

Environmental Checklist: 2. Oil and Natural Gas Development (1)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	<p>Have EIA reports been officially completed?</p> <p>Have EIA reports been approved by authorities of the host country's government?</p> <p>Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied?</p> <p>In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?</p>	
	(2) Explanation to the Public	<p>Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public?</p> <p>Are proper responses made to comments from the public and regulatory authorities?</p>	
2 Mitigation Measures	(1) Air Quality	<p>Do air pollutants, such as sulfur oxides (SOx), nitrogen oxides (NOx), soot and dust emitted from the fired equipment, treatment facilities, and other ancillary facilities comply with the country's emission standards? Is there a possibility that air pollutants emitted from the project will cause areas that do not comply with the country's ambient air quality standards?</p> <p>Is there a possibility that air pollutants emitted from the flare system will adversely affect the surrounding environment?</p> <p>Are adequate measures considered to reduce emissions and leakage of volatile organic compounds (VOCs)?</p>	
	(2) Water Quality	<p>Do pollutants, such as pH, SS, BOD, oil and grease, phenols, organic compounds, sulfide, heavy metals contained in effluents from production facilities, treatment facilities, drilling wastes, and related facilities comply with the country's effluent standards? Is there a possibility that the effluents from the project will cause areas that do not comply with the country's ambient water quality standards?</p> <p>Are drilling muds properly treated in accordance with country's standards?</p> <p>Are adequate measures taken to prevent spills and discharges of crude oil and hazardous materials to the surrounding areas?</p>	
	(3) Wastes	<p>Are drilling wastes, including drilling muds, additives (polymers, oxygen scavengers, biocides, surfactants), lubricants, diesel oil, emulsifying agents, flocculating agents (bentonite), and weighting materials properly treated and disposed of in accordance with the country's standards?</p> <p>Are wastes and sludges from the treatment facilities properly treated and disposed of in accordance with the country's standards?</p> <p>Are adequate measures taken to prevent contamination of soil and groundwater by leachates from the drilling waste ponds?</p>	

Environmental Checklist: 2. Oil and Natural Gas Development (2)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
2 Mitigation Measures	(4) Soil Contamination	Has the soil of the project site been contaminated in the past, and are adequate measures taken to prevent soil contamination by leaked materials, such as crude oil? (not applicable to offshore oil and gas development projects)	
	(5) Noise and Vibration	Do noise and vibrations from the drilling works, production and treatment facilities comply with the country's standards?	
	(6) Odor	Are there any odor sources, such as hydrogen sulfide and mercaptans originating from crude oil (especially sour oil containing relatively high hydrogen sulfide)? Are adequate odor control measures taken? (not applicable to offshore oil and gas development projects)	
3 Natural Environment	(1) Protected Areas	Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	
	(2) Ecosystem	<p>Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?</p> <p>Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?</p> <p>If significant ecological impacts are anticipated, are adequate measures taken to reduce the impacts on the ecosystem?</p> <p>Is there a possibility that the amount of water (e.g., surface water, groundwater) used by the project will adversely affect aquatic environments, such as rivers?</p> <p>Are adequate measures taken to reduce the impacts on aquatic environments, such as aquatic organisms?</p>	
	(3) Hydrology	<p>In the case of onshore oil and gas development, is there a possibility that groundwater system changes due to alteration of topographic features and surface water system changes due to installation of structures will adversely affect surface water and groundwater flows?</p> <p>In the case of offshore oil and gas development, is there a possibility that oceanographic condition changes due to installation of structures will adversely affect oceanographic conditions, such as induced currents, waves, and tidal currents? Is the possibility of water quality degradation by the development studied? Are adequate water quality control measures taken, if necessary?</p>	

Environmental Checklist: 2. Oil and Natural Gas Development (3)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(4) Topography and Geology	<p>Is there a possibility that a large-scale alteration of topographic features and geologic structures around the project site will occur as a result of the project? (not applicable to offshore projects)</p> <p>Is the stability of the existing topographic conditions adequately considered for alteration of topographic features, such as earth cut and fill operations? (not applicable to offshore projects)</p> <p>Is there a possibility that soil runoff will result from earth cut and fill areas? (not applicable to offshore projects)</p> <p>Is there a possibility that soil runoff will result from waste soil disposal sites and borrow sites? (not applicable to offshore projects)</p> <p>In the case of offshore oil and gas development, is there a possibility that pipeline landings and installation of related facilities at the shoreline will cause a large-scale alteration of shorelines?</p>	
4 Social Environment	(1) Resettlement	<p>Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>Is adequate explanation on relocation and compensation given to affected persons prior to resettlement?</p> <p>Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?</p> <p>Are agreements with the affected persons obtained prior to resettlement?</p> <p>Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>Is a plan developed to monitor the impacts of resettlement?</p>	

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4 Social Environment	(2) Living and Livelihood	<p>Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>In the case of onshore oil and gas development projects, is there a possibility that large vehicle traffic associated with the project will cause impacts on road traffic in the surrounding areas? Are measures considered to reduce the impacts on traffic, if necessary?</p> <p>In the case of offshore oil and gas development projects, is there a possibility that offshore facilities will affect vessel traffic and the existing water area uses?</p> <p>In the case of offshore oil and gas development projects, is there a possibility that transportation means, such as vessels and helicopters will cause sea and air space traffic congestion, and result in increase in traffic accidents? Are measures taken to reduce the impacts on local traffic, if necessary?</p> <p>Is there a possibility that diseases (including communicable diseases such as HIV) will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p>	
	(3) Heritage	<p>Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?</p>	
	(4) Landscape	<p>Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?</p>	
5 Others	(1) Impacts during Construction	<p>Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?</p>	
	(2) Accident Prevention Measures	<p>Are adequate accident prevention plans and mitigation measures developed to cover both the soft and hard aspects of the project, such as establishment of safety rules, installation of prevention facilities and equipment, and safety education for workers? Are adequate measures for emergency response to accidental events considered?</p> <p>Are adequate accident prevention measures (e.g., installation of prevention facilities and equipment and establishment of prevention management framework) taken to prevent spills from crude oil and gas storage facilities, loading/unloading operations, transportation, and blow out during drilling?</p>	

Environmental Checklist: 2. Oil and Natural Gas Development (5)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
5 Others	(3) Monitoring	<p>Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>Are the items, methods and frequencies included in the monitoring program judged to be appropriate?</p> <p>Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	
6 Note	Reference to Checklist of Other Sectors	<p>Where necessary, pertinent items described in the Oil and Gas Pipelines checklist should also be checked (e.g., projects including construction of oil and gas pipelines).</p> <p>Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation).</p> <p>Where necessary, pertinent items described in the Roads and Railways checklist should also be checked (e.g., projects including construction of roads and/or railways for transportation).</p> <p>In the case of offshore oil and gas development projects, where necessary, pertinent items described in the Ports and Harbors checklist should also be checked (e.g., projects including construction of ports and harbors).</p>	
	Note on Using Environmental Checklist	<p>If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).</p>	

1) Regarding the term “Country’s Standards” mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan' experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.