

Appendix G3: Impact Assessment Methodology

Nature of the impact - This is an appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

Extent of the impact - Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

Reversibility -

- Completely reversible – the impact can be reversed with the implementation of minor mitigation measures.
- Partly reversible – the impact is reversible, but more intense mitigation measures are required.
- Barely reversible – the impact is unlikely to be reversed even with intense mitigation measures.
- Irreversible – the impact is irreversible, no mitigation measures exist.

Irreplaceable loss of resources - Describes the degree to which resources will be irreplaceably lost due to the proposed activity. It can be no loss of resources, marginal loss, significant loss or complete loss of resources.

The significance of each impact identified was assessed according to the following variables (evaluation components):

Significance is the product of **probability and severity**. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

Probability:

Probability		
Improbable	Low possibility of impact to occur either because of design or historic experience.	Rating = 1
Probable	Distinct possibility that impact will occur.	Rating = 2
Highly probable	Most likely that impact will occur.	Rating = 3
Definite	Impact will occur, in the case of adverse impacts regardless of any prevention measures.	Rating = 4

The **severity factor** is calculated from the factors given to “**intensity**” and “**duration**”. Intensity and duration factors are awarded to each impact, as described below.

The **intensity factor** is awarded to each impact according to the following method:

Intensity factor		
Low intensity	Natural and man-made functions not affected.	Factor 1
Medium intensity	Environment affected but natural and man-made functions and processes continue.	Factor 2
High intensity	Environment affected - natural or man-made functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional.	Factor 3

Duration is assessed and a factor awarded in accordance with the following:

Duration		
Short term	<1 to 5 years	Factor 1
Medium term	5 to 15 years	Factor 2
Long term	Impact will only cease After the operational life of the activity, either because of natural process or by human intervention	Factor 3
Permanent	Mitigation, either by Natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient	Factor 4

The **severity rating** is obtained from calculating a severity factor and comparing the severity factor to the rating in the table below. For example:

$$\begin{aligned}
 \text{The severity factor} &= \text{intensity factor} \times \text{duration factor} \\
 &= 2 \times 3 \\
 &= 6
 \end{aligned}$$

A **severity factor** of six (6) equals a severity rating of medium severity (rating 3) as per table below:

RATING	FACTOR
Low severity (rating 2)	Calculated values 2 to 4
Medium severity (rating 3)	Calculated values 5 to 8
High severity (rating 4)	Calculated values 9 to 12
Very high severity (rating 5)	Calculated values 13 to 16
Severity factors below 3 indicate no impact	

A significance rating is calculated by multiplying the severity rating with the probability rating.

The **significance rating** should influence the development project as described below:

SIGNIFICANCE RATING		
Low significance	Calculated significance rating 4 to 6	Positive impact and negative impacts of low significance should have no influence on the proposed development project.
Medium significance	Calculated significance rating >6 to 15	Positive impact: Should weigh towards a decision to continue Negative impact: Should be mitigated to a level where the impact would be of medium significance before project can be approved.
High significance	Calculated significance rating 16 and more	Positive impact: Should weigh towards a decision to continue, should be enhanced in final design. Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least medium significance rating.

The impacts were assessed for all feasible and reasonable Alternatives including the “no - go” option, with and without the implementation of proposed mitigation measures.

Cumulative impact: in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.