

8.1 INTRODUCTION

The purpose of the Scoping Phase is primarily to identify key environmental issues and impacts that need to be assessed in more detail in the EIA process, and to enable early identification of any potential fatal flaws that may preclude environmental licensing. Understanding of these issues serves to ensure the Terms of Reference of the specialist studies covers all potentially significant Project risks. As discussed in *Chapter 1*, Sasol has been active in the Project Area since 2001 and has conducted multiple EIAs of their activities. Many of the issues associated with onshore pipeline and offshore Projects and likely stakeholder issues are therefore reasonably well understood.

As described in *Chapter 6 and 7*, this Project is located in an environmental and socially sensitive location, close to the Bazaruto Archipelago National Park (BANP) which is a Marine Protected Area. Onshore, the pipeline traverses the coastal plain which is intersected by the largely intact Govuro River and floodplain, which drains into the Govuro / Save estuary – an important area for mangroves and fishing. The scattered and largely rural communities living in the area are mainly dependent on agriculture, forestry and fisheries sectors for their livelihood. Artisanal fishing is the dominant economic activity along the coast. Natural resource-based tourism is an important form of income generation and employment in the coastal region of Inhassoro District.

The opening of new access into remote and inaccessible areas with woodland and forest habitats for pipeline construction may lead to increased human access for timber harvesting, hunting and clearance for agriculture. In the Govuro floodplain, improved access may lead to increased harvesting of threatened cycads, while potential spills during construction or from the pipeline could lead to pollution of the Govuro River and estuary. However, such improved access is likely to be welcomed by community members to facilitate access to natural resources.

Offshore, issues related to the risk and consequence of oil spills on the conservation status of the coastal and marine environment (especially coral reefs, fish, dugongs and turtles) are a key concern, since this environment underpins the BANP and the associated tourism sector. This issue dominated discussions with the stakeholders involved in the EIA for exploration activities in Block 16 and 19, and it is likely that similar concerns will be raised about the FSO Project, notwithstanding the FSO's location outside of the immediate area of use around the BANP. These concerns are valid and must be carefully considered in this EIA process.

Another key stakeholder issue that must be considered in the EIA process is the interference and exclusion from fishing areas during construction and operation of the offshore pipeline and FSO and any loss of fishermen's income, and to the wider fishing economy as a result. These issues highlight the need for a compensation mechanism and good communication with fishing associations and tourism operators on access restrictions at sea and potential loss of income.

Stakeholder issues related to the onshore pipeline will likely include interference with access and land use activities in the Right of Way and requirement for compensation; the allocation of jobs and training; and Corporate Social Investment (CSI) needs.

This Chapter outlines the anticipated impacts of the proposed Project's activities (*Chapter 2*), on the biophysical environment (described in *Chapter 6*), and the socio-economic environment (*Chapter 7*). It also considers the potential cumulative impacts of the proposed Project in the context of Sasol's previous and existing activities in the area. Furthermore, this Chapter discusses how physical, biological and social environmental attributes of the Project Area may influence and potentially impact on the Project.

The known key issues have been summarised in the introduction whilst the subsequent tables presented in *Section 8.4* define all of the significant issues to be considered in the EIA Phase of this Project.

Impacts identified in this Scoping Report will form the basis of the Environmental Impact Assessment and identification of appropriate mitigation/management measures for the Project.

8.2

THE SCOPING PROCESS

The identification of key environmental and social issues associated with the Project has been generated by:

- Inputs from the technical team leaders and their specialist team members based on previous site visits to the area and experience on similar Projects in the region;
- Review of previous and ongoing EIRs for similar Sasol Projects in the broad Project Area (Temane, Inhassoro and Pande);
- Review of stakeholder issues arising during previous Sasol EIAs in the region; and
- Discussions and findings obtained during a Scoping Workshop between members of the ERM team with the Sasol Project Management and technical design team held in January 2016 in London.

Potential interactions between the onshore and offshore components of the Project (both planned Project activities and unplanned events) and physical, ecological or socio-economic components of the affected environment are summarised in *Table 8.1* and *Table 8.2*. These provide a basis for more detailed description of potential Project risks in *Section 8.4*.

The key for tables *Table 8.1* and *Table 8.2* is provided below:

	No interaction
	Interaction with the environment or receptor which is <u>not</u> expected to be significant
	Interaction with the environment or receptor that <u>could</u> be significant
	Positive interaction

Table 8.1 Onshore Project Linkages

Activity	Environmental/ Social Sensitivity																												
	Physical						Biological						Social																
	Ambient Air Quality and Dust	Global Climate	Noise	Topography / Landform	Soils, Geology and Land Capability	Surface and ground water quality / quantity	Hydrology	Terrestrial Flora	Terrestrial fauna (animals)	Sensitive or Critical Habitats	Freshwater Aquatic ecosystems	Aquatic fauna and instream flora	Coastal / estuarine habitats	Marine / Coastal fauna and flora	Riparian vegetation	Community Health Safety and Security	Government Stakeholders	Traffic & Transportation	Cultural Heritage	Landscape & Visual	Employment & Income	Fishing	Agricultural activities and food security	Forestry concessions	Tourism & Recreation	Amenities and social services	Community Health	Local Economy	Future Activities
Pipeline Construction																													
Onshore pipeline																													
Site preparation: demining, vegetation clearance and topsoil removal and storage																													
Pipeline installation: trenching and backfilling																													
Water use / abstraction (source to be confirmed)																													
Widening existing / new access track in remote areas																													
Increased construction traffic																													
Labour, equipment and services supply																													
Beach Valve Station and Shore Crossing																													
Pipeline installation and construction using Horizontal Directional Drilling (HDD)																													
Disposal of HDD waste to nearshore																													
Installation beach valve station																													
Widening of existing coastal track																													
EN1 Road Crossing																													
Pipeline installation and construction using HDD																													
Water use / abstraction (source to be confirmed)																													
Govuro River Crossing																													
Construction of pipeline river crossing using auger bore drilling																													
Possible installation of bridge																													
Water Use / abstraction (source to be confirmed)																													
Disposal of waste water (to be confirmed)																													
Oil export facility within LPF area																													
Construction of oil export facilities in the new PSA LPF																													
Increased traffic																													
Lighting of site																													
Support Activities / Labour																													
Re-use existing camps, lay-down areas, refueling sites																													
Enforcement of safety exclusion zones along ROW																													
Transport and disposal of hazardous waste and non-hazardous waste																													
Labour, equipment and services supply																													
Pipeline Commissioning																													
Hydro-testing of pipeline																													
Water Use / abstraction (source to be confirmed)																													
Disposal of waste water																													
Pipeline Operation and Maintenance																													
Operation of the export pumps, pig launchers and mainline valves																													
Pigging of pipeline (every 5 years)																													
Transport and disposal of hazardous waste and non-hazardous waste																													
Decommissioning of Onshore Pipeline																													
Decommissioning of pipeline, beach valve station, valves etc.																													
Transport and disposal of hazardous waste and non-hazardous waste																													
Rehabilitation of disturbed areas																													
Accidental Event/ Emergency																													
Hydrocarbon / chemical spills (minor)																													
Hydrocarbon Spills (major)																													
Chemical spills																													
Vegetation fires																													
Road Traffic Accidents																													

Table 8.2 Offshore Project Linkages

Activity	Environmental/ Social Sensitivity																											
	Physical								Biological						Social													
	Ambient Air Quality	Global Climate	Noise Levels (Airborne and Underwater)	Light / illumination	Seabed Topography	Seabed sediments	Hydrology	Geology	Marine Water Quality	Benthic Communities	Fish & Pelagic Flora & Fauna	Marine Mammals (eg dugongs)	Marine Reptiles (turtles)	Seabirds	Coral Reefs / Outcrops	Protected Areas/ Critical/ Sensitive Habitat	Coastal habitats / estuary	Community Health Safety and Security	Government Stakeholders	Traffic & Transportation (Marine and onshore)	Cultural Heritage	Landscapes/ Seascape & Visual	Tourism & Recreation	Employment & Income	Local Economy	Fishing	Shipping and Navigation	Public Utilities (eg landfills)
Offshore Pipeline Construction																												
Marine supply base																												
Mobilisation of support vessels																												
Operation and presence of installation, supply and support vessels, helicopters, and crane																												
Safety exclusion zone around pipeline and support vessels																												
Power generation by vessels																												
Removal of fishing equipment/ vessels and debris																												
Installation of pipeline, including safety exclusion zone																												
Installation of FSO																												
Installation of FSO Turret Mooring including riser and umbilical																												
Fuel use for helicopter and supply and support vessels																												
Tow / sail out of FSO, hook up to the mooring																												
Presence of safety exclusion zone around FSO																												
Commissioning of Offshore Pipeline and FSO																												
FSO pre-commissioning leak and pressure test SSIV and riser																												
FSO introduction of hydrocarbon																												
Diesel storage and use for black start conditions																												
General Support Activities																												
Provision of potable water to POB																												
Disposal of hazardous & non hazardous wastes																												
Disposal of galley (food) waste, black and grey water to sea																												
Discharge of sanitary effluents (black and grey water)																												
Ballast water from support and construction vessels																												
Labour, equipment and services supply																												
Operation of Offshore Pipeline and FSO																												
Presence of FSO and safety exclusion zone																												
Power generation																												
Cooling water discharge																												
Venting operations																												
Heating, Ventilation and Air Conditioning (HVAC) systems																												
Drainage system																												
Provision of potable water to POB																												
Disposal of hazardous and non hazardous wastes																												
Disposal of galley waste																												
Discharge of sanitary effluents (black and grey water)																												
Routine maintenance (incl. cleaning tank, foul removal, painting)																												
Oil transfer to shuttle tanker																												
Ballast from FSO																												
Support and supply vessels(including temporary anchoring)																												
Presence of offshore pipeline																												
Pigging and disposal of waste																												
Pipeline , mooring and riser inspection																												
Labour, equipment and services supply																												
Operation of FSO marine supply base																												
Decommissioning of FSO																												
Removal of riser, FSO mooring system																												
Removal of FSO mooring systems																												
Tow away of FSO																												
Disposal of hazardous and non hazardous wastes																												
Operation of and presence of decommissioning support and supply vessels																												
Ballast from FSO, support and supply vessels																												
Labour, equipment and services supply																												
Decommissioning of Pipeline																												
Flushing of pipeline																												
Removal of pipeline																												
Removal of safety zone																												
Disposal of hazardous and non hazardous wastes																												
Operation of and presence of decommissioning support and supply vessels																												
Ballast from FSO, support and supply vessels																												
Labour, equipment and services supply																												
Accidental Event																												
Hydrocarbon Spills (minor)																												
Hydrocarbon Spills (major)																												
Explosion/ fire FSO																												
Cyclone																												
Bunkering -diesel spill																												

From the scoping assessment, the Project is likely to cause a number of impacts that are significant or which are perceived by stakeholders to be significant, and which require further assessment and the need for specialist studies in the EIA Phase.

Significant impacts that are predicted to result from the advanced works, construction, commissioning and operational activities are summarised in *Table 8.3*. Potentially significant impacts arising from unplanned events (accidents) are summarised in *Table 8.4* while those considered insignificant from planned activities are summarised in *Table 8.5*. *Table 8.6* summarises issues that will be managed under relevant management plans and operating procedures and are not a component of the proposed specialist studies.

A number of the identified issues are interlinked across components (eg increased dust on community health or reduced water quality causing degradation in aquatic ecosystems). However for the purpose of this Scoping Report impacts are categorised by their primary impact (eg air quality impacts fall under physical not social environment). These linkages will be explored and assessed more fully in the integrated EIR.

Table 8.3: Potentially Significant Issues from Planned Activities

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
1	Onshore Physical Environment			
1.1	Dust: Increased dust levels causing decreased ambient air quality (and community health risks)	Advanced works and construction phases	Vegetation clearing, demining activities and topsoil removal and storage	The advanced works and construction phase activities will result in increased dust emissions in the construction area, which may result in community nuisance or even health effects in the Project Area. Further assessment is required to determine the extent and significance of dust emissions on the community.
1.2	Decreased Ambient Air Quality: Decreased onshore ambient air quality in the vicinity of the CPF	Operational phase	Air emissions arising from the LPF export pumps adjacent to the CPF	The operation of export pumps located at the LPF will generate additional emission sources near the CPF facility. The contribution of the export pump emissions at the LPF will be quantified and assessed cumulatively with the CPF facility onshore.
1.3	Climate Change: Increased emissions contributing to Climate Change	Operational phase	Venting emissions and power generation at the FSO and other Project vessels.	In order to predict the Projects contribution to climate change an emission inventory will be prepared of all expected pollutants resulting from venting emissions and power generation at the FSO and other Project vessels..
1.4	Onshore Noise: Increased onshore noise in combination with noise generated by the CPF	Operational phase	Increased noise levels generated by operation of the export pumps located inside the new LPF site.	The export pumps, as an additional noise source, could result in the overall noise footprint of the CPF/LPF extending further from the CPF boundary and affect surrounding communities. The additional increase in noise will be modelled to confirm if noise levels will exceed target levels specified in the CPF oEMP..
1.5	Altered River Hydrology: Altered hydrology of the river channel to flooding	Construction phase	Auger boring under the Govuro River will require water for drilling and excavation of work pits adjacent to the river which will require dewatering	Auger boring beneath the Govuro River may affect river flow through possible abstraction of water for drilling, and drainage or seepage of water into adjacent excavated works areas on the river banks (that will require settlement and pumping back to the river), or through creation of mounding on the floodplain that may affect flooding. Thus, further assessment of the river hydrology and baseline aquatic ecosystem health against the Project activities and expected water needs, potential sources and its management is required to determine this risk and the significance of water-related impacts. Sasol will be responsible for obtaining permits from Ara-Sul for water abstraction from groundwater or surface water sources.
1.6	Reduced Water Quality: Increased turbidity / sedimentation of Govuro River causing reduced water quality (and reduced aquatic habitat status)	Construction phase	Excavation and return of water to the river	Excavation of works areas on either side of the Govuro River during auger boring is likely to result in the need for return of seepage water and drilling waste water back to the river. This is expected to cause elevated turbidity of the river water quality, with potential risks to aquatic ecology (see points 2). Further assessment of the water quality risks and significance of potential impacts on aquatic ecology is required.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
1.7	Increased Erosion: Increased erosion of exposed soils and embankments	Advanced works and construction phases	HDD of the pipeline and construction of the beach valve station will require excavation of unconsolidated coastal soils	Cliffs along the beach front in Inhassoro District are increasingly prone to wind and wave erosion and are exhibiting evidence of destabilisation. Clearance of coastal vegetation, excavation in sandy soils and construction of pipeline infrastructure may subject affected areas to exposure and erosion over time, further exacerbating coastal erosion. Mitigation of these risks will be addressed through design of construction methods and infrastructure. Proposed mitigation measures will be reviewed during the EIA in order to confirm that there is no further risk of erosion.
2	Onshore Ecological Environment			
2.1	Terrestrial Flora and Fauna: Disturbance and removal of terrestrial vegetation and flora, including possible threatened and protected species, and displacement of fauna. New access into remote areas will increase human influx for resource use (eg bush meat hunting, timber harvesting, and habitat clearance for agriculture and settlement).	Advanced works and construction phases	Vegetation clearing and topsoil removal along the onshore pipeline route to prepare the pipeline servitude and Right of Way	Vegetation clearing of the pipeline route, ROW and for widening existing access tracks will impact upon certain habitats likely to contain threatened flora and fauna, and will facilitate improved human access to undisturbed remote areas with higher biodiversity. Several threatened plant species have been identified in the Project Area and many mammal species are under severe hunting threat in the remaining less disturbed habitats. Therefore, advanced works and construction activities will result in both direct and indirect impacts on flora and fauna. Thus, further assessment of the ecological importance of the fauna and flora along the undisturbed area of the pipeline route and its potential to qualify as a critical or sensitive habitat will be required.
2.2	Aquatic / estuarine ecosystems: Disturbance of aquatic and estuarine ecosystems, including threatened and protected species.	Advanced works and construction phases	Clearing of vegetation, excavation and removal of topsoil near aquatic ecosystems along the onshore pipeline route especially at the Govuro River crossing	Habitat clearance and construction activities along the onshore pipeline route will impact the aquatic habitats of the Govuro River and possibly small seasonal pans through altering surface and subsurface run-off, increasing sedimentation and turbidity, and possible contamination by pollutants. Auger boring under the Govuro River is proposed as a method to minimise the physical impacts of the pipeline crossing on the river system. Auger boring under the Govuro River may however cause degradation of the stretch of the river at the crossing point through excavation of floodplain sediments, return of seepage water with elevated turbidity to the river, and loss or disturbance of riparian vegetation, possibly destabilising the river margins. Sedimentation effects may extend some way upstream and downstream due to the tidal influence. Further assessment of the ecological importance of the aquatic and estuarine ecology of the onshore pipeline route in order to assess the impact of the alignment and construction methods proposed for the Govuro River crossing will be required.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
2.3	Coastal habitats Removal of coastal vegetation and flora, and disturbance of coastal fauna.	Advanced works and construction phases	Habitat clearance and excavations on the coastal belt for pipeline construction and associated infrastructure at the beach valve station, and associated human disturbance of the coastal fauna and flora	Habitat clearance and excavation in the coastal zone may result in removal of threatened and/or protected flora, and disturbance to coastal fauna, including in the area of the proposed HDD entry point and beach valve station. These activities at the top of the cliff will likely expose sandy soils to increased wind erosion and destabilisation. Thus, further assessment of the ecological importance of the coastal ecology of the offshore pipeline route will be required.
3	Onshore Socio-economic Environment			
3.1	Community Issues: Community disruption, and altered community health, safety and security	Advanced works and construction phases	Restricted access to the onshore pipeline corridor	Advanced works and construction activities along the pipeline will lead to a number of issues that may cause community disruption, nuisance and potential safety risks. These include restricted access to the onshore pipeline route corridor along access routes, and the presence of open trenches during the advanced works phase. Thus, further assessment of the impact of the advanced works and construction activities on community health and safety in the Project Area will be required.
			Presence of the workforce in the Project Area	Construction workers will be sourced locally, regionally and internationally depending on the skills required for the work and in accordance with Mozambican requirements. The presence of workers housed in a personnel camp near local communities may create health and security concerns although the location of the camp near local communities may also provide work opportunities. The impacts of worker presence on the health of local communities may be significant if not managed correctly, and therefore will be assessed.
3.2	Labour recruitment: Employment, fair labour practices, use of migrant or foreign labour, training / capacity building of local people and competition and potential jealousies and conflicts as a result of recruitment practices	Advanced works, construction, operational and decommissioning phases	Employment of labour and allocation for jobs	The Project will employ workers during all the phases. These workers will be sourced both locally, regionally and internationally depending on the skills required for the work. Sasol has an approved labour agreement with the Mozambican Government, which ensures respect of national law as well as the use of local labour as far as possible, in combination with skills training. Provisions of fair recruitment and labour practices will need to be addressed in the EIR and EMP for this Project as stakeholder concerns related to Sasol's recruitment process have been raised in previous EIA studies. Unless a transparent and fair recruitment process is implemented with specific attention to local employment and procurement of services, conflict and competition for jobs within and between villages and towns and with Sasol may arise. Failure to manage these risks could lead to work stoppages or road blocks. Therefore, the potential conflict of the recruitment process and the hiring of outsiders need to be further assessed to ensure appropriate recruitment policies are implemented to address the risk and significance of this potential impact.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
3.3	Local economy: Pipeline and FSO construction can benefit the local economy through job creation and resultant increased local cash expenditure as well as procurement of local service providers. However, such Projects can also impact the existing local economy if there are conflicts with tourism and fishermen.	Advanced works, construction, operational and decommissioning phases	Use of local service providers to supply food, water and waste services to the Project	While the Project, once operational, can have large economic benefits at the national scale, it can have both positive and negative impacts on the local economy during and after construction. The advanced works and construction phases have the greatest potential to benefit the local economy through job creation and procurement of accommodation for contractors, and other services. However, it is also possible that the Project construction and operation could negatively affect the semi-industrial and artisanal fishing sector of access to fish catches are affected or the tourism sector if recreational fishing, diving and other ecotourism-based activities are impacted.
3.4	Loss of fields and compensation issues: Pipeline servitude clearance will result in loss and disturbance of agricultural land in certain stretches, particularly north of the CPF and in the eastern coastal section.	Advanced works and construction phases	Vegetation clearance and topsoil excavation, and reinstatement of topsoil post construction	Advanced works and construction activities will damage or destroy crops in places or will prevent germination of crops already planted, resulting in loss of labour. Poor reinstatement of topsoil to disturbed areas could cause reduced crop yields in places. These issues have been raised during stakeholder engagement on previous EIAs have required careful consideration of compensation measures that will also need to be applied in the implementation of this Project. The impacts on agriculture and their mitigation requirements will be addressed.
3.5	Cultural heritage: Pipeline construction may cause loss of cultural heritage such as spiritual sites, graves, and archaeological sites (eg stone age/iron age sites, tribal pottery remains, shell middens etc).	Advanced works and construction phases	Clearing and excavation of the pipeline route	Vegetation clearance and soil excavation along the onshore pipeline route and ROW will cause changes in land surface and may damage/ remove any cultural heritage resources that are within the construction ROW. The presence of cultural heritage resources along the pipeline route will be further assessed to determine the significance of this impact and mitigation requirements.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
3.6	Waste management: Generation of waste will include hazardous waste (such as hydrocarbon contaminated soil, rags and containers; drilling fluid and biocide containers; pigging waste); and non-hazardous wastes (such as plastic and polystyrene wrapping and containers; waste wood/pallets; cabling etc). Poor waste management and disposal practices can result in littering, pollution of soil, water and air.	Advanced works, construction, operational and decommissioning phases	Generation, transport and disposal of hazardous and non-hazardous waste.	The full range of wastes to be generated and managed by the different phases of the Project requires confirmation. A waste management plan will be developed during the EIA Phase of this Project to ensure waste management is done in accordance with the legal requirements for Mozambique and international good practice, and taking account of available waste management facilities.
3.7	Fresh water availability and supply During all the phases of the Project freshwater will be required for Project activities and drinking water for labour	Advanced works, construction, operational and decommissioning phases	Fresh water use for activities	Water is scarce in the region and therefore Sasol will need to establish the availability of water in existing boreholes and additional sources that may be required.
3.8	Increased traffic onshore	Advanced works, construction, operational and decommissioning phases	Transportation of manpower to/ from the site, equipment and materials to the site and waste	The Project will generate additional road traffic on existing roads for transportation of manpower to/ from the site, equipment and materials to the site; and waste during all phases of the Project. However, this will be undertaken on a larger scale during the construction phase as materials/ equipment will be transported from the Port of Beira to the Project site. The additional traffic has the potential to cause interference with existing road users including traffic congestion and delays; increased road accidents; damage to road infrastructure from heavy vehicles; and reduced safety and accessibility for other road users such as pedestrians and cyclists. Thus, impact on road traffic and transportation may be significant and will be assessed further during the EIA process.
4	Offshore Physical and Biological Environment			

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
4.1	Seabed sediment disturbance: Disturbance of seabed sediment resulting in increased turbidity, loss of benthic fauna and displacement of fish other marine fauna and change in seabed topography.	Advanced works and construction phases	Seabed disturbance will be caused by: <ul style="list-style-type: none"> • Anchoring of the turret mooring system during its installation, deployment of anchors and anchor chains to moor the FSO and shifting of the anchor chains for the period the FSO is on site. • Trenching and burying of part or the entire offshore pipeline. • Anchoring of the pipelay barge vessel during construction of the offshore pipeline. 	Disturbance and suspension of sediments in the FSO area during mooring and anchoring of the FSO and pipelay vessels, and trenching and laying of the pipeline from the shore crossing to FSO will remove benthic habitat and fauna and disturb fish and other marine fauna. The nature of the benthic sediment and fauna will be assessed in the marine ecology study to inform determination of the significance of this impact.
4.2	Marine water quality: Reduction in marine water quality with potential impacts on fish, plankton, seagrass and other marine fauna dependent on these for food.	Advanced works, construction, operational and decommissioning phases	Water-related pollution impacts in the marine environment will occur from: <ul style="list-style-type: none"> • Waste water and sewage discharge from vessels during all phases of the Project (in accordance with MARPOL standards) • Discharge of ballast water from vessels • Discharge of hydro-test and dewatering water during the offshore pipeline commissioning phase.. 	Discharge of waste water and hydro-test discharge as well as increased turbidity in the marine environment north of the BANP may be an issue of concern to stakeholders given the conservation status of the area and the importance of sensitive marine species (eg seagrass, coral reefs and dugongs) that depend on high coastal water quality. Thus, the impact of wastewater discharges on offshore water quality in the Project Area will be assessed further.
4.3	Seagrass and Dugongs Disturbance and displacement of marine fauna (eg fish, dugongs, turtles etc) as a result of removal of seagrass along the pipeline route, sediment generation due to trenching, increased noise, vibration, light and offshore traffic	Advanced works, construction and operational phases	Increased noise, vibration and offshore traffic during construction operation, and trenching of the pipeline in near shore environment.	The BANP and the area crossed by the pipeline route is recognised as hosting one of the last remaining viable populations of dugongs along the East Coast region with an estimated 200 to 250 dugongs thought to occur between the Save estuary and the islands of the BANP. The presence of dugongs and the sensitivity of the Bazaruto coastal region was a major issue of concern during the EIA of nearshore exploration in Block 16 and 19. Therefore, it is likely to be a key issue raised by conservation stakeholders in the current study. Key real and perceived risks to dugongs will include collisions with support and pipeline laying vessels; noise and vibration impacts, and loss of seagrass through direct removal or sediment smothering. Stakeholders are likely to be concerned about the potential risk of an oil spill affecting dugong foraging habitat and general marine fauna nursery areas in the Govuro / Save estuary. In order to confirm the risks to dugongs, a dedicated aerial survey and assessment of potential impacts on dugongs in the integrated marine ecology study will be undertaken in the Project Area prior to pipeline construction.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
4.4	<p>Noise, vibration, light and offshore traffic on Marine ecology</p> <p>Disturbance and displacement of marine fauna (eg fish, dugongs, turtles etc) and potential risks to BANP as a result of increased noise, vibration, light and offshore traffic.</p>	Construction and operational phases	Noise, vibration and offshore traffic from pipeline laying and FSO mooring vessels, and helicopter and supply vessels during construction, and from FSO operations, lighting and tanker shuttling	The offshore pipeline and FSO construction and operational activities will result in disturbance of the marine environment including sensitive marine fauna and flora that provides the basis for the BANP. These will result from a variety of effects that require further assessment in the EIA through modelling studies of turbidity plumes; noise and vibration modelling on marine fauna, and visual illumination modelling. The results of these studies will be interpreted in the integrated EIA to confirm the extent and significance of these impacts on sensitive marine receptors and to identify appropriate mitigation measures.
5	Offshore Socio-economic Environment			
5.1	<p>Disruption and Loss of Artisanal Fishing</p> <p>Reduced access to artisanal fishing areas and displacement of fish resources from construction activities causing loss of income, food security and livelihood of local fishing communities.</p>	Advanced works, construction phases	<p>Activities that will impact on artisanal fishing include:</p> <ul style="list-style-type: none"> • Exclusion from the 500 m safety exclusion zone around the pipeline and support vessels during installation. • Retrieval of fishing gear from the pipeline corridor. • Noise, vibration and increased turbidity linked to pipeline laying and vessel activities. 	Reduction in fish catch and loss of income was a significant issue raised during the EIA of exploration in the nearshore environment of Block 16 and 19 and is likely to be a key issue raised by artisanal and recreational fishing stakeholders for this Project. There may also be a perception that the fish will be attracted to the safety exclusion zone around the FSO where they cannot be caught (although this may also serve as a small protected fish nursery area which can improve fish recruitment). Fishing provides the main livelihood and protein source for the majority of the coastal residents who will likely expect compensation to be paid for reduced catch and exclusion from fishing grounds. Thus, given the socio-economic importance of fishing in the area, a fisheries study will be undertaken to confirm the trends and current status of fishing in the Project Area as the basis for assessing the significance of the Project's impacts on artisanal fishing.
5.2	<p>Exclusion of Semi and Industrial Fishing from FSO area</p> <p>Semi and industrial fishing vessels will be excluded from the 500 m safety exclusion zone around the FSO for the lifespan of the Project.</p>	Advanced works, construction, operational and decommissioning phases	The presence of a 500 m safety exclusion zone around the FSO (including subsea infrastructure)	Semi-industrial and industrial line fishing takes place in the FSO location. Exclusion of fishing vessels from the FSO safety exclusion zone could result in the perception of reduced fish catch and loss of revenue. The extent to which the safety exclusion zone will impact on industrial fishing will be assessed with consideration of any inputs raised during the participation process by industrial fishing stakeholders.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
5.3	Increased offshore traffic and presence of FSO offshore	Advanced works, construction, operational and decommissioning phases	Offshore traffic will be impacted by the following activities: <ul style="list-style-type: none"> • The presence of installation and support vessels during the advanced works and construction phases. • Crew changes and supplies to the FSO for the length of its operation. • The presence of the FSO. • Operation of shuttle tankers. 	The Project will generate additional vessel traffic in the Project's Area during all phases of the Project. However, this will be undertaken on a larger scale during the construction phase as materials/ equipment will be transported from the Port of Beira to the Project site. The additional offshore traffic has the potential to cause interference with existing users of the sea and limit the accessibility for users such as merchant vessels and fishing vessels. Thus, impact on offshore traffic may be significant and will be further assessed.
5.4	Tourism: Industrial Projects, and in particular oil and gas projects, in natural resource based tourism areas, such as the Bazaruto Archipelago, could lead to reduction in tourism and altered tourism profile over time. These may result from a combination of visual impacts of infrastructure from sensitive tourism receptors (eg lodges, diving sites), perceived or real loss of 'sense of place' as a wilderness tourism destination, and noise, vibration or vessel disturbance and pollution events on the sensitive coastal and marine ecosystem that is the primary basis for the tourism industry.	Advanced works, construction, operational phases	Increased noise, vibration, illumination and offshore traffic in the coastal marine environment and the presence of oil and gas infrastructure near a sensitive conservation area (BANP)	The potential impact of offshore exploration around Bazaruto on tourism was a key issue that was raised during the EIR for Block 16 and 19 and is expected to be a significant issue raised by stakeholders for this Project. Many stakeholders are likely to be concerned about risks to the natural environment that underpins the tourism industry but some operators may also welcome the increased demand for accommodation and services that such a Project is expected to bring, especially during the construction phase. A tourism study will be undertaken to understand the tourism trends in the Project Area. The findings of stakeholder meetings will be integrated into as a record of perceptions of tourist operators. Assessment of impacts on tourism will include integration of findings from the visual modelling study and the noise and vibration modelling study to address possible perceptions of visual and noise impacts on tourism.

	Issues of Concern	Project Phase	Planned Activities	Reason for Further Assessment Required in the EIA Phase of the Project
5.5	Social disruption, increased health risks and community grievances due to presence of foreign workers	Advanced works, construction, operational phases	Employment and presence of foreign staff for offshore pipeline construction and FSO installation in Project Area	The Project will require the presence of staff of contractors and vessel crew to be present in the Project Area in Beira at the marine base and in Inhassoro/Vilanculos to construct the offshore pipeline and to install and operate the FSO. This may result in foreign nationals being present in the community when they are on shore leave or in transit. Presence of foreign staff may lead to increased social pathologies related to presence of a dominant male workforce with cash supply, and elevated risk of seeking sexual favours from local women, over-consumption of alcohol and related social ills. The social disruption and links to health risks (eg HIV/AIDS, STDs etc) that may arise from interaction of these contractor crew members in the local community will be assessed and mitigation measures developed in the EMPs.

Table 8.4: Significant Issues from Unplanned (Accidental) Events

	Issues of Concern	Project Phase	Unplanned/ Accidental Events	Reason for Further Assessment Required
1	Onshore Physical, Biological and Social Environment			
1.1	<p>Traffic Accidents: Increased construction traffic involving both sedan vehicles and abnormal trucks will increase the risks of traffic accidents with local communities, especially residents along access roads used during onshore pipeline construction.</p>	Construction Phase	Road traffic accidents by construction vehicles involving local pedestrians or drivers	Increased risk of traffic accidents involving construction vehicles could cause loss of life or disability of local residents and will require assessment and the development of appropriate mitigation measures in the EMPs .
1.2	<p>Oil spill risks onshore: Contamination of surface and groundwater with potential risks to sensitive aquatic systems such as the Govuro River and estuary, with potential consequences for fishing and tourism (depending on the size of the spill)</p>	Operational Phase	Pipeline break or leak resulting in major hydrocarbon spill	A major oil spill in the Govuro River in particular could have significant consequences on the lower Govuro River and estuary. Assessment of this risk in the EIA will involve hydrological modelling of spill scenarios against an understanding of the tidal flow variations of the river and the sensitivity of the aquatic ecosystem assessed in an aquatic ecology study.
2	Offshore Physical, Biological and Social Environment			
2.1	<p>Marine pollution from drilling mud Contamination of seabed sediment and decreased marine water quality from release of drilling mud with potential consequences for seagrass habitats, benthic fauna, fish and fishing.</p>	Construction Phase	Accidental release of drilling mud from the HDD at the point of emergence of the drilling head from the seabed.	Drilling muds used in HDD when laying the pipeline across the beach and nearshore zone will be water-based and are of low toxicity, and largely comprising a mixture of water and bentonite (clay). Accidental release of drilling muds could nevertheless cause some degree of marine water pollution and elevated turbidity which until dispersed by wave action could result in displacement of fish and fishing activities.

	Issues of Concern	Project Phase	Unplanned/ Accidental Events	Reason for Further Assessment Required
2.2	<p>Marine pollution and degradation of marine and coastal ecosystem from major oil spill: Contamination of the water quality column and seafloor sediments and the impacts on sensitive receptors</p>	Operational Phase	<p>A major hydrocarbon spill resulting from:</p> <ul style="list-style-type: none"> • A leak or damage to the pipeline, onshore valves or subsea infrastructure. • Accidental vessel collisions. <ul style="list-style-type: none"> • Loss of oil from the FSO / Shuttle tanker. 	In order to assess the implications on sensitive receptors (dugongs, turtles, dolphins, the conservation status of the BANP, tourism and fishing sectors) major oil spill scenarios will be modelled and the significance of impacts on coastal and marine habitats, species, fishing, tourism and other users will be assessed.
2.3	<p>Risk to human health and safety at sea: An accident at sea from a collision with a fishing vessel and the FSO could pose a health and safety risk to fishermen or recreational vessels in the area.</p>	Operational Phase	<p>A risk assessment will be conducted in order to establish the likelihood and possible outcomes an</p> <ul style="list-style-type: none"> • Accidental vessel collisions in the sea. • The potential impact on trawled fishing activities and the need for burial of the offshore pipeline. 	Risks associated with accidents posing a risk to human safety at sea will be identified in the socio-economic specialist study, and mitigation measures will be identified and incorporated into the EMPs, where appropriate.

Table 8.5: Issues Considered Not-Significant from Planned Activities

	Issues of Concern	Project Phase	Planned Activities	Reason for No Further Assessment Required
1	Onshore Physical, Biological and Social Environment			
1.1	Impact on tourism from onshore pipeline	Operational Phase	Visual changes to the landscape due to the installation of the pipeline and supporting infrastructure	The visual impact of the onshore pipeline is considered insignificant as it will be buried and the footprint of the beach valve station is small and located above and behind the cliffs leading to the beach.
1.2	Reduced ground and onshore surface water quality from waste water discharge from construction camps	Construction and Operational Phase	Onshore waste water discharges	Portable toilets and ablution facilities in existing camps will be used by the workers during all phases of the Project and therefore the impact will not be significant and no further assessment is required.

Table 8.6: Issues from Unplanned Activities that will be Managed under Relevant Management and Operational Plans

	Issues of Concern	Project Phase	Unplanned/ Accidental Events	Reason for No Further Assessment Required
1	Onshore and Offshore Physical, Biological and Social Environment			
1.1	Loss of terrestrial fauna and flora and threats to agricultural lands	Advanced works, construction, operational and decommissioning phases	Vegetation fires	This risk of a vegetation fire is low with the implementation of fire prevention measures during welding activities and at the camp sites. If a vegetation fire breaks out Sasol will respond immediately and therefore the footprint will be small and the impact is unlikely to be significant.
1.2	Contamination of groundwater, surface water, geology and soils by chemicals	Advanced works, construction, operational and decommissioning phases	Onshore chemical spills	Sasol has a chemical spill management plan to immediately clean up and address chemical spills onshore and therefore the impact of a spill is unlikely to be significant.
1.3	Decreased marine water quality due to offshore chemical spills	Operational Phase	Offshore chemical spills	Sasol will immediately clean up chemical spills onboard the Project vessels and the FSO. These chemicals are very unlikely to enter the marine environment due to the closed drainage systems onboard.
1.4	Pollution of the marine/ coastal or onshore environment	Operational Phase	Minor hydrocarbon spill	Sasol will manage small oil spills onboard the Project vessels and the FSO by cleaning up the spill immediately. These spills are very unlikely to enter the marine environment due to the closed drainage systems onboard.
1.5	Loss of FSO mooring	Operational Phase	Cyclones	The FSO mooring system (turret mooring) will be designed to withstand 100 year cyclone events. Offloading will not be permitted during unsuitable weather conditions and sea states. The limits for offloading will be established in the Sasol Marine Assurance Plan. The risk is very low and therefore no further assessment is required.

Note: Unplanned events will be managed by either existing plans or new plans developed in the EIA Phase.

Based on a review of previous EIAs and an understanding of the Project and the affected environment a number of significant Project risks to the environment have been identified. Onshore and offshore impacts and include:

Onshore

- Removal of habitats and loss of threatened flora during advanced works and construction activities arising from routing of the onshore pipeline including potential loss of critically endangered cycads on the Govuro floodplain;
- Increased human access to remote areas during advanced works, construction and throughout operation activities for harvesting of timber and cycads; bush meat hunting; and possibly habitat clearance for new settlement and agriculture.
- Degradation of Govuro River during construction of the river crossing through increased sedimentation, pollution risks, altered flow and consequent potential loss of aquatic fauna (invertebrates and fish);
- Interrupted access, and increased noise and dust affecting nearby residents during advanced works and construction activities;
- Loss of cultural heritage resources during advanced works and construction activities;
- Social disruption and health risks caused by presence of construction workers during advanced works and construction activities;
- Increased risks of traffic accidents (both offshore and onshore) during advanced works and construction activities.
- Job creation (positive) during advanced works and construction activities; and
- Risks of an unplanned event during operation (eg pipeline break / oil spill) on soil, water, Govuro estuary, and fish resources; and
- Loss of land and the implementation of safety exclusion zones on agriculture and human settlement during construction and operational activities;

Offshore

- Exclusion of fishing activities during advanced works, construction and operational activities;
- Increased noise, vibration and offshore traffic impacts on dugongs and other marine fauna, and tourism activities (eg fishing, diving) during advanced works and construction activities;
- Visual impacts during construction and operational activities of infrastructure and support activities on tourism and residents; and
- Increased risks of pollution during construction and operational activities on marine and coastal environment with impacts on Bazaruto archipelago (eg coral reefs, sea grass) and natural resource-based tourism.

It is emphasised that some of these potential risks generate significant stakeholder concern – notably impacts on the marine and coastal environment of the Bazaruto archipelago, tourism and fishing. Such stakeholder perceptions of Project risks will be carefully and objectively evaluated to ensure that a balanced analysis of impacts is presented in the EIR.

8.6 *FATAL FLAWS*

A number of significant risks to the environment have been identified that require further investigation in the EIA (as summarised in *Section 8.5*). A population of critically endangered cycads, *Encephalartos ferox* subsp. *emersus* on the Govuro floodplain may result in a section of the proposed pipeline route being fatally flawed. In this event, an analysis of alternative routes and other possible mitigation measures will be conducted by Sasol and ERM during the EIA Phase to minimise the risks to this species.

The ToRs for the specialist studies, presented in *Chapter 9*, takes account of these identified risks with significant attention on specialist baseline and modelling studies to ensure integrated assessment and evaluation of the potential impacts.

8.7 *PROJECT AREA*

The Project Area comprises the area that may be affected by the Project from direct impacts (Area of Direct Influence) and indirect impacts (Area of Indirect Influence) on the various environmental and socio-economic receptors.

Direct and indirect impacts of the Project affect the various environmental and social receptors (eg air, noise, water, biodiversity, socio-economic aspects etc) differently. Except for the unplanned direct impacts of the Project (eg oil spills), which may affect a large area, the Area of Direct Influence (ADI) tends to occur across a more narrowly defined area while the Area of Indirect Influence (AII) can influence a much broader area.

8.7.1 *Defining the Area of Influence for this Project*

Table 8.7 below defines the Area of Influence (ADI and AII) for both planned and unplanned events based on issues identified above. Unplanned events are all considered direct impacts of the Project.

Note: the defined Area of Influence refers to the spatial or physical scale at which the impact may occur – it does not relate to the potential consequence of the impact. For example, loss of a globally threatened species is assigned a Site or Local scale and not Global/International. The importance of a receptor will be evaluated and assigned a sensitivity or vulnerability rating in the EIR when assessing impact significance (refer to IA methodology in *Section 4.6*).

In summary, the majority of direct and indirect impacts would occur at a Site to Local scale. Indirect impacts – which are most often related to impacts associated with induced human access and related settlement and other land and coastal use activities – tend to occur at a Local to Regional scale.

Table 8.7: The Definitions for the Project Areas of Influence

Spatial Extent	Definition
Insignificant	No significant spatial Area of Influence (AoI)
Uncertain	Uncertain AoI requiring investigation
Site	Immediate footprint of the Project development (including physical area of pipeline route and FSO, access roads, construction camps, lay down areas) and proximal areas within the servitude of the Project infrastructure (ie 50 m servitude either side of onshore pipeline; 500 m safety exclusion zone around the offshore pipeline (during construction) and 500 m around the FSO (throughout operations).
Local	Area in close proximity to the Site (generally within 2 to 5 km) that may be directly or indirectly affected by advanced works, construction and operation activities.
Regional	Broad area around the Project infrastructure extending beyond 5 km radius, and including the coastal plateau and coastline within the Districts of Inhassoro and Govuro between Vilanculos and Beira.
National	The Republic of Mozambique
Transboundary / Global	Areas extending beyond border of Mozambique which can include impacts of Global significance (eg loss of globally threatened EN or CR species, or climate change) or transboundary importance such as oil spill..

Table 8.8 Area of Influence of the Project for Each Environmental Component

Type of Project Receptor	Advanced works and construction		Operation		Comment
	ADI	AII	ADI	AII	
Air Quality	Local	Insignificant	Insignificant	Insignificant	Air quality impacts mainly relate to increased dust associated with advanced works and construction activities and may extend 2 to 5 km from construction areas, especially for fine dust on the Govuro Floodplain.
Noise	Local	Insignificant	Insignificant	Insignificant	Noise impacts will primarily occur during advanced works and construction phases and will be restricted to a Local scale, within a 1 to 2 km radius of the pipeline and access routes.
Surface Water	Site	Local	Insignificant	Insignificant	Direct advanced works and construction impacts on surface water would occur mostly at Site scale (150 m wide corridor of pipeline or transport routes) although increased human influx to the area by the Project could impact on water resources at a Local scale.
Geohydrology	Local	Local	Site	Local	Direct and indirect advanced works and construction impacts could impact on groundwater resources at a local scale through altered groundwater flows or quality. Indirect impacts on groundwater during operation that may arise from induced human influx and settlement may occur at a Local scale through increased groundwater withdrawal or contamination.
Soils / Geology	Site	Local	Insignificant	Local	Direct advanced works and construction impacts on soils would occur at Site scale along the pipeline and road access routes. Induced impacts on soils associated with population influx and agriculture/settlement attracted by the Project activities during operation could occur at a Local scale.
Terrestrial / coastal vegetation habitats	Site	Local	Insignificant	Local	Advanced works and construction impacts on vegetation would occur at Site scale along the pipeline and access routes. Induced impacts associated with population influx or new development attracted by the Project activities could impact vegetation at Local scale during advanced works, construction and operation activities depending on extent of new habitat clearance for settlement along new access routes.
Terrestrial flora (plants)	Site	Local	Insignificant	Local	Direct impacts on flora species of conservation concern (eg cycads) would occur at the Site scale during advanced works and construction activities. Indirect impacts from increased human access for harvesting could extend to a Local scale.
Terrestrial fauna (mammals, birds, herpetofauna)	Site	Regional	Insignificant	Regional	Direct advanced works and construction impacts on fauna is limited to the Site scale but induced access to remote areas for hunting may have Regional scale impacts on mammal populations, in particular, extending into the operational phase.

Type of Project Receptor	Advanced works and construction		Operation		Comment
	ADI	AII	ADI	AII	
Aquatic Habitats and fauna (snails, fish & macroinvertebrates)	Local	Local	Insignificant	Regional	Direct and indirect impacts on aquatic habitats – mainly on the Govuro River - are expected to occur at a Local scale but will depend on the extent of sedimentation and pollution impacts and how these risks are managed. Direct operational phase impacts are expected to be insignificant but induced human settlement along new access routes could have Regional scale impacts on the Govuro River through human use, pollution, abstraction etc. Apart from the Govuro River, no significant wetlands occur along the pipeline (only a few small seasonal pans).
Coastal habitats and Protected Areas	Local	Local	Insignificant	Regional	Direct impacts of pipeline advanced works and construction activities in the coastal / marine environment are predicted to be of Local scale. Induced impacts during advanced works and construction activities may have Local scale impacts on coastal habitats if coastal settlements expand or increase. Human influx and settlement throughout operation could have Regional scale impacts on coastal habitats and protected areas.
Marine habitats, coral reefs, sea grass	Local	Insignificant	Insignificant	Insignificant	Construction of the offshore pipeline and installation of the FSO and mooring is expected to have Local scale impacts on marine habitats (ie within 5 km of pipeline). Operation impacts are expected to be insignificant..
Marine fish	Local	Insignificant	Local	Insignificant	Construction of the offshore pipeline and installation of the FSO and mooring is expected to have Local scale impacts on marine fish (ie within 5 km of pipeline). Operation impacts are expected to be insignificant.
Marine fauna (eg dugongs, turtles, whales, dolphins)	Local	Local	Uncertain	Uncertain	Impacts caused by noise and vibration when trenching and laying the offshore pipeline is uncertain but expected to have Local scale impacts on marine fauna mainly through displacement from foraging habitats and movement routes. Operational impacts of FSO activities on marine fauna eg dugongs is uncertain and requires evaluation through noise and vibration modelling in the EIA.
Socio-economic profile/status	Local	Local	Local	Local	Advanced works and construction activities may have Local scale impacts on the socio-economic profile and status of communities along the pipeline through disruption of livelihood activities in the pipeline ROW, compensation for loss of fields or other structures, etc. Operational phase impacts are expected to be of Local scale through ongoing exclusion of access to the ROW for cropping and settlement.
Community health	Local	Local	Insignificant	Local	Impacts on community health associated with presence of construction staff or altered access to water supplies (direct) and from influx of work-seekers (indirect) are expected to be of Local scale, mainly affecting villages within 2 to 5 km of the pipeline. Direct impacts during the operational phase on community health are expected to be insignificant while increased influx of people due to improved access during operation could result in Local scale impacts on community health and health services.

Type of Project Receptor	Advanced works and construction		Operation		Comment
	ADI	AII	ADI	AII	
Fisheries	Local	Local	Local	Local	Advanced works and construction and operation phase impacts on fisheries – both freshwater, estuary and marine – are expected to occur at Local scale through disturbance and exclusion from fishing areas. Impacts on fishing in the marine environment will be mitigated by trenching of the offshore pipeline allowing for ongoing artisanal fishing across the pipeline route and compensation for loss of access, if appropriate. The FSO location is outside the artisanal or semi- or industrial fishing zones.
Agricultural production	Site	Local	Local	Local	Impacts on agricultural production will occur at Site scale (direct loss of fields) or Local scale from indirect impacts associated with increased population influx pressure on agricultural land. A major spill onshore, although unlikely, could have Regional scale impacts on agricultural production or arable land.
Cultural heritage	Site	Local	Insignificant	Local	Advanced works and construction impacts on cultural heritage, particularly in situ archaeological remains if present will occur at the Site-scale. Induced impacts related to human influx and clearance of areas for new settlement/agriculture could have Local-scale impacts on cultural heritage from the advanced works through to operation. Direct operational impacts on cultural heritage are expected to be insignificant.
Onshore traffic nuisance	Local	Local	Insignificant	Insignificant	Traffic impacts during advanced works and construction activities will be at Local scale and are considered Insignificant during operation. Communities may have difficulty using usual access routes during advanced works and construction phases although expected to be mitigated using detours.
Onshore traffic nuisance	Local	Local	Insignificant	Insignificant	Traffic impacts during advanced works and construction phases will be at Local scale and are considered Insignificant during operation. Communities may have difficulty using usual access routes during advanced works and construction activities although expected to be mitigated using detours.
Offshore traffic hazards	Regional	Regional	Regional	Regional	Offshore traffic between Beira and the offshore pipeline and FSO location will increase and occur at the Regional scale during advanced works, construction and throughout operation (although standard marine navigation regulations will apply). This may result in increased navigational requirements of fishing vessels or pressure on port services.

Note: The AOI is based on the spatial extent from planned Project activities