

## Need for Creative-Info-Graphics (CiGs) in EIA/ESIA Reporting

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***ERM discusses the issues around large and complex EIA/ESHIA reports and the opportunities for greater use of digital and visual presentation to explain complex information. Can 'creative info-graphics' be used to make EIA/ESHIA reports more accessible and understandable, and thus more effective in informing consultation and consent decisions for new development?***

The role of environmental impact assessment (EIA) also referred to as environmental and social impact assessment (ESIA) has been crucial to the development control process in most parts of the world since its inception in the 1970s. EIAs are formally required for certain types of development projects in most countries to inform consenting decisions and thus development control.

Over time, EIA reports have had to cover a widening scope of technical topics and to deal with increasingly technical and complex information. We are seeing a trend over time whereby EIA reports are becoming much larger. EIA reports can sometimes be very long and wordy and include technical and scientific language which can make the documents 'inaccessible' to many of their intended audience (ie those potentially affected by, directly or indirectly, a new development - consent authorities, regulators, businesses, NGOs, community groups and members of the public).

In the last decade we have also made tremendous advancements in digital information and communication technologies. With the rise of the visual culture of the web, images, photos and videos are becoming a form of social currency to be shared and curated<sup>(1)</sup>. There is a pressing need for us to think about how we could embrace this increase in visual digital literacy in our EIAs.

Improving EIA effectiveness across the globe has been a widely debated topic for a long time and in almost all published research papers and studies the quality of EIA reports is identified as one of the main concerns and has always been questioned. We are seeing EIA reports that can span 50,000 pages in extremis and stakeholders raising concerns that it is sometimes not feasible to properly digest and understand these large reports within time limited consultation periods.

In July 2009, the European Commission published a report on the application and effectiveness of the EIA Directive<sup>(2)</sup>. The report highlighted the main areas where improvements are needed and provided recommendations, where relevant. Following a consultation process the amended EIA directive (2014/52/EU) which came in force on 15<sup>th</sup> May 2014 adopted a number of amendments which included the need for EIA reports to be made more understandable.

This raises a key question - could we make better use of illustrations, infographics and maps or, in short, creative info-graphic (CiGs) to make reports more concise and more easily understood by technical and non-technical readers alike? Shouldn't this be an aim for all those involved in EIA?

With the rise in digital technologies and a highly visual online culture, we need to revisit our approach to the EIA reporting style and approach. Professionals with expertise in creative visualisations and infographic software should work closely with EIA technical teams to ensure we have clear, well communicated EIAs.

CiGs are important because they tell a story and help communicate complex ideas in a clear and meaningful way, in line with the old adage that 'a picture tells a thousand words'. However we should also bear in mind that infographics are not just 'pretty pictures' or extractions of large amounts of words in a figure. They should be meaningful and well thought through and hence require a creative thought process at the early stages of the project.

(1) Teaching with Infographics: Practicing New Digital Competencies and Visual Literacies, JPD, Volume 4 Issue 2, July 2014  
<http://www.beds.ac.uk/jpd/volume-4-issue-2/teaching-with-infographics>

(2) <http://ec.europa.eu/environment/eia/review.htm>

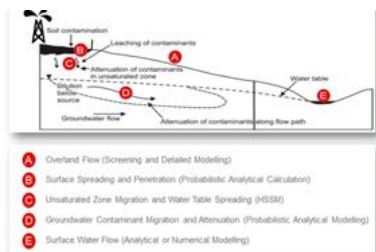
The main purpose of CiGs is to make information presentable and digestible to a general audience. To cite an example, where a project is being undertaken in a geography/location where there are lower levels of literacy amongst the surrounding local community, CiGs visualisations may be particularly effective in conveying information about the project and its effects.

Moreover CiGs can be created in a universal language without the need for translation (or with simple translation) which is likely to be more effective than a word based report in many situations.

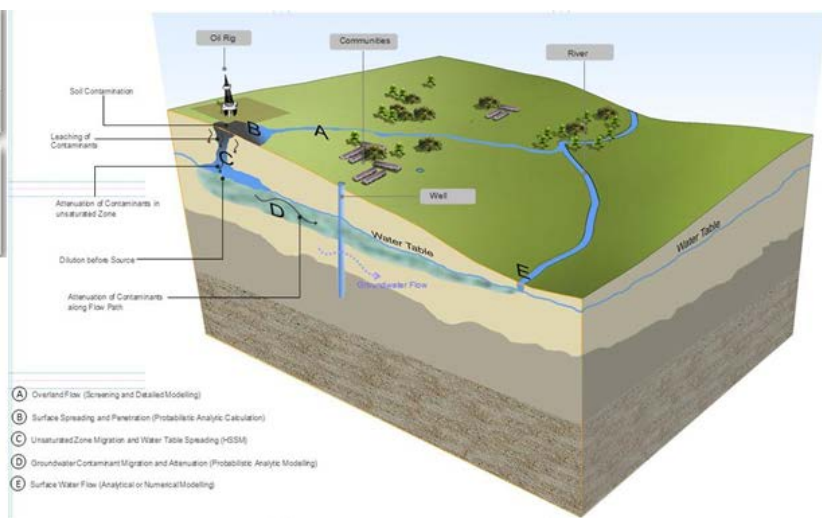
In modern society we have less and less time. Infographics allow us to get information across quickly creating this compelling imagery that can help the content to stand out from the overload of messaging we often receive. Since most people only remember about 20% of what they read, CiGs can help increase reading retention <sup>(1)</sup>.



Figures/GIS/illustrations



The 'typical' cross section above shows a conceptual site model. The CiG on the right re-presents this information in a visually more appealing and understandable way.



It is very common that figures and visuals form a very small percentage of an EIA report. To make EIA reports more effective in communicating with their intended audience, this approach needs to be changed. A few examples and comparisons have been included in this paper to illustrate how CiGs can be effective in communicating the features of development projects and their impacts and ways of managing these. Surely we don't want to be writing a thousand words when one clear picture could say it all?

(1) <http://www.brandjoe.com/2012/07/the-benefits-of-infographics/>

<p><b>ENVIRONMENTAL ASSESSMENT</b></p> <p><b>LAND MAMMALS</b></p> <p>The Project area is home to a variety of large and small mammals such as: black-tailed deer, moose, grizzly bear, black bear, Pacific marten, and snowshoe hare.</p> <p>Our study team worked together with Aboriginal groups, provincial and federal government, and other stakeholders to decide which species would be the focus of our Assessment. For land mammals, the grizzly bear and Pacific marten were selected as species that can represent the overall health of this part of the ecosystem.</p>	<p><b>Potential Effects to Mammals</b></p> <ul style="list-style-type: none"> <li>Loss of or change in habitat as a result of our clearing vegetation or conducting construction activities</li> <li>Changes in behaviour as a result of our presence or the sounds of lights of our activities</li> <li>Changes in access to forage areas due to physical barriers introduced to traditional movement corridors</li> <li>Physical harm as a result of increased interactions with people (for example, when bears are attracted to our garbage cans) or increased potential for vehicle collisions with wildlife</li> </ul>	<p>While we expect that some individual animals may be affected by the Project, we are confident that these measures will help ensure the long-term sustainability of vital populations in the area.</p> <p>Even so, we take effects to wildlife - no matter how limited - very seriously. We will continue to work with the government, scientific organisations and the public to monitor these effects carefully over the life of the Project, and to use our observations to continually improve the measures we take to protect wildlife.</p>
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The CiG on the right has taken six pages of EIA report text and represented all the key messages on one page.

**ENVIRONMENTAL ASSESSMENT**

**LAND MAMMALS**

**Potential Effects to Mammals**

- Loss of or change in habitat as a result of our clearing vegetation or conducting construction activities
- Changes in behaviour as a result of our presence or the sounds of lights of our activities
- Changes in access to forage areas due to physical barriers introduced to traditional movement corridors
- Physical harm as a result of increased interactions with people (for example, when bears are attracted to our garbage cans) or increased potential for vehicle collisions with wildlife

**Some of the ways we are protecting wildlife:**

- Establish clearing limits to avoid dams and other important wildlife features
- Keep animal trails clear of construction debris
- Time any noisy activities to avoid mating and breeding periods
- Protect dams with 200-meter buffer zones during damming periods
- Design the LNG loading line corridor with gaps in the fence so that bears can travel across it
- Keep animal trails clear of equipment and construction debris

**What we studied in our Assessment**

- We started by researching decades of wildlife data from government, scientists, local consultants and volunteer programs
- We began assessing wildlife habitat in 2012, and then surveyed for large mammals across all seasons in 2013
- We recorded all wildlife or signs of wildlife that we saw in the course of our work in the area
- We engaged Aboriginal Groups to incorporate their knowledge of where animals are, what they do, and which seasons are particularly important to them
- We engaged local groups such as the Kilmat Valley Naturalists for input and feedback

Residual Impact (blue box) and Mitigation measures (green box) have been succinctly captured in the CiG below. The numbers indicate commitments and are linked to the commitments register.

**Impacts to Terrestrial Habitats, Flora and Fauna (I)**

The footprint of the onshore facilities will be minimised as far as reasonably practicable. Vehicle movements will be restricted to designated roads during construction.

Following decommissioning, the habitats present at the onshore facilities site will be restored.

**Mitigation:**

- I1 - Loss of habitats and species within the project footprint is predicted to be not significant.
- I2 - Fauna in the vicinity to the Project including those in the Lake Burnell Protected Area may be disturbed by increased vehicle movements and operational activities. This effect was assessed to be not significant.
- I3 - Changes to air quality may affect habitats in the vicinity of the Project; however, this was assessed to be not significant.
- I4 - Impacts to protected areas were found to be not significant.

**Impacts to Air Quality (J)**

Industry best practices to manage dust from site during construction.

During operation minimisation of flaring events and monitoring of emission sources will be undertaken in line with international standards.

**Mitigation:**

- J1 - Increases in dust levels and a reduction in air quality due to construction activities and increased traffic associated with the Project were assessed to be not significant.
- J2 - Emissions associated with the operational stage of the Project may reduce air quality; however, the impact was assessed to be not significant.

**Impacts to Soil, Groundwater and Surface Water (L)**

Waste management procedures to be followed. Monitoring of waste waters disposed to groundwater, the sea or canals for compliance and sentinel wells for groundwater levels, process and waste potential contaminants.

**Mitigation:**

- L1 - Direct disturbance of soils on the project site during construction has been assessed to be of moderate significance.
- L2 - Degradation of soil quality due to construction activities on site and during operation is predicted to be not significant.
- L3 - Construction and operational activities may affect the chemical properties of groundwater and surface water resources. The impact was assessed to be not significant.
- L4 - Shallow groundwater at the project site may be affected by modifications to the terrain. This impact was assessed to be minor.

**Impacts to Traffic and Transport (K)**

A Traffic and Transportation Management Plan will be developed which will contain measures to limit traffic movements.

**Mitigation:**

- K1 - Construction activities will lead to increased traffic levels on the International Coastal Highway. The impact is predicted to be of minor significance.
- K2 - Operational traffic levels will be much lower than during the construction phase. The impact is predicted to be of minor significance.

In summary, through more extensive and imaginative use of CiGs, EIA reports can be reduced in scale and made easier to understand by their target audiences. In effect, this would mean that consent authorities, regulators, businesses, NGOs, community groups and members of the public would all be able to understand more quickly and more fully what a development project is about, what its impacts would be and how these will be managed.

There is no reason why greater use of CiGs should conflict with meeting statutory requirements or guidelines for EIA - in fact, through better communication, CiGs can potentially enhance compliance. It might be that EIA reports that use CiGs to their full effect could help to speed up decision making in relation to consenting development projects.

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