14 Environmental and Social Management

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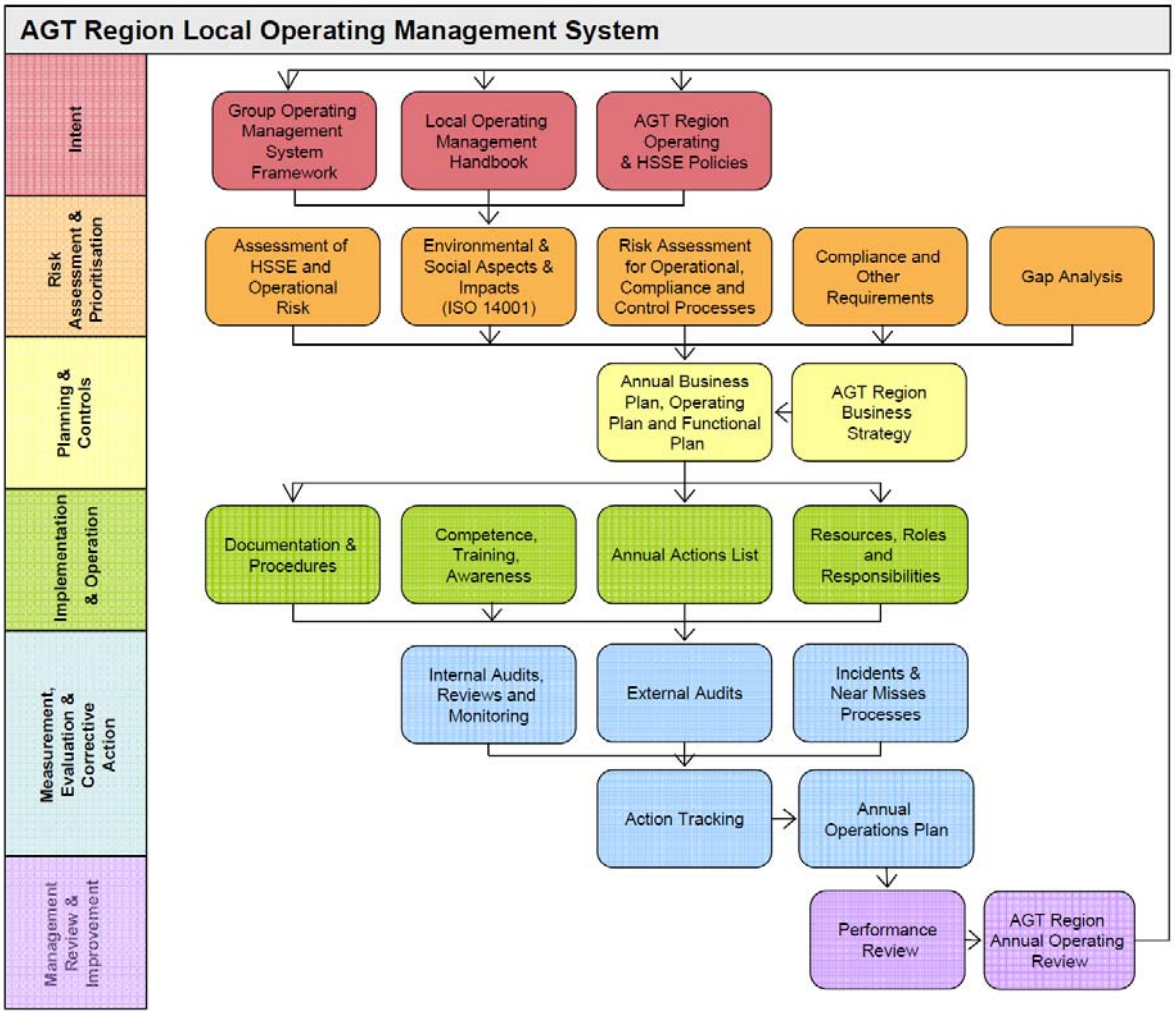
14.1 Introduction

Under the Shah Deniz (SD) Production Sharing Agreement (PSA), BP as Operator is responsible for the environmental and social management of the SD activities, to ensure that project commitments are implemented, and conforms to applicable environmental and social legal, regulatory and corporate requirements. This Chapter provides an overview of the system that will be used to manage the environmental and social issues associated with the SD2 Project.

The Azerbaijan Georgia Turkey (AGT) Region manages BP's operations in Azerbaijan and have an established Local Operating Management System (LOMS). This system forms the structured framework to the HSSE performance of the organisation for which there are six key stages as set out in Figure 14.1:

- Intent;
- Risk Assessment & Prioritisation;
- Planning & Controls;
- Implementation & Operation;
- Measurement, Evaluation and Corrective Action; and
- Management Review & Improvement.

Figure 14.1 AGT Region Local Operating Management System Framework



The environmental portion of the AGT Region Local Operating Management System for operations is certified to ISO 14001, the leading international standard on environmental management.

In line with the six stages within the LOMS, BP apply the following principles of environmental and social protection:

- **Plan** – prior assessment of potential environmental and social impact;
- **Do –** implementing design and mitigation measures that seek to avoid, reduce or minimise potential impact;
- **Check –** monitoring performance and the efficacy of the mitigation measures that are implemented; and
- **Act –** auditing and tracking the implementation of corrective actions.

This section of the ESIA highlights how these principles shall be applied to the SD2 Project.

14.2 Construction Phase Roles and Responsibilities

14.2.1 BP

BP is responsible for the detailed design, procurement, construction and operation of the SD2 Project. BP has appointed design contractors to undertake the detailed design of the project and a drilling contractor to operate the MODU's that will drill the wells. In due course, BP will issue technical bid documents for the various elements of the construction work scope. Where relevant, the bid documents will include a copy of BP's minimum environmental and social requirements (referred as HSSE Contract Clauses) into the bid documents.

BP will manage the construction phase of the Project, monitoring and auditing the technical, environmental and social performance of its contractors throughout the construction phase. The contractors will be responsible for the management of their staff (to the extent that reflects staffing at the site).

A SD2 Construction Phase Environmental and Social Management System (ESMS) will be developed and implemented by BP and will include the following:

- The commitments register that BP has produced listing all the commitments within this ESIA that are to be implemented during the construction phase;
- A legal register of legislation applicable to the SD2 Project;
- An Environmental and Social Management and Monitoring Plan (ESMMP) which will be reviewed and updated as needed as part of a process of continuous improvement;
- A schedule of monitoring, inspection and audit of environmental performance that includes checking that the main construction and installation contractors are meeting the expectations set out in the ESMMP; and
- Implementation of an action tracking system to monitor the findings of inspections and audits that do not conform to the ESMMP and the implementation of corrective actions.
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14.2.2 Main Construction and installation Contractors

The main construction and installation contractors for the jacket, topside, subsea facilities and terminal construction will be expected to conform fully to the relevant aspects of the BP SD2 Construction Phase ESMS for which they are responsible.

The main construction and installation contractors will be required to develop and implement their own Construction Phase ESMS for the SD2 Project that will become an integral part of the BP SD2 Construction Phase ESMS.

14.3 Construction Phase ESMSs

14.3.1 Introduction

The BP SD2 Construction Phase ESMS will form the framework for managing social and environmental issues throughout construction, prior to the operation of the SD2 facilities and will be consistent with, but not necessarily certified to, ISO 14001.

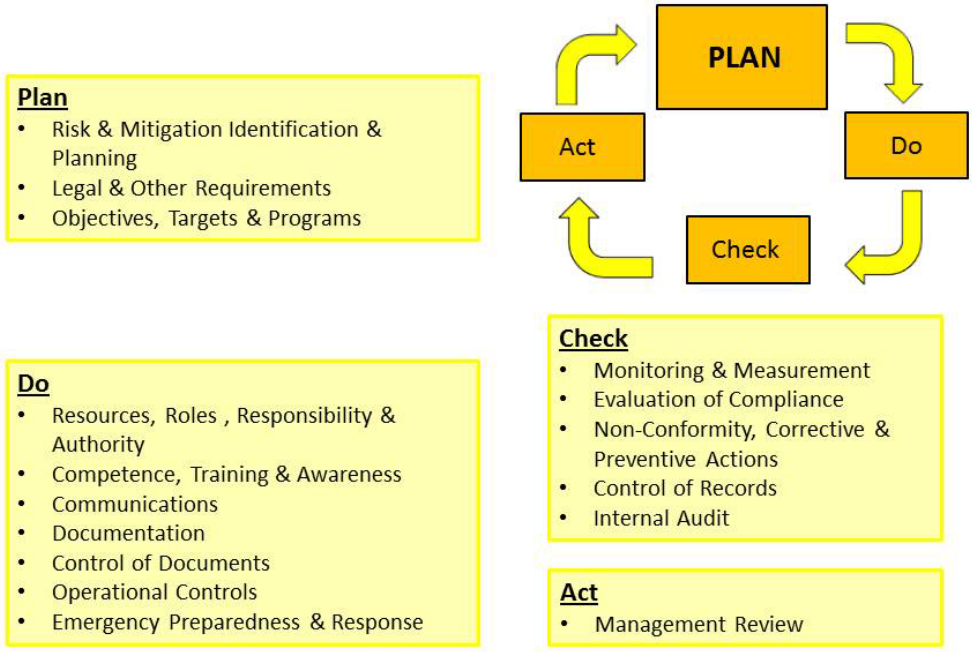
The BP SD2 Construction Phase ESMS will be used to deliver the SD2 ESIA commitments and coordinate and review the environmental and social performance of the Project at the construction stage. Special consideration will be given to the following:

- Practical training and raising the environmental and social awareness of personnel;
- Supervision and monitoring of environmental and social issues in the field; and
- Continuous improvement of environmental and social performance throughout the Project.

14.3.2 BP's ESMS Framework

Figure 14.2 presents an overview of the elements of the BP Construction Phase ESMS 'plan–do–check–act' cycle. This document will establish a common understanding between the key staff involved in delivering effective environmental and social management of the Project.

Figure 14.2 BP's Construction Phase ESMS Elements



14.3.3 Plan

The 'plan' stage of the cycle seeks to identify hazards and risks to the Project, e.g. through the SD2 ESIA process, resulting in a commitments register for the Project and development of mitigation measures in construction phase execution plans. Planning also involves the identification of legal and other requirements, such as the development of goals and target setting using Key Performance Indicators (KPIs).

The SD2 ESIA commitments register lists the commitments that have been generated through the Project's comprehensive ESIA process. The ESIA commitments register assigns each commitment that will be implemented in the 'do' stage of the management cycle within

the BP SD2 Construction Phase ESMS. Operation phase commitments will be reflected in the BP Operations ESMS.

14.3.4 Do

The 'Do' stage of the cycle reflects the implementation of the BP SD2 Construction Phase ESMS and its key components:

- Strategy and framework documents;
- ESMMP;
- Management plans; and
- Contractor procedures.

The ESIA Management of Change Process (see Chapter 5, Section 5.16) will be followed if there is a need to change the Base Case design of the SD2 Project.

14.3.4.1 ESMMP

The BP Construction Phase ESMS will include the ESMMP that describes:

- Conformance requirements;
- Roles and responsibilities of BP and the main construction and installation contractors;
- The actions needed to avoid and/or mitigate environmental and social impacts and to put the commitments in the ESIA into effect; and
- The assurance process that will be adopted to monitoring and report environmental and social performance will include inspection, audit and monitoring programs such as sewage treatment plant performance monitoring.

To support the ESMMP, environmental and social management plans will be developed by BP to present the SD2 Project environmental and social requirements by subject matter. Table 14.1 lists those management plans that have been identified as being applicable to the SD2 Project. The SD2 Project environmental and social management plans will be finalised during mobilisation of the main construction and installation contractors, and regularly reviewed as construction work proceeds.

Table 14.1 Environmental and Social Management Plans

Title of Plan	Issues Covered
Restoration and Landscape Management Plan	• Landscape management training • Topsoil and subsoil management (during onshore pipeline installation works and subsequent reinstatement) • Site restoration • Spoil management • Monitoring and reporting
Waste Management and Minimisation Plan	• Waste management training • Waste hierarchy (i.e. reduction at source, reuse, recycling, energy recovery, responsible disposal) and green procurement • Identification and classification of waste • Waste register • Waste handling (i.e. collection, segregation and containers, storage, treatment, transport and documentation, disposal) • Monitoring and reporting
Ecological and Wildlife Management Plan	• Ecology and wildlife training • Pre-construction ecological surveys and wildlife inspections • Habitat and species protection during construction (i.e. translocation, traffic restrictions, code of conduct) • Monitoring and reporting
Pollution Prevention Management Plan	• Pollution prevention training • Energy efficiency (vehicle and equipment selection, maintenance) • Emissions and dust management (i.e. vehicle, equipment and generator emissions, dust management)

Title of Plan	Issues Covered
	• Wastewater management (i.e. drainage, trench dewatering, hydrotest water disposal and use of chemicals in hydrotest water, vehicle and equipment washing) • Sewage treatment and disposal • Chemical selection and management, and hazardous materials management • Noise and vibration management • Treatment of contaminated soil • Monitoring and reporting
Community Engagement and nuisance management and monitoring	• Community liaison training • Grievance mechanism • Nuisances management and monitoring (i.e. construction noise, artificial light from work areas, odours, pests and vermin) • Community interaction (i.e. prior notification of noisy activities, road congestion associated with the transport of oversize and heavy loads) • Monitoring and reporting
Archaeology and Cultural Heritage Management	• Cultural heritage training • The protection of known archaeological resources (i.e. their location, legal status, protective buffers) • Watching brief procedure for all ground breaking activities • Archaeological chance finds procedure • Monitoring and reporting
Spill Prevention, Response, Notification and Close Out Actions	• Spill prevention • Spill response training • Spill response management • Monitoring and reporting
Traffic and Transportation Management Plan	• Driver management training • Onsite vehicle movements • Offsite vehicle movements and the prohibition on off-road driving • Risk assessment for the transport of oversized and heavy loads • Monitoring and reporting
Employee Relations Management Plan	• Training and skill development activities • Grievance mechanism • Demanning • Monitoring and reporting

14.3.4.2 Training

At the 'do' stage of the BP SD2 Construction Phase ESMS, training is fundamental to the successful delivery. The SD2 Project construction activity will be of relatively short duration, so establishing key environmental and social requirements at the outset is important to the provision of effective training. The main training elements required are:

- Management briefings;
- Induction training for BP, the main construction and installation contractors and their sub-contractor staff; and
- Toolbox talks and awareness programmes during construction.

14.3.4.3 Management Briefings

An environmental and social training session will provide the BP Project Management Team with an overview of the BP SD2 Construction Phase ESMS and a common understanding of roles, responsibilities and applicable standards.

Following award of contract, a second environmental and social training session will seek to ensure that the BP Project Management Team and the main construction and installation construction contractors' senior personnel adopt a coordinated approach to implementing BP requirements, and to affirm BP's commitment to good environmental performance and to establishing good community relations.

14.3.4.4 Induction Training

All Project construction staff will receive an environmental and social induction that will explain the key requirements to everyone on site.

14.3.4.5 Toolbox Talks

In addition to toolbox talks delivered by the main construction and installation contractors as part of skills training, sessions to raise awareness will be held for the following environmental and social issues:

- Waste management and handling;
- Refuelling; and
- Hazardous materials management/handling.

14.3.5 Check

14.3.5.1 Monitoring, Inspections, Reporting and Audits

The BP SD2 Construction Phase ESMS will identify key indicators that will be used to measure environmental and social performance.

BP's and the main construction and installation contractors procedures and plans will be used to collect and regularly report monitoring data to BP, including the following:

- Data (e.g. waste volumes, types and disposal, complaints received and resolved);
- Activities carried out (e.g. surveys, meetings with communities, site inspections and findings);
- Status of non-conformances identified during inspections;
- Environmental, social and cultural heritage issues arising in the course of the works (e.g. contaminated land discovered, archaeological finds and ecological issues); and
- Site observations and reports, from inspections and incidents such as spill events.

BP and the main construction and installation contractors will conduct audits to track progress and performance in implementing the Construction Phase ESMSs and the effectiveness of the mitigation measures implemented in avoiding environmental and social impacts. The schedule of these audits will be determined after the contract has been awarded, but the aim will be to audit all elements of the Construction Phase ESMSs. The frequency of auditing for individual commitments will be reviewed regularly and adjusted as necessary to take account of audit findings. BP will also carry out spot check audits of any issues that are of environmental and social concern.

14.3.6 Act

14.3.6.1 Corrective Action

The inspection and audit processes described in Section 14.3.5 will be documented with non-conformance reports (NCRs) and corrective action requests (CARs). Both BP and the main construction and installation contractors will develop and maintain action-tracking systems to monitor the effectiveness of actions taken in response to NCRs and CARs.

BP will track the implementation of corrective actions and will update the Project Manager and the Environmental and Social Manager daily on non-conformances that require follow-up actions. The contractors will be responsible for the management of their staff (to the extent that reflects staffing at the site).

14.4 Operations Phase ESMS

BP will operate the SD2 facilities using an Operations Phase ESMS that is certified to ISO 14001 Environmental Management System (EMS) and will be based on the 'plan-do-check-act' cycle. The BP Operations Phase ESMS will be developed prior to commencement of SD2 operations and transition plans will be developed to assist with the movement from the construction to the BP Operations Phase ESMS.

Similar to the BP Construction Phase ESMS, the primary functions of the BP Operations Phase ESMS will be to operate SD2 Project facilities in accordance with the ESIA commitments and applicable legal and regulatory standards and BP policy.

Through a management system that mirrors the ISO 14001 EMS, the SD2 Operations Phase EMS will:

- Regularly assess the environmental and social aspects and impacts of its activities;
- Develop objectives and targets to address any significant aspects;
- Appropriately resource and train staff; and
- Monitor and audit the success of its actions in addressing the significant impacts.

This system will be implemented with the aim of ensuring continual improvement in performance. Key components of the BP Operations Phase ESMS, consistent with ISO 14001 requirements, are shown in Table 14.2.

Table 14.2 ISO 14001 EMS Components

ISO 14001 EMS Components	
1. EMS General Requirements	10. EMS Documentation
2. Environmental Policy	11. Document Control
3. Environmental Aspects	12. Operational Control
4. Legal and other requirements	13. Emergency Preparedness and Response
5. Objectives and Targets	14. Monitoring and Measurement
6. Environmental Management Programmes	15. Non-Conformance and Corrective Action
7. Structure and Responsibility	16. Records
8. Training and Awareness	17. Environmental Management System Audit
9. Communication	18. Management Review

The operations commitments included within this ESIA will be implemented through the operations phase environmental of environmental management system. The following existing plans will be updated to incorporate SD2 Project or new plans developed as required:

- Emissions management;
- Waste management; and
- Ecological management and monitoring.

In addition, the existing AGT Region Emergency Response Plan (ERP) will be reviewed and amended to reflect the location of new pipe sections and new SD2 Project facilities.

14.5 MODU Management System

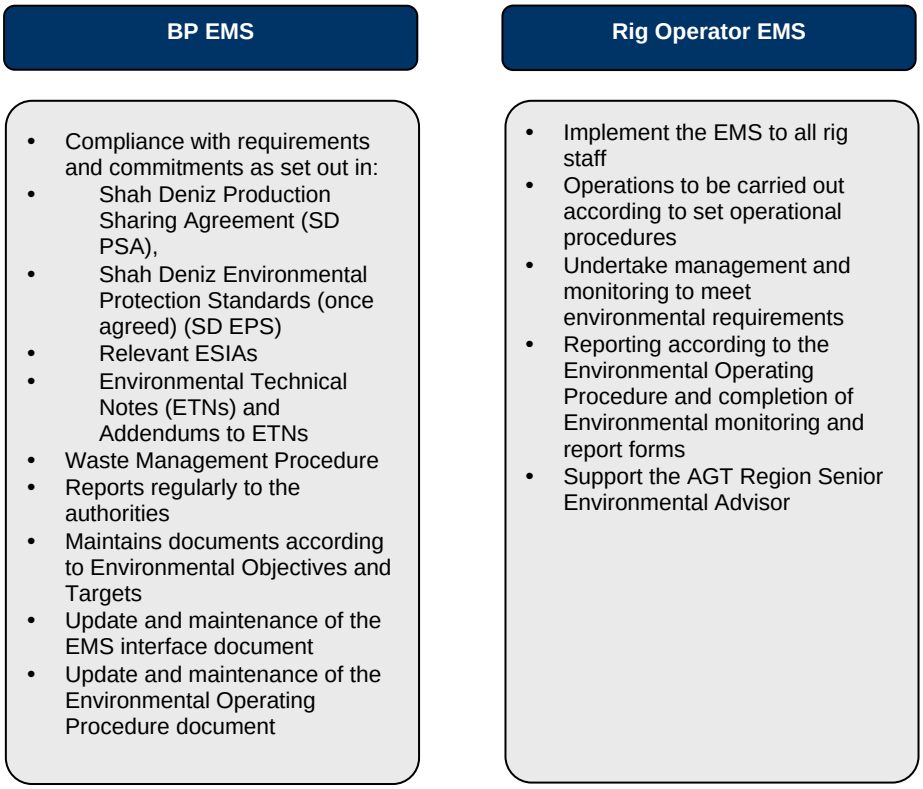
14.5.1 Approach

The MODUs used to drill the SD2 Pre-drilling Project wells will be operated by a rig operator(s) who have their own independent EMS already in place. Alignment of the plans, procedures and reporting requirements of the rig and AGT Region EMS has been achieved through the development of an EMS Interface Document. The document defines clearly how all activities will be managed to ensure a safe and environmentally acceptable working environment; roles and responsibilities are described in Figure 14.3.

The aim of the EMS Interface Document is to ensure that both the AGT Region and the rig operator's EMS do not result in any of the following, which is reflected in the AGT Region Local Operating Management System Policy:

- No accidents;
- No harm to people; and
- No harm to the environment.

Figure 14.3 Roles and Responsibilities Associated with Rig Environmental Management



The EMS Interface Document is a live document and is reviewed annually at a minimum. Both the BP EMS and the Rig Operator EMS monitor the same targets and objectives which are separately audited as part of their internal review process. Communications lines are in place to ensure the effective sharing of the findings and action lists.

14.5.2 Monitoring and Reporting

Monitoring and reporting is undertaken in accordance with AGT Region policy and procedures and is set out within the rig Environmental Operating Procedure which details the method and frequency of reporting for the following categories:

- Deck drainage and wash water, garbage disposal unit effluent and grey water treatment effluent, oily water, fuel usage records;
- Volume of drilling fluids and cuttings discharged and Water Based Muds (WBM) fluid properties;
- Wastes sent to shore;
- Drilling/ workover/cementing/testing chemicals;
- Mud sampling and labelling;
- Rig chemicals reporting;
- Seabed Remotely Operated Underwater Vehicle (ROV) monitoring;
- Environmental accidents, incidents, oil, base fluid and chemical spill reporting; and
- End of well environmental report.

14.5.3 Audit and Review

Auditing and checking is a key element of the rig EMS. Both the AGT Region and the rig operator have systems in place to audit their respective EMS. Individuals from each company are tasked with the responsibility of sharing the audit findings. Where necessary, additional audits and reviews may be undertaken to address identified areas of concern. Joint audits are undertaken to ensure that procedures are being followed appropriately. Both the AGT Region and the rig operator have systems in place to control communication, tracking and follow up of audit and review recommendations.

14.6 Environmental Monitoring Programme

BP's AGT Region has implemented an Environmental Monitoring Programme (EMP) designed to provide a consistent, long-term set of data, with the objective of ensuring an accurate picture of potential impacts on the surrounding environment, so that they can be managed and mitigated as effectively as possible.

The EMP follows a 10 year schedule and detailed monitoring plans are prepared for the next 3 years, with outline planning for the following 7 years. This approach allows a progressive and systematic modification of the programme to take into account the results and conclusions of the programme to date.

Offshore marine monitoring can be separated into the following categories:

- Baseline surveys – to provide a general understanding of the physical, chemical and ecological parameters at a particular location before development commences. Any unusual or sensitive ecological features, which might affect the design of a development, can also be identified;
- Post-drill surveys – completed following drilling operations in order to assess the impact of drilling discharges on the surrounding environment;
- Routine environmental monitoring surveys – to provide an assessment of the impact of AGT Region operations, aiding responsible environmental management; and
- Regional surveys – completed to permit the identification and type of environmental changes and trends that occurs over time. Sampling is undertaken at locations remote from AGT Region activities, providing information on changes in the terrestrial and marine environment that have resulted from natural processes, or other third party activities. This helps to distinguish potential impacts resulting from AGT Region activities from natural background environmental changes and other anthropogenic sources.

Offshore marine monitoring has been conducted as part of the SD Contract Area development, with the primary focus being the benthic environment as sediments and their associated biological communities are widely considered to be the source of the most reliable indicators of ecological status and impact. Periodic water quality sampling is also undertaken.

In terms of onshore terrestrial operations, effort has focused on environmental monitoring in the vicinity of the ST in the form of terrestrial ecosystem monitoring, bird surveys, ambient air quality monitoring, and groundwater and surface water quality monitoring. In addition, nearshore fish monitoring and biomonitoring has been conducted within Sangachal Bay and future surveys will be conducted in accordance with the 10 year schedule.

The environmental monitoring programme will be expanded for the SD2 Project, to integrate operational monitoring of key discharges carried out by the AGT Region. This will allow a more complete understanding of the potential impacts of AGT Region operations. The aim of regular monitoring is to establish an understanding of trends over time, taking into account results of concurrent regional surveys and initial baseline data. Combined with operational discharge monitoring, this approach provides a robust basis for assessing the impact of SD2 Project operations, and for comparing the observed impact with that predicted in the ESIA.
Specifically with reference to the SD2 Project's offshore operations, the EMP will:

- Undertake post-drilling seabed survey at each cluster on completion of the cluster drilling programme;
- Undertake a post-installation seabed survey at the SDB platform location; and
- Develop an offshore operational monitoring programme in consultation with the Environmental Sub-Committee.

The surveys will follow the standardised EMP design to maximise the usefulness of comparisons over time and between locations. Baseline surveys have already been completed at the platform and cluster locations. Surveys associated with the pipeline nearshore trenching will also be completed. Fish population surveys will be undertaken one year prior to trenching activities, during trenching and once trenching has been completed. Pre and post trenching seabed surveys will be undertaken. Post trenching seabed surveys will be undertaken one and three years after completion of trenching activities. The surveys will include drop down video work to confirm seabed distribution.

14.7 Waste Management

Waste generated during the SD2 Project will be managed in accordance with the existing BP AGT Region management plans and procedures. All wastes generated as part of the SD2 Project will be identified and managed in accordance with the following requirements:

- Site specific Waste Management Plans will be prepared by BP and the main construction and installation contractors for the jacket, topside, subsea facilities and terminal construction;
- Workforce awareness and training;
- AGT Region Approved Waste Contractors List;
- AGT Region Waste Streams Register; and
- AGT Region Waste Management Strategy and Manual.

In accordance with internationally recognised best practice, the waste hierarchy, coupled with the AGT Region Best Practicable Environmental Option (BPEO) assessment of available waste disposal / treatment technologies that has been completed and will be adopted as the basis for guiding waste management decisions. This approach is intended to ensure that wastes are managed in the most sustainable way and in compliance with all applicable AGT Region standards and national legislation whilst ensuring they are recovered, recycled or disposed of efficiently without endangering human health and minimising environmental and social impacts.

14.7.1 Waste Management Processes and Procedures

Waste Management and Minimisation Plans will be developed and maintained to cover the duration of the SD2 Project's activities to match the anticipated waste streams, likely quantities and any special handling requirements.

A schedule of internal audits will be developed to objectively monitor the performance of the waste management systems during the SD2 Project's activities and to ensure that all corrective actions and improvements are identified and implemented.

To support the Waste Management and Minimisation Plan, the main construction and installation contractors will receive waste management training covering:

- Identification of waste types and potential associated hazards;
- Waste segregation; and
- Waste transfer documentation (if involved in waste movement).

All new waste disposal routes are routinely assessed prior to use and must be compliant with applicable local laws and regulations. Waste will only be routed to those waste disposal facilities that have been approved for use by the AGT Region.

14.7.2 Waste Segregation and Transfer

Waste streams will be segregated at source to permit reuse/recycling and to avoid contact between incompatible materials. The segregation requirements will be clearly indicated by the use of containers with clear signage denoting the waste types that are suitable for the containers provided.

All waste transfers will be accompanied by individual Waste Transfer Notes (WTNs), confirming the waste type, quantity, waste generator, consignee, consignor (if different from the generator) and, in the case of hazardous wastes, both Waste Passports and, where required, Material Safety Data Sheet (MSDS) documentation. A final visual inspection of all waste consignments will be made prior to transfer note sign-off and uplift. Coloured copies of the waste transfer documentation together with other relevant information e.g. MSDS, Waste Passports, will be retained by the waste generator. All parties involved in transporting wastes will retain a copy of the waste transfer note.

Depending upon the nature of the waste and the approved method of recycling/disposal, wastes may be routed via the Central Waste Accumulation Area (CWAA), waste transfer station or similar facility, or alternatively may be routed directly to their final approved destination.