Economic Impact Assessment Guideline

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Queensland Government

The Department of State Development

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1. Purpose

The purpose of this guideline is to identify the Coordinator-General's requirements for an economic impact assessment (EIA) as part of an environmental impact statement (EIS) for coordinated projects declared under the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

This is a non-statutory guideline aimed primarily at proponents undertaking the EIA. It also provides some common EIA terminology for all project stakeholders and outlines how the Coordinator-General considers the EIA in the evaluation of the EIS.

As this guideline is intended to apply to coordinated projects across all industry sectors, it does not include industry-specific information. The detail and complexity of assessment required will depend on the individual circumstances of each project.

This guideline should be used in close consultation with the Office of the Coordinator-General throughout the early stages of project development, such as prior to lodging an application for a coordinated project declaration, and finalising EIA methodologies.

This guideline provides both contextual background for the development of the terms of reference (TOR) for an EIS and further information on how to meet the requirements of the TOR. Any specific requirements for a project's EIA will be identified in the TOR.

This guideline applies only to projects for which public notification about the draft EIS under section 33(1) of the SDPWO Act has not occurred prior to April 2017. This guideline is therefore not to be applied retrospectively to projects that already have an approved EIS.

1.1 EIA role in the EIS process

The primary objective of an EIA under the SDPWO Act is to identify the key economic impacts of the project—both positive and negative. It may also include an estimate of the economic benefits and costs of a project.

The EIA provides information to allow the Coordinator-General to weigh up all of the social, economic and environmental impacts of the project assessed in the EIS in deciding whether it should proceed.

The EIA should also allow the Coordinator-General to assess the adequacy of the measures proposed by the proponent to manage any potential negative economic impacts, and assess the measures proposed to capitalise on the economic opportunities of the project.

The EIA for a project is typically released for public comment along with other EIS material. The EIA informs the Coordinator-General's EIS evaluation report, which also has regard to issues raised in submissions on the EIS and any additional information provided by the proponent.

Should the Coordinator-General decide that conditions are required to address local, regional or state economic impacts and opportunities associated with a project, the EIA will form the basis for the development of these conditions.

The purpose of the EIA is not to conduct an economic appraisal or investment evaluation of the project or evaluate its predicted overall economic outcomes in isolation from the rest of the EIS.

2. EIA requirements

The EIA must estimate the project's economic impacts and identify measures to manage any negative impacts and capture the economic opportunities generated by the project. It must include both a description of the economic environment with and without the project; use standardised methodologies and information; make all assumptions transparent, and propose targeted impact management measures.

The EIA must meet the requirements of the TOR and be consistent with the social impact assessment and other elements of the EIS. The EIA must be developed in consultation with key stakeholders such as local governments, industry bodies and local businesses.

There are normally two separate types of assessments used in an EIA:

- regional impact analysis (RIA), which is used to describe the size and nature of the effects on local, regional and state economies
- cost–benefit analysis (CBA), which is used to identify the costs and benefits of the project.

While many of the metrics are common to both assessments, the rationale, tools and outputs are different.

EIA requires a description of the project; the 'base case' local and regional economic environment without the project; and a summary of the predicted key economic impacts. The impacts of a project are measured against this 'base case'.

For the 'base case', a CBA would typically identify the current use of resources and economic activity, whereas the analysis of regional economic impacts would review the structure of local and regional economies.

Regardless of the methodology used, in each EIA the proponent has to develop an impact management strategy to manage the economic impacts and capitalise on the economic opportunities. Consultation with the key stakeholders and communities likely to be affected by the project is essential. Proponents are also encouraged to adopt an adaptive management approach to adjust measures to changing economic circumstances.

2.1 Standardised information

The EIA must:

- use the best current data available
- use standard and consistent terms and methodologies at all stages of the project
- cover the full life-cycle of the project
- specify the modelling methodologies used
- adopt an appropriate discount rate for costs and benefits occurring in the future

- document all key assumptions and their rationale
- explain the methods used to gather information
- describe how the key impacted stakeholders and communities were consulted and the data they provided
- express monetary values in Australian dollars adjusted to a common date
- use a risk management framework to focus on the impacts with the highest probability and consequential impacts
- consider cumulative impacts of other developments in the region, where feasible
- undertake the EIA as an integral component of the EIS, together with the social and environmental impact assessments for the project.

The specific consideration of regional economic impacts must also provide an overview of:

- the key stakeholders and communities of interest
- the local, regional, state and national economies of interest
- local business and industry content opportunities
- source locations of employees and contractors
- cost of living pressures such as impacts on housing supply and demand and household goods and services
- demands for other essential services and facilities
- expected timing and geographic distribution of impacts
- any relevant positive and negative externalities.

Where possible, impact modelling should also describe and quantify the following:

- capital and operational expenditure
- project revenues
- direct impacts on gross regional product and gross state product
- any relevant royalties, taxes and duties
- any relevant site remediation costs
- source of goods and services, Queensland, interstate and overseas
- workforce and labour market impacts, including effects on wages and local labour supply and demand
- direct and indirect full-time equivalent job numbers at each phase of construction and operation.

It is also highly desirable that proponents use consistent terminology throughout the EIA, and in all communications during the project.

3. Methodologies

Different methodologies are available to identify, estimate and evaluate economic impacts and should be selected on a case-by-case basis to satisfy the EIS TOR and reflect both the scale and complexity of the project and the expected linkages with local, regional and state economies. No single methodology is mandated.

Combinations of approaches are acceptable if they produce the necessary information required for an EIA.

3.1 Regional Impact Analysis (RIA)

The identification of economic impacts should include the prediction of spending on goods, services, taxes etc. during the construction and operation of the project and the distribution of income generated by the project. The RIA should preferably focus on the direct impact of the project on the local, regional and state economies. In addition, the modelling of indirect (flow-on) economic impacts arising from estimates of direct economic impacts can be included in the RIA.

Any labour market assumptions used in these models should be clearly documented. The RIA should preferably be based on local or regional labour market research rather than state-wide or national estimates.

Common modelling approaches that may be acceptable for the identification of economic impacts in an EIS include:

- input–output (I-O) modelling
- partial equilibrium analysis
- computable general equilibrium (CGE) analysis.

Regardless of the model chosen, modelling should identify:

- the level of stimulus to the regional and state economy
- the level and location of employment change through:
  - direct labour inputs
  - indirect labour inputs
  - the projected effects on the local economy, including housing, labour costs and services.

Proponents should consider the timing and geographic distribution of impacts, and qualitative analysis may be used to describe indirect impacts where quantitative information is limited or unavailable.

3.1.1 I-O modelling

I-O modelling is useful for determining the degree to which a particular industry or activity is integrated into the economy, especially with respect to backward linkages and supply chain effects.

Detailed I-O modelling has some application in identifying key economic impacts and appropriate mitigation measures. However, it is generally recognised that this method has a number of limitations and may not adequately predict all the economic impacts of a project. Therefore, I-O modelling should not be used in isolation.

3.1.2 Partial equilibrium modelling

Partial equilibrium modelling treats one particular sector of the economy as operating in isolation from other sectors of the economy. It considers only a part of the market or is based on a restricted range of data. It may provide a cost-effective form of analysis that

is sufficient for smaller or less complex projects or where the impacts of a project are confined mostly to one particular sector of the economy.

3.1.3 Computable general equilibrium analysis

A full CGE model is useful for providing rigorous estimates of whole of economy outputs. The models use actual economic data to estimate how an economy might react to changes in policy, technology or other external factors. CGE models are more data intensive and more time consuming to use and interpret. However, CGE modelling may be appropriate where the project is strongly influenced by external factors or policy decisions of government.

3.2 Cost Benefit Analysis (CBA)

CBA provides a well-established and widely understood framework for evaluating the overall benefits and costs of a project. It assesses the impact of a project on the economic welfare of the economies of interest by estimating a dollar value for as many economic, social and environmental benefits and costs as can reasonably be predicted.

CBA should preferably be used for all major complex projects that have wide-ranging and detailed economic impacts.

The following five steps are normally required to perform a CBA:

- Identify all the outcomes (positive and negative) that might arise from the proposed change. These might include a range of economic outcomes, environmental impacts, social impacts and other changes that are important, such as costs to government of supporting infrastructure.
- Apply a monetary value to these outcomes so they can be compared. It is relatively easy to value impacts that have market prices, but specialised techniques are required to value other impacts such as consumer and producer surpluses.
- Discount all the impacts back to a common time period, so that the amounts can be summed.
- Sum the present values of the benefits and costs so that an estimate of net benefits or costs can be made.
- Perform a sensitivity analysis. This can involve analysis of distribution effects, and the sensitivity of outcomes to different assumptions such as discount rate.

3.2.1 Documenting assumptions

Common assumptions that should be documented for both the construction and operation phases of a project include, but are not limited to:

- costs
- gross revenues
- price of goods and services produced by the project
- likely direct beneficiaries (by sector) of project expenditure and possible indirect flows of that expenditure
- discount rates used in models

- any multipliers used in the analysis
- any externalities considered in the analysis to the extent they can be quantified.

3.2.2 Discounting

Projects may be constructed and operated over long timeframes and the value of costs and benefits depends on when they actually occur. Since the value of money changes over time, future costs and benefits must be converted to an equivalent value so that they can be compared on equal terms. Economic analysis requires real (present day) values for costs and benefits and a real discount rate.

All costs and benefits of a project should be discounted at the same rate.

A higher discount rate may be appropriate for projects that are expected to generate impacts over a short time period, as there is greater certainty about the value of these benefits. Lower rates may be appropriate for projects with impacts extending over long periods. Justification should be provided for the discount rate used.

3.2.3 Sensitivity analysis

A sensitivity analysis should be conducted because a range of factors can lead to significant variations in the costs and benefits of a project. Proponents can address this uncertainty by determining how sensitive the financial and economic outcomes are to specific factors. Such analysis would normally focus on varying a single key variable on the net present value (NPV), benefit–cost ratio (BCR) or internal rate of return (IRR).

Sensitivity analysis is commonly undertaken on the discount rate, capital cost of construction, and operational input costs and the price of products. As a minimum, sensitivity analysis should be conducted using an upper, lower and predicted discount rate.

4. EIS evaluation

When preparing the EIS evaluation report, the Coordinator-General uses the information in the EIA to:

- evaluate the scope, scale and nature of the economic impacts of the project
- assess the adequacy of the measures proposed by the proponents to manage any potential negative economic impacts
- assess the measures proposed to capitalise on the economic opportunities of the project
- determine whether conditions need to be stated, recommended or imposed to manage economic impacts, in addition to the proponent's commitments.

In preparing the EIS evaluation report, the Coordinator-General will consider all of the economic, social and environmental impacts of a project before making a decision about whether a project should proceed. The Coordinator-General can set conditions to mitigate any project impacts. The Coordinator-General monitors and can request regular progress reports on a project's economic impacts and implementation of the associated measures to address the impacts.

Glossary

Term	Definition
Benefit-cost ratio (BCR)	Identifies the relationship between discounted benefits and costs, where a positive result is a ratio of greater than one.
Computable general equilibrium (CGE)	Models use actual economic data to estimate how an economy might react to changes in policy, technology or other external factors. CGE models are also referred to as AGE (applied general equilibrium) models.
Cost–benefit analysis (CBA)	A systematic process for calculating and comparing benefits and costs of a business decision. CBA can be used to either determine if an investment is justifiable or feasible, or to provide a common basis for comparing projects.
Cumulative impacts	The successive, incremental and combined impacts of one or more activities on the environment.
Discount rate	The percentage value used to transform future dollar values into current dollar terms.
Economic impact assessment (EIA)	The assessment of a project's economic impacts (both beneficial and detrimental) identifying economic benefits and measures proposed to avoid, manage minimise and mitigate economic impacts.
Economies of interest	Economies that may be significantly impacted (both beneficially and detrimentally) by a project.
Environmental impact statement (EIS)	Describes the current social, economic and biophysical environment in a project area; a project's impacts; and ways of avoiding, mitigating or offsetting those impacts.
Externalities	A consequence of an economic activity that is experienced by unrelated third parties and can be either positive or negative.
Internal rate of return (IRR)	The annualised effective compounded rate of return that makes the NPV of all cash flows (both positive and negative) from a particular investment equal to zero.
Mitigation measures	Activities or strategies designed to alleviate impacts of the project.
Net economic benefit	The difference between project costs and benefits.
Net present value (NPV) or net present worth (NPW)	The sum of the present values of incoming and outgoing cash flows over a period of time. Projects with an NPV greater than zero are regarded as having a net economic benefit. While NPV provides a measure of the value of a project, this measure on its own does not adequately describe the wider economic impacts of a project.
Partial equilibrium analysis	Treats one particular sector of the economy as operating in isolation from the other sectors of the economy. It considers only a part of the market or is based on a restricted range of data. It may provide a cost-effective form of analysis that is sufficient for smaller or less complex projects.
Project proponent	The project owner and its nominated representatives.
Sensitivity analysis	The study of how the uncertainty in the output of a mathematical model or system can be apportioned to different sources of uncertainty in its inputs. A common example is testing the impacts of applying different discount rates.

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