

BARCLAYS Environmental and Social Risk Briefing Oil & Gas

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1. Environmental and Social Risks

1.1 Environmental Risks

5.2.1 Exploration

Life Cycle Phase and Activity	Risks	Controls
Seismic Survey	<p>Habitat depletion, fragmentation and degradation -</p> <ul style="list-style-type: none"> • Land clearance/disturbance, loss of vegetation, erosion • Opening up of previously inaccessible land to agriculture and development - habitat loss • Use of explosives <p>Atmospheric emissions: vehicular and plant exhaust emissions</p> <ul style="list-style-type: none"> • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc) • Greenhouse gas production • Dust and noise local air quality <p>Landscape scarring and visual impact - habitat fragmentation</p>	<p>Minimize facility footprint - optimization of operations and processes to minimize energy and water consumption</p> <p>Emissions management-</p> <ul style="list-style-type: none"> • Equipment maintenance and use of silencers, Noise and Vibration Management Plan • Emissions inventory, air quality monitoring and management, Air Quality Management Plan • Explosives – use non TNT (dynamite) based, or thumper trucks in preference to explosives <p>Use of Best Available technology Not Entailing Excessive Cost (BATNEEC)</p>
Exploratory Drilling	<p>Drill muds and cuttings</p> <p>Gas venting and flaring</p> <p>Natural hazards and risks - well blow outs, localized land subsidence, land/water contamination</p>	<p>Emergency preparedness and spill prevention plan-</p> <ul style="list-style-type: none"> • Controlled venting • Control and management of pressurized oil and gas from borehole <p>Use of Best Available technology Not Entailing Excessive Cost (BATNEEC)</p>

5.2.2 Oil Field Development and Transportation (Pipelines and Tankers)

Life Cycle Phase and Activity	Risks	Controls
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<p>Exploration and Production Drilling</p>	<p>Atmospheric emissions:</p> <ul style="list-style-type: none"> • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc.) • Greenhouse gas production • Gas venting and flaring, releases of hazardous/volatile gases and greenhouse gases, odor, climate change • Dust and noise local air quality <p>Natural hazards and risks - well blow outs, combustion and explosions, land and/or water contamination, toxic spillages</p> <p>Drill muds and cuttings - release of contaminated water</p> <p>Disruption and pollution of surface water (hydrological) and groundwater (hydrogeological) systems and flows - hydraulic fracturing</p> <p>Pressure on natural resources - loss of habitat</p> <p>Climate change - Extreme weather, sea level rise, temperature rise and water availability</p> <p>Regulatory risks – increasing regulatory burden as development moves into new and more challenging geographies and less well-known technologies.</p>	<p>Emergency preparedness and spill prevention plan</p> <ul style="list-style-type: none"> • Controlled venting • Control and management of pressurized oil and gas from boreholes • Use of low impact extraction chemicals where alternatives exist • Water management - securing of a sustainable water supply, recycling and reuse wastewater <p>Marine management plan - especially for offshore drilling</p> <p>Use of Best Available technology Not Entailing Excessive Cost (BATNEEC)</p> <p>Environmental and Social Impact Assessment forward looking assessment of</p> <ul style="list-style-type: none"> • climate impacts and need to adapt to changing climate conditions over the life of the asset • regulatory developments
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<p>Separation, Compression and Dehydration</p>	<p>Disruption and pollution of surface water (hydrological) and groundwater (hydrogeological) systems and flows</p> <p>Odor - Sulphur production</p> <p>Atmospheric emissions:</p> <ul style="list-style-type: none"> • Release of hazardous/volatile gases, greenhouses gases, air 	<p>Water management - securing of a sustainable water supply, recycling and reuse wastewater</p> <p>Emissions management - air quality monitoring and management, Air Quality Management Plan</p>
<p>Pipelines</p>	<p>Habitat depletion, fragmentation and degradation –</p> <ul style="list-style-type: none"> • Land clearance/disturbance, loss of vegetation, erosion • Opening up of previously inaccessible land to agriculture and development - habitat loss <p>Localized geotechnical risks - e.g. subsidence</p> <p>Natural hazards and risks - pipeline/pumping station leakage, leading to land/water contamination</p> <p>Significant engineering works</p> <p>Hydrostatic testing</p> <p>Liquid and Solid Waste (production and disposal) - e.g. Pigging (cleaning), sludge disposal</p>	<p>Emergency preparedness and spill prevention plan - leak detection systems, cathodic protection, and predictive maintenance in addition to a Habitat Restoration and Remediation Plan</p> <p>Water disposal and monitoring systems Waste Management</p> <p>Use of Best Available Technology Not Entailing Excessive Cost (BATNEEC)</p>

Tankers (road and sea) – excluding port development	Atmospheric emissions: <ul style="list-style-type: none"> • Pollutants (VOC, NOX, SOX, PM10, CO, CO2, etc • Greenhouse gas production • Dust and noise (vehicles and seismic shots) Road haulage and sea transportation - oil spillages, discharge of tank washing residues and oily ballast water Liquid and Solid Waste (production and disposal) - tanker loading and unloading	Emissions management - emissions inventory, air quality monitoring and management, Air Quality Management Plan Emergency preparedness and spill prevention plan Use of Best Available Technology Not Entailing Excessive Cost (BATNEEC) - e.g. appropriate transportation vessels and loading and unloading procedures
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5.2.3 Refining

Life Cycle Phase and Activity	Risks	Controls
Refining (new build)	Habitat depletion, fragmentation and degradation – <ul style="list-style-type: none"> • Land clearance/disturbance, loss of vegetation, erosion • Opening up of previously inaccessible land to agriculture and development – habitat loss 	Habitat and biodiversity management
Refining (facility operations)	Atmospheric emissions: gas venting and flaring, hazardous/volatile emissions, greenhouse gases, air quality, climate change noise, Pressure on natural resources - water use and hot water discharges	Emissions management - emissions inventory, air quality monitoring and management, Air Quality Management Plan Emergency preparedness and spill prevention plan Use of Best Available Technology Not Entailing
	Odor Toxic spillage - contaminated fire water	Excessive Cost (BATNEEC)

5.2.4 Retail

Life Cycle Phase and Activity	Risks	Controls
Petrol Stations and Bulk Storage	<p>Handling and bulk storage – natural risks and hazards</p> <p>Liquid and Solid Waste (production and disposal) - accidental spills and tank leakage, ground/water contamination</p>	Emergency preparedness and spill prevention plan - regular equipment maintenance, integrity testing, implementation of Tank Management Plans

5.2.5 Decommissioning

Life Cycle Phase and Activity	Risks	Controls
Planning and Execution	<p>Land rehabilitation and restoration</p> <p>Site remediation / clean-up</p>	Rehabilitation and Remediation Management Plan

5.3 Social Risks

5.3.1 Exploration

Life Cycle Phase and Activity	Risks	Controls
<p>Seismic Survey and Exploratory Drilling</p>	<p>Community health and safety - noise, vibration, dust creation, vehicular movement, emissions and air quality</p> <p>Strain on infrastructure and public nuisance - noise, odor, vibration, dust creation, transport movement, and air quality, strain on transport networks and local infrastructure</p> <p>Communicable diseases - spread of diseases to local/foreign populations</p> <p>Site security and vandalism</p> <p>Cultural / archaeological heritage - damage to /destruction of cultural/historical/archaeological/religious sites</p> <p>Impacts to existing land use: e.g. agriculture, leading to loss of livelihood; changes to access to water resources; impacts to nomadic/grazing routes. Impacts are usually only temporary.</p>	<p>Community/stakeholder relations management</p> <ul style="list-style-type: none"> • Management of interface between local communities and outsiders/foreign workers through stakeholder identification and consultation (including governmental/national/regional/local stakeholders) • Management of community tensions, grievances and concerns through transparent formal grievance mechanism • Cross-cultural community awareness training for project contractors <p>Community health and safety management - instigation of safety buffer zone around land clearing operations</p> <p>Site security plans</p> <p>Health and safety plans - vaccinations and awareness raising on communicable diseases</p> <p>Cultural heritage / archaeology management - identification, classification and protection of cultural / archaeological sites in accordance with the country's laws/international standards and conventions</p>

		<p>Procurement and supply chain management Compliance with national/regional/local regulations or World Bank guidelines/IFC performance standards</p> <p>Compensation for any loss of livelihood that can't be avoided.</p>
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5.3.2 Oil Field Development and Transportation (Pipelines and Tankers)

Life Cycle Phase and Activity	Risks	Controls
<p>Exploration, Production Drilling, Separation, Compression and Dehydration</p>	<p>Community health and safety - noise, vibration, dust creation, transport movement, emissions and air quality social conflict and unrest</p> <p>Strain on infrastructure and public nuisance – noise, vibration, fire/explosions, dust creation, vehicular movement, emissions and air quality, ability of social services capacity to absorb new/foreign populations (supply and demand) e.g. water resources, power, health, education, housing</p> <p>Communicable diseases - spread of diseases to local/foreign populations</p> <p>Land acquisition - displacement - temporary and permanent land acquisition leading to poverty, social disruption, migration, involuntary resettlement requiring relocation and compensation claims</p>	<p>Social / community baseline assessment - establish community profiles (e.g. livelihoods and employment) in project area, through detailed social baseline assessments to inform mitigation measures and the development of long term agreed community investment/development</p> <p>Community / stakeholder relations management</p> <ul style="list-style-type: none"> • Management of interface between local communities and outsiders/foreign workers through stakeholder identification and consultation (including governmental/national/regional/local stakeholders) • Management of community tensions, grievances and concerns through transparent formal grievance mechanism • Cross-cultural community awareness training for project contractors

	<p>Land acquisition - loss of access –loss of crops and land access/ use- nutritional source e.g. staple root crops</p> <p>Loss of livelihood (income and employment)</p> <ul style="list-style-type: none"> • Economic displacement, job competition • Impact on livelihoods and land value, compensation claims), temporary/permanent relocation to communities <p>Employee health and safety - Employment and Labour standards, e.g. lower standards enabling child labour to takeplace</p> <p>Disruption of Social / community cohesion and exclusion of vulnerable groups</p> <ul style="list-style-type: none"> • Breakdown of social networks and structures • Socio-economic exclusion of ethnic minorities and indigenous peoples • Socio-cultural tensions between local and foreign workforce from influx and outflow of migrants/ temporary workers and attraction of seasonal residents to project area <p>Stakeholder / public consultation and disclosure - inadequate consultation and disclosure with NGO's, local and national advocacy groups, badly managed</p>	<p>Community investment and development - community investment (both long and short term) e.g. health care facilities, micro-finance initiatives and access to employment</p> <p>Site security plans - security plans and awareness raising</p> <p>Health and safety plans - including safe buffer zones around facilities and pipelines</p> <p>Community health and safety plans - vaccinations and awareness raising on communicable diseases</p> <p>Resettlement and relocation management - including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies</p> <p>Human resources policies - maximization of local employment</p> <p>Cultural heritage / archaeology management - identification, classification and protection of cultural / archaeological sites in accordance with the country's laws/international standards and conventions</p> <p>Community / stakeholder relations management</p>
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	<p>social and community relations, negative exposure, compensation claims</p> <p>Impacts on local procurement and business - e.g. unregulated trade</p> <p>Host country governance, national economy and revenue transparency - economy, sustainable growth and inflation, bribery, corruption and extortion, revenue transparency</p> <p>Site Security – inappropriate/heavy handed responses of security personnel may lead to injury to local communities and workers.</p>	<ul style="list-style-type: none"> • Management of interface between local communities and outsiders/foreign workers through stakeholder identification and consultation (including governmental/national/regional/local stakeholders) • Management of community tensions, grievances and concerns through transparent formal grievance mechanism • Cross-cultural community awareness training for project contractors <p>Procurement and supply chain management</p> <p>Supporting and partnering with host governments to encourage revenue transparency and good governance</p> <p>Compliance with national/regional/local regulations or World Bank guidelines/IFC performance standards</p> <p>Appropriate training of Security Personnel to the Voluntary Principles on Security and Human Rights.</p>
Pipelines	<i>As Exploration, Production Drilling, Separation, Compression and Dehydration</i>	<i>As Exploration, Production Drilling, Separation, Compression and Dehydration</i>
Tankers (road and sea) – excluding port development	Stakeholder / public consultation and disclosure - inadequate consultation and disclosure with NGO’s, local and national advocacy groups, badly managed social and community relations, negative exposure,	Community / stakeholder relations management - management of community tensions, grievances and concerns especially mitigation of impact on traditional fishing grounds

	<p>compensation claims</p> <p>Impacts on local procurement and business - unregulated trade</p> <p>Communicable diseases - spread of diseases to local/foreign populations</p> <p>Host country governance, national economy and revenue transparency - economy - sustainable growth and inflation, bribery, corruption and extortion, revenue transparency</p>	<p>Procurement and supply chain management</p> <p>Community health and safety plans - vaccinations and awareness raising on communicable diseases</p> <p>Supporting and partnering with host governments to encourage revenue transparency and good governance</p> <p>Compliance with national/regional/local regulations or World Bank Guidelines/IFC Performance Standards</p>
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5.3.3 Refining

Life Cycle Phase and Activity	Risks	Controls
Refining (new build)	<i>As Oil Field Development and Transportation (Pipelines and Tankers)</i>	<i>As Oil Field Development and Transportation (Pipelines and Tankers)</i>
Refining (facility operations)	<p>Community health and safety - noise, dust creation, transport movement, emissions and air quality</p> <p>Strain on infrastructure and public nuisance - noise, vibration, fire/explosions, dust creation, vehicular movement, emissions and air quality, ability of social services capacity to absorb new/foreign populations (supply and demand) e.g. water resources, power, health, education, housing</p>	<p>Social / community baseline assessment - establish community profiles (e.g. livelihoods and employment) in project area, through detailed social baseline assessments to inform mitigation measures and the development of long term agreed community investment/development</p> <p>Community health and safety plans - vaccinations and awareness raising on communicable diseases</p>

	<p>Communicable diseases - spread of diseases to local/foreign populations</p> <p>Land acquisition - displacement - temporary and permanent land acquisition leading to poverty, social disruption, migration, involuntary resettlement requiring relocation and compensation claims</p> <p>Loss of livelihood (income and employment) –</p> <ul style="list-style-type: none"> • Economic displacement • Job competition and impact on livelihoods and land value, compensation claims), temporary/permanent relocation to communities <p>Employee health and safety - poor employment and labour standards, e.g. dangerous employee conditions including below standard/regulation health and safety conditions</p> <p>Host country governance, national economy and revenue transparency - economy, sustainable growth and inflation, bribery, corruption and extortion, revenue transparency</p>	<p>Supporting and partnering with host governments to encourage revenue transparency and good governance</p> <p>Compliance with national/regional/local regulations or World Bank guidelines/IFC performance standards</p>
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5.3.4 Retail

Life Cycle Phase and Activity	Risks	Controls
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Petrol Station and Bulk Storage	<p>Significant engineering works - Significant engineering works, construction interference with populations</p> <p>Community health and safety - noise, dust creation, transport movement, emissions and air quality</p> <p>Public nuisance - noise, vibration, fire/explosions, dust creation, vehicular movement, emissions and air quality</p>	<p>Social / community baseline assessment - establish community profiles (e.g. livelihoods and employment) in project area, through detailed social baseline assessments to inform mitigation measures and the development of long term agreed community investment/development</p> <p>Human resources policies - maximization of local employment</p> <p>Compliance with national/regional/local regulations or World Bank guidelines/IFC performance standards</p>
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5.3.5 Decommissioning

Life Cycle Phase and Activity	Risks	Controls
Planning and Execution	<p>Loss of livelihood - economic displacement - loss of community financial support and dependency on project related jobs</p> <p>Loss of livelihood (income and employment) - job competition and – impact on livelihoods and land value, compensation claims), temporary/permanent relocation to communities</p> <p>Land rehabilitation and restoration Site remediation/clean-up</p>	<p>Community investment and development - community investment (both long and short term) e.g. health care facilities, micro-finance initiatives and access to employment</p> <p>Rehabilitation and remediation management plan</p>