

CANADIAN AND INTERNATIONAL EIA FRAMEWORKS AS THEY APPLY TO CUMULATIVE EFFECTS

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By

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My presentation is intended to examine some of the history of the development of cumulative effects, current requirements in North America and elsewhere in the world, challenges at the project level and thoughts on how emerging concepts of strategic environmental assessment and regional assessment may offer means to improve the examination of cumulative effects. I will begin with some back casting before attempting any forecasting – an important principle in cumulative effects assessment.

Why are we assessing cumulative impacts? Because it is good practice, makes good sense, should assist in making good decisions about sustainable development and finally because we are generally required to do so by legislation. I will begin with the assessment of individual projects.

In the early days of environmental impact assessment (EIA), in the 1970s, the term was not used widely. It was not a legal requirement but environmental impact assessments were generally being done with some knowledge about the nature of the effects of nearby developments and how they might be affecting the environment. Admittedly, it was hit and miss in the early days but a few of the early Canadian environmental assessment panel reviews turned down proposals before them in large part because of their incompatibility with neighbouring land uses. One project in particular that comes to mind was the proposal in 1978 to explore for hydrocarbons in Lancaster Sound, the eastern entrance to the Northwest Passage in the Canadian Arctic. This drilling project was considered to be in conflict with other resource, traditional and conservation uses proposed in the area. The Lancaster Sound EIA review led to one of the early regional studies on potential resource use in that area within the present day Territory of Nunavut and had an important effect on the creation of protected areas and future development plans. I will say more about regional studies later but wanted to note that such studies started to evolve as a consequence of project EIA some 30 years ago in Canada and I expect elsewhere as well.

However, it was generally recognized that assessing short term impacts, project by project, was not contributing effectively to emerging broader objectives of sustainable development as identified by Gro Bruntland in 1987.¹ Considerable activity occurred on the development of approaches to cumulative effects in the late 1970s and in the 1980s.

In the USA, the requirement for cumulative impacts was introduced by regulation in 1979:

¹ Bruntland, Gro, *Our Common Future, Report of the World Commission on Environment and Development*, Oxford University Press, 1987

“the impact on the environment which results from **the incremental impact of the action when added to other past, present and reasonably foreseeable future actions**, regardless of what agency (Federal or non-Federal) or person undertakes such other action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

However, it is probably fair to say from observations made by cumulative effects practitioners such as Dr. Larry Canter² that attention was not really paid to cumulative effects until the 1990s. In Europe, the 1985 European Union EIA directive and its amendment in 1997³ required member countries to establish an EIA process and included the requirement to assess cumulative effects. The definition is shown below:

“A description of the likely significant effects of the proposed project on the environment [and] this description should cover the direct effects and any indirect, secondary, **cumulative**, short, medium and long-term, permanent and temporary, positive and negative effects of the project.”

In 1984, the predecessor to the Canadian Environmental Assessment Agency created the Canadian Environmental Assessment Research Council following a recommendation arising from the Beanlands and Duinker study entitled “An ecological framework for Environmental Assessment in Canada”⁴. As many of you are aware this was a landmark exercise that among other things coined the phrase valued ecosystem components that we continue to use today in this country and elsewhere and was instrumental in providing a greater focus for environmental impact assessments. This study together with research undertaken by the Council in the area of cumulative impacts led to an improved understanding of the complexity of the issue and the need for methodologies. The requirement for the assessment of cumulative effects was formally introduced into the process in 1995 with the promulgation of the *Canadian Environmental Assessment Act*. It requires that every [assessment] shall include:

“the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and **any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out.**”

In Australia, although cumulative effects assessment is not a legal requirement in the *Environmental Protection and Biodiversity Convention Act*, litigation has made it clear that a wide consideration of the consequences of a proposal is required and that assessments should include cumulative impacts⁵. The Federal Court in Australia has ruled:

“that the Minister of the Environment must give the **widest possible consideration** to any project under the Act, having regard to the sensitivity, value and quality of the

² Personal communication

³ European Union Environmental Impact Assessment Directive (85/337/EEC, 27 June, 1985): www.eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31985L0337:EN:HTML

⁴ Beanlands, Gordon and Duinker, Peter, *An ecological Framework for Environmental Assessment in Canada*, Federal Environmental Assessment Review Office, Canada, 1983

⁵ Early, Gerard, Department of the Environment, Water, Heritage and the Arts, Australia, personal communication

environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts, including its “**whole, cumulated and continuing effect**”.

Consequently, guidelines to proponents for EIA documents require consideration of cumulative effects.

Following the introduction of cumulative effects as a legislative requirement, a number of countries developed guidance material in response to concerns that the legal requirements had exceeded the ability of the science to deliver. Some of these guides for example are:

the Cumulative Effects Practitioners Guide in Canada in 1999⁶, the Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions in 1999⁷ issued by the European Commission and the USA Council on Environmental Quality document “Considering Cumulative Effects Under the National Environmental Policy Act.”⁸

The latter two documents also provide guidance on various methodologies such as modeling, networks etc.

These guidance documents are fairly consistent in how to undertake a cumulative effects assessment. The basic steps are:

- scoping to identify the key issues – the valued ecosystem components or important attributes to be effected by the project thus allowing the EIA to be focused;
- identifying spatial (the regional study area) and temporal (past and future activities) boundaries in order to identify other future activities that may also affect the valued ecosystem components (boundaries will vary for each valued ecosystem component);
- collecting baseline data and analyzing the effects on each valued ecosystem component;
- determining the significance of those effects after mitigation; and
- identifying follow up and monitoring requirements.

Other than identifying future activities, the basic steps for project cumulative effects assessment are similar to environmental impact assessment.

However, challenges in completing cumulative effects assessment for specific projects remain. Some of these are:

- administrative boundaries and jurisdiction are not necessarily conducive to cumulative effects assessment – data, and mitigation measures, particularly the

⁶ The Canadian Environmental Assessment Agency, *Cumulative Effects Assessment Practitioners Guide*, 1999. http://www.ceaa-acee.gc.ca/013/0001/0004/index_e.htm

⁷ The European Commission, *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions*, 1999. <http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/guidel.pdf>

⁸ Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act*, 1997. <http://www.nepa.gov/nepa/ccenepa/ccenepa.htm>

- requirement for offsets to compensate for impacts, often involve different levels of government and may be beyond the capability of the proponent to control;
- baseline data is often expensive and time consuming to gather;
 - assumptions on the regional study area, definitions of significance and analysis of effects are often not transparent;
 - acceptable threshold levels for valued ecosystem components rarely exist;
 - may often be seen as an after thought rather than focusing on valued ecosystem components as a key aspect of the assessment;⁹ and
 - there is a limited ability at the project level to deal with broad issues such as biodiversity loss.

So what happens if cumulative effects assessment is not done or is not done properly? Obviously, the quality of the overall EIA suffers and we may be taking uninformed and resulting poor decisions. Another consequence is litigation in countries where examination of cumulative effects is a legal requirement. In a recent paper by Michael Smith¹⁰ it is interesting to note in his assessment of some 25 different projects that were subject to litigation on the subject of cumulative effects under the USA *National Environmental Policy Act* (NEPA) that “the main reasons federal agencies have lost court challenges is because they failed to present any cumulative impact analysis whatsoever in their NEPA documents; they left out obvious past, present or reasonably foreseeable future actions; or they provided undocumented assertions that their projects would not cause any cumulative impacts.” In Canada, litigation dealing with cumulative effects has been rare but one noteworthy case is that of the proposed Cheviot coal mine in Alberta. The court concluded that there was abundant evidence before the panel that future forest and mining activity was likely, and that there was at least a potential for cumulative effects resulting from the project in combination with likely future mining and forestry projects.¹¹

So are we improving? Some would argue we are not advancing cumulative environmental assessment¹². Intuitively, I believe we are making progress at the project level but we can do better. I base this partly on the fact that we have been practicing cumulative effects long enough that we should be getting better. Also this is based on my observations of evaluations of the implementation of the European Union EIA directives by member countries, the Task Force report on Modernizing NEPA Implementation and my own first hand experience in leading the mandatory five year review of the *Canadian Environmental Assessment Act*. My observation of these exercises was that improving cumulative effects assessment was not a major issue. Other matters such as basic structural issues and ways to improve process efficiency were considered more important.

⁹Duinker, Peter and Grieg, Lorne, *The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment*, Environmental Management Vol. 37, No. 2, pp. 153-161, 2006

¹⁰ Smith, Michael D, *Cumulative Impact Assessment under the National Environmental Policy Act: An Analysis of Recent Case Law*, Environmental Practice (8:228-240), 2006

¹¹ Doelle, Meinhard, *The Federal Environmental Assessment Process, A Guide and Critique*, LexisNexis, 2008

¹² Duinker, Peter and Greig, Lorne, *The Impotence of Cumulative Effects Assessment in Canada: Ailments and Ideas for Redeployment*, Environmental Management, 2006

Cumulative effects assessment is very much related to the quality of the overall assessment and regrettably that seems to take second place to efficiency in these evaluations to improve the overall EIA process. On the other hand I do not believe that governments can do much more than provide the legislative framework and guidance for cumulative effects assessment. I do not believe governments should be any more prescriptive than they have been and it is up to the practitioners and ultimately the EIA decision makers who will review the quality of the assessments to push for greater improvements. However, one thing is certain – legislative requirements will continue to demand that cumulative effects assessment at the project level will be undertaken well into the future and we will need to continue to do it better as environmental expectations increase rather than decrease.

Where are we heading in the future? Emerging practices and requirements in various countries to move further upstream into the decision-making process have resulted in the examination of policies, plans and programs prior to the identification of specific projects. Such studies have the potential to identify cumulative effects earlier and to assist in establishing a framework for any future, project-specific cumulative effects assessments. Strategic environmental assessment may be applied to a specific sector such as transportation or on a regional basis to examine a multitude of different activities in a defined geographic area. This is often referred to as a regional environmental assessment. I will use these terms interchangeably.

Programmatic assessment was introduced in the USA with NEPA, to be applied at the policy or strategic level, at a program level or at a regional or land use scale. The NEPA Task Force report in 2003 on Modernizing NEPA implementation¹³ made the following observation:

“Programmatic NEPA analyses and documents are valuable decision-making tools. Some agencies use programmatic analyses to evaluate cumulative effects effectively and to formulate mitigation efforts comprehensively, while others struggle with how best to use this analytical tool. Still other agencies use programmatic analyses to address mitigation parameters at the broad landscape, ecosystem or regional level, thereby reducing the need to re-address these measures at the site-specific level.”

The 2001 European Union directive on Strategic Environmental Assessment which applies to various sectoral plans and programs also provides a means of examining alternatives and their cumulative impacts at an early stage in the decision-making process. Such analysis may also provide a useful framework for subsequent project-specific assessments much like the programmatic assessments in the USA.

In Canada with the introduction of the *Canadian Environmental Assessment Act* in 1995, a Cabinet directive on Strategic Environmental Assessment, focusing more on policies, was introduced. Given the considerable lag time between a policy and a subsequent site-specific project, especially in the context of a Federation, its ability to deal with cumulative effects is quite limited. In the five-year review of the Act which resulted in

¹³ The NEPA Task Force Report to the Council on Environmental Quality, *Modernizing NEPA Implementation*, 2003, Council on Environmental Quality: <http://ceq.hss.doe.gov/ntf/report/frontmats.pdf>

legislative amendments in 2005, an effort was made to encourage the use of regional assessments recognizing its value in addressing cumulative effects. It stated:

“The results of a study of the environmental effects of possible future projects in a region, in which a federal authority participates, outside the scope of this Act, with other jurisdictions....., may be taken into account in conducting an environmental assessment of a project in the region, particularly in considering any **cumulative environmental effects** that are likely to result from the project in combination with other projects or activities that have been or will be carried out.”

This clause was inserted in the hope that it might encourage the use of regional assessments in some areas of the country and that such assessments would improve the understanding of cumulative effects in a region. Unfortunately, it has not served as much of a catalyst to encourage such assessments although I understand that work is being initiated in the Beaufort Sea, Northwest Territories and Scotian shelf (offshore Nova Scotia) areas. Nevertheless there are a few examples where regional assessments have been or are being carried out in Canada. Papers are being presented at the conference on cumulative effects management initiatives in the oil sands area of Alberta and I will not speak further on that example. Another recent example is a regional assessment completed in the Great Sand Hills of Saskatchewan. This particular study developed a baseline assessment of the environmental, social and economic dimensions of the Great Sand Hills, used this assessment to develop alternative future scenarios, and predicted the impact of these scenarios and selected a preferred alternative for sustainability of the region.¹⁴ I believe you will learn more about this study in a session on Saturday by Bram Noble.

In Australia, provision is made in the Legislation to conduct a strategic assessment of actions proposed under plans, policies and programs (article 146). The Minister may then approve actions in accordance with the approved strategic assessment, instead of undertaking a further separate project-specific assessment. Alternatively, if the impacts of actions have been assessed under a strategic assessment, the Minister may decide on a less onerous approach for a subsequent project. This creates an interesting incentive for collaboration with industry and other levels of government. The strategic environmental assessment of the Kimberly liquefied natural gas hub in Western Australia is a good example of collaboration amongst the Commonwealth and State governments and various proponents and land users in the area.

The World Bank has been conducting regional environmental assessments since the 1990's recognizing that such assessments are a useful tool in helping to design investment strategies, programs and projects that are sustainable on a regional basis. These regional assessments are more in the nature of a cumulative impact assessment of

¹⁴ Government of Saskatchewan, *The Great Sand Hills Regional Study: Final Report*, 2007. <http://www.environment.gov.sk.ca/2007-104GreatSandHillsEnvironmentalStudy>

multiple projects and activities that may be ongoing, planned or simply expected.¹⁵ I expect Stephen Lintner will be speaking about this experience later this morning.

Some observations about regional assessments are they:

- may provide the most complete assessment of cumulative effects because they often focus on evaluating effects of various development scenarios;
- assist in providing baseline environmental conditions in a region;
- require the collaboration of governments, stakeholders and proponents as such studies are beyond the responsibility of a single proponent;
- may establish thresholds, environmental objectives and identify sensitive areas that should be avoided;
- can provide guidance for future project implementation, mitigation and monitoring;
- may be able to replace certain project-specific impact assessments or at least result in a more simplified assessment at the project level;
- can result in more strategic decisions being taken about the long term planning of future development in a region before project-specific decisions need to be taken;
- may assist in identifying institutional or jurisdictional gaps that need to be addressed;
- they require considerable resources, the cooperation of many parties and are likely to be more suitable for application in relatively undeveloped regions; and
- need to be re-evaluated periodically to ensure that the assumptions and conclusions remain valid.

What needs to be done in the future?

At the project assessment level:

- 1) collaboration is essential amongst governments at the national and sub-national level due to shared responsibilities for the environment and shared data bases (this is particularly true in Federations such as Australia, Canada and the USA);
- 2) thresholds for key valued ecosystem components (e.g. ambient air and water quality standards, critical habitat for species at risk, etc). will be of great assistance for cumulative effects assessment;
- 3) advance discussions with regulators and stakeholders will assist in confirming the reasonableness of spatial and temporal boundaries, the determination of valued ecosystem components and criteria for determining significance;
- 4) greater consideration of offsets (e.g. re-creation of fish habitat) for project impacts can assist in minimizing cumulative impacts but some mitigation measures may be beyond the ability of the proponent to control; and
- 5) the expectation for higher quality cumulative effects assessments will continue to rise and hence continuing improvement will be required.

¹⁵ The World Bank, *World Bank Environmental Assessment Source Book, Regional Environmental Assessment, Update # 15*, 1996: <http://siteresources.worldbank.org/INTSAFEPOL/1142947-1116495579739/20507383/Update15RegionalEnvironmentalAssessmentJune1996.pdf>

At the strategic or regional assessment level:

- 1) strategic or regional assessments offer the potential to improve cumulative effects assessment through the establishment of thresholds and land use plans for various development scenarios;
- 2) a legislative framework that links strategic or regional assessment to project-specific assessments will assist in creating an incentive to undertake such assessments;
- 3) given the cost and time required to conduct such assessments, conducting pilot projects or some means of establishing priorities would be appropriate; this would require collaboration within and amongst governments on a national basis;
- 4) the development of guidance material for regional cumulative effects assessment similar to that existing at the project level would be beneficial; and
- 5) continued training and the sharing of practical experiences is needed.