

**ANALYSIS OF ENVIRONMENTAL IMPACTS AND  
DEVELOPMENT OF ENVIRONMENTAL MANAGEMENT  
PLAN FOR SINJHORO OIL AND GAS PRODUCTION  
FIELD SINDH, PAKISTAN**



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## **ABSTRACT**

An Environmental Management Plan (EMP) is site-specific plan developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with environmental legislation (World Bank, 1999). The Environmental Management Plan is an important part of EIA. The EMP identifies feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. In the undertake study, potential impacts are identified in EIA of the project were chosen for determining the efficacy of mitigation through site survey. For site survey and impact assessment matrix and checklist are used as tools. This study also enables the proponent to take a look at the positive and negative impact of the processes more profoundly and to manage them at the construction phase and/or operation phase. Results of this study provide suitable mitigation measures for the significant negative impacts, environmental condition in the project area and surroundings, to take suitable environmental sustainable actions at operation and construction phases of the project and this study also increase knowledge of general public about the environment and project. This project will have certain impacts in its operational phase on the physical, biological and socio-economic environment of the area. Mostly the impacts are insignificant, short term and only project specific. The few impacts like physical, biological and socio-economic impacts which are significant would be mitigated, prevented and monitored. The proposed production field will not cause major losses or degradation to the natural environment on the area. No archaeological, game reserves, historic, cultural and conservation value are present in the Sinjhor field. The overall land is considered as the barren piece of land to the Barani land. The overall impacts not cross the NEQS limit. The project is according to the national and international guidelines. No damage to the society and local community is provided by this project; in fact this project will increase the job opportunity and uplift the area. In the context of environmental management, several environmental issues have been identified to require urgent attention. The complete environmental management plan is provided for the physical, biological and socio-economic impacts. The physical aspects for which

management plan is provided includes, the land clearance for installing the setup in Sinjhero field areas, withdrawal of surface and ground water around the vicinity of the project, Trucks loading and unloading, Impacts on geomorphology, Surface and groundwater contamination, and transportation of vibroseis etc. The biological aspect includes the camp establishment, Discharge of effluents and/or emissions, Vibration and noise from machinery. The socio-economic aspect for which management plan is given is interaction with the local community, camp life and activities of workers and running of machines for the production. Departmental awareness and use of EMP may be increased at all the levels. Environmental Management Plan must be incorporated early in the planning stage. Mitigation of negative impacts should be identified early in the planning process, through EMP, and such mitigation should be put in place by the developer or end user. Monitoring should be undertaken to ensure compliance.

## **DEDICATION**

I would like to dedicate my research work to my Family, Teachers and Friends.

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## ABBREVIATION

BOD	Bio-chemical Oxygen Demand
CC	Construction Contractor
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CO	Carbon Oxides
dB (A)	Decibel
DC	Design Consultant
DCR	District Census Report
EA	Environmental Assessment
EE	Environmental Engineer
EIA	Environmental Impact Assessment
EMC	Environmental Management Consultants
EMP	Environmental Management Plan
EPA	Environment Protection Agency
EPD	Environment Protection Department
EPO	Environmental Protection Ordinance
ESR	Environmental Sensitive Receiver
GHG	Green House Gases
GHPL	Government Holding Private Limited
GOP	Government of Pakistan

HSE	Health Safety and Environment
IEE	Initial Environmental Examination
Km	kilometer
NEPA	National Environmental Policy Act
NEQS	National Environmental Quality Standards
NGO	Non-Governmental Organization
NOx	Nitrogen Oxides
NSL	Natural Surface Level
NSR	Noise Sensitive Receiver
OGDCL	Oil and Gas Development Corporation Limited
OPL	Ocean Pakistan Limited
OSHA	Occupational Safety and Health Administration
PAPs	Project Affected Persons
PEPA	Pakistan Environmental Protection Act
PM	Particulate Matter
PNCS	Pakistan National Conservation Strategy
PPEs	Personnel Protective Equipment's
PPC	Pakistan Penal Code
QHSE	Quality Health Safety and Environment
RAP	Resettlement Action Plan
ROW	Right of Way

SC	Supervision Consultant
SO <sub>x</sub>	Sulfur Oxides
TA	Technical Assistance
TSS	Total Suspended Solids
UC	Union Council
USEPA	United States Environmental Protection Agency
WHO	World Health Organization



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