

# ENVIRONMENTAL IMPACT ASSESSMENTS OF PRODUCED WATER REED BEDS - A CASE STUDY

**An Environmental Impact Assessment (EIA)** is an assessment of the possible positive or negative impacts that a proposed project may have on the environment, together consisting of the environmental, social and economic aspects.

- Description of the existing environmental conditions.
- Description of the Project activities.
- Assessment of potential environmental impacts, both positive and negative.
- Provision of recommendations to mitigate the negative environmental effects.



As part of the produced water treatment reed bed system at Heglig (Sudan) that was designed by Oceans-ESU, desktop and field based Baseline Environmental Impact Assessment investigations were carried out in order to be included within the client EIA documentation that incorporates all oilfield activities. The scope of the client EIA report was to:

- Identify environmental issues
- Provide the necessary measures to minimise environmental impacts
- Identify and predict sources of impact
- Address potential environmental problems
- Specify and prescribe appropriate mitigating/abatement measures for impacts
- Establish environmental management plan (EMP) to track and monitor impacts

The baseline study is normally used as part of an environmental impact assessment and is undertaken to avoid possible future adverse effects. By taking these steps early in the design process, it is more likely that any potential issues can be accommodated within the design.

This process also provides an opportunity to assess the efficiency of the procedures and systems put in place to safeguard the environment and minimise the environmental impacts.

The baseline study included a desk study and a site visit to examine the impact of the engineering and design program on 3 main areas addressing:

1. Present Land Use-  
*Historical, Landscape, Built heritage, Land use, Community*
2. Natural Resources –  
*Ecology and bio-diversity, Surface water resources, Soil, Groundwater, Flora/Fauna, Indigenous trees/plants*
3. Amenity and Welfare -  
*Climate, Transport and access, Local community and socio-economics*



## ASSESSMENTS OF ENVIRONMENTAL IMPACT OF PRODUCED WATER REED BEDS



The EIA Team carried out consultations with various stakeholders, particularly lead agencies, local authorities and the affected people, considering the potential impacts of the proposed system, as well as analysis of alternative methods.

A brief report was then compiled that provided a useful framework whereby environmental considerations and design development can interact.

A number of mitigation measures were recommended against the adverse activities during the construction and operation phases of the project, including control of noise and air pollutions from heavy equipment and vehicles, through proper inspection and watering of unpaved roads.



From the study findings, it was concluded that the impacts of the proposed bioremediation project were minor and easily mitigated. The developer was strongly advised to implement the recommendations to the EMP made by the EIA Team.

To achieve this, an environmental management plan (EMP) was formulated to manage impacts, to adopt the best available proven control technologies and procedures, to ensure a continuing process of review and positive action in the light of available monitoring results, and to consult with local communities on a continuing basis.

