

Part A

Concept, methodology and practice of environmental impact assessments applicable to desalination projects

A.1 Definition and concept of EIA

An EIA is a systematic process used to identify, evaluate and mitigate the environmental effects of a proposed project prior to major decisions and commitments being made. It usually adopts a broad definition of 'environment' considering socio-economic as well as environmental health effects as an integral part of the process.

The main objectives of EIAs are to provide information on the environmental consequences for decision-making, and to promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures [5]. The three central elements of an EIA are:

- ▶ The establishment of environmental, socio-economic, and public health baseline data for the project site before construction. A prognosis of the 'zero alternative' is given, which is the expected development of the project site without project realization.
- ▶ The prediction and evaluation of potential – direct and indirect – environmental, socio-economic, and public health impacts of the proposed project.
- ▶ The identification of appropriate alternatives and mitigation measures to avoid, minimize, remediate or compensate for any environmental, socio-economic, and public health impacts resulting directly or indirectly from the project.

In essence, an EIA of desalination projects is a systematic process that examines the environmental, socio-economic and health effects during all life-cycle stages of the project, i.e. during construction, commissioning, operation, maintenance and decommissioning of the plant.



A.2 Systematic EIA process for desalination projects

The EIA process is generally marked by three major phases (Figure 2 and 3):

- ▶ screening and scoping of the project;
- ▶ environmental impact assessment;
- ▶ decision-making and EIA review.

In the following, a 10 step process is proposed for conducting EIAs for desalination projects. It should be noted that in practice, deviations from the outlined process may occur. Single steps may not always be clearly limitable, some steps may overlap or may be interchanged. The EIA procedure should thus be understood as a continuous and flexible process.

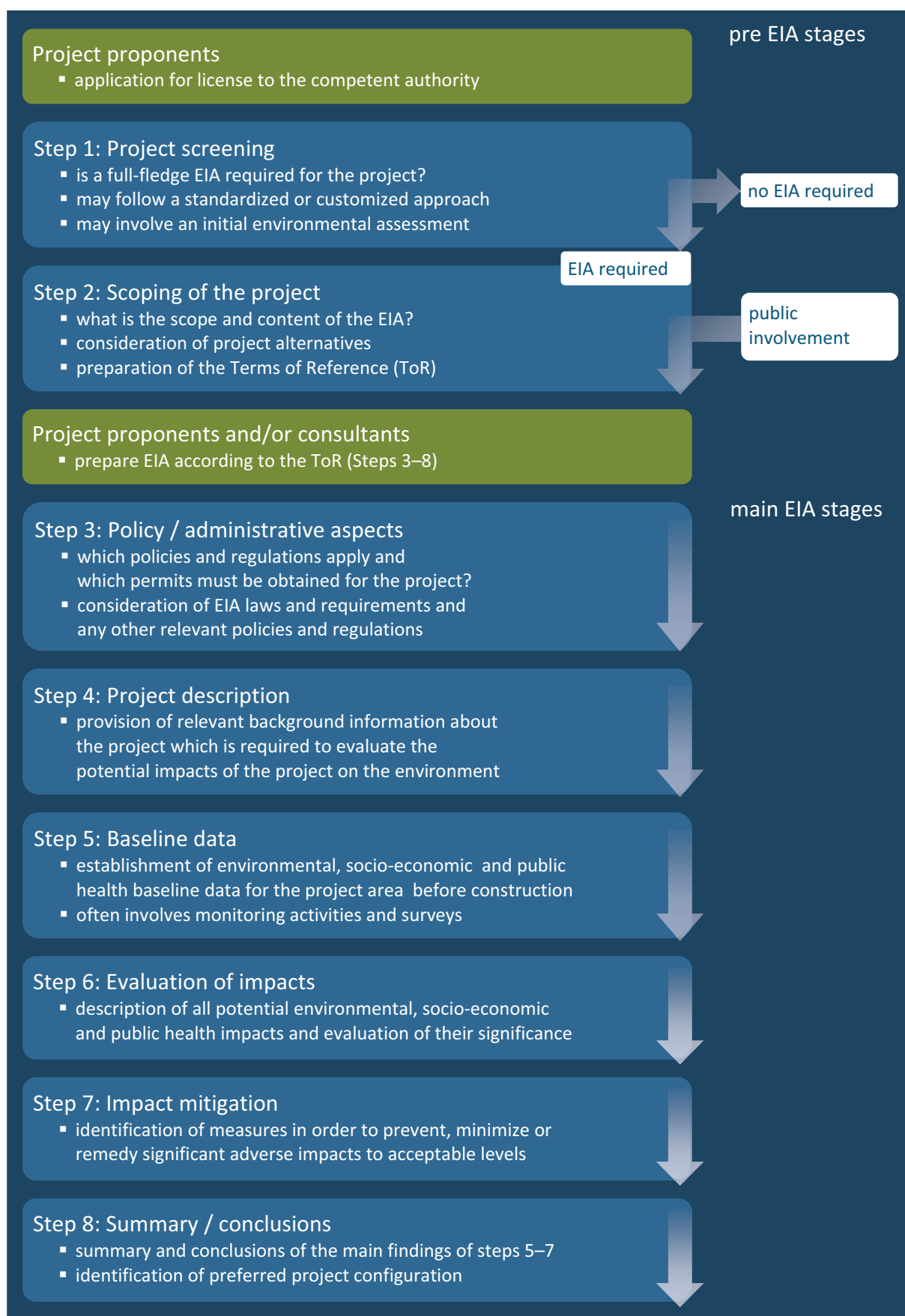


Figure 2: Pre- or early EIA phases (scoping and screening) and main EIA phase.

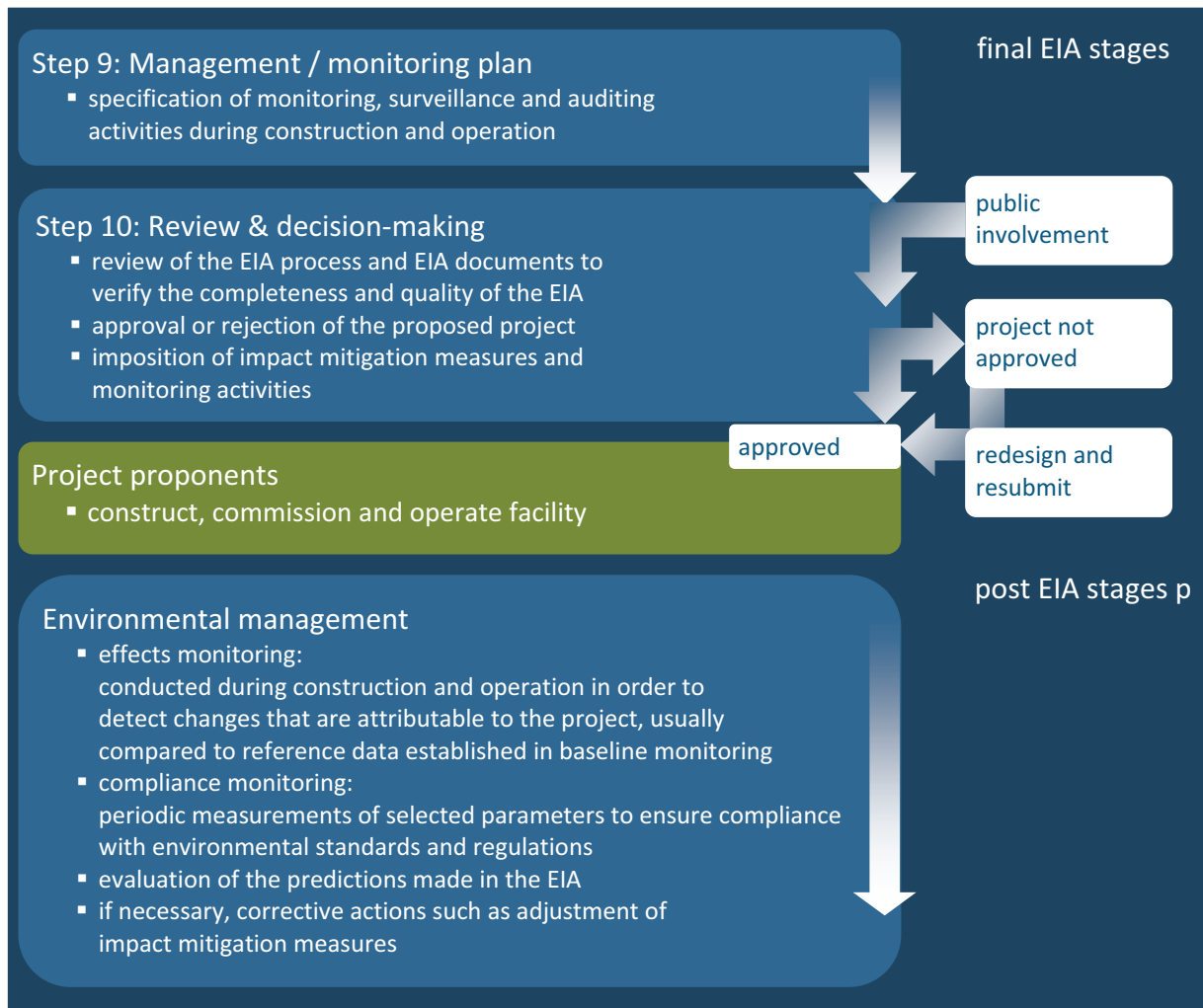


Figure 3: EIA decision phase and follow-up activities.