

Impact Evaluation Method

This section provides an overview of the method used to identify and evaluate the social impacts for the construction and operation phase of the solar energy facility. The main objective is to determine the social risks and opportunities, and positive and adverse impacts of the solar energy facility. The methodology below allows for the evaluation of the overall effect of a proposed activity on the social environment. This includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of social impacts is to be assessed by means of the criteria of extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). A scoring system was utilised to allow the assessment to be subjective.

The **nature** of the impact refers to the causes of the effect, what will be affected and how it will be affected.

Extent (E) of impact

Local (site or surroundings) to Regional (provincial)

Rating = 1 (low) to 5 (high).

Duration (D) rating is awarded as follows:

Whether the life-time of the impact will be:

- » Very short term – up to 1 year: Rating = 1
- » Short term – >1 – 5 years: Rating = 2
- » Moderate term – >5 – 15 years: Rating = 3
- » Long term – >15 years: Rating = 4
 - » The impact will occur during the operational life of the activity, and recovery may occur with mitigation (restoration and rehabilitation).
- » Permanent – Rating = 5
 - » The impact will destroy the ecosystem functioning and mitigation (restoration and rehabilitation) will not contribute in such a way or in such a time span that the impact can be considered transient.

Magnitude (M) (severity):

A rating is awarded to each impact as follows:

- » Small impact – the ecosystem pattern, process and functioning are not affected.
Rating = 0
- » Minor impact – a minor impact on the environment and processes will occur.
Rating = 2
- » Low impact – slight impact on ecosystem pattern, process and functioning.
Rating = 4
- » Moderate intensity – valued, important, sensitive or vulnerable systems or communities are negatively affected, but ecosystem pattern, process and functions can continue albeit in a slightly modified way.
Rating = 6

- » High intensity – environment affected to the extent that the ecosystem pattern, process and functions are altered and may even temporarily cease. Valued, important, sensitive or vulnerable systems or communities are substantially affected.
Rating = 8
- » Very high intensity – environment affected to the extent that the ecosystem pattern, process and functions are completely destroyed and may permanently cease.
Rating = 10

Probability (P) (certainty) describes the probability or likelihood of the impact actually occurring, and is rated as follows:

- » Very improbable – where the impact will not occur, because of either design or historic experience.
Rating = 1
- » Improbable – where the impact is unlikely to occur (some possibility), either because of design or historic experience.
Rating = 2
- » Probable - there is a distinct probability that the impact will occur (<50% chance of occurring).
Rating = 3
- » Highly probable - most likely that the impact will occur (50 – 90% chance of occurring).
Rating = 4
- » Definite – the impact will occur regardless of any prevention or mitigating measures (>90% chance of occurring).
Rating = 5

Significance (S) - Rating of low, medium or high. Significance is determined through a synthesis of the characteristics described above where:

$$S = (E+D+M)*P$$

The **significance weighting** should influence the development project as follows:

- » Low significance (significance weighting: <30 points)
If the negative impacts have little real effects, it should not have an influence on the decision to proceed with the project. In such circumstances, there is a significant capacity of the environmental resources in the area to respond to change and withstand stress and they will be able to return to their pre-impacted state within the short-term.
- » Medium significance (significance weighting: 30 – 60 points)
If the impact is negative, it implies that the impact is real and sufficiently important to require mitigation and management measures before the proposed project can be approved. In such circumstances, there is a reduction in the capacity of the environmental resources in the area to withstand stress and to return to their pre-impacted state within the medium to long-term.

» High significance (significance weighting: >60 points)

The environmental resources will be destroyed in the area leading to the collapse of the ecosystem pattern, process and functioning. The impact strongly influences the decision whether or not to proceed with the project. If mitigation cannot be effectively implemented, the proposed activity should be terminated.