Public-friendly vs technical presentation of EIA results

Manifestation of presentation bias in EIA reports – Dutch examples.

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Introduction

Distrust of government information is a growing problem, including in the field of environmental impact assessment (EIA). The EIA is intended to provide the public with objective environmental information and to support decision-making processes. EIA also serves as a communication tool for presenting environmental information about a project to the public. Thus, EIA reports should ideally be presented in a way that is accessible and understandable to the public with no prior knowledge of the project. In practice, the information in an EIA report is often presented in a technical, complex, and sometimes biased manner.

Seemingly minor details can significantly affect interpretation. EIA documents often run to hundreds of pages. Reports often focus on providing the correct information, but sometimes overlook how it should be presented. Thus, it is important to pay attention to the presentation and its influence on the comprehensibility and reliability of the information for public.

The research aims to highlight examples of 'public-friendly' and 'complex-technical' presentations of the EIA reports. Based on the findings and analysis, the research provides recommendations to EIA assessors to identify presentation bias. In this research, the term presentation bias is defined as: *'a distortion of information due to the manner of presentation, not the content itself. It affects how people interpret information and make decisions based on it.'*

Research

The research was conducted by WSP Netherlands as an assignment from Rijkswaterstaat. The study consisted of six steps, from the inventory of recent Dutch EIA projects to the formulation of conclusions and recommendations.

The initial step was to inventory the EIA in the Netherlands over the past five years to ensure recency and relevance. Only EIA is considered in this research because EIA is more comprehensive than Strategic Environmental Assessment (SEA). A long list of 59 EIA reports was compiled for further analysis to select projects. From the long list, 10 EIA reports were selected based on the diversity of criteria, including document complexity, themes, authors, initiators, and competent authorities.

To analyze the 10 selected EIA reports, an analytical framework was developed based on discussions with EIA experts and practitioners. Furthermore, the 10 selected EIA reports were analyzed, and recommendations were formulated.

The framework for this study consisted of the 4 pre-defined criteria and 12 sub-criteria. All of the criteria examine bias in the presentation of the reports, including the language used, the report structure, the visual presentation of information, and the objectivity and balance of the information.

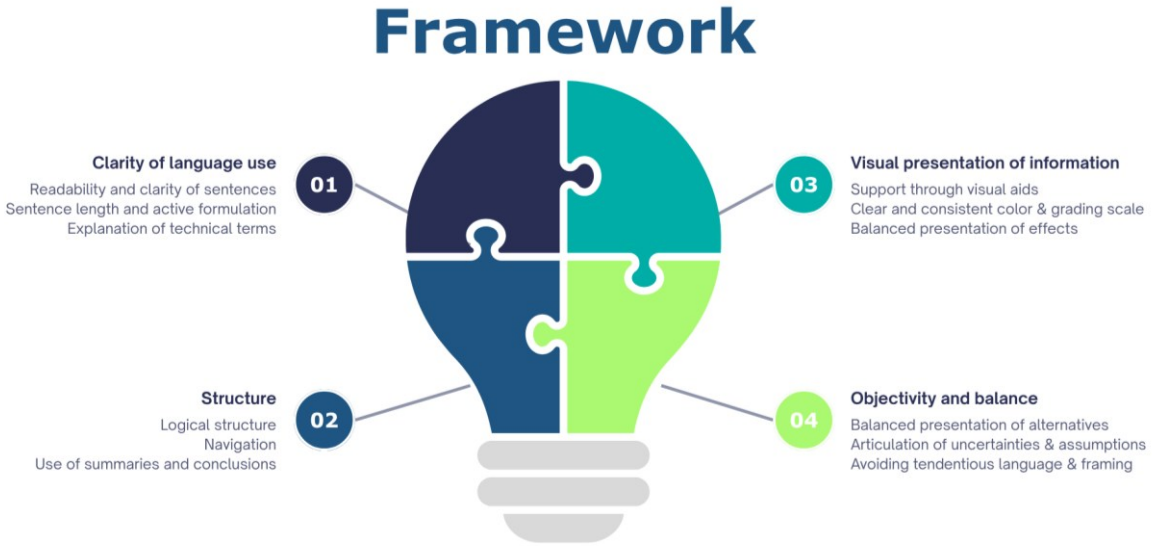

Figure 1: Framework of the study

Lessons learned

Based on the analysis of 10 selected EIA reports using the framework, several lessons learned were identified.

1. Clarity of language use

Readability and clarity of sentence structure

The risks of presentation bias do not necessarily arise from minor grammatical mistakes or punctuation, but from unclear meaning caused by word choices. This is because sentences with grammatical mistakes and punctuation errors can still be understood by readers; meanwhile, word choice and sentence structure can lead to misinterpretation of information. Some of the findings include:

> *"In dyke section (…), there is largely hardly any deterioration, and it is being (…) renovated with a limited raising."*

The terms "largely" and "hardly" can lead to multiple interpretations from different readers, as one might interpret as less impact, while others may perceive that there are some degrees of deterioration.

Sentence length and active formulation

Long sentences hinder the readability of the sentences and create confusion about the actual meaning that reports try to convey. However, long sentences are sometimes unavoidable in EIA reports when explaining a legal framework. The finding suggests that splitting sentences and using active formulations, when possible, helps improve readability.

Explanation of technical terms and complex concepts

Explanation of technical terms and complex concepts is essential in EIA reports, as these terms are key to understanding the impacts. This is often done by providing a list of terms and abbreviations, or by explaining the concept in the context of the sentences.

2. Structure

Logical structure of chapters and sections, and their relationship to the appendices

The structure of EIA reports is relatively similar, and only minor differences occur between reports. These differences are usually related to the preferences of the project initiator or the report authors. This similarity creates certain expectations among readers about the reports' structure. For example, the summary is typically presented at the beginning of the reports, and conclusions and appendices are at the end. However, the structure can be problematic when it does not align with readers' expectations, and there is a lack of explanation for this deviating format.

Furthermore, it is also crucial that the information in the summary is structured according to the chapters and sections in the main report. Failing to do this creates confusion for readers when they try to find information in the main documents.

Navigation (table of contents, headings, links)

EIA reports often consist of hundreds of pages, which require comprehensible navigation, including a table of contents, headings, links, and page numbers. The readability of the document is compromised when these elements are missing. Readers find it difficult to trace the information in the table of contents back to the main content of the reports. Clear navigation contributes to readability and is therefore crucial in long EIA reports.

Use of summaries and conclusions

The summary of an EIA report is the gate to the information and provides the first impression to the readers. Meanwhile, conclusions are the end sentences where it shall leave a good impression on the readers. Summaries and conclusions provide a quick overview of the project and the key environmental impacts. The finding suggests that these elements differentiate between complex-technical and public-friendly reports. Thus, it is essential that summaries and conclusions are present and are written carefully and in an understandable manner.

3. Visual presentation of information

Support through visual aids

Good visualizations, such as maps, tables, charts, and photos, can strongly support the text in the EIA reports. The finding suggests that bias can occur when important information, such as legends, is missing or incomplete in a visualization. When the legend is missing, the figure becomes difficult to understand. Meanwhile, an incomplete legend might lead to misinterpretation of the figure, or readers might assign their own meaning to it. Additionally, a good visualization is a clear and complete figure with proper legends and labels. When the text in the reports refers to specific locations, it is confusing when the corresponding visuals are absent. This forces the readers to imagine the situation themselves, which may differ from what the authors intended.

Clear and consistent use of color or a grading scale

Colors are often used in EIA reports to present frameworks or environmental impacts. To ensure this is an effective way to communicate these impacts, colors must be chosen deliberately. The findings of this study indicate that colors are sometimes too similar, overlap, or are even missing, which makes the information difficult to read. Furthermore, the choice of colors is important because they often carry associated meanings; for example, yellow has positive or negative connotations compared to gray or white. Therefore, colors must be chosen carefully and used consistently throughout the document.

Balanced presentation of positive and negative effects

A balanced presentation of environmental impacts does not mean equal numbers of positive and negative effects, but rather an accurate representation of the real impacts. A balanced presentation considers how the impacts are presented in both the text and the visual aids. Problems arise when certain topics are considered less relevant to the project, while other relevant themes have less spotlight or are not discussed at all. In these cases, projects seem to have more positive impacts

than they actually do. If this is being done consciously, this raises questions about the reliability of the reports.

4. Objectivity and balance

A balanced presentation of the effects of the alternatives

In the EIA, alternatives are not always fully assessed or discussed because this has been done previously in the SEA. The overall decision on how alternatives are selected is briefly mentioned or referenced in the previous documents. The problem arises when these references are unclear, when this explanation is missing entirely, or when information about alternatives is overshadowed by the preferred alternatives. When readers only read the EIA reports, this raises questions about the decision-making process behind the selection of the preferred alternative. Clearly mentioning this process helps provide transparency in how the decision is reached, which promotes trust in the process.

Articulation of uncertainties and assumptions

Acknowledging uncertainties and knowledge gaps in the EIA reports shows transparency and accountability. Providing this information helps readers understand the scope of the reports and what is still missing from the picture. The findings of this study show that certain reports provide a limited explanation of the uncertainties. A report provided a vague statement, *"There are no relevant knowledge gaps regarding this topic",* which does not provide clarity to the readers.

Uncertainties are also an important topic when discussing future developments in the EIA. As the future is uncertain, acknowledging this helps provide a picture of what needs to be included in the project design.

Avoiding tendentious language or framing

In this study, most framing appears from incomplete information rather than word choices. For example, a limited justification or a missing explanation of the choices that were made. When information is missing, readers may fill in the gaps themselves, which can unintentionally cause confusion or introduce bias.

Besides the completeness of information, certain word choices and punctuation can also mislead readers. For example,

> *"For the construction phase, one assessment criterion has been rated as slightly negative. Mitigation measures are not required for this."*
>
> *"For the construction phase, there is one assessment criterion, rated as slightly negative."*

The first example gives the impression that one assessment criterion has been rated slightly negative, while others are positive, whereas the second example is clearer that there is only one criterion and it has a slightly negative score. This example shows that slightly different wording affects the overall meaning.

Conclusion and reflection

The way information is presented in EIA reports is just as important as the content itself. Seemingly small choices such as wordings, structures, and colors can have different meanings and are susceptible to bias. Thus, EIA reports shall be written carefully, with deliberate choices.

Presentation bias is an emerging concept in environmental impact assessment. Based on our practical experience, research and studies related to this topic are limited, despite its relevance.

Previous studies mainly focus on the communication of reports, such as in the case of Energy Projects in South Africa[1] and investigating methods to communicate EIA findings[2].

This research focuses on how information is presented in the report rather than the content itself. However, there is a blurred distinction between methods and contents. Furthermore, this study uses only small samples of EIA reports due to the limited time of the research. The study also uses predefined criteria rather than more exploratory approaches.

This opens opportunities for future research to examine larger sample sizes or research that focuses on the content of the EIAs, for example, on the selection of assessment thresholds or criteria. Further research related to how decision makers perceive both visual and textual information can also be interesting to explore.

[1] Boshoff, D. S. (2019). Of smoke and mirrors:(Mis) Communicating EIA results of solar energy projects in South Africa. *Journal of Environmental Assessment Policy and Management*, *21*(03), 1950014.
[2] Bond, A., Retief, F., Morrison-Saunders, A., Pope, J., Alberts, R. C., Roos, C., & Cilliers, D. (2024). Investigating communication of findings in environmental impact assessment and developing a research agenda for improvement. *Environmental impact assessment review*, *105*, 107453.