

Setting the scene in EIA

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Abstract

Scoping is an integral step in environmental impact assessment (EIA). It outlines the information to be investigated and provides the foundation for the impact assessment. Scoping aims to bring to attention a project's effects and their potentially significant impacts in order to narrow the focus of the impact assessment to priority matters to be considered by the decision maker. Rationale for scoping can be caught between environmental precaution and decision-making efficiency. Matters may be included in scope for environmental precaution whereas an impact assessment may be focused on specific matters for decision-making efficiency. An expansive scope may lead to the impact assessment becoming large and challenging for some readers to process all the information. Presenting the impact assessment in a digital format has been suggested as a solution, however is all this information necessary in the first place? Is a revolution needed to revisit the amount of information in impact assessment or an evolution required in the way this information is managed? This investigation explores opportunities around scoping of impact assessments. The outcomes of this review will provide recommendations for scoping that will be beneficial in the future planning of impact assessments.

1 Introduction

Why scoping is important for an effective impact assessment?

Scoping is an integral step in environmental impact assessment (EIA). It outlines the matters to be investigated and provides the foundation for the impact assessment (Elliot & Thomas, 2009). Scoping aims to bring to attention a project's effects and potential significant impacts, to narrow the focus of the impact assessment and to prioritise matters to be considered by decision makers. The International Association for Impact Assessment (2018) identifies the following issues can occur when scoping is not undertaken effectively:

- *Unnecessary information is collected resulting in a decrease in efficiency and effectiveness resulting in a waste of time and resources*
- *Key impacts are not identified or are not given adequate attention leading to*
 - *a decrease in the extent to which the impact assessment can be relied on in decision making*
 - *Failure to adequately address stakeholder and community concerns*

- *Causing the assessment process to be slower*
- *Increasing the cost of the impact assessment and overall project development.*

Scoping identifies the matters that are likely to be relevant in an Environmental Impact Statement (EIS) and is critical in steering an EIA (NSW DP&E, 2017).

Is effective scoping an issue?

Examination as to whether scoping leads to an efficient EIA process is not new. Snell and Cowell (2006) noted that rationale for scoping can be caught between environmental precaution and decision-making efficiency. Matters may be included in scope for environmental precaution whereas an impact assessment may be focused on specific matters for decision-making efficiency and an expansive scope may lead to the impact assessment becoming large and challenging for some readers to process all the information (Snell and Cowell 2006).

At the same time in 2006, the Office of the Deputy Prime Minister (ODPM) in the United Kingdom completed an evidence based review of literature, interviews and case studies to set out the level of current scoping activity. Although not mandatory at the time, the ODPM concluded effective scoping is essential for quality impact assessment, and even though it was not understood by all stakeholders the purpose of scoping is to eliminate minor issues from an EIA.

Ten years later in 2016 the Institute for Environmental Management and Assessment (IEMA) issued the publication '*Delivering Proportionate EIA*' a strategy that identified the size of impact statements were increasing and provided recommendations including many around more effective scoping. More recently in 2017 in Australia the Victorian Auditor-General's Report on the '*Effectiveness of the Environment Effects Statement Process*' reviewed the EIS process in Victoria providing key recommendations including those focused on improving guidance around scoping.

In 2018 Fernández, Alves de Brito and Fonseca published '*Does size matter? An evaluation of length and proportion of information in environmental impact statements*'. Their study evaluated the factors that are influencing the size of environmental impact statements (EIS). The findings of the assessment were EIS are now significantly longer than previously due to increasing availability of data and growing societal expectations of content.

Current literature suggests the approach to scoping varies and it influences the effectiveness, proportion and size of impact assessments.

What drives scoping in impact assessment?

There may be a number of factors that influence scoping in EIA including the magnitude of impacts, level of stakeholder interest and confidence that potential environmental effects can be managed (Attanayake and Waterman, 2006; Walke et al., 2015). However, these factors

are overall driven by one key aspect, the level of uncertainty (Cardenas and Halman, 2016). Snell and Cowell (2006) state that when uncertainty is present and when environmental consequences are unclear, the precautionary approach is taken to scoping and this subsequently can increase the amount of assessment undertaken.

What is uncertainty?

Uncertainty in impact assessment implies that information required for precisely describing or predicting an event or effect is not available (Zimmermann, 2000). However this does depend on the specific problem to be addressed and its context (Cardenas and Halman, 2016).

In impact assessment, uncertainty it is almost unavoidable (Tennøy et al., 2006). However, Cardenas and Halman (2016) suggest that the level of uncertainty in the early decision making steps establishes the setting of an EIA.

Understanding uncertainty in the process of impact assessment is vital in applying approaches to manage it and the subsequent outcome it will have on scoping.

Purpose of this paper

This review explores approaches to managing uncertainty in impact assessment and the outcomes it has on scoping are discussed. The investigation is focused on the current EIA process in Victoria, Australia, however also draws upon other examples. Based on the review undertaken, recommendations are made in relation to scoping that is considered to be beneficial in the future planning of impact assessments.

2 The Victorian EIA process

In Victoria, EIA for major development projects is undertaken in accordance with the *Environment Effects Act 1978* and is administered by the Minister of Planning through the *Ministerial Guidelines for Assessment of Environmental Effects* and the *Amendments to Ministerial Guidelines* with the Victorian Department of Environment Land, Water and Planning (DELWP) managing the process. Hence, under this legislation and in Victoria, EIA is undertaken through an Environment Effect Statement (EES). However for the purpose of this paper the term EIA will be used with exception to mention on figures and in Section 2.

The assessment process under this Act does not provide an approval directly, but informs the decisions of the statutory authorities on the applicable approvals. It also allows the proponent to make their own decision on the form of project to be presented. For example, using alternatives or optimised avoidance mitigation.

The process only applies to projects likely to have significant regional or state wide environmental impacts and therefore on average only a few projects are subject to this EIA process in Victoria each year (Friday, 2017).

A summary of the Victorian EIA process is provided in **Figure 1** on the following page.

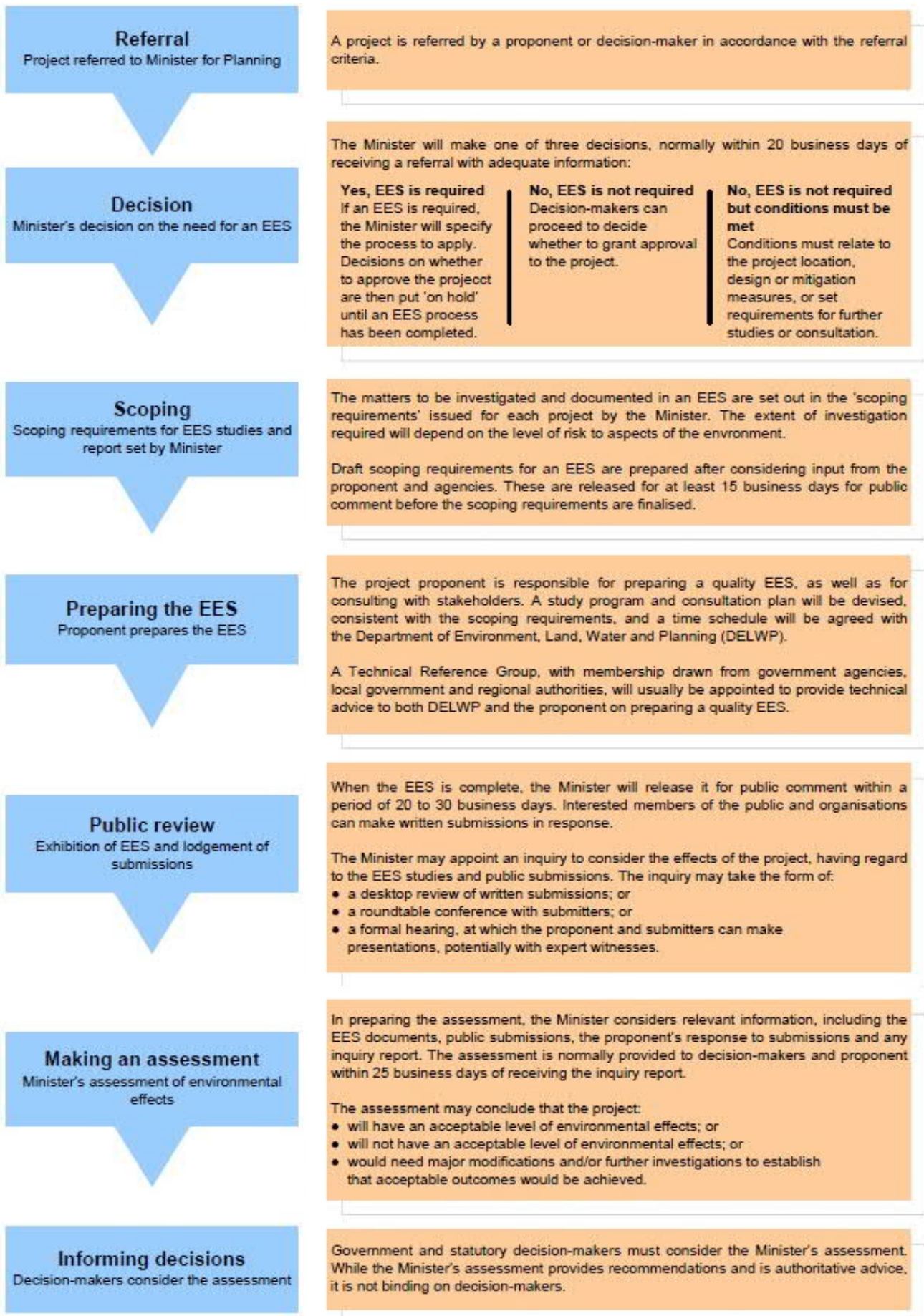


Figure 1 - Summary of how the EES process works (DELWP, 2019)

3 Discussion

Understanding uncertainty in the process of impact assessment is vital in managing approaches to scoping and will be the subject of the discussion to follow.

Uncertainty in the Victorian EIA process

The level of uncertainty that is presented with a project and the significance of its potential environmental impacts will influence the amount of assessment documentation requested during the impact assessment process. The Victorian EIA Process is used as an example, however the local term EES will be used.

At the time of the first decision in the EES process the amount of uncertainty, including if the impacts are significant and what their effects may be, within the Referral may influence the Ministers decision and subsequently the amount of assessment to follow. For example the Minister could decide on the following:

- **No EES:** No further assessment required
- **No EES with conditions:** where conditions must be met if the project was to proceed and often require further assessment. These could be small to medium sized documents with the larger ones known as an Environmental Report.
- **EES:** where an EIA, usually a large and comprehensive impact assessment, is required.

Following the decision of an EES, the extent of investigation or amount of assessment required from the EES will be set out in the Scoping Requirements. The Scoping Requirements are determined by considering the inputs from the proponent and stakeholders, which means in most cases it heavily relies on the content that was originally submitted in the Referral.

During anytime following Decision for an EES until the Minister has made an assessment, the Minister may call for Supplementary Environment Effects Statement (SEES). This can be driven by the amount of uncertainty that remains with the project when presenting of the EES. For example, this remaining uncertainty could be from the EES not adequately assessing topics that were in the core scope. Due to the low number of EES required in Victoria each year, it is not often that a SEES has been requested. In the past fifteen years it has been requested less than a few times following the Ministers Assessment.

Understanding where uncertainty is in the EIA process is important in how effective scoping can play a vital role in managing subsequent uncertainty. In the Victorian EIA process the main opportunity for reducing uncertainty is early during scoping. However, it is important to recognise that uncertainty can remain in the impact assessment if the scope set is too narrow, or if the environmental assessment is unable to deal with the uncertainty adequately.

This is presented in **Figure 2** on the follow page.

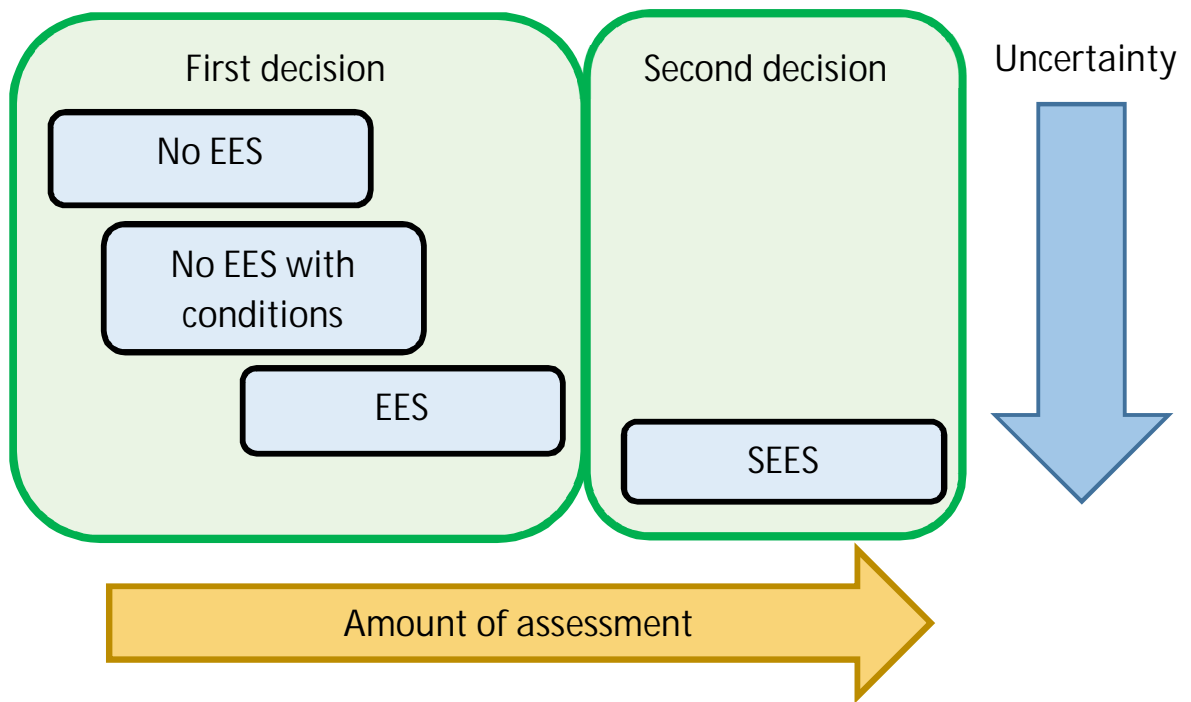


Figure 2: Conceptual diagram of uncertainty at the time decisions in the Victorian EIA process and subsequent amount of assessment

Approaches to managing uncertainty and the outcome on scope

Identify key issues

Approaches to scoping which may be used to manage uncertainty have been around for some time. Tomlinson (1984) and Elliot & Thomas (2009) provide a number of these which may be summarised as the following:

- **Use a checklist:** including general or, if available, specific information to the matter
- **Involve those with experience:** including colleagues and relevant experts
- **Use former projects as guidance:** including content from previous EIA or proposals
- **Involve the public and other stakeholders:** to allow matters previously unforeseen to be included.

However, even though these approaches have been around for some time it appears they may have not been applied to their full extent. This is apparent in two Australian states, Victoria and New South Wales (NSW), where reviews of the EIA process have recommended improvements around guidance in the preparation of documents.

In Victoria there have been two recent inquiries that reviewed the EIA process. The first, in 2010, made a number of recommendations to assist impact assessments by focusing on the key issues which included using risk-based approach earlier in the process and providing guidance around undertaking the risk assessments (EIANZ, 2010). Risk assessments are

apparent in Victorian EES and guidance is given on an individual project basis on specific aspects to the risk assessment, and this can be available to the public with documents submitted earlier in the process often prior to Referral.

The second inquiry in 2017 provided the following two key recommendations for scoping to the Department of Environment, Land, Water, and Planning (DELWP):

- Publish a guide on the inputs and level of detail required from proponents for scoping
- Develop balanced scoping requirements for each EIA

DELWP has adopted these recommendations and provides more further balanced advice through an internal quality management system that aims at practicing consistent guidance through following internal procedures and recording discussions with proponents. Additionally, more specific scoping requirements are being developed for each EIA (VAGO, 2017).

The NSW Department of Planning and Environment is currently reviewing and has prepared a series of EIA guidelines to improve the quality of EIA documents as part of the EIA Improvement Project. This program began in 2016 and included consultation to identify key issues with the EIA process in NSW. This included requiring key stakeholders, such as agencies, input into the process to focus on key issues and to assist the community in focusing on key matters (NSW, 2017). The draft guidelines are available to the public however the final versions are being yet to be released.

Reviews of EIA processes in Australia have identified that improvements have been and could be made further into scoping, and assisting in identifying key issues. Most of these improvements are to be made by providing more guidance.

Early emphasis of key issues

Early emphasis of key issues can be effective at reducing uncertainty and thereby result in effective scoping. This can be approached from communication of key issues to both the planning authority and to the community.

Approaches mentioned in the section prior such as risk assessment, or others that Tomlinson (1984) recommends such as matrices or initial environmental evaluations can be used to identify and emphasise key issues to the planning authority. However, this often isn't highlighted well in communication to the community until the EIS is being prepared (Elliot & Thomas, 2009). This may be due to strategic (or non-strategic) decisions of the project. Often in the early stages of design, the options assessment continues and project envelopes (or extents) may have some uncertainty. As a result, there can be a reluctance to share these with the community.

However, it is important to communicate this uncertainty early and provide methods to lower concerns for potential environmental effects. In Victoria, this has been achieved through using a performance based approach where outcomes mitigation are committed to but a specific design as not been confirmed.

4 Conclusion

This review has shown there is a need to revisit the way we conduct scoping as it influences that amount of information presented within EIA. Although a number of factors may influence scoping in impact assessment, the level of uncertainty is a key driver in determining the approach. In this review several approaches to scoping are described and although not new they can be applied more effectively. Importantly, with the early emphasis of key issues uncertainty is reduced and allows the potential scope to be more focused. Overall, if effective scoping is applied there is potential for the amount of assessment required for an impact assessment to be reduced.

5 References

- Attanayake, P.M., Waterman, M.K., 2006. Identifying environmental impacts of underground construction. *Hydrogeol. J.* 14 (7), 1160–1170.
- I.C. Cardenas, J.I. Halman. 2016. Coping with uncertainty in environmental impact assessments: open techniques *Environ. Impact Assess. Rev.*, 60 pp. 24-39
- Department of Environment, Land, Water and Planning (DELWP), 2019. Summary of how the EES process works. Accessed 26 April, 2019
https://www.planning.vic.gov.au/_data/assets/pdf_file/0024/95235/How-does-the-EES-process-work-2016a.pdf.
- Institute for Environmental Management and Assessment (IEMA). 2016. Delivering Proportionate EIA
- Environment Institute of Australia and New Zealand (EIANZ), 2010. Inquiry into the Environmental Effects Statement Process in Victoria Submission no. 42
- E, Mandy. & T, Ian. 2009, *Environmental impact assessment in Australia : theory and practice / Mandy Elliott and Ian Thomas* Federation Press Annandale, N.S.W
- K. Friday, 2017. Impact assessment in Victoria for 2017. Environmental Institute of Australia and New Zealand – 2017 Impact Assessment Symposium.
- G.M.R, Fernández, L.L.A. Brito., A. Fonseca. Does size matter. 2018. Does size matter? An evaluation of length and proportion of information in environmental impact statements. *Environ. Impact Assess. Rev.* 73, 114–121.
- International Association for Impact Assessment (IAIA), 2018. FasTips No. 18: Scoping
- NSW Planning and Environment (P&E). 2017. Scoping an Environmental Impact Statement. Draft Environmental Impact Assessment Guidance Series. Guideline 3.
- NSW P&E. 2017. Consultation Report Phase 1 & 2. Environmental Impact Assessment Project.
- Office of Deputy Prime Minister (ODPM). 2006. Evidence Review of Scoping in Environmental Impact Assessment.
- Snell, T., Cowell, R., 2006. Scoping in environmental impact assessment: balancing precaution and efficiency? *Environ. Impact Assess. Rev.* 26, 359–376.
- Tomlinson, 1984, “The Use of Methods in Screen and Scoping”, in Clark, BD et al (eds), *Perspectives on Environmental Impact Assessment*, D Reidel, Dordrechts
- Tennøy, A., Kværner, J., Gjerstad, K.I., 2006. Uncertainty in environmental impact assessment predictions: the need for better communication and more transparency. *Impact Assess. Proj. Apprais.* 24 (1), 45–56.
- Walke, R.C., Kirchner, G., Xu, S., Dverstorp, B., 2015. Post-closure biosphere assessment modelling: comparison of complex and more stylised approaches. *J. Environ. Radioact.* 148, 50–58.
- Victorian Auditor-General's Office (VAGO). 2017. Effectiveness of the Environmental Effects Statement Process. PP No 248, Session 2014–17
- Zimmermann, H.J., 2000. An application-oriented view of modeling uncertainty. *Eur.J. Oper. Res.* 122 (2), 190–198.