict.*

ii. *To achieve this goal, the principles of US Federal Regulation 40 CFR Sections 1502.22 for "Incomplete or Unavailable information" need to become part of the regulatory framework of the EIA process for Australia e.g. by including it as a Term of Reference for any future EIS for a major resource development proposals; or by legislative amendment for regulatory control of the EIA process.*

iii. *Conflict management based on this US Federal Regulation would effectively address incomplete or unavailable information when this issue arises when preparing an EIS. It would manage the conflict created by scientific uncertainty in the EIA process, at the first stage of the environmental evaluation process, as its focus is on the primary source of the disruption and delays encountered by the Adani project – the EIS. The conflict resolution outcome would be to facilitate the integrity of the decision-making process by Government, that follows.*

iv. *A **scientific roundtable** as advocated by the Author should be part of the EIA process established by Government to resolve the issues that arise under the US Federal Regulation; and its Report published as a supplementary document to the EIS during the public consultation stage.*

It would be prudent for Government
to be aware of the US experience:
That "no other strategy
offers a more telling acknowledgement
of the legitimacy of local concerns"
than where those who have to live with a decision
that has potential adverse environmental impacts,
know they can trust the monitoring and management plans.

Chapter 6 (*Environmental Impact Assessment*) of the author's book *"Finding Solutions for Environmental Conflicts: Power and Negotiation"* has a comparative review of the legal and scientific approaches to EIA in Australia, the UK and the USA; and links this knowledge to achieve outcomes based on conflict resolution principles.

END NOTES

[1] **Juan Mula Laguna, April E. Reside, Alex Kutt, Anthony C. Grice, Peter Buosi, Eric P. Vanderduys, Martin Taylor & Lin Schwarzkopf (2019): Conserving the endangered Black-throated Finch southern subspecies: what do we need to know?, *Emu - Austral Ornithology*, DOI:10.1080/01584197.2019.1605830**

[2] **Buckley, R. (1991), 'How accurate are environmental impact predictions?', *Ambio*, 20, 161.**

[3] **Christopher Wood, Ben Dipper & Carys Jones (2000) Auditing the Assessment of the Environmental Impacts of Planning Projects, *Journal of Environmental Planning and Management*, 43:1, 23-47, DOI: 10.1080/09640560010757**