ACG Phase 1 ESIA

Executive Summary Annex

May 2003

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1 INTRODUCTION

This document is an Annex to the Executive Summary of the Azeri, Chirag and Gunasli (ACG) Full Field Development (FFD) Environmental and Social Impact Assessment (ESIA) disclosed in early 2002 and approved in April 2002. It summarises the project's progress since ESIA in-country disclosure and government approval and outlines the environmental and social work that has been conducted for the project since in-country disclosure and government approval.

For a project of this nature in Azerbaijan, an Environmental and Social Impact Assessment (ESIA) must be carried out and submitted to the main regulating environmental body in Azerbaijan, the Ministry of Ecology and Natural Resources (MENR), for approval prior to starting construction. National requirements for the environmental impact assessment process are outlined in the Handbook for the Environmental Impact Assessment Process in Azerbaijan 1996.

The Phase 1 ESIA approval process included:

1. Scoping meetings with the MENR to outline and agree the scope and schedule of the ESIA as well as the proposed survey programme to be conducted in order to gather data in support of the impact assessment process.

2. Submission of the ESIA draft document for a 60 day review period. The State Expertise Department (SED) of MENR establishes an Expert Review Panel consisting of independent experts from different national organisations to review the document and provide consolidated comments to AIOC.

3. Draft ESIA disclosure during this 60 day review period consisting of a number of workshops and public meetings held with the Azerbaijan scientific and NGO communities, the AIOC Research and Monitoring Group, local communities close to the area of principal activities and the general public. MENR representatives also attended these meetings to listen to stakeholder concerns. These consultations were a follow on from the consultations carried out at the scoping stage of the ESIA process.

4. Final ESIA document preparation following comments received from the MENR and stakeholders over a period of 30 days.

5. Submission of the final ESIA document to the MENR approval. Approval was granted in April 2002.

2 PROJECT PROGRESS

The Phase 1 project activities remain on schedule, with respect to all facilities, at the target completion rates of 60% actual versus 60% planned. In addition, successful completion of all offshore template drilling wells at the Central Azeri field has taken place 130 days ahead of schedule.

There are ongoing activities in preparation for the Phase 1 Gas Compression and Water Injection Platform (C&WP) topsides construction and fabrication programme with the Amec-Tekfen-Azfen (ATA) Yard at the Bibyabet Oil Field, some 8km south of Baku, being selected for these activities. Upgrade works at the yard are underway in preparation for the C&WP topsides construction and fabrication programme scheduled to commence in the third or fourth quarter of 2003.

The SPS Yard, location of the Production, Drilling and Quarters (PDQ) Platform and PDQ and C&WP jackets and piles construction programme, is being further prepared for additional construction activities in the third quarter of 2003, namely the assembly of the living quarters and drilling module upon arrival in-country of the pre-fabricated components.

Upgrade of the pipelay barge in preparation for marine pipeline installation is almost complete.

Activities at the terminal expansion are also on schedule target. The civil engineering works and pipe rack installation are almost complete, the crude oil heaters are in place as is the the construction camp which is now working and storage tank construction has begun.

The project is exceeding targets for jobs for Azerbaijani nationals. At present, the total now exceeds 5,000 jobs.

A significant achievement is the excellent safety performance that has been achieved by the project; for example over 10 million kilometres have been driven in relation to project activities without a single accident.

3 SUPPLEMENTARY LENDERS INFORMATION PACKAGE

A Supplementary Lenders Information Package (SLIP) document has been prepared for the project. The document was prepared in response to specific questions raised by the lending institutions on the original Phase 1 ESIA with the purpose of providing further details on environmental and social issues related to the project and includes further information on:

- Produced water disposal options.
- Cuttings disposal options.
- Hydrotest water disposal options.
- The options under consideration by the project for the installation of the Phase 1 marine pipelines in Sangachal Bay and the plans for minimising environmental impacts in the nearshore zone, including installation schedule, landfall options, barge anchoring, trenching and beach-pull.
- The analysis of alternative concepts for the Phase 1 project including greater detail on the Best Practicable Environmental Option Studies carried out for the project during the Appraise stage.
- The ecological survey programme for the project that covers continuing and planned marine and coastal studies, met-ocean data collection and terrestrial surveys.
- Environmental management for the project including offshore activity environmental management, the waste management strategy and the project flaring policy.
- Social studies, social investment and consultation.

An update on the ESIA conditions of approval is provided.

The SLIP also included the results of revised modelling studies covering:

- Noise modelling around the Sangachal terminal including existing noise levels and community noise predictions during operations, which were shown to be below applicable noise criteria. In an emergency shutdown-flaring scenario however, community noise levels at residential receptors were predicted to exceed World Bank Group noise limits if it were to occur at night. Flaring during a shutdown due to an emergency would only last for 15 minutes and the maximum noise levels would only occur over the first three to four minutes of this period.
- Onshore atmospheric modelling for current operations at the terminal and the proposed future operation of the Phase 1, Phase 2 and Shah Deniz Gas Export Stage 1 operations combined and predicted that between 2002 and 2010 (the years between which different project start-up scenarios for the project may result in periods of flaring at the terminal due to commissioning activities) cumulative levels would be at no more than 43% of World Bank Group air quality standards. It should be noted that the ACG Phase 3 project was not included in this model as the project definition was not adequate at the time it was completed.
- Offshore atmospheric modelling covering air quality impacts of the Phase 1 platforms on air quality at sensitive receptors onshore and predicted no breach of World Bank limits even when combined with onshore emissions.

The SLIP document will be disclosed as part of the international financing institutions' requirements via the World Bank InfoShop, EBRD Business Information Centre and regional offices and locally.

4 ENVIRONMENTAL AND SOCIAL ACTION PLAN

An Environmental and Social Action Plan (ESAP) has been developed for the Phase 1 project. The ESAP has been prepared in accordance with the environmental and social review procedure set out in the International Finance Corporation (IFC) Operational Policy 4.01 Environmental Assessment, October 1998 and includes amongst other things, a description of the projects environmental and social mitigation, management and monitoring programme.

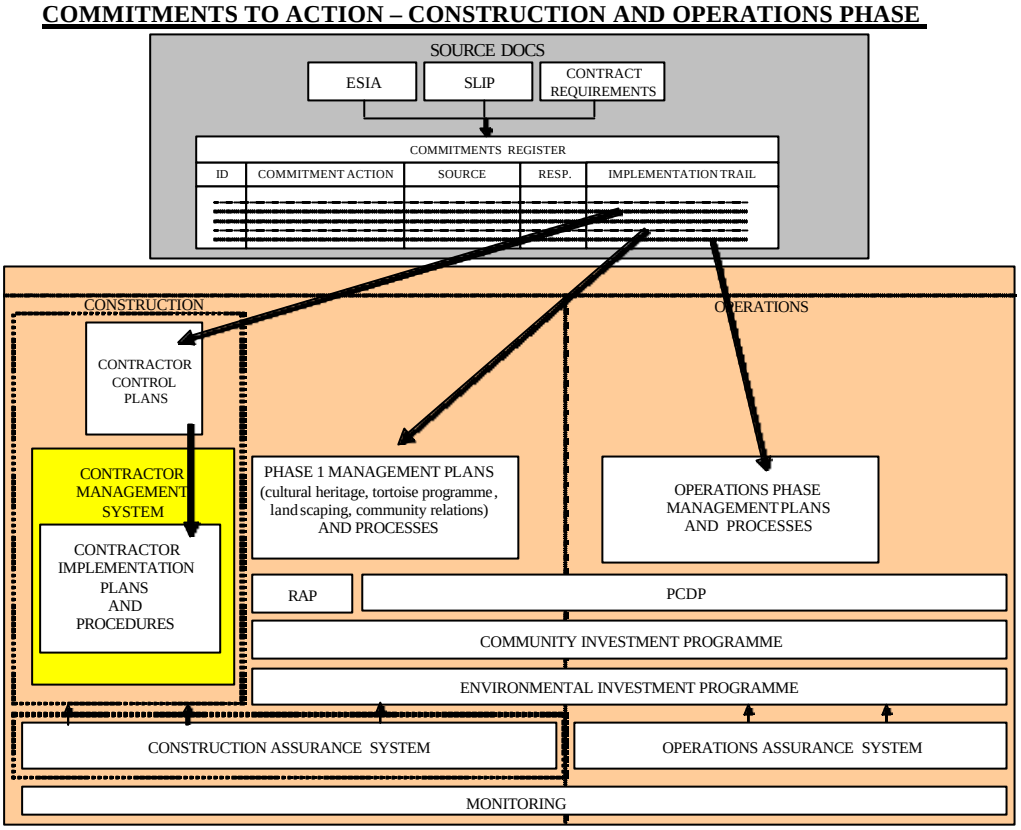
Central to the ESAP is the project Environmental and Social Management System (ESMS). The overall objective of the ESMS is to ensure that the project is constructed and operated in a manner that complies with applicable legal, regulatory and social requirements in all material respects and ensures that the environmental and social commitments outlined in the ESIA and other Source Documents are implemented.

The ESMS structure has been developed to account for both the construction and operations phases of the project. However, there are a number of differences between the construction phase and the operations phase, in particular, changes related to the AIOC's management and organisational structure. An operations ESMS will be developed prior to operations.

The ESAP contains a framework of the construction ESMS which covers the project structure and responsibility including the multilevel structure of the Phase 1 construction phase and key personnel responsibilities with respect to environmental and social management, in addition to training, awareness and competence requirements, management and notification of change procedures, required internal and external communications, reporting and document control.

Implementation of the mitigation measures that will be managed by the project are primarily translated through to the ESMS by means of AIOC management plans and Contractor Control Plans. These plans contain either instructions on how the environmental and social commitments made in the ESIA and other Source Documents will be implemented by AIOC or a description of the mechanisms that will allow AIOC to ensure that the contractors fulfil their contractual commitments and, in turn, implement the mitigation actions for which they are responsible. The latter set of management plans are termed "Contractor Control Plans". The contractor, in turn, will implement its obligations through Contractor Implementation Plans and Procedures. This process is described below in Figure 1.

Figure 1 Contractor Control Plans – Commitments to Action

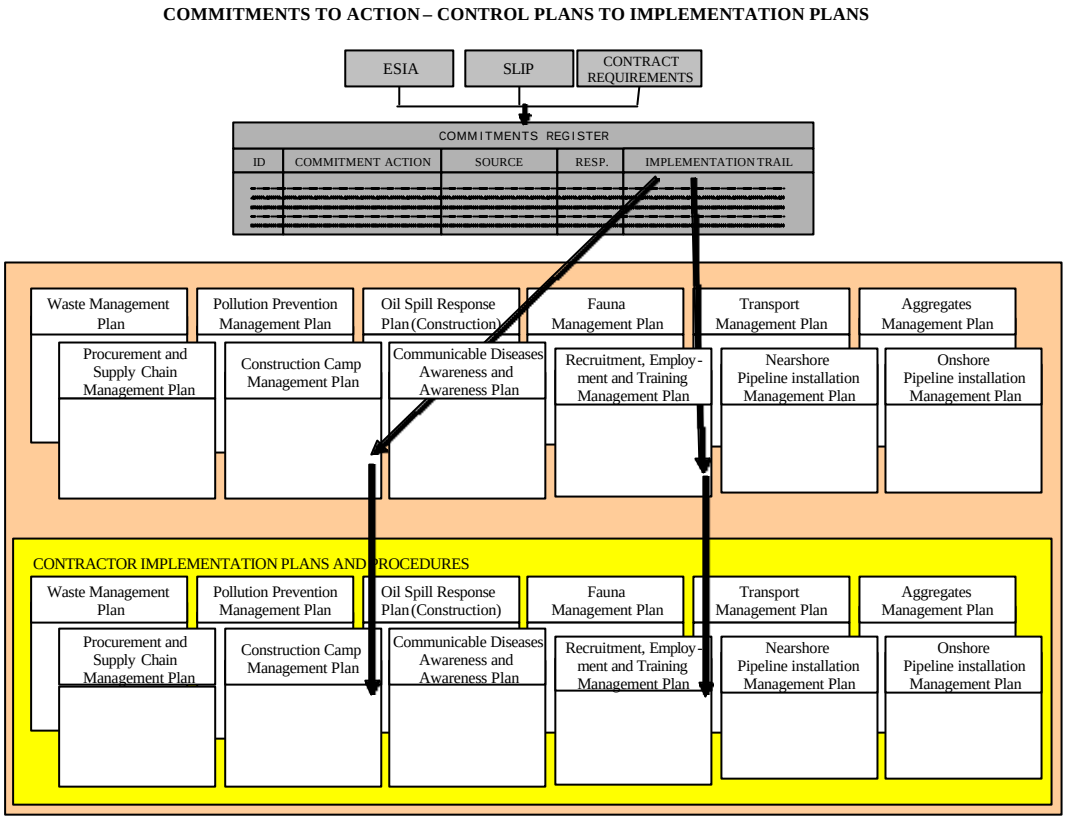


The Contractor Control Plans contain minimum procedural requirements that each contractor must follow and implement at their work sites and act as the primary link between the environmental and social commitments for the project and the contractor. The Contractor Control Plans represent a performance-based approach to mitigation insofar as they describe performance targets to be met by the contractor when implementing mitigation measures and outline procedures that the AIOC intends to adopt to ensure that these targets are met or exceeded. The Contractor Control Plans include:

- Pollution Prevention Management,
- Waste Management,
- Spill Response (construction),
- Fauna Management,
- Aggregates Management,
- Transport Management,
- Recruitment, Employment and Training,
- Procurement and Supply Chain Management,
- Construction Camp Management,
- Communicable Diseases Awareness and Prevention,
- Marine Construction;
- Onshore Pipeline Installation Environmental and Social Management, and
- Near Shore Pipeline Installation Environmental and Social Management.

Each contractor will develop procedures for implementation of the minimum procedural requirements documented in the Contractor Control Plans and document them in Contractor Implementation Plans and Procedures. The linkage from the Contractor Control Plans to the Contractor Implementation Plans and Procedures is outlined in Figure 2.

Figure 2 Contractor Control Plans to Contractor Implementation Plans and Procedures



AIOC management plans contain certain mitigation measures that are the responsibility of the AIOC. These plans include the following:

- The Community Liaison Plan,
- The Cultural Heritage Management Plan,
- The Landscape Management Plan, and
- The Tortoise Protection and Augmentation Plan.

A monitoring programme has been developed to ensure that the Contractor Control Plans and Contractor Implementation Plans and Procedures that have been developed as part of the ESMS for each site are adhered to, which serves to ensure that the contractors are in compliance with their approved Contractor Implementation Plans and Procedures. In addition the monitoring programme aims to ensure that the measures included in the project environmental and social management plans are adhered to.

As well as environmental, ecological and social monitoring of the construction activities at each of the sites monitoring also includes auditing by both AIOC and the contractors. Audit schedules are set to ensure environmental integrity can be verified through compliance with regulations, standards, policies and the procedures set out in the project Contractor Control Plans and site-specific Contractor Implementation Plans and Procedures. The auditing results of the auditing will be used to indicate areas of non-compliance and to allow for corrective measures to be implemented.

The ESAP will be disclosed as part of the international financing institutions' disclosure processes via the World Bank InfoShop, EBRD Business Information Centre and regional offices and locally.

5 RESETTLEMENT ACTION PLAN

A Resettlement Action Plan (RAP) has been prepared by the project which describes the framework and procedures that are being followed to address land acquisition and resettlement required for the ACG Phase 1 project as well as the upstream works of Stage 1 of the Shah Deniz Gas Export Project. The RAP has been disclosed locally since March 2003.

A number of groups that may potentially or will, experience physical or economic displacement as a result of the Sangachal Terminal extension and related offshore works have been identified as follows:

- A roadside café and garage enterprise.
- Ministry of Environment and Natural Resources (MENR)'s fish breeding operation at Sangachal (formerly part of the Azerbalyk State Fisheries Concern).
- An extended family of graziers (the Akhmedov cattle breeding group) who have used land near the Sangachal Terminal for winter grazing on an informal basis for an extended period.
- Commercial fishermen.
- A small of number of fisherman who illegally use a fish trap and gill nets within near-shore areas within the sub-sea pipeline construction corridor.

5.1 Land Acquisition and Resettlement Procedures

Land acquisition for the project are conducted following the procedures defined in Cabinet of Minister's Resolution No. 42 *On Some Normative and Legal Acts Relating to the Land Code of the Azerbaijan Republic*. The State Oil Company of the Azerbaijan Republic (SOCAR, as representative of the State), with assistance from BP (as operator for the Project Sponsors), prepares the applications and obtains all necessary supporting approvals from government agencies. Final approval for each of the applications is formalised through a Cabinet of Ministers' Decree.

Impacts related to land acquisition are dealt with by the local Executive Authority (Baku City), which establishes a "Valuation Commission" to conduct hearings with all interested parties in order to determine an appropriate compensation package. The Valuation Commission takes into account the preferences of affected landowners and users and is empowered to award replacement land and premises. These projects are the first time that a Valuation Commission has been used to assess private land.

In the event an affected landowner disagrees with the assessment of the Valuation Commission, the first recourse is to the opinion of an independent specialist valuer. If agreement still cannot be reached, the owner may take the dispute to the Minister of Lands or City or District Court for resolution. The complainant has appeals rights.

Where project impacts do not involve formal acquisition of land, SOCAR and BP have negotiated compensation directly with the project affected parties based on full replacement cost or full costs incurred by a party in relocating assets.

5.2 Café-Garage Enterprise Impacts and Mitigation Measures

The land and buildings of a café-garage are situated directly over the proposed Shah Deniz Stage 1 gas and condensate pipelines and also falls within the protection zone of the ACG Phase 1 gas pipeline. It will be necessary to relocate the café-garage in order to construct the pipeline and to meet safety requirements during operations. A range of alternative alignments

were explored in an attempt to avoid relocation, however none of these were feasible due to constraints on locations where the pipelines can be brought onshore.

The café-garage is owned by the Aygun Small Enterprise. The enterprise has registerable land ownership documents, but the two buildings on the site have been constructed without design or building approval. The enterprise has ten full and part time employees. Baku City Executive Authority has established a Valuation Commission to make a recommendation on compensation for the land and buildings.

Based on the recommendations of the Valuation Commission, which will take into account the preferences of the enterprise owner, BP (on behalf of the Project Sponsors) will negotiate the final compensation package for the enterprise. Dependent on the outcome of the Valuation Commission hearing, compensation for the enterprise may include (i) equivalent replacement land, or cash payment based on market value; (ii) replacement buildings built by the project on the replacement land, or cash payment based on their full replacement cost; (iii) a relocation allowance; (iv) cash compensation for any enterprise downtime; and, (v) monitoring to check that there are no adverse impacts following relocation. In the event the enterprise owner opts for cash compensation in lieu of replacement land and premises, provision has been made for employees to receive alternative employment with the project for a provisional period of not less than 6 months.

5.3 MENR Fish Breeding Facility (formerly the Azerbalyk State Fisheries Concern) at Sangachal: Impacts and Mitigation Measures

Survey for the ACG sub-sea pipeline construction corridor revealed that fish acclimatisation pens operated by the MENR near Sahil extended out into the proposed construction area. The fish pens are used for three to six months per year starting in November, to acclimatise Caspian Salmon fry prior to their release into the Caspian Sea. Caspian Salmon is an endangered species and this program forms part of an MENR conservation effort.

SOCAR (as representative of the State) and BP (as operator for the Project Sponsors) negotiated a lump sum cash compensation amount to cover the cost of lifting and reinstalling the fish acclimatisation pens. The lump sum fee included a consideration for disruption to the Sangachal facilities operation. There was no loss of income or employment experienced by MENR workers as a result of the relocation. The acclimatisation pens were lifted and relocated late in September 2001.

5.4 Akhmedov Cattle Breeding Group: Impacts and Mitigation Measures

Land acquisition for the Sangachal Terminal extension and associated 'no development' zone will alienate some of an area that has been used for winter grazing by the Akhmedov family, a group of pastoralists. The Akhmedovs, an extended family of thirty people, are a production group of the Gobu State Cattle Breeding Enterprise based in Gobu Village, Absheron District. They have been using the Sangachal land for winter pasture since about 1961.

In the past, the Akhmedov family's use of the Sangachal land had for periods been sanctioned through short term grazing leases (12–18 months) but these have all lapsed. The Gobu State Cattle Breeding Enterprise and Akhmedov family currently have no formal rights for use of the land at Sangachal.

Working with the Akhmedovs, the Gobu State Cattle Breeding Enterprise, Absheron District and Garadagh District, the project will assist the Akhmedovs to make use of alternative, equivalent winter pasture at Gobustan, 25 kilometres to the south of the Sangachal land. The Akhmedov family selected the land after consideration of three other potential grazing areas.

The Gobu State Cattle Breeding Enterprise has formal use rights to this replacement land, so unlike on their previous land, the Akhmedov family will have security of tenure.

Although the schedule for relocation was autumn 2002, the Akhmedovs requested that it be delayed a full season as the condition at the new site (i.e. the quality of the grass) had been degraded by another Gobu-associated group of herders. This group was only temporarily using the area unofficially and due to move back to its own pastures.

AIOC/BP is currently in the tendering stage for the construction of the structures to be located at the new pastures in Gobustan. Construction will begin following selection of the contractor, with a schedule to have the structures ready by the time the Akhmedovs return from their summer grazing grounds in September 2003. Full assistance for the move will be provided by AIOC/BP.

5.5 Commercial Fishing: Impacts and Mitigation Measures

An assessment was undertaken of the potential for the project to cause impacts on the assets and livelihoods of commercial fishing interests operating in the vicinity of the ACG and Shah Deniz sub-sea pipelines. Principal commercial fishing grounds in the broad vicinity of the ACG and Shah Deniz sub-sea pipelines were identified.

Licensed fishing vessels from Russia, Kazakhstan, and Turkmenistan, as well as Azerbaijan, undertake sprat fishing at these locations. The areas that can be fished are controlled by licenses. The MENR Fisheries Licensing Department and Caspian Fish Company indicated that the Early Oil Project pipeline exclusion area is clearly demarcated on maritime charts and that fishermen working in those areas are thoroughly familiar with its location.

Principal impacts of the sub-sea pipelines may result from pipeline installation. While being laid within the existing Early Oil Pipeline sub-sea pipeline corridor, the ACG pipeline will be pass through the Makarov Banks and Oil Rocks fishing grounds. During pipe-lay, the area of activities will be clearly marked with exclusion buoys laid to form a box about 2,000 metres by 1,500 metres around the lay barge to keep vessels clear of positioning anchors and warps. The lay barge will move forward at a rate of up to 3 kilometres per day, so impacts on navigation and fishing activities at any given location will be localised and short in duration. The conclusion from discussions with fishing stakeholders was that that pipe-laying operations will have little or no impact on commercial fleet navigation and fishing activities.

Principal mitigation measures to minimise construction impacts on commercial fishing operations will include (i) liaison with the MENR Fisheries Licensing Department regarding marine advisories to warn all vessels of changed navigation conditions during the pipeline laying; (ii) deployment of warning buoys consistent with international maritime convention to demarcate the pipeline laying area; and, (iii) close liaison with the major commercial fishing operators to be sure that installation of the pipelines over the Makarov Banks and Oil Rocks areas is timed to avoid peak sprat fishing periods at these grounds.

Exclusion zones are imposed by the Ministry of Navy around sub-sea pipelines and offshore platforms. The ACG Phase 1 pipelines will be laid within the 500-metre wide exclusion zone of the Early Oil Project sub-sea pipeline so will not result in the creation of any additional restricted area. With the exception of 500 metre wide “no go” areas around the offshore platforms which lie outside of recognised fishing areas, the sub-sea pipeline exclusion zone will pose minimum constraints to commercial fishing vessels. Vessels cannot anchor within the zones but may sail through them. Generally, they are permitted to carry out fishing activities other than trawling or other bottom based techniques.

5.6 Informal Fishermen: Impacts and Mitigation Measures

While offshore fishing in the Caspian Sea is prohibited for local people and subject to heavy penalties, informal fishing forms an important source of income for many households in the coastal towns in the vicinity of the projects. In vicinity of the Sangachal Terminal, these include the towns and villages of Sahil, Umid, and Sangachal. The majority of informal fishing occurs within the 2-3 kilometres of the shoreline with the most common form being the use of hook and line from small outboard engine powered boats. This type of fishing will not generally be affected by pipeline laying or pipeline operations. Other informal fishing is conducted using moveable gill nets that are deployed from small boats and fixed fish traps that extend from the shore.

The majority of fish traps and nets were removed from the pipeline corridor during construction of the Early Oil Pipeline in 1996-7. Only one fixed fish trap was found within the proposed construction corridor for ACG Phase 1 but following advice about the extent of the construction corridor, the net was relocated by its owners in September 2001.

The Project Sponsors and their government partner cannot condone or support fishing activities that are deemed illegal and are prohibited. Direct compensation to informal fishermen cannot therefore be supported by the project but indirect measures will be implemented to mitigate impacts. Mitigation measures for informal fishermen have and will involve (i) widely publicising the need for informal fishermen to remove their nets from the construction corridor to avoid the risk of losing them during pipeline construction; (ii) creating opportunities for local workers to be employed in the Sangachal Terminal construction and operations; and (iii) supporting a program of social investment in local coastal communities that creates economic opportunities for local people to help reduce their reliance on informal or illegal fishing.

Project Sponsors of ACG Phase 1 have committed to spending USD 2.0 million on local community and social investments based on community priorities.

5.7 Monitoring and Evaluation

The project has established a two-tier framework for monitoring implementation of the RAP and the effectiveness of measures for restoring project affected people's living standards and income levels. The two tiers are (i) internal monitoring to be undertaken by the Sangachal Terminal Community Liaison Officer; and, (ii) external monitoring to be undertaken by an expert RAP Monitoring Panel.

Internal monitoring will focus on measuring performance against the activities and schedules defined in the RAP. External monitoring will assess the effectiveness of standard of living and income restoration measures as well as verifying compliance with World Bank involuntary resettlement standards.

Monitoring will commence in January 2003 and will continue for 24 months after the last physical relocation has been completed, or until such time as the Expert Monitoring Panel is satisfied that affected peoples' livelihoods have been fully restored, whichever occurs soonest. Quarterly internal monitoring reports and six monthly external monitoring reports will be produced.

A resettlement completion audit to be conducted by the Expert RAP Monitoring Panel will take place not later than mid 2005. This will confirm the extent to which Project Sponsors have delivered commitments defined in the RAP. A satisfactory completion audit will signify the end of the Project Sponsors' obligations arising from the resettlement process.

6 CONSULTATION AND DISCLOSURE

Public and stakeholder consultation for the ACG Phase 1 projects has been thorough. This has been documented in the disclosed Public Consultation and Disclosure Plan (PCDP) for the project. An Annex to the PCDP, which provides an update on project consultation undertaken since January 2002 has been prepared and will be disclosed in the ESIA package that will be disclosed as part of the international lending institutions' disclosure via the World Bank InfoShop and locally.

The ACG Phase 1 PCDP Annex includes information on consultation undertaken with government, community groups and affected people (e.g., cattle breeding extended family described above) with respect to recruitment, training and community investment by the project. The primary mechanism through which consultation is undertaken is via Community Liaison Officer (CLO) for the project, appointed in December 2001. The CLO primarily uses project information centres established in Sangachal, Umid and Sahil in February 2002.

To date, more than 16,000 people have visited the information centres and each is registered in the project's databases.

In addition, the Sangachal Terminal Program Director participates in consultations undertaken with government officials such as the Head of the Garadagh Executive Committee.

The terminal expansion location has also received a number of visits to the visitor centre where they receive information on the project ESIA updates and community investment information.

In relation to the RAP, consultation has included (i) numerous meetings and discussions with each of the project affected groups; (ii) meetings with state, district and municipal officers and other stakeholders with responsibilities for various aspects of land acquisition and fisheries management and (iii) public meetings in adjacent communities (i.e. Sahil, Sangachal and Umid).

All consultations have been documented and a summary can be found in the Annex to the PCDP mentioned above.

7 ENVIRONMENTAL AND SOCIAL SURVEYS

Further environmental and social surveys have been conducted as part of the project's monitoring programme with the objectives of providing a greater understanding of the natural and social environment within which the project is working. The monitoring programme will be reviewed annually and modified based on the results of successive surveys as well as by any changes made to the project or project activities.

Since ESIA disclosure ecological surveys conducted have included:

- A seagrass and red algae survey in Sanagachal Bay conducted in 2002. Following on from the seagrass and red algae survey completed in 2001, the objective of this survey was to re-map seagrass (and red algae) habitat distribution within the Bay and in particular, to develop an understanding of seagrass stability and variability.
- Sangachal Bay fish monitoring commenced in August 2002. A one-year programme of monthly surveys designed on the basis of results obtained from the quarterly 2001 survey and focussed primarily on health and fitness measurements of resident fish populations in the Bay.
- Terrestrial surveys to establish the species, number and distribution of mammals and herpetofauna in the vicinity of the Sangacal terminal area conducted in 2002 to add to the dataset obtained in 2001.
- Overwintering bird surveys conducted in 2002 and repeated in 2003 to establish the species, number and distribution of wintering waterfowl along the central Caspian Sea coastline of Azerbaijan and determine prime feeding ground and roosting locations and observe and interpret any patterns of diurnal movement.
- Wetlands study conducted in vicinity of the terminal in 2002 to determine baseline physical, chemical and biological conditions for the purpose of future monitoring of changes due to terminal construction activities and operations.

Surveys of the physical environment have included:

- Coastal sensitivity mapping to extend the sensitivity mapping of the Southern Azerbaijan coastline (completed during 1999-2000) to the remainder of the Azerbaijan coastline. Beginning in 2002, the mapping includes biotope mapping, shoreline habitat characterization and coastline classification to assist oil spill contingency planning.
- Sangachal Bay beach-profiling study. Beginning in 2002 and over a twelve month period, the primary objective of the study is to survey the topography of the Bay beach face in order to identify the nature of natural variations (i.e. sediment erosion and deposition) that occur over the four seasons and establish whether the marine pipelines and civil enabling facilities for the installation of the pipelines (finger piers) will have any adverse effect on the coastline by altering the sediment transport regime in the nearshore zone. Eleven transects have been established, at a spacing of approximately 200 m between each, from the headland adjacent to the pipelines beach pull site and coastline adjacent to Sangachal village. Each transect is surveyed once a month from a benchmark located on the beachhead across the beach face and shoreline.
- Sangachal Bay hydro-meteorological survey beginning in 2002 to collect nearshore current data to assess the potential for sediment scour in the Bay so that an assessment can be made of the potential for the buried subsea pipeline to be exposed. The data may however, also be useful for the further analysis of the beach profiling data insofar as it may enable more conclusive statements to be made about the balance of onshore-offshore and long-shore sediment transport observed to date. Three current meters were deployed in the Bay in water depths of approximately 5m in the second quarter of 2003. The deployment is for twelve months.

- Meteorological data (i.e. temperature, rain, wind, etc) is also being collected from two stations at the Sangachal terminal to monitor natural conditions and to develop a database of information that can be used in the future.

Other baseline conditions monitoring surveys:

- Offshore ambient water quality monitoring. Beginning in 2003, the project has deployed bivalves (mussels) in cages in the vicinity of the operating Chirag-1 platform for *in situ* monitoring of the water quality around the platform. The Chirag-1 platform uses an identical cooling water system to that planned for the Phase 1 offshore facilities which uses a copper/chlorine system for corrosion control, and the focus of the study is to establish copper uptake by these shellfish. Once left in place for a sufficient time to allow equilibrium with ambient water conditions the bivalves will be returned to the laboratory for a range of physical, physiological and biochemical measurements.
- Air quality monitoring at Sangachal terminal. Starting in 2003 six, two week long measurements of particulate matter (PM_{10}) levels at areas surrounding the terminal.
- Air quality monitoring Garadagh Cement Plant. Starting in 2003 six, two week long measurements of particulate matter (PM_{10}), benzene, toluene, ethylbenzene, xylene, C_5-C_{10} hydrocarbons, NO_x and SO_x levels. At locations surrounding the cement plant.
- Sangachal terminal water surveys including chemical and microbiological assessment of Sangachal river waters.
- Phase I and Phase II baseline environmental investigation of the ATA yard carried out in 2003 to establish baseline characteristics of shallow soil and groundwater conditions including soil gas conditions.

Social surveys

- Socio-economic survey of the Akhmedov Cattle Breeding Group to inform the RAP.
- Study of fishing interests with commercial fisheries and informal fishermen. A detailed consultation with a number institutions, including fishing groups and authorities as well as individuals to conduct an assessment of the potential for the project to cause impacts on the assets and livelihoods of these fishing groups and to assist with any required resettlement planning.
- A baseline infrastructure and needs assessments conducted in 2002 to determine essential social infrastructure that would directly improve the livelihoods of the population in the Umid and Sangachal communities. The baseline comprised collecting information on community problems using community development committees under the supervision of community workers. Information collected included living conditions (residence and utilities etc), sewage connections, and health status (% infectious diseases, medical services used, education etc). Results of this survey will form the baseline for measuring progress and success in the Community Investment Programme.
- A baseline sewage infrastructure assessment of the communities surrounding the terminal, the highest priority issued raised by community members.
- Health education and health professional training assessment in the Garadagh region starting in 2003. The objectives of this survey are to identify the status of health education in schools and recommend models for education within the schools. In addition, the survey will focus on collecting data on the conditions of health facilities, professional capabilities and additional health statistics in order to identify future intervention activities.
- Social baseline study in the vicinity of the ATA yard at the Bibyabat Oil Field approximately 8 km south of Baku.

8 ENVIRONMENTAL OFFSET PROGRAMME UPDATE

Mitigation measures developed for the Phase 1 Project include two environmental offset programmes:

- Spur-thighed Tortoise, *Testudo graeca,* protection and augmentation; and
- Semi-desert Pilot Area Conservation Management.

These conservation and biodiversity actions fall under the umbrella of regional planning and as such the implementation and management of these offset programmes will be the responsibility of the BP Azerbaijan Business Unit.

8.1 Spur-thighed Tortoise Protection and Augmentation Programme

This programme includes a tortoise captive breeding programme as a temporary measure to protect rare and endangered species. The aim is to return animals to their natural habitat. It is BP/AIOC's hope that the tortoise management programme will not only show long-term success, but also increase conservation awareness in the Sangachal and Baku communities as well as provide research and practical experience to interested Azerbaijani scientists and students. The programme has been developed in coordination with the Institute of Zoology and Azerbaijan Society for the Protection of Animals (ASPA).

The main tortoise livestock were collected between 25th April to 10th of May, 2002 during the early civil engineering works programme conducted for the Phase 1 terminal expansion. The animals were rescued from the area. In total 32 adults were rescued, with 15 of them being females. Tortoises were collected in the areas of Sangachal, Mardakan, Shuvelan and Kurdakhani, with 13 adults and 2 juveniles found during project activities. Each tortoise has been assigned its own identification number, marked and placed into the enclosure.

Particularly active coupling was observed until the end of May 2002. Egg-laying began in mid June and continued through the end of September. A total of 64 eggs have been laid since project commencement. To date, 31 have hatched with the next hatching period anticipated in July 2003.

A zoologist, specialising in tortoises, implements the Tortoise Augmentation Programme. The zoologist is assisted by two local women from the nearby UMID settlement who have been employed to work in the enclosure and care for the tortoises.

8.2 Semi-desert Pilot Area Conservation Management

The semi-desert pilot area conservation management programme is a mitigation programme to compensate for the habitat lost due to terminal expansion. Using this approach the developer restores, creates or preserves habitat in exchange for the habitat that was degraded or lost by the development.

This offset programme forms part of the BTC Co Environmental Investment Programme in Azerbaijan and a Request for Proposal for the activities within this programme was widely circulated in February 2003.

Proposals have been sought for projects with the following components:

- Identification of suitable areas for implementation of a pilot project;
- Development of conservation management and rehabilitation measures for the project;
- Implementation of management measures; and

- Awareness raising for the project.

Funds of around $250,000 will be allocated to this programme.

8.3 Environmental Additionality Programme

The Phase 1 project is also planning to develop an environmental additionality programme. This programme will be focused on marine based activities as, following construction of the Phase 1 facilities, the project as a whole is predominantly focused on marine operations. The programme scope will be developed by competent marine scientific resources with the overall objectives of capacity building and working with national delivery teams. The programme will also investigate the possibility of developing partnerships with other similar marine based environmental programmes. In terms of schedule the aim will be to scope out the programme during the third quarter of 2003 with a view to beginning the work during the fourth quarter and onwards into 2004.

Funds of around $200,000 will be allocated to this programme.

9 COMMUNITY INVESTMENT PROGRAMME UPDATE

BP is committed to providing benefits to Azerbaijan and the project community above and beyond the mitigation measures outlined in the source documents. The Phase 1 project will have a wide range of economic and social benefits for Azerbaijan as a whole. These benefits include revenue creation, local access to employment, employment training and education programmes and opportunities for local procurement and Small and Medium-sized Enterprises development. To underline the commitment to the communities and the population in the areas near the Phase 1 Project, BP has developed a Community Investment Plan ("CIP") which contains the procedures for selecting and developing community investment projects.

The Community Investment Programme is a quite distinct and project specific activity. Community investment under this plan commenced in 2002 and will run through March 2007. The CIP will work across all the project affected communities, but will specifically target construction works in the Garadag Region in Azerbaijan, focusing mainly on the communities of Sangachal, Umid, Sahil, Lokbatan, Alyat, Gobustan and Umbaki, as they surround the main Phase 1 construction and operation activities. As projects are implemented and proven to be sustainable, effective, and efficient, the CIP may be extended to outlying communities.

Initially the Community Investment Programme screened a number of International NGOs to identify qualified and experienced organisations. Those with proven records were then sent an invitation to tender requesting proposals for a limited number of priority themes for community investment. The priority themes were those frequently requested by communities throughout the ESIA process, and initially focussed on potential sewage system upgrade in Umid and Sangachal.

Projects proposals were reviewed by an evaluation team (technical and commercial), comprising internal AIOC resources from various areas including project management, supply chain management and ESIA implementation team.

After reviewing the proposals, clarification meetings were held with the NGOs to seek more detail about the sewage system proposals. World Vision International (WVI) was ultimately selected to undertake a baseline community needs assessment which included a preliminary assessment of sewage system upgrades. The project was to include the review of existing sewage infrastructure in Umid, Sangachal and Sahil Treatment Plant, option evaluation and costs for future implementation.

The baseline needs assessment and option evaluation indicated that community members were willing to contribute to a number of the key intervention activities including income generation, education, health and sewage infrastructure upgrade. WVI was selected to continue with their proposed Community Development Programme, following the submission of a detailed proposal in October 2002. The programme commenced in November 2002.

Following discussions with WVI and government representatives, an option for the upgrade was agreed. To ensure that the project would be successful following completion of the upgrade, the contracting strategy shifted from that being managed by an NGO, to being managed by the ultimate owner – the Baku Mayor's department (Baku Sewage). Currently, contracts are being signed between BP and the Baku Mayor's department.

Subsequent to the community investment activities undertaken in 2002, the mechanism by which Community Investment projects are identified and implemented is through a Human Development Forum (HDF) that has been set-up and outlined in the CIP. The HDF comprises project personnel from both AIOC and the main Sangachal Terminal Expansion Programme (STEP) construction contractor as well as implementing NGOs. Within the HDF, three action

groups work within the key intervention activities identified, namely health, education and income generation.

In addition to the progress on the sewage upgrade infrastructure programme community investment activities that have been undertaken or are underway include the following:

- Health - a malaria vector control (i.e. anti-malaria) campaign is being coordinated in Umid and Sangachal through World Vision in conjunction with Ministry of Health as a result of community and health official concerns around the free-standing water (primarily raw sewage) in these communities. The project will be undertaken over 5 months.
- Income Generation - HDF is currently in the planning stages for an income generation project including working glove fabrication enterprises. The enterprises will be small-scale, run by women in their own homes.
- A number of education activities have already commenced including:
  - a scholarship programme for 20 students;
  - pre-educational training in Physics Chemistry, Math and Biology which will be given over four months to 36 students in preparation for entry to university;
  - renovation and establishment of the Sangachal Public Library;
  - traditional dance lessons for 12 students from Karadagh Region;
  - Umid school, in a state of disrepair, will be refurbished.
- Infrastructure – in addition to the sewage upgrade, the road infrastructure in Umid and Sangachal is being upgraded.

Funds of around $4.5 million will be allocated to the community investment programme to March 2007.

10 ENVIRONMENTAL STUDIES CONDUCTED AND UNDERWAY FOR PHASE 1 COMMISSIONING AND OPERATIONS

Since disclosure of the ACG Phase 1 ESIA a number of additional environmental studies have been undertaken. The drivers to these include commitments made in the ESIA and other Source Documents and, in some instances, the need to better understand the potential environmental implications of project construction and operational activities, particularly with respect to the Sangachal terminal. Most of these studies were initiated and completed in 2002 but some are ongoing in 2003. The following sections provide a summary of the purpose and findings of the various studies.

10.1 Produced Water Feasibility Study

A *Feasibility Study for the Reuse of Produced Water as Irrigation Water*, was completed in October 2002. The primary objective of the study was to identify and assess various wastewater treatment technologies to determine whether or not it would be feasible to treat Phase 1 produced water generated to water quality standards that would make it suitable for reuse as irrigation water. The study also investigated the technical, environmental and social issues associated with using treated wastewater for irrigation. As an adjunct to this main line of investigation, the option of discharging treated produced water to the Caspian Sea and re-injection of the waters onshore were also assessed.

Broadly, the study determined that it would be technically feasible to treat the produced water to water quality levels that would permit its reuse as irrigation water but reducing the salinity of the water would, using a technique such as reverse osmosis, would require large amounts of energy and hence would be costly and result in additional air emissions and highly saline wastes. The simplest alternative to salinity reduction was considered to be to blend the treated produced water with treated sewage water. Although potential blend waters were considered to exist, this technique would however, require transporting the treated produced water to a sewage treatment plant or visa versa and considerable amounts of treated sewage water would be necessary to achieve the required dilution levels. Regardless of the treatment method(s), it was established that transporting the treated water to irrigation sites would also be problematic primarily due to the fact that appropriate infrastructure is not readily available and therefore, a substantial investment would be required to build such infrastructure. In addition given the finite supply of produced water issues of sustainability of any irrigation initiative would require further investigation.

Although, it was clearly identified that a need for additional irrigation water exists in Azerbaijan, in regards to the social acceptability of using treated wastewater for irrigation, the study determined that essentially two schools of thought exist; people in favour of the idea with some prior knowledge of reuse of wastewater for irrigation and those without any knowledge, did not.

Given the obstacles facing the irrigation reuse concept the option has been rejected.

An investigation into discharging the treated produced water to sea was also conducted. The study initially considered discharge some 8 km offshore. Hydrodynamic modelling predicted that the discharge plume would spread and dilute under the influence of local currents but being denser (i.e. more salty) than Caspian Sea water, would first sink to the seafloor relatively close to the point of discharge thus potentially resulting in a localised environmental impact on an area of benthic habitat. Ecotoxilogical work determined that a dilution factor of 3,500 times for the entire produced water stream would be required to dilute it to a Probable No Effect Concentration (PNEC) level. The modelling predicted that the largest area that would have concentrations of produced water above the PNEC level would be in the order of 0.56 km^2.

Alternative produced water disposal options studies are ongoing.

10.2 Hydrotest Water – Discharge to Sea Option Assessment Study

As part of the Produced Water Feasibility Study, hydrodynamic dispersion modelling was also completed for finite discharges of hydrotest water from the Phase 1 marine pipelines. The hydrotest water will consist of seawater treated with a number of chemicals of which the most environmentally significant is a biocide to combat corrosion. The ACG release point considered was the ACG Phase 2 marine pipeline "stub" some 8 km offshore which will be in place prior to installation of the offshore sections of this line.

The most significant finding of the ACG modelling was that given the location of discharge and the nature of the local nearshore currents, the discharge plume would become coastally trapped thus principally spreading in an elongated fashion in a southerly direction and near to the shoreline over a considerable distance.

Considerable effort has gone into the selection of hydrotest chemicals that are the most environmentally benign. Ecotoxilogical work however, concluded that while concentrations of constituent chemicals and principally the biocide would be likely to degrade relatively quickly, greater than Probable No Effect Concentration (PNEC) levels could occur in plume area for periods of several days. Given the higher environmental sensitivity of the coastal zone (e.g. seagrass beds; fish nurseries; etc.) it was considered that the potential environmental impacts associated with the immediate discharge of the hydrotest waters would most likely be unacceptable.

Experimental data indicates that the biocide breaks down in seawater over several days in the presence of sunlight and oxygen, leading to the detoxification of the fluid. The most favourable disposal scenario then was considered to be the use of a holding pond within the Sangachal terminal boundary where the biocide can degrade prior to a controlled discharge to sea.

10.3 Sangachal Terminal Watershed Analysis Study

The ESIA concluded that operation of the Sangachal terminal flood protection channel would most likely alter local hydrology in the vicinity of the terminal and particularly downstream of the channel mouths. A Watershed Analysis Study was conducted to model the behaviour (i.e. spatial fate) of surface water run-off for pre- and post channel construction scenarios.

Both 1-in-10 and 1-in-100 year flood events were modelled with the results predicting the channels effect on surface water run-off flows. Importantly, the configuration of the channel means that a significantly greater portion of the total catchment's run-off is diverted to the south arm of the channel where it exits through the south channel mouth. It was predicted that in an extreme 1-in-100 year event, floodwaters would back-up and cover the area between the terminal and the coastline.

The results of the hydrological modelling suggested that further work was required to identify a management solution so that the terminal and other third-party infrastructure are protected in the event of extreme storms. An additional water management study to achieve this has been commissioned.

10.4 Cuttings Disposal Onshore

Currently, non water based mud (NWBM) cuttings from the offshore drilling programme are being returned to shore for treatment and disposal. The cuttings are being stored at the BP

owned Serenja facility until the evaluation of options for final treatment and disposal are complete.

A combination of bio-remediation and disposal via incineration at the Garadag Cement Plant (GCP) has been assessed as the BPEO for onshore cuttings disposal and the MENR has evaluated the proposals for trials of these disposal options and given permission to proceed.

Both trials are underway, the GCP option involves the addition of the cuttings into the raw feed for the production of clinker, and to date, handling operations and product quality has been found to be successful.

The bioremediation trial started at Serenja in 1Q2003. The trial is using 1,000 m^3 of cuttings and it is anticipated that it will be in its final stages by November 2003.

Other options are also being evaluated including a fixation technique, rectycling via an asphalt plant and thermal desorption.

10.5 Flaring

Once Phase 1 is operational offshore, processed hydrocarbons from the current operations at the Chirag-1 platform will be routed to the Phase 1 offshore facilities and commingled with Phase 1 hydrocarbons for onward transfer to shore.

Following installation of the Phase 1 Gas Compression and Water Injection platform all flaring to produce both offshore and onshore associated with Chirag-1 operations will be eliminated. The gas produced in association with the Phase 1 and Chirag-1 production will normally be managed as follows:

- Used for fuel gas to run the operation, both onshore and offshore;
- Re-injected into the reservoir to support and improve oil recovery; and
- Free delivery to SOCAR at the Sangachal terminal delivery point.

11 OIL SPILL RESPONSE PLANNING

A number of additional studies have been carried out to support the oil spill response planning for the project. These studies include development of the Oil Spill Response Framework for the Azerbaijan Business Unit and revisions to the Azeri crude oil weathering studies and crude oil spill modelling.

The Oil Spill Response Framework document provides a linkage between the Phase 1 project oil spill response requirements with existing Business Unit emergency response plans (ERPs) including oil spill response plans and describes how the Phase 1 oil spill contingency plan will integrate with these. In addition, the document identifies the potential for oil spills during Phase 1 operations, outlines policy, legal and the administrative framework in the region and describes the existing arrangements with regards to oil spill preparedness.

Following collection of a fresh sample of crude oil during the Phase 1 template drilling at the Azeri field, the Azeri crude oil weathering study was revised in order to provide accurate data to be fed into the oil spill model. The revised spill trajectory modelling studies were used to validate and inform the oil spill response planning development.

The studies have been fed into an oil spill response planning review that started in April 2003 as part of the Oil Spill Response Plan development for the project. The review objectives are to assess the capabilities of the existing in-country oil spill response preparedness and identify additional requirements for new operations. The review will also make recommendations on oil spill equipment and training needs for future operations. The results of the review will be fed into the development of the Oil Spill Response Plan that will be in place before the commencement of operations and any further drilling or testing activities in ACG Phase 1.

12 HEALTH AND SAFETY

The Phase 1 project is committed to a high standard of Health and Safety (H&S) across all aspects of the project. The project's HSE policy includes the underlying H&S goal of No accidents and No harm to people.

The Project strategy for the effective management of Health Safety and Environment (HSE) is defined in the BP Corporate publication "Getting HSE Right (GHSER)". This provides guidance on the implementation of management systems to reduce risk for personnel both during the construction phase and throughout the operational life of the offshore and onshore installations.

In addition, BP's 'Golden Rules of Safety' define mandatory minimum standards to be followed at all primary worksites. The project also seeks to influence others to apply these standards at worksites that fall outside BP's immediate sphere of control.

The ACG Phase 1 Project is an integral part of the BP Azeri Project Performance Unit, which is one of the Performance Units within the BP Azerbaijan Business Unit. The Azeri Project has dedicated H&S resources at all levels of the organisation to ensure successful execution of the project H&S standards.

ACG Phase 1 H&S management principles are documented and describe the management approach, roles and responsibilities, H&S integrity assurance, construction worksites management and H&S reporting. The compliance of contractors with these management principles is key for the delivery of good H&S performance in the project. Contractors, sub-contractors and suppliers are required to provide evidence of a clear H&S Policy to demonstrate a shared commitment to the Project H&S principles. They are also required to implement an acceptable H&S management system in accordance with their own policy.