Anna Longueville [a], Patience Whitten [b] and Inga Carlman [a]

[a] Mid Sweden University, Department of Ecotechnology and Sustainable Building Engineering
anna.longueville@miun.se
[b] Patience Whitten has more than 25 years of experience in US and international EIA, including with the US Environmental Protection Agency, the US Coast Guard, the US Treasury Department, and with the US National Oceanic and Atmospheric Administration.

'IAIA15 Conference Proceedings'
Impact Assessment in the Digital Era
35th Annual Conference of the International Association for Impact Assessment
20 - 23 April 2015 | Firenze Fiera Congress & Exhibition Center | Florence | Italy | www.iaia.org

# Can We Get "Alternatives Analysis Redux" Please?

## Introduction

When the National Environmental Policy Act – NEPA of 1969 [1] was enacted in the United States more than 45 years ago, the requirement to prepare an "alternatives analyses" for proposed Federal actions was "ground-breaking"*. In the Council on Environmental Quality's Regulations implementing NEPA, the details of this provision followed the declaration in the statement of "Policy" that "Federal agencies shall to the fullest extent possible…(u)se all practicable means…to *avoid or minimize* any possible adverse effects of their actions upon the quality of the human environment" [2].

It is not by accident that, within any Environmental Assessment (EA) or Environmental Impact Statement (EIS) prepared under NEPA, reasonable alternatives to a proposed action are identified and brought forward for detailed review before any analyses of impacts are presented. Why? The answer lies in the policy language provided above: reasonable alternatives (i.e., alternatives that meet the stated project purpose and need) provide a potential means to avoid environmental impacts—as in "not mitigate," but rather *avoid* in the first place. Alternatives are, potentially, the purest form of avoidance and, hence, this analysis is seen by the US Courts as "…the 'heart-and-soul' of the NEPA process." [2-3]. If an impact can be avoided altogether, some piece of a resource has been protected in its natural state and avoided the scary prospects of cosmetic surgery on the environment, gone awry.

Given its importance to "avoiding harm," acknowledged by courts and defended ardently by practitioners in the formative years of NEPA practice [3], why has the practice of evaluating "true" alternatives waned in recent years? And this not only in the US? Its purpose as a means to avoid impacts on public environmental resources while meeting the project purpose has been lost. Rather, some argue, it has been replaced by a focus on a post-hoc analysis of a decision already made in order to promote the proposed activity, despite alternative assessment being a mandatory requirement in both national and international legislation [4-6].

This paper focuses on the significance of alternatives, how this requirement is fulfilled in practice, and why alternatives analysis has become one of the most abused parts of the EIA-tool. Our point of departure is strong sustainability i.e. that ecological sustainability is necessary but not sufficient. To understand the notion of resilience and carrying capacity and that in relation to the planetary boundaries is vital [7-9].

* The special action-forcing clause section 102, within NEPA, sets the requirements for making decisions about federal activities, which might have a significant impact on the environment. It regulates both the requirement for the environmental impact statement – the EIS – and the procedure for performing the document. This instrument, internationally called Environmental Impact Assessment – EIA – was later implemented in federal states and many other countries legal system and adopted by international organizations.

## EIA – what is it?

There appears to be a reluctance to define what EIA is, and seemingly mostly so among none-jurists [10]. This attitude has a strong bearing on the obligation to assess alternatives. The development of Strategic Environmental Assessment (SEA) and its wider scope has furthermore opened up for *if* and *when* alternatives are of interest to be assessed and if so what kind of alternatives [11].

However, Westerlund [12-13] chiselled out six criteria, which have to be met in order to be what he named a genuine EIA. This was done from a legal point of view and on the basis of a thorough analysis of NEPA and its application over some years and on other EIA regulations and guidelines.

The six criteria, which underpin the EIA tool are: The *Basis for the Decision* Criterion (1): an EIA shall be completed before a decision is made, and it shall be considered by the decision-maker. The *Result* Criterion (2): There is always a reason for an activity, and that should be clearly stated as well as the underlying or objective purpose to that reason. This is essential inter alia for the following criteria. The *Alternative* Criterion (3): Appropriate alternatives to the proposed action plus the do nothing alternative shall be included in the assessment. The alternatives shall be investigated and analysed up to a point where relevant balancing between the alternatives can be made. The *Environmental Impact* Criterion (4): A comprehensive and holistic analysis of the environmental and socio-economic effects shall be made. The *Balancing or Compatibility* criterion (5): The different alternatives are to be balanced against each other to make visible the pros and cons. The *Review* criterion (6): The EIA procedure is open for public participation right from the scoping phase up to the reviewing of the environmental impact statement.

The EIA tool is applied to activities – projects, programmes, plans and policies – which have significant impact on the environment and have a clear-cut purpose. Comprehensive plans and programmes, for which a SEA is to be carried out, deal with a multitude of purposes [10]. Hence, requirements for alternatives have to be managed differently if it is to prove successful.

## The "significance of alternatives

Anyone still reading this paper likely already understands that deep discussions about the alternatives analysis in NEPA (and much of EIA internationally) cannot occur without invoking "Purpose and Need" in the same breath. The two notions are inextricably linked. If an EIS or an EIA has a flawed statement of purpose and need, then the rest of the analysis is flawed, likely fatally. Now that this has been said, the rest of this paper assumes that we are past any debate or elaboration on this principle and its focus is on alternatives in their own right.

The idea behind EIA, generally, and alternatives requirements, specifically, is that it will promote better decisions about the use of public resources as decision-makers become aware of alternative ways to achieve the same proposed activity goals. From this, three key understandings about the "significance" of the alternatives analysis in EIA are as follows:

- *Optimizing Use of Public Resources:* First-and-foremost, alternatives are fundamental to achieving the goal in EIA for effective resource use and minimising environmental degradation from the perspective of future generations well-being. Would any private industry interest propose to its management that it applies scarce resources to a project

development before reviewing how every dollar has been put to good use? It is the same idea with alternatives under EIA. At the project level, in particular, the alternatives analysis, done well (that's important), has had the most profound impact on the environmental "death-by-a-thousand-cuts," slow-moving quicksand that all EIA practitioners try their best to fight against. And as with any well-applied due diligence, requirements to assess alternatives are overall proactive. It focuses on solutions, often long-term, rather than problems and can thus promote innovative thinking.

- *Transparency:* Furthermore formulation of alternatives is central to the transparency of the EIA-process. Different perspectives can be discussed and clarified. This is, in fact, why alternatives can be seen as "a scary business" for proponents. The participation of an engaged public ensures the contribution of new perspectives and overall increased knowledge. This will give all a better understanding and a smooth process, which can lead to fewer misunderstandings, conflicts and appeals, as well as an improved reputation for the proponent [14-15]. There is a need for real alternatives to improve the proposed alternatives.

- *Sustainability:* The goal of sustainable development implies that there is a need for new approaches and new ways of thinking. This is underpinned not least by the World Commission on Environment and Development report [16], the Rio Declaration [17] and the Johannesburg Declaration on Sustainable Development [18]. This means that there is a need for new solutions for old problems, and need for new approaches to old, existing and future needs. Without alternatives, old habits are reinforced and there is a risk that proponents only seek solutions that are well-known and within what is most profitable for them.

All of this boils down to that the assessment of alternatives enables the "higher goal" of EIA, which is the well-being of future generations. An EIA is not made in order to fulfil the proponent subjective goal, unless that coincides with the "higher" goal.

Closely linked to requirements to analyze alternatives is the guiding principle "Rule of Reason". This principle implies that even if "remote and highly speculative possibilities" need not be addressed, reasonable alternatives are to be considered.

## Alternatives in EIA practice

Internationally, many countries have legal requirements to assess alternatives within an EIA context. The burden-of-proof principle makes the proponent responsible for proving that the proposed activity is the most appropriate one in relation to other comparable alternatives, including those outside the proponent's scope, and that there is a need for the purpose of the activity.

Despite relatively clear and consistent legal provisions, however, the practice of alternative analysis internationally deviates widely from what is written in law, since it is common for the EIA documents to focus on the proponent's project design, with little or no consideration of other options that might result in reduced environmental impact. Numerous examples of abuse may come easily to the mind of the well-tread EIA practitioner, but three common examples are highlighted below:

1) No alternatives but the proponent's alternative.
2) The alternatives presented are not "true" alternatives—rather they are "straw dogs" that empirically leave little choice but to dismiss. An example might be suggesting a new technology that clearly is not ready for market and thus not viable.

3) The alternatives are "true" and therefore possible to compare and balance. This opens up for some benefits of avoiding and minimizing impacts.

In general, mitigating measures dominate and the no action/zero alternative is seldom treated in a meaningful way [4-6]. This shows that proponents have poor understanding of the function of or how to present alternatives.

The alternatives analysis in international practice will not survive without adequate support and enforcement from responsible authorities. If corporate interest to evaluate alternatives is absent, if legal enforcement of the alternatives analysis is absent, governments and their court systems do not support, then the prospects seem dim indeed to achieve the "Alternatives Analysis Redux."

The public authorities and companies are in partnership in the EIA process, so authorities must therefore accept a greater responsibility. This is resources held at public trust. Decision-makers have the responsibility to the public to ensure that they have the larger concern up front and that they have done what they can.

## Meaningful Alternatives – How to Get From Here to There

Given the challenges identified above, how do we return meaningful alternatives practice to the modern EIA world? As in any sound business practice, cut away the rhetorical chaff and stay focused on your core mission. Some historical practice needs to change or disappear:

- *Poor International Applications of EIA Standards and Practices.* In the 1980s EIA rapidly spread all over the world and e.g. the European Union enacted the EIA-directive for projects in 1985, not clearly understanding the legal perspective together with a disregard of for restricting EIA to activities with "significant environmental effect". Under this directive, nearly any action triggers an EIA requirement, which has devaluated it as an effective tool for sound decision-making.

- *Connecting the "tiering" process under EIA and different countries long history of physical planning.* This was reflected in the late 1980s when making EIA on a strategic level – SEA – begun to gain momentum. Using the EIA-tool in physical planning clearly contributed to mix things up. Not considering the difference between e.g. a legally binding plan with a focussed purpose on the one hand, and a not legally comprehensive binding plan on the other hand, clearly show this.

- *Industry hostility towards EIA regulation and standards*. That has had a great influence. This is e.g. reflected in the EUs EIA directive. On a higher level, the current EIA-situation reflects different worldviews. To reduce the importance of, or simply disregard requirement of alternatives mirrors a weak sustainability perspective. Most often the proponents' perspective of alternatives analysis differ compared to the intentions of the EIA law. Many environmental impact statements do not even get the purpose and need statement right [19]. Without a clear purpose and need, the alternatives assessment is impossible to do. The "purpose and need statement" describes the objective needs of the society. However, most often only the proponents' subjective objectives are described. Another reason for the lack of alternatives assessment is that the proponents regard it costly to investigate alternatives that will not go ahead. The assessment of alternatives can also be seen as a threat to the proposed alternative. However the costs for making an EIA is often just a fraction of the total budget, appeals included.

But, not to harp on negatives, the following are some positive steps towards a revised practice of the alternatives analysis in EIA:

- The scoping process must play its vital role. Since many decisions have been made beforehand many alternatives are scoped out before the EIA process starts. Scoping is the process to get consent to the value system and a part of public participation. A lot of things will be discussed and that process has to be early. Scoping is not always done, it is done too late and the goals of the EIA are most often too narrow. The cases that are discussed early with the public are more socially accepted and have fewer appeals [20].

- It often becomes the role of the impact assessor (or consultant) to develop alternatives. It is not the responsibility nor suitable that they do it. Developing alternatives is a design process, not impact assessment. Developing alternatives is a different art and the EIA needs to be a more creative process. EIA consultants, authorities and the public are important drivers in the process of generation of alternatives. Alternatives should be assessed all the way through the process, both the alternatives to the action and the alternatives within the alternatives (e.g. technical solutions).

- That no alternatives are assessed is too often accepted. The EIA legislation itself is a "stop" to the most stupid actions, since just the fact that there are legal requirements has an impact on what actions that are brought forward. If proponents do not have to comply with legislations, the requirements will have less and less effect. The problem is the lack of will to enforce legislation and sustainable development.

## Final comment

It is common knowledge that the environmental situation is continuously worsening, and hence, a threat to public health – both for the rich and the poor. In the overall quest to move towards a sustainable path this paper has underlined the necessity to reinforce the role of practitioners and perhaps IAIA as an organization in the meaningful practice of the alternatives analysis in EIA. In other words, what can be done to make the alternatives analysis count in decision-making? One way is to advocate some simple tools as "best practice." One of the most basic tools is a table, arguably needed for every EIA analysis that compares and contrasts environmental and social impacts for a range of alternatives across resource categories. EIA should be a proactive tool, not a post-hoc analysis of something a proponent wants to do. This may sound quite basic, but it is astonishing how often alternative analysis is absent from the EIA. There is obviously also a need to review the law and in a much more distinct way separate SEA – multipurpose activities – from EIA – single purpose or focused activities

Alternatives analysis is one function of EIA that needs to be improved for a more meaningful analysis in EIA practice. So let us get alternatives analysis redux!

## References


1. National Environmental Policy Act of 1969 (Public Law 91–190). [accessed 2015 Feb 15]. Available from: http://www.epw.senate.gov/nepa69.pdf
2. Council on Environmental Quality (CEQ) 1978. Regulations for implementing the procedural provisions of the National Policy Act, 40 Code of Federal Regulations parts 1500-1508.
3. Smith M. D. 2007 A review of recent NEPA alternatives analysis case law. Environmental Impact Assessment Review. 27, 126–144.
4. Jones, C. E. 1999 Screening, Scoping and Consideration of Alternatives, in Petts, J (Ed.) Handbook of Environmental Impact Assessment, Oxford: Blackwell Science, Vol. 1, Chapter 10: 201-228.
5. European Commission. 2009. Study concerning the report on the application and effectiveness of the EIA Directive. Final report, June 2009. European Commission, DG ENV. [accessed 2015 June 22]. Available from: http://ec.europa.eu/environment/archives/eia/pdf/eia_study_june_09.pdf
6. European Commission. 2009. Study concerning the report on the application and effectiveness of the SEA Directive (2001/42/EC). Final report April 2009 Jun. European Commission, DG ENV. [accessed 2015 June 22]. Available from: http://ec.europa.eu/environment/eia/pdf/study0309.pdf
7. Rockström, J., Karlberg, L. 2010. The quadruple squeeze: defining the safe operating space for freshwater use to achieve a triply green revolution in the anthropocene. Ambio 39, 257–265.
8. Carlman, I. , Grönlund, E., Longueville, A. (2015). Models and methods as support for sustainable decision-making with focus on legal operationalisation. Ecological Modelling, 306, 95-100.
9. Carlman, I. 2008. Control system for sustainable development. In: Dubois, D.M. (Ed.), Computing Anticipatory Systems. (AIP Conference Proceedings). American Institute of Physics (AIP), 187–194.
10. Carlman, I. 1996. Progammatic and Strategic Environmental Impact Assessment – Concepts, Devleopment, Pitfalls and Possibilitites. TemaNord 1996:589, Nordic Council of Ministers, Copenhagen.
11. Dalal-Clayton, B., Sadler, B. D. 2012, Strategic Environmental Assessment: A Sourcebook and Reference Guide to International Experience. Earthscan: New York.
12. Westerlund, S., Miljöeffektbeskrivningar 4, Del 1 om miljöeffektbeskrivningar och om reglerna och tillämpningen i USA [Environmental impact assessments 4, Part 1 on environmental impact assessments and the regulations and practice in USA] 1981, Stockholm: Naturresurs – och miljökommitten.
13. Westerlund, S., Genuine Environmental Impact Assessment (EIA) and a Genuine EIA Concept, in Miljøkonsekvensvurdering – i et retligt perspektiv [Environmental Impact Assessment - a Legal Perspective], E.M. Basse, Editor. 1996, GadJura: Kopenhagen. 101-128.
14. Carlman, I. 1993. TÄNKOM. Studier av konflikter i svenska miljöärenden [RETHINK – studies regarding conflicts in Swedish environmental law cases]. Institutet för Miljörätt (IMIR) 1993:2, Åmyra Förlag, Uppsala.
15. Carlman, I. 1992. Att acceptera eller inte acceptera: om intressemotsättningar och oenighet vid miljöpåverkande energiverksamheter [To accept or not accept: about conflicts of interest and disagreements in energy activities with environmental impact], Åmyra, Sweden: Åmyra Förlag.
16. WCED (World Commission on Environment and Development). 1987. Our common future. Oxford, England: Oxford University Press.
17. United Nations General Assembly. 1992. Report of the United Nations Conference on Environment and Development Annex I Rio Declaration on Environment and Development. [accessed 2015 Feb 15]. Available from: http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm
18. United Nations World Summit on Sustainable Development. 2002. Johannesburg Declaration on Sustainable Development. [accessed 2015 June 22]. Available from: http://www.un-documents.net/jburgdec.htm
19. Steinemann A. 2001. Improving alternatives for environmental impact assessment. Environmental Impact Assessment Review. 21. 3–21.
20. Carlman, I., 2005. The rule of sustainability in planning adaptivity. Ambio 34, 163–168.