

Surgil Project ESIA – Volume IV

Environmental and Social Management Plan - Final Draft

November 2011
Uz-Kor Gas Chemical

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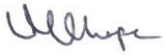
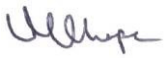
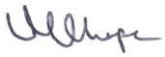
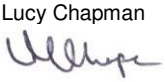
A	15 June 2011	Jamie Crawford 	Lucy Chapman 	David Boyland 	Draft for client comment
B	27 June 2011	Jamie Crawford 	Lucy Chapman 	David Boyland 	Advanced Draft
C	03.08.11	Tom Streather  Christopher Mills 	Lucy Chapman 	David Boyland 	Disclosure Draft
D	04.11.11	Tom Streather 	Lucy Chapman 	David Boyland 	Final Draft

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Content

1. Introduction

1.1 Overview

The primary objective of an Environmental and Social Management Plan (ESMP) is to safeguard the environment, site staff and the local population from site activity which may cause harm or nuisance. This ESMP for the Surgil Project is intended to provide a framework to ensure transparent and effective monitoring, prevention, minimisation, mitigation, compensation and off-setting measures to address the environmental and social impacts associated with the Project.

The management plan, which also covers monitoring, will therefore form the basis of the environmental and social protection measures implemented by Uz-Kor and its contractors. The implementation of the ESMP ensures that environmental, health and safety (EHS) and social performance is in accordance with international standards (including the relevant ADB Safeguards Policy Statements and other social policies and IFC sector EHS guidelines) and best practice.

Where relevant this volume consolidates the mitigation requirements identified in the international ESIA process (presented in Volume II of the ESIA). The ESMP will be updated and/or revised for both construction and operation phases to make the measures bespoke to the prevailing conditions as monitored during both construction and operations periods.

Responsibilities for implementation are outlined in the ESMP and fall to either Uz-Kor or the EPC Contractor. Where responsibilities fall to the EPC Contractor these should be implemented via a dedicated Construction Environmental Management Plan (CEMP) as part of the contractor's own Environmental, Health and Safety Management System (preferably accredited to ISO 14001:2004 or equivalent). Uz-Kor will actively seek to monitor, audit and assess the compliance of the EPC Contractors and ensure that corrective actions are taken when necessary to maintain environmental and social performance in line with international standards.

1.2 Background Information

The environmental management requirements presented in this document have been based on the findings of the following:

- Site visit and data collected by MML's team to the Project site in February 2009, May and October 2010 and March 2011;
- This international ESIA documentation prepared by MML (2011);
- Local EIA prepared by the Local Environmental Consultant;
- Report of State environmental expert review on the "ESIA of the integrated development of Surgil field with extraction of valuable components";
- Ecological Certificate, State Committee of the Republic of Uzbekistan on Nature Protection, July 15, 2010; and
- International review of the ESIA and Disclosure Draft ESMP as encapsulated by comments received from the ADB safeguards team.

1.3 Structure of ESMP

Section 2 of this ESMP presents the various mitigation measures as identified through the ESIA process. For each of the mitigation measures, relevant standards are identified together with monitoring measures and KPI's. For each mitigation activity, an implementation route or sub-plan has been identified.

Section 3 provides further outline on the various implementation plans to be implemented as part of the ESMP by Uz-Kor (or EPC contractors under Uz-Kor's direction). The various implementation sub-plans are intended to ensure that the various mitigation measures / activities identified through the ESIA process are incorporated by the Project in a structured way with clear lines of responsibility and indicative budget identification / ring fencing.

Section 4 of this ESMP outlines the various institutional arrangements to be put in place by the project to enable the implementation of the ESMP and its various sub-plans. Where relevant, various capacity building measures have been identified to ensure that the various institutional arrangements are appropriate and qualified for the allocated tasks.

Section 5 of the ESMP provides an overview of monitoring and reporting requirements associated with the activities and commitments contained within the ESMP documentation. The monitoring and reporting requirements include a "management of change" capacity to the ESMP reflecting that it is intended to be a live document subject to regular review and update as the project evolves. Furthermore, it includes various commitments to external project monitoring to satisfy the requirements of the ADB and to ensure transparency in terms of delivery of environmental and social mitigation.

Section 6 of the ESMP identifies the overall indicative budget for implementation of the ESMP through construction and into operation. The budget as identified is subject to revision / change depending on evolution of various detailed plans but is considered to be broadly indicative of the level of commitment by the Project to mitigate environmental and social impacts identified through the ESIA process and to provide enhancement to environmental and social indices in the Project region where relevant.

2. Summary of Mitigation Measures

2.1 Overview

The mitigation measures as identified through the ESIA process are summarised in the following sub-sections split between the construction phase and the operations phase of the Project. The sub-sections are further split into specific discipline / media tables. For each mitigation measure or activity, relevant standards are identified together with responsibilities and timescales for implementation. Furthermore, relevant monitoring or key performance indicators are identified for each aspect of mitigation and an implementation route or sub-plan is identified. Specific sub-plans are detailed in the following Section of this ESMP.

2.2 Construction Mitigation Measures Summary

2.2.1 Introduction

The following sub-sections address individual project construction activities identifying specific mitigation and monitoring measures associated with environmental and social aspects where relevant and as required.

Table 2.1 sets out the structure of the construction related mitigation activities as presented over the following sub-sections.

Table 2.1: Construction ESMP Structure

Sub-Section	Discipline / Media
2.2.2	Social Management
2.2.3	Hydrology Management
2.2.4	Groundwater Management
2.2.5	Noise Management
2.2.6	Ecology Management
2.2.7	Air Quality Management
2.2.8	Climate Change
2.2.9	Waste Management
2.2.10	Geology and Erosion Management
2.2.11	Land Contamination Management
2.2.12	Transport Management
2.2.13	Archaeology and Cultural Heritage Management

2.2.2 Social Management (Construction)

Objective	Activity	Project Component	Mitigation / Enhancement	Standards	Monitoring / KPI	Implementation Route / Plan
Equal opportunities in local employment benefits / minimise social conflict / promote development and poverty reduction for Karakalpaks, other ethnic groups and women	Employment generation Procurement	Gas Fields Pipelines UGCC	Uz-Kor Recruitment Policy to specifically include requirement to prioritise local employment taking into account available skills. Special quotas for women. Requirement to also be reflected in contractor's employment policy. Uz-Kor Procurement Policy to support local enterprises.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Disclosed Recruitment and Procurement Policies in Site Office and District offices of Muynak and Kungrad. District committee meeting minutes. To be disclosed in employment offices and policy to be referred to in job adverts. Employment quotas (subject to skills availability) are met for women and different ethnic groups (based on representation of local demographic distribution).	Uz-Kor / EPC Contractor Recruitment Policy
Local skills development / promote development and poverty reduction for Karakalpaks, other ethnic groups and women	Employment generation	Gas Fields Pipelines UGCC	Employment for locals including Karakalpaks, other ethnic groups and women to be prioritised, where possible contractor to provide additional specialised training to local workforce in skills required by contractor (i.e. welding, driving etc). Requirement to be reflected in EPC contractor's contract.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Addition of local skills development requirement in future construction contracts. Records of specialised training for local staff provided by EPC Contractor to Uz-Kor. Uz-Kor to monitor EPC Contractors and ensure that they are providing skills development for locals, Karakalpaks and women. Certificates issued by Uz-Kor / Contractor issued to employees detailing training received / new skills acquired while employed.	Community Investment Framework
Local socioeconomic development, especially for women and ethnic Karakalpaks	Procurement	Gas Fields Pipelines UGCC	Modify procurement practices in order to maximise local benefits, especially for women and Karakalpaks.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Number of local contracts for women and ethnic groups matching local demographic representation, subject to availability of appropriate firms.	Community Investment Framework

Objective	Activity	Project Component	Mitigation / Enhancement	Standards	Monitoring / KPI	Implementation Route / Plan
Project commitment on workers rights	Employment conditions	Gas Fields Pipelines UGCC	Uz-Kor and Contractor Human Resources Policy and framework to ensure workers rights adequately protected.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Payment of wages and bonuses on time. Hours worked during period and hours lost Fully described job descriptions for all roles	Uz-Kor and EPC Contractors Environmental, Health and Safety Plans (developed separately – not part of ESMP)
Code of Conduct for the labour force	Use of equipment, procedures and training	Gas Fields Pipelines UGCC	Development of code of conduct for workers to cover expected worker behaviour in relation to working behaviour (e.g. use of PPE) and behaviour in relation to local communities.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Community Complaints Audits of PPE use Maintenance of disciplinary records	Uz-Kor and EPC Contractors Environmental, Health and Safety Plans (developed separately – not part of ESMP)
Development of money management skills for local community	Staff / candidate Training	Gas Fields UGCC	Money management brochures for local people / workers to reduce impact of boom/bust cash flow for construction workers.	ADB SR1 Environment and ADB's social protection requirements	Records of providing community with appropriate brochures.	Community Investment Framework
Labour Grievance Mechanism	Labour management	Gas Fields Pipelines UGCC	Development, formalisation and disclosure of staff grievance polices and mechanisms for complaints about unfair treatment or unsafe living or working conditions without reprisal.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions)	Documented grievance mechanism established. Maintenance of complaints log and resolution process.	Labour Grievance Mechanism
Protecting the workforce	Labour management	Gas Fields Pipelines UGCC	Ensure contractors undertake comprehensive HAZOPS. Include clauses for contractors in line with international labour management procedures and welfare safeguard measures Preparation of Emergency Preparedness and Response Plan	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions The Labour Code of the Republic of Uzbekistan (1996); Law No.839-XII on Occupational Health and Safety (1993)	Uz-Kor to review Contractors HAZOPS and EHS Plan to ensure continuity with Uz-Kor EHS requirements (including commitment to this ESMP).	Uz-Kor and EPC Contractors EHS plans (developed separately – not part of ESMP). Emergency Preparedness and Response Plan (developed separately – not part of ESMP).

Objective	Activity	Project Component	Mitigation / Enhancement	Standards	Monitoring / KPI	Implementation Route / Plan
Identify and remove OHS hazards	Labour management	Gas Fields Pipelines UGCC	OHS assessment / schedule of audits. Implement toolbox talks on OHS risk issues	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions; IFC EHS General Guidelines on Occupational Health and Safety (OHS) The Labour Code of the Republic of Uzbekistan (1996); Law No.839-XII on Occupational Health and Safety (1993)	OHS audit reports, corrective measures and action plan, photographs demonstrating corrective measures implemented. Number of tool box talks Accident statistics reported as part of OHS performance records.	Uz-Kor and EPC Contractors EHS plans (developed separately – not part of ESMP)
Maintain the well-being of workers living in camps	Labour management	Gas Fields UGCC	Uz-Kor audit of contractors' workers camps	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions Workers' accommodation: processes and standards - A guidance note by IFC and the EBRD	Worker camp audit reports, corrective measures and action plan, photographs demonstrating corrective measures implemented.	Temporary Workers Accommodation Management Plan to be implemented by EPC contractors and monitored / audited by Uz-Kor.
Cultural sharing and tolerance	Labour management	UGCC	Training of all international workers in cultural sensitivities of Uzbek communities and history, culture and traditions of Karakalpakstan and its ethnic people, via distribution of brochures	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions; ADB SR3 Indigenous Peoples	Staff to sign receipt and understanding of brochure	Uz-Kor and EPC Contractors EHS plans (developed separately – not part of ESMP)
Inform workers of HIV/AIDS and STD risks and protection to minimise risk of infection to workers and communities	Labour management	Gas Fields Pipelines UGCC	Provision of HIV / AIDS awareness and prevention briefings and distribution of brochures	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions HIV/AIDS in the Workplace, IFC Good Practice Note, December 2002, Number 2; WHO Guidelines	Members of staff to receive brochure which raises HIV/AIDS awareness. Staff to sign acknowledging receipt and understanding of brochure.	Uz-Kor and EPC Contractors EHS plans (developed separately – not part of ESMP)

Objective	Activity	Project Component	Mitigation / Enhancement	Standards	Monitoring / KPI	Implementation Route / Plan
Community Grievance Mechanism	Safeguarding community health, safety and security	Gas Fields UGCC	Implement formally documented grievance mechanism and resolution process. See Section 6.6 of ESIA Volume II.	ADB SR1 Environment; IFC PS1 – Community Health, Safety and Security	Maintenance of complaints log and resolution process. Contact details on Uz-Kor website	Community Grievance Mechanism in PCDP.
Community development	Corporate Social Responsibility	Gas Fields UGCC	Implement Community investment Programme	-	Community investment budgets Outcomes Consultation with communities to identify needs or records of requests	Community Investment Framework
Restrict access to sites, especially hazardous areas	Safeguarding community health, safety and security	Gas Fields UGCC	Appropriate fencing / signage around site perimeter and where necessary, certain key site installations during periods when construction activity is low such as completed wellhead Christmas trees / drilling mud ponds. Appoint site security personnel (appropriately vetted and trained as per the requirements of the construction contractors Terms of Reference)	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security IFC EHS General Guidelines on Community Health and Safety (CHS)	Provision / review of the following documentation: Description / photographs of fencing / signage around site perimeter. Construction contractor to provide Uz-Kor with company licenses and individual training records of security personnel proposed as per contract requirements. Site registry identification system.	Uz-Kor and EPC Contractors EHS plans (developed separately – not part of ESMP)
Minimise traffic hazards within community	Safeguarding community health, safety and security	Gas Fields UGCC	Road safety plans / maximum speed limits for site and access routes. Implement Traffic Management Plan. Contractor programme to monitor and enforce safety plans, accident reporting and statistics, establish penalties for violations.	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security IFC EHS General Guidelines on Community Health and Safety (CHS)	Road Safety Plan documentation including identification of maximum speed limits for site and access routes. To be defined under Uz-Kor EHS requirements. Uz-Kor to review Contractors EHS Plan to ensure continuity with Uz-Kor EHS requirements (including commitment to this ESMP and implementation of Traffic Management Plan). Requirement for contractor programme of monitoring Reporting of accidents and statistics.	Traffic Management Plans to be implemented by Uz-Kor and EPC Contractors.

Objective	Activity	Project Component	Mitigation / Enhancement	Standards	Monitoring / KPI	Implementation Route / Plan
Maintain site access road and roads into Akchalak settlement to reduce congestion / erosion	Safeguarding community health, safety and security	Gas Fields UGCC	Maintenance of site and access roads under Uz-Kor responsibility to reduce erosion / degradation of drainage channels.	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security IFC EHS General Guidelines on Community Health and Safety (CHS)	Record of maintenance measures. Visual Inspection	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.3 Hydrology Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Protection of temporary surface water quality for the environment	Effluent discharge of drilling muds or water from well drilling operations.	Gas Fields	Preferential use of aqueous based drilling muds as opposed to non-aqueous based drilling muds where possible. Recycling of drilling muds. Design adequate capacity of treatment ponds / water filters to safely manage quantities of waste water arising. Drill cuttings / drill muds storage ponds to have impermeable lining such as clay of appropriate thickness.	IFC EHS General Guidelines on Wastewater and Ambient Water Quality / onshore oil and gas development sector specific guidelines.	No contamination of any surface waters around drilling sites from disposal of drill muds and cuttings. Regular visual water monitoring around drill sites. Regular review of drilling contractor activities against well drill muds / cuttings management procedure by Uz-Kor Project Manager.	Construction Environmental Management Plan to be implemented by EPC Contractors.
	Temporary storage of chemicals and oil	Gas Fields Pipelines UGCC	Development of relevant procedures including spill response plan, to avoid, minimise and address the risk of spills, including but not limited to the following. • All chemicals and fuels are to be stored in designated sites with impermeable surface and adequate bunding to prevent accidental contamination. • Storage areas to be located away from surface waters. • Suitable spill kits to be provided within storage areas and near any fuelling / loading areas.	IFC EHS General Guidelines and relevant sector guidelines.	Requirement for contractors to implement mitigation as part of EPC / drilling contracts. No spills affecting surface water quality. Uz-Kor to audit Contractor storage areas against mitigation requirements, for example, check availability of spill kits, adequate bunded storage for chemicals and fuels.	Construction Environmental Management Plan to be implemented by EPC Contractors.
Protection of Sudoch'ye Lake overflow from contamination from fuel or chemical spills	Storage, transportation and use of chemical and fuel on development site	Pipelines	Develop management procedures for the storage, transfer and use of chemicals and fuel on site. Development of spill response plan for procedure to follow in the event of a spill.	IFC EHS General Guidelines and relevant sector guidelines.	Agreed and implemented management procedures No spills affecting surface water quality	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.4 Groundwater Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Protection of groundwater quality for the environment	Effluent discharge of drilling muds or water from well drilling operations.	Gas Fields	Preferential use of aqueous based drilling muds as opposed to non-aqueous based drilling muds where possible. Recycling of drilling muds. Design adequate capacity of treatment ponds / water filters to safely manage quantities of waste water arising. Drill cuttings / drill muds storage ponds to have impermeable lining such as clay of appropriate thickness.	IFC EHS General Guidelines on Wastewater and Ambient Water Quality / onshore oil and gas development sector specific guidelines.	No contamination of groundwater around drilling sites from disposal of drill muds and cuttings. Regular water monitoring around drill sites. Regular review of drilling contractor activities against well drill muds / cuttings management procedure by Uz-Kor Project Manager.	Construction Environmental Management Plan to be implemented by EPC Contractors. Well Drill Muds and Cuttings Management Procedure.
To protect groundwater from contamination from fuel or chemical spills	Storage, transportation and use of chemical and fuel on development site.	Gas Fields UGCC	Development of relevant procedures, including spill response plan, to avoid, minimise and address the risk of spills, including but not limited to the following: • All chemicals and fuels are to be stored in designated sites with impermeable surface and adequate bunding to prevent accidental contamination. • Suitable spill kits to be provided within storage areas and near any fuelling / loading areas. • Pipelines and tanks to be painted with appropriate anti-corrosion paint.	IFC EHS General Guidelines on Wastewater and Ambient Water Quality; Hazardous Materials Management / Oil and Gas sector and petrochemical sector specific guidelines.	Requirement for contractors to implement mitigation as part of EPC / drilling contracts. No spills affecting surface water quality. Uz-Kor to audit Contractor storage areas against mitigation requirements, for example, check availability of spill kits, adequate bunded storage for chemicals and fuels.	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.5 Noise Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Avoid noise nuisance generated by on-site plant and activities	Site preparation excavation and foundations, construction and drilling	Gas Field UGCC	Position noise generating plant as far from the edge of the site as possible. Construction machinery and vehicles that may be in intermittent use to be shut down between work periods. Material stockpiles and other structures effectively utilised, where practicable, to screen sensitive receptors from noise from on-site construction activities. Construction machinery with directional noise features positioned to minimise the potential for noise disturbance. Hours of general construction activity (excluding specific drilling activities) restricted to avoid sensitive periods of the day and also to avoid night working typically following World Bank night-time noise guidelines (22:00 to 07:00). If construction activities cause breaches of Uzbekistan and World Bank standards as identified through monitoring, noise barriers of no less than 10kg/m^2 surface density should be put in place at properties (ensuring that the noise source is entirely hidden from the receptor). Local settlements to be notified in advance of any particularly noisy activities.	IFC EHS General Guidelines on Noise Management KMK 2.01.08.96 - Defence from noise is the operating standard.	Requirement for contractors to implement mitigation as part of EPC contracts. Uz-Kor to monitor noise levels using sound level meter at the nearest residential properties to construction activities for comparison against standards. Record and investigate complaints using sound level meter via the community grievance mechanism.	Construction Environmental Management Plan to be implemented by EPC Contractors. Community Grievance Mechanism.

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Avoid noise nuisance generated by construction traffic	Construction vehicles and traffic	Gas Field Pipelines UGCC	Schedule regular road traffic movements to avoid noise sensitive periods (e.g. avoid night-time traffic movements for normal loads). Use of modern (less than 5 years old) vehicle / construction fleet equipped with exhaust silencers. Route traffic away from noise sensitive receptors. Properly maintain vehicles	Uzbekistan Standards / IFC EHS Guidelines	Record and investigate complaints using sound level meter via the community grievance mechanism.	Construction Environmental Management Plan to be implemented by EPC Contractors. Community Grievance Mechanism.
Avoid noise nuisance which may be caused by on-site plant and activities	Construction lay-down area and temporary facilities for staff, piling, construction equipment erection and de-commissioning	Gas Field UGCC	Noise monitoring and mitigation measures will be implemented to demonstrate compliance with relevant standards and guidelines including; • Implement speed limits • Properly maintain and silence plant • Position plant away from boundaries nearest to settlements • Silencers or noise reduction equipment installed on major construction plant items • Use of screening, dampening, resilient pads, proper alignment of equipment and efficient exhausts	Uzbekistan Standards / IFC EHS Guidelines	Notification of local community following procedures in PCDP. Record and investigate complaints using sound level meter via the community grievance mechanism.	Construction Environmental Management Plan to be implemented by EPC Contractors. Community Grievance Mechanism. Public Consultation and Disclosure Policy.

2.2.6 Ecology Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Management of biodiversity issues	Production of the Surgil BAP	Gas Field Pipelines UGCC	Production of the draft BAP	IFC Guidelines / Equator Principles	Issue of draft Surgil BAP to stakeholders	Surgil Framework BAP
		Gas Field Pipelines UGCC	Stakeholder consultation; suggest a series of one to one meetings and local communities stakeholder workshops		Completion of workshops, all key stakeholders consulted	
		Gas Field Pipelines UGCC	Production of the final BAP		BAP completed and circulated to all stakeholders and contractors. Sign off of the Surgil BAP by Goskompriroda	
Capacity building	Appointment of a Project Wildlife Warden	Gas Field Pipelines UGCC	To appoint a Project Wildlife Warden (PWW) to produce and implement the BAP	-	PWW appointed with defined reporting procedures and roles	ESMP
Protection of Sudoch'ye State Nature Sanctuary	Establishment of buffer zone around Sudoch'ye	Pipelines UGCC	Production and distribution of maps showing the buffer zone. Signage instructing all workers not to work within 2 km of the Nature Sanctuary.	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Weekly checks and monitoring. KPI: No environmental incidents and no construction activities within 2 km of the Nature Sanctuary	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise habitat loss and disturbance	Construction lay down, layout of associated infrastructure and temporary working areas	Pipelines UGCC	Design layout of associated infrastructure and location of laydown to take into consideration of local environmental / ecological conditions. Minimise temporary working area size Minimise number and extent of temporary access routes and instruct all construction vehicles to use specified access routes.	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Monthly audit of construction areas. KPI: All laydown and working areas within pre-determined areas. Number of off-road construction vehicles movements less than 5% of the total number of construction movements	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise habitat loss and disturbance	Habitat removal prior to construction activities	Pipelines UGCC	Develop habitat removal plan Vegetation removal and top soil stripping two weeks prior to the start of works. Separation of top soil from other soils and storage alongside the pipeline route. Collection of plant seeds for preservation and inclusion in habitat re-instatement	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Uz-Kor approval of the habitat management & instatement plan by the contractor.	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise disturbance to mammals and birds	Noise and light from construction activities	Gas Field Pipelines UGCC	No night time working unless construction technique requires 24 hour working (i.e. continuous concrete pours if required) Minimise noise disturbance by using modern, lower noise, equipment and compliance with national noise standards	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Daily monitoring and monthly audit of construction activities. Report on number of incidents where noise levels exceed international requirements	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise disturbance to mammals and birds	Training of construction workers as part of environmental awareness training	Gas Field Pipelines UGCC	Production of environmental awareness displays and materials, all to be distributed and displayed in site offices. Environmental issues addressed as part of the H&S induction of all staff	-	Percentage of staff having completed the environmental awareness training.	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise incidental mortality	Vegetation clearance, earthworks, and spoil disposal during construction.	Gas Field Pipelines UGCC	Reducing incidental biodiversity loss: Pre-clearance surveys for endangered species and breeding birds, burrowing mammals, reptiles and amphibians. Cover open lagoons containing substances likely to be toxic to wildlife.	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Monthly monitoring at uncovered lagoons for 3 years / Presence of deceased wildlife. KPI: Number of reported incidents of bird or mammal kills	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise incidental mortality	OHL poles and insulators designed in accordance with Birdlife International Position Statement	UGCC	Production of outline designs for the OHL to then be checked against Birdlife standard	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	No monitoring required during construction, see post-construction monitoring	Surgil BAP
Minimise incidental mortality	Use bird deflectors (flight diverters) on electricity transmission lines in areas of high collision risk.	UGCC	Production of outline designs for the deflectors to then be checked against international standard	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	No monitoring required during construction, see post-construction monitoring	Surgil BAP
Minimise incidental mortality	Trenching	Pipelines	Incorporate egresses from the trench, every 250 m, in order to assist with exiting of animals trapped within the trench;	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Weekly checks of the pipelines trenches to release any entrapped animals	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Control of invasive plant and animal species	Vegetation clearance, earthworks, and spoil disposal during construction.	Gas Field Pipelines UGCC	Identification of invasive plant and animal species and their extent within development boundary	IPIECA Guidelines on prevention and management of alien species	Report detailing the extent of existing alien species across the site.	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
		Gas Field Pipelines UGCC	Production of invasive species management plan		Production of the report including monitoring plan.	
		Gas Field Pipelines UGCC	Monitoring of alien species and treatment of materials contaminated by invasive plant material e.g. seeds, roots etc		Annual / Extent of invasive species distribution at project site.	

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise hunting and poaching	Construction of access roads, increasing access to Sudoch'ye Lake and other areas	Gas Field Pipelines UGCC	Restrict access on access roads to construction and operational staff only.	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	KPI: Number of hunting and poaching activities. Hunting prevention measures to be included within Contractors scope through acceptance of Uz-Kor EHS requirements	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise hunting and poaching	Implement anti-hunting measures including awareness training to staff and local communities	Gas Field Pipelines UGCC	Code of Conduct for construction workers banning hunting Signage highlighting hunting ban in all Project areas	Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	Uz-Kor to review Contractors CEMP including disciplinary action measures to ensure continuity with Uz-Kor EHS requirements (including commitment to this ESMP). Members of staff to receive brochure which identifies prohibition of hunting. Contractor requirement to implement measures to prevent hunting.	Surgil BAP Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.7 Air Quality Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise dust emissions	Drilling, land clearing, installation of pipelines and construction. Traffic and vehicle movements	Gas Field Pipelines UGCC	Minimizing dust from material handling sources, such as conveyors and bins, by using covers and/or control equipment (water suppression). Minimizing dust from open sources, including storage piles, by using control measures such as installing enclosures and covers, and increasing the moisture content. Restrict traffic to tarmac roads as far as possible. Speed limit for all off road traffic to be <20km/hr to minimise dust. Dust suppression techniques should be implemented, such as applying water or non-toxic chemicals to minimize dust from vehicle movements. Implement appropriate PPE, minimum of dust masks, for construction workers.	IFC EHS General Guidelines on Air Emissions and Ambient Air Quality	Uz-Kor Environmental Manager to undertake bi-weekly visual checks of construction areas. Maintenance of record of violations where observed and disciplinary action imposed on contractor	Construction Environmental Management Plan to be implemented by EPC Contractors. Traffic Management Plan to be implemented by EPC contractors. Uz-Kor / Contractor Environmental Health and Safety Management System.

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise human health risk from potentially contaminated dust	Drilling, land clearing, installation of pipelines and construction. Traffic and vehicle movements	Gas Field Pipeline within Aral Sea Basin	Undertake human health detailed quantitative risk assessment (HHDQRA) to determine site specific risk factors for human exposure pathways. Provide guidance to EPC contractor on standard of PPE to be adopted for construction workers (minimum of dust masks and gloves) and amenity and accommodation facilities based on site specific risk factors from HHDQRA. Development of H&S requirements for construction workers	IFC EHS General Guidelines on Air Emissions and Ambient Air Quality	Uz-Kor Environmental Manager to undertake daily visual checks of implementation of appropriate PPE. Monitor incidence of respiratory illnesses notified to camp medical facilities.	Uz-Kor / Contractor Environmental Health and Safety Management System. Construction Environmental Management Plan to be implemented by EPC Contractors.
Minimise construction machinery / vehicle emissions	Construction traffic and machinery	Gas Field Pipelines UGCC	Manage emissions from mobile sources as per IFC EHS guidelines for Air Emissions and Ambient Air Quality Locate generators away from receptors (workers' camps and residents)	IFC EHS General Guidelines on Air Emissions and Ambient Air Quality	Uz-Kor Environmental Manager to undertake bi-weekly visual checks of construction vehicles. (violation to be reported only) Contractor to maintain servicing records for all machinery. Uz-Kor to review Contractors servicing records at beginning of contract and thereafter on 6 months basis for longer term contracts lasting more than 6 months	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.8 Climate Change Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Reduce GHG emissions	Use of vehicles, construction plant and generators with emissions.	Gas Field Pipeline UGCC	Use of new and efficient vehicles and construction plant and generators. All equipment should be maintained and switched off when not in use.	Annex No. 1 to Decree of Cabinet of Ministers of Uzbekistan "the National Strategy for Reducing Greenhouse Gas Emissions" No. 309 of 09.10.00	Evidence of new plant being employed, record of plant maintenance. Fuel consumption.	Construction Environmental Management Plan to be implemented by EPC Contractors.
Reduce GHG emissions	Staff vehicle movements	Gas Field Pipeline UGCC	Transportation scheme for workers and operation staff		Options for joint pick up made available to workers.	Traffic Management Plan to be implemented by EPC contractors.

2.2.9 Waste Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimisation and safe disposal of waste.	Waste generated as a result of day to day drilling and construction activities	Gas Field Pipeline UGCC	Implement Site Waste Management Plan (SWMP) which identifies measures for minimisation of waste and safe disposal of construction wastes. Appropriate facilities/containers for segregation and temporary storage of general wastes on site and establishment of regular disposal to licensed third party landfill or recycling where possible. Maximise use of water based drill muds and recycling of drill muds. Storage of muds in lined ponds and of cuttings in dedicated houses. Regular removal of muds from the settling ponds for storage and subsequent treatment of the muds as relevant waste category as determined by Uzbekistan regulation. Disposal of hazardous waste by licensed third party waste companies. Segregation of waste streams for reusing and recycling. Identify reuse and recycle options of non hazardous waste with local community; Identification of appropriate site(s) for excavation material disposal, away from sensitive surface / ground water features.	IFC EHS General Guidelines on Waste Management / Oil and gas sector and petrochemical sector guidelines. Republic of Uzbekistan Law on Wastes No.362-II of 05.04.02	To be defined under Uz-Kor EHS requirements. Uz-Kor to review Contractors CEMP and SWMP to ensure continuity with commitment in this ESMP. Uz-Kor audit of contractors CEMP and SWMP. Reports to include photographs (where relevant) and documentation of suitable storage measures, documentation of approved waste disposal facility, transfer notes, and/or contractor employed to collect wastes. Toxicity testing of hazardous wastes such as drilling muds.	Construction Environmental Management Plan to be implemented by EPC Contractors. Site Waste Management Plan to be implemented by EPC Contractors. Well Drill Muds and Cuttings Management Procedure.

2.2.10 Geology and Erosion Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Prevent soil erosion and transportation	Site preparation excavation, levelling and construction of foundations	UGCC	Soil cover and careful monitoring. Special focus should be on this during the rainy season.	BCH 179-85. Instruction for land reinstatement following pipeline laying (replaces Instructions BCH 2-59-75 and P 204-75) International best practice.	To be defined under EPC Contractors CEMP requirements. Uz-Kor to review Contractors CEMP to ensure continuity with commitment to this ESMP and mitigation measures as identified. Uz-Kor audit of contractors CEMP.	Construction Environmental Management Plan to be implemented by EPC Contractors.
Prevent soil erosion and transportation	Construction of unpaved roads from GGSs to gas wells	Surgil Field	Unpaved roads to be gravelled to minimise erosion and dust generation	Uzbek standards International best practice.	To be defined under Uz-Kor construction contract requirements. Uz-Kor audit of construction to ensure meets required standards	Traffic Management Plan to be implemented by EPC contractors.
Stabilise slopes to prevent landslides	Trenching and installation	Pipeline	Support walls of trench and backfill using appropriate compaction techniques to minimise risk of erosion. Diversion of flood water away from trench during heavy rain	BCH 179-85. Instruction for land reinstatement following pipeline laying (replaces Instructions BCH 2-59-75 and P 204-75) International best practice.	To be defined under EPC Contractors CEMP requirements. Uz-Kor to review Contractors CEMP to ensure continuity with commitment to this ESMP and mitigation measures as identified. Uz-Kor audit of contractors CEMP.	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.11 Land Contamination (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
To protect land and soil from contamination from drilling mud spills and cuttings	Collection, storage, transport and possible reuse of drilling mud and cuttings or disposal	Gas Field	Develop management procedures for the storage, handling, testing, transport and reuse of drilling mud or cuttings on site or disposal. Storage of muds in lined ponds and of cuttings in dedicated houses; Development of appropriate action plan following identified contamination.	IFC EHS General Guidelines on contaminated Land / Oil and gas sector and petro-chemical sector guidelines. Dutch Soil Quality Standards or similar local standards	No contamination of land around drilling sites from disposal of drill muds and cuttings. Regular soil monitoring around drill sites. Regular review of drilling contractor activities against well drill muds / cuttings management procedure by Uz-Kor Project Manager.	Construction Environmental Management Plan to be implemented by EPC Contractors. Site Waste Management Plan to be implemented by EPC Contractors. Well Drill Muds and Cuttings Management Procedure.
To protect land and soil from contamination from fuel or chemical spills	Storage, transport and use of chemical and fuel on development site	Gas Field Pipeline UGCC	Appropriate facilities / containers for segregation and temporary storage of chemicals / fuel on site including impermeable surfaces and adequate bunding. Development of appropriate spill response plan for addressing contamination following a spill. Training of Contractor employees by Contractor	IFC EHS General Guidelines on contaminated Land / Oil and gas sector and petro-chemical sector guidelines. Dutch Soil Quality Standards or similar local standards	Uz-Kor to review Contractors CEMP and SWMP to ensure continuity with commitment to this ESMP. Uz-Kor to audit contractors CEMP and SWMP implementation as part of audit programme.	Construction Environmental Management Plan to be implemented by EPC Contractors. Site Waste Management Plan to be implemented by EPC Contractors. Well Drill Muds and Cuttings Management Procedure.
To protect land and soil from contamination from spent oils, lubricants and other waste	Collection storage, transport and disposal	Gas Field Pipeline UGCC	Develop management plan for the collection storage transfer and disposal. Development of appropriate spill response plan for addressing contamination following a spill.	Based on Pollution Prevention Guidance (PPG), Dutch Soil Quality Standards or similar local standards		

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
To protect land and soil from contamination from land clearance and excavation	Land levelling	Gas Field UGCC	Development of management procedures for slope stabilisation during land levelling. Good site practice agreed and implemented	BCH 179-85. Instruction for land reinstatement following pipeline laying (replaces Instructions BCH 2-59-75 and P 204-75) Based on BS6031 or similar standards	Management procedures agreed and implemented No landslips attributed to construction activity.	Construction Environmental Management Plan to be implemented by EPC Contractors.

2.2.12 Transport Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise road hazards, congestion and damage to road infrastructure	Traffic Management	Gas Field UGCC	Contractor to implement and develop framework Transport Management Plan. Speed limits to be applied to all site roads with lower speed limits on unpaved/gravel roads.	National laws and permitting requirements	Uz-Kor to review Contractors CEMP and Traffic Management Plan to ensure continuity with commitment in this ESMP. Uz-Kor review / audit of contractors CEMP including traffic management plan as part of audit programme. Reporting of accidents and statistics by Contractor to Uz-Kor.	Construction Environmental Management Plan to be implemented by EPC Contractors. Traffic Management Plan.

2.2.13 Archaeology and Cultural Heritage Management (Construction)

Objective	Activity	Project Component	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Avoid damage to archaeological and cultural heritage features. Record archaeological finds	Excavation works during construction phase	Gas Field Pipelines UGCC	Identify and avoid sensitive areas. Establish and agree with the relevant authorities a chance finds procedure.	WB's Physical Cultural Resources Policy Guidebook IFC PS 8 – Cultural Heritage	Uz-Kor to review Contractors CEMP and Chance Finds Procedure to ensure continuity with commitment in this ESMP. Uz-Kor review / audit of contractors CEMP including Chance Finds Procedure as part of audit programme. Reporting / notification of finds to the Institute off Archaeology.	Construction Environmental Management Plan to be implemented by EPC Contractors. Chance Finds Procedure.

2.3 Operation Mitigation Measures Summary

2.3.1 Introduction

The following sub-sections address individual project operation activities identifying specific mitigation and monitoring measures associated with environmental and social aspects where relevant and as required.

Table 2.2 sets out the structure of the operations related mitigation activities as presented over the following sub-sections.

Table 2.2: Operation ESMP Structure

Sub-Section	Discipline / Media
2.3.2	Social Management
2.3.3	Hydrology Management
2.3.4	Groundwater Management
2.3.5	Noise Management
2.3.6	Ecology Management
2.3.7	Air Quality Management
2.3.8	Climate Change
2.3.9	Waste Management
2.3.10	Geology and Erosion Management
2.3.11	Land Contamination Management

2.3.2 Social Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Safeguard the livelihoods of any workers made redundant	Labour management	In the event of redundancies development and adoption of Uz-Kor retrenchment plan for permanent Uz-Kor staff.	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions	In the event of redundancies disclosed retrenchment policy / plan documentation to all permanent Uz-Kor staff.	Uz-Kor Retrenchment Policy.
Increase knowledge of safety risks related to operation of the Project to avoid damage and safety incidents	Safeguarding community health, safety and security	Health and safety awareness sessions for local communities living /working near Gas Field and UGCC.	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security IFC EHS General Guidelines on Community Health and Safety (CHS)	Community to receive brochure which raises health and safety awareness.	Community Investment Framework
Equal opportunities in local employment benefits / minimise social conflict / promote development and poverty reduction for Karakalpaks, other ethnic groups and women.	Employment generation	Uz-Kor Recruitment Policy to specifically include requirement to prioritise local employment and women, taking into account available skills.	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Disclosed Recruitment Policy in Site Office and district offices District committee meeting minutes. Employment quotas (subject to skills availability) are met for women and different ethnic groups (based on representation of local demographic distribution).	Uz-Kor Recruitment Policy.
Local skills development / promote development and poverty reduction for Karakalpaks, other ethnic groups and women	Employment generation	Employment for locals including Karakalpaks, other ethnic groups and women to be prioritised, where possible Uz-Kor to provide vocational training schemes (apprenticeships) to local workforce in skills required by power plant operation (i.e. welding, driving etc).	ADB SR1 Environment; ADB's social protection requirements and the IFC's Performance Standard 2 on Labour and Working Conditions	Identification of vocational courses supported resulting in technical qualification Number of apprentices supported on these courses Quotas met for local employment and women.	Community Investment Framework
Labour Grievance Mechanism	Labour management	Development, formalisation and disclosure of staff grievance polices and mechanisms for complaints about unfair treatment or unsafe living or working conditions without reprisal.	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions	Documented grievance mechanism established. Maintenance of complaints log and resolution process.	Labour Grievance Mechanism.

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Protecting the workforce	Labour management	Develop Uz-Kor's health and safety management system including for example specialist training, emergency drills, and use of PPE etc.	ADB SR1 Environment; IFC PS2 – Labour and Working Conditions, terms of employment to be in line with ILO standards. The IFC health and safety guidelines	EHS audit reports, corrective measures and action plan, photographs where relevant demonstrating corrective measures implemented. Accident and near miss statistics.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP)
Community Grievance Mechanism	Safeguarding community health, safety and security	Develop formally documented grievance mechanism and resolution process. See Section 6.6 of ESIA Volume II.	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security	Documented grievance mechanism established. Maintenance of complaints log and resolution process.	Community Grievance Mechanism. Public Consultation and Disclosure Plan.
Restrict access to sites, especially hazardous areas	Safeguarding community health, safety and security	Appropriate fencing / signage around site perimeters. Appoint site security personnel (appropriately vetted with security training licences – will be state employed)	ADB SR1 Environment; IFC PS4 – Community Health, Safety and Security IFC EHS General Guidelines on Community Health and Safety (CHS)	Provision / review of the following documentation: Description / photographs of fencing / signage around site perimeter. Contracts of security personnel appointed and description of due-diligence performed and training certification. Site registry identification system.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP)
Community development	Corporate Social Responsibility	Implement Community investment Programme	-	Community investment budgets Outcomes Consultation with communities to identify needs or records of requests	Community Investment Framework

2.3.3 Hydrology Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Protection of surface water supply quantity for local users and the environment	Abstraction for operation of UGCC	Implement wastewater recycling to reduce abstraction quantities. Construct 2 million m^3 retention pond and maximise water reuse Engagement with Uzbekistan Ministry of Agriculture and Water Resources to ensure water needs taken into account as part of water allocation and river basin management.	IFC EHS General Guidelines on Community Health and Safety / oil and gas sector specific guidelines.	Uz-Kor to record quantity of water abstracted from Kungrad WSU and from Nukus-Tuyamuyun WSU back up supply. Volume flows to wastewater retention ponds Flow measurements for principal flows within the UGCC facility including volume to wastewater retention pond, cooling tower blow down, water treatment plant reject water etc.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP)
To protect temporary surface water from contamination from fuel or chemical spills	Storage, transportation and use of chemical and fuel on development site	Development of relevant procedures including spill response plan, to avoid, minimise and address the risk of spills, including but not limited to the following. • All chemicals and fuels are to be stored in designated sites with adequate bunding to prevent accidental contamination. • Storage areas to be located away from area subject to collection of water during heavy rainfall events • Suitable spill kits to be provided within storage areas and near any fuelling/ loading areas.	IFC EHS General Guidelines on Wastewater and Ambient Water Quality; Hazardous Materials Management / oil and gas sector specific guidelines.	Uz-Kor to implement mitigation as part of operational procedures. No spills affecting surface water quality. Uz-Kor EHS staff to inspect storage areas against mitigation requirements, for example, check availability of spill kits, adequate bunded storage for chemicals and fuels.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP)

2.3.4 Groundwater Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Protection of groundwater supply quality for local users near UGCC and aquifer at Gas Field site.	Storage, transportation and use of chemical and fuel on development site	Development of relevant procedures including spill response plan, to avoid, minimise and address the risk of spills, including but not limited to the following. • All chemicals and fuels are to be stored in designated sites with adequate bunding to prevent accidental contamination. • Storage areas to be located away from area subject to collection of water during heavy rainfall events • Suitable spill kits to be provided within storage areas and near any fuelling/ loading areas.	IFC EHS General Guidelines on Community Health and Safety for the oil and gas and petrochemical sector specific guidelines.	No complaints from local groundwater users. No contamination of groundwater. Annual monitoring of artisan groundwater wells at CGTU site.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP)

2.3.5 Noise Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Avoid noise nuisance from site operation	Gas Field and UGCC operation	Noisy equipment such as gas turbines, diesel engines, compressors, generators etc to be installed in acoustically attenuated enclosures or buildings. Maintain equipment / acoustic enclosures to ensure noise levels do not increase over time. Hours of general maintenance activity restricted to avoid night working typically following World Bank night-time noise guidelines (22:00 to 07:00). If operational activities cause breaches of Uzbekistan and World Bank standards as identified through monitoring, noise barriers of no less than 10kg/m^2 surface density should be put in place at affected properties (ensuring that the noise source is entirely hidden from the receptor).	IFC EHS General Guidelines on Noise Management	Uz-Kor to monitor noise levels using sound level meter at the nearest residential properties to operational activities for comparison against standards. To be undertaken on a quarterly basis. Record and investigate complaints using sound level meter via the community grievance mechanism. Monitoring frequency: quarterly or upon receipt of noise complaints via community grievance mechanism.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP). Community Grievance Mechanism.

2.3.6 Ecology Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Enhancement of biodiversity and habitats	Reinstatement of habitats	Formulation of habitat re-instatement plan, include reinstatement of top soil. Check to ensure no accidental invasion of alien species Sowing of plant seeds across the pipeline route as part of the habitat re-instatement plans Check re-instatement has been completed in accordance with the plan	IFC Guidelines / Equator Principles Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	KPI % of habitats re-instated to good condition within 12 months of the completion of works	Biodiversity Action Plan
	Retain some open borrow pits as sheltered habitat/refuge for ground nesting birds, reptiles mammals etc.	Monitoring to ensure that the activities are undertaken		Annual review of success of created habitat areas	
	Development of reed beds in UGCC wastewater retention pond.	Feasibility study and production of outline designs for the creation of the reed bed habitats Consultation with stakeholders on the outline designs Production of detailed designs Construction of the habitats Monitoring the functionality and effectiveness of the reedbeds		KPI: Creation of 24ha of wetland habitats, with the establishment of reedbeds with biodiversity benefits within 5 years.	

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Enhancement of biodiversity and habitats	Development of Sudoch'ye Biodiversity Education Programme	Consultation with the Sudoch'ye Management Board Formulation and agreement of specific actions for inclusion in the Surgil BAP Specific actions could include: Appointment of an Environmental Education Officer, establishment of a education centre, monthly talks to local schools, production of educational materials for local schools, public talks and public information brochures.	IFC Guidelines / Equator Principles Law of the Republic of Uzbekistan on Protection and use of Flora No. 543-I; and use of Fauna No. 545-I	KPI to be agreed as part of the Surgil BAP	Biodiversity Action Plan
	Research and monitoring of Saiga population	Consultation with the Saiga Conservation Alliance Formulation of a research project brief. Agree funding mechanisms and budgets for the research Implementation of research activities		KPI to form part of the research activities and will be included in the Surgil BAP after consultation	
	Support to the Government of Uzbekistan's initiative on mainstreaming biodiversity into Uzbekistan's oil and gas sector	Consultations with Uzbekistan Government ministries to identify possible activities Dissemination of lesions learnt from Surgil to other projects, such as a national workshop on biodiversity issues in the oil & gas sector of Uzbekistan Establishment of sector wide best practice guidelines for Uzbekistan oil & gas operations Support to Uzbekistan Government in institutional capacity building		To be agreed following consultations	

2.3.7 Air Quality Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
To ensure the health and safety of the community	Operational emissions from the Downstream Component	Air Quality Monitoring Programme, including meteorological monitoring	SanPiN RUz No.0179-04 – Hygienic norms: List Maximum Allowable Concentrations (MACs) of pollutants in ambient air of communities in the Republic of Uzbekistan	Monitored ambient concentrations to meet the national MACs	Air Quality Monitoring Programme
To ensure the health and safety of workers and the community	Accidental VOC release from project components	Industry best practice to avoid the release of fugitive emissions, as specified in ESIA Volume II. Presence of a gas rescue team whose responsibilities will include undertaking measures on prevention of fugitive gas leaks and potential emergencies, as specified in ESIA Volume III.	IFC Guidelines: General EHS Guidelines (April 2007), Natural Gas Processing (April 2007), Onshore Oil and Gas Development (April 2007), Petroleum-based Polymers Manufacturing (April 2007), Large Volume Petroleum-based Organic Chemicals Manufacturing (2007).	No adverse health effects for workers / local community.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP).
To ensure the health and safety of workers	Traffic/vehicle movements and maintenance activities at Gas Fields and pipeline within Aral Sea Basin	Undertake human health detailed quantitative risk assessment (HHDQRA) to determine site specific risk factors for human exposure pathways. Provide guidance n standard of PPE to be adopted for operational workers and amenity and accommodation facilities based on site specific risk factors from HHDQRA. Development of H&S requirements for operational workers	IFC EHS General Guidelines on Air Emissions and Ambient Air Quality	Uz-Kor Environmental Manager to undertake daily visual checks of implementation of appropriate PPE. Monitor incidence of respiratory illnesses notified to camp medical facilities.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP). Traffic Management Plan.

2.3.8 Climate Change (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Reduce GHG emissions	Flaring	Minimise flaring by diversion to power generation	IFC Guidelines: General EHS Guidelines (April 2007), Natural Gas Processing (April 2007), Onshore Oil and Gas Development (April 2007)	Volume of gas flared	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP).
	Use of vehicles and generators with emissions.	Use of new and efficient vehicles and generators. All equipment should be maintained and switched off when not in use.	N/A	Evidence of new plant being employed, record of plant maintenance. Fuel consumption.	
	Staff vehicle movements	Transportation scheme for operation staff	N/A	Options for joint pick up made available to workers.	Traffic Management Plan

2.3.9 Waste Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
Minimise waste generation, avoid contamination.	Gas field and UGCC operation and maintenance Pipeline pigging	Implement site waste management plan.	IFC EHS General Guidelines on Waste Management / Sector Guidelines for Oil and Gas and Petrochemicals	Uz-Kor to develop and implement Waste Management Plan as part of standard operational procedures. Uz-Kor internal audit reports, including photographs where relevant and documentation of suitable storage measures, documentation of approved waste disposal facility, transfer notes, and/or contractor employed to collect wastes. Record quantities of all wastes generated from different waste streams as part of overall site waste inventory. Maintain records of hazardous wastes disposed off-site.	Site Waste Management Plan

2.3.10 Geology and Erosion Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
To ensure pipeline remains buried along route including Ustyurt Plateau escarpment	Erosion of pipeline cover along pipeline route during operation.	Direct observation and mapping of surface activity and comparison with baseline environment (pre-Project).	IFC EHS Guidelines	Monthly drive over inspection of pipeline route	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP).

2.3.11 Land Contamination Management (Operation)

Objective	Activity	Action	Standards	Monitoring / KPI	Implementation Route / Plan
To protect land and soil from contamination from fuel or chemical storage facilities or spent oils, lubricants storage	Storage, transport and use of chemical and fuel on operational sites	Appropriate facilities/containers for segregation and permanent storage of chemicals / fuel on site. Temporary storage facilities available for maintenance periods. Internal training of Uz-Kor operational shift staff / maintenance staff.	IFC EHS General Guidelines on Contaminated Land.	Requirement for Uz-Kor to implement mitigation as part of operational procedures. Monthly EHS manager site walkover to observe site housekeeping. Uz-Kor internal audit reports, including photographs where relevant and documentation of suitable storage measures, inventory of chemical storage maintained, documentation of spills / clean up / corrective actions.	Environmental, Health and Safety Management System (to be developed separately by Uz-Kor – not part of this ESMP).

3. Plans, Policies and Procedures

3.1 Introduction

The preceding section of this ESMP identified all relevant mitigation activities relevant to the Surgil Project as identified through the ESIA. In turn, the various mitigation activities will be implemented via a number of dedicated plans. This section of the ESMP elaborates various framework plans through which the mitigation activities identified will be committed by the Project.

Prior to construction of each component in the Project, and prior to commissioning of the plant, Uz-Kor (and EPC contractors where relevant) will provide further detail around each of the framework plans, policies and procedures defined within this ESMP to ensure adequate management and monitoring of social and environmental aspects. Table 3.1 below summarises the key plans and policies required. Given the on-going activities at the Surgil Field, timescales for plans and policies relevant to drilling and construction activities have been set as immediate and should therefore be undertaken at the earliest possible opportunity and certainly in advanced of any new wells being drilled.

It is intended that these framework plans will be further elaborated by Uz-Kor alongside development of an Environmental, Health and Safety Management System specifically for the Project. Where relevant, under respective contracts, the EPC contractor and individual contractors will be required to implement corresponding arrangements (as directed within the ESMP).

In addition to the PCDP included in the ESIA Volume III developed to guide the Project, the following framework plans have been defined within this ESMP:

- Construction Environmental Management Plan Framework;
- Recruitment plan;
- Retrenchment plan;
- Labour grievance mechanism;
- Community Investment Framework plan;
- Site waste management plan;
- Traffic management plan;
- Temporary worker accommodation management plan;
- Chance finds procedure;
- Air quality monitoring programme; and
- Biodiversity Action Plan Framework.

In addition to the above plans, the following plans will also be required by the Project:

- Community grievance mechanism;
- Emergency Preparedness and Response Plan (EPRP);
- Spill Response Plan;
- Environmental, Health and Safety Management System; and
- Drilling muds and cuttings management plan;

The community grievance mechanism is provided in the ESIA Volume II and the drilling muds and cuttings management plan is provided in Volume III. Preparation of the EPRP is a requirement of Uzbek regulations and will be required to be prepared to Uzbek standards to encompass all activities of the Project and will be prepared on the basis of the hazard and operability (HAZOP) studies being undertaken by Uz-Kor and the EPC contractors. For the Surgil Field an EPRP has already been prepared for the existing activities and will be extended to encompass the new aspects of the development. The EPRPs

will form part of the wider suite of plans to be implemented by the Uz-Kor EHS department. A spill response plan will be prepared prior to the large scale storage of chemicals or oil at the construction sites.

Table 3.1: Plans, Policies and Procedures

Aspect	Plan / Policy	Objective / Content	Timescale	Uz-Kor Responsibility	Institutional responsibility
Construction environmental management	Construction Environmental Management Plan (CEMP) (see Section 3.2)	To implement mitigation activities relevant to the construction phase of the Project and to avoid, mitigate and minimise environmental and social impacts during the construction phase. Each EPC contractor will be required to adopt a CEMP which will strictly follow and comply with the general IFC Environmental, Health and Safety Guidelines (EHS) during construction activities at all sites as well as incorporate specific mitigation as identified through the ESIA process. Each EPC contract will include a CEMP framework as a specific exhibit.	Immediately: Plan to be prepared and agreed for each EPC construction contract.	Overall responsibility of CEMP with Head Office Environment, Health and Safety department. Project Manager (construction) responsible for implementation at project level.	State Committee for Nature Protection (SCNP).
Recruitment	Recruitment policy (See Section 3.3) Retrenchment plan (See Section 3.4)	Equity in local employment benefits / minimise social conflict. Prohibit the use of child and forced labour / promote non-discrimination and equal opportunities. Special measures to promote equal employment opportunities across ethnicities and women. Refer to: • IFC PS2 – Labour and Working Conditions and ILO Fundamental Human Rights Conventions: Elimination of Forced and Compulsory Labour (Conventions 29/105) – ratified 1950/1999; • ADB Social Protection Strategy; • Elimination of Discrimination in Respect of Employment and Occupation (Conventions 100/111) – ratified by Uzbekistan; • Abolition of Child Labour (Conventions 138/182) – Under consideration by Uzbekistan; ILO Core Labour Standard • The Labour Code of the Republic of Uzbekistan (1996)	Immediately: Policy to be disclosed prior to construction recruitment activities.	Overall responsibility of recruitment policy / retrenchment policy with Head Office Human Resources. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	Labour Agency at District level Ministry of Labour and Social Welfare at State level

Aspect	Plan / Policy	Objective / Content	Timescale	Uz-Kor Responsibility	Institutional responsibility
Community Complaints	Grievance mechanism (See Volume II, Section 7.5)	Formalised process by which grievances can be raised by the local community and staff during construction and operation and to allow structured investigation by Uz-Kor to review the validity, responsibility and response / action.	Immediately. Policy to be disclosed.	Overall responsibility of community grievance mechanism with Head Office Environment, Health and Safety Department. Project Manager (construction) / General Manager (operation) / CLO responsible for implementation at project / operation level.	Labour Agency at District level Ministry of Labour and Social Welfare at State level
Labour Complaints	Labour Grievance mechanism (See Section 3.5)	Formalised process by which grievances can be raised by the workforce during construction and operation and to allow structured investigation by Uz-Kor to review the validity, responsibility and response / action.	Immediately. Policy to be disclosed.	Overall responsibility of labour grievance mechanism with Head Office Human Resources. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	Labour Agency at District Level
Community investment activities	Community Investment Framework Plan (see Section 3.6)	The Project will contribute to addressing social challenges in the host region through the implementation of Community Investment Programmes (CIP) which channel private sector finance and other resources into community development in partnership with local community stakeholders. The Community Investment Framework (CIF) lays the foundation for the development of targeted CIPs throughout the lifecycle of the Project.	Immediately to be developed annually.	Overall responsibility of community investment framework with CLO.	Local Aksakals and other community government representatives.
Environmental Health and Safety Management System	EHS management plan (developed separately by Uz-Kor)	Safe working environment, procedures and culture. Further policies / procedures to be developed if need identified through site audits IFC PS2 – Labour and Working Conditions IFC EHS General Guidelines on Occupational Health and Safety (OHS)	As needed	Overall responsibility of OHS management plan with Head Office EHS department. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector

Aspect	Plan / Policy	Objective / Content	Timescale	Uz-Kor Responsibility	Institutional responsibility
Chemicals and fuels. Spent oils and lubricants. Containment failure of storage tanks or pipeline	Spill response plan Emergency Preparedness and Response Plan (both developed separately by Uz-Kor)	Appropriate storage, transfer and use of chemicals and fuel on site. Identify responsibilities, procedures and equipment required to deal with a spill. Identification of key risk points for containment failure within EPRP. During construction phases, intended to compliment and work alongside relevant CEMPs.	Immediately. Procedures to be communicated to contractors. Prior to commissioning for operations related procedures	Overall responsibility of spill response plan with Head Office EHS department. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	Implementation and effectiveness to be reported to State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector
Waste	Site Waste Management Plan (SWMP) (see Section 3.7)	See Section 3.7. Identify measures for minimisation of waste and safe disposal of construction wastes During construction phases, intended to compliment and work alongside relevant CEMPs.	Immediately. SWMP to be developed by contractors and monitored by Uz-Kor.	Overall responsibility of waste management plan with Head Office EHS department. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector
Drilling muds and cuttings	Drilling mud and cuttings management procedures.	Appropriate storage, handling, testing, transport and reuse of drilling mud or cuttings on site or disposal. See ESIA Volume III.	Immediately. Procedures to be communicated to contractors	Overall responsibility of drilling muds and cuttings plan with Head Office EHS Department. Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	State Inspectorate for Exploration Supervision, Operations Safety Supervision of Industry, Mining and Utilities Sector
Transport	Traffic Management Plan (see Section 3.8)	During construction phases, intended to compliment and work alongside relevant CEMPs. See Section 3.8.	Prior to main mobilisation / demobilisation periods. Plan to be developed with / by contractors.	Project Manager (construction) / General Manager (operation) responsible for implementation at project / operation level.	Karakalpakstan State Government transport and police departments
Labour Accommodation	Temporary Worker Accommodation Management Plan (see Section 3.9)	During construction phases, intended to compliment and work alongside relevant CEMPs. See Section 3.9.	Prior to main mobilisation / demobilisation periods. Plan to be developed with / by contractors.	Overall responsibility of workers accommodation plan with Head Office EHS department. Project Manager (construction) responsible for implementation at project / operation level.	Labour Agency at District level Ministry of Labour and Social Welfare at State level

Aspect	Plan / Policy	Objective / Content	Timescale	Uz-Kor Responsibility	Institutional responsibility
Archaeology	Chance finds procedure (see Section 3.10)	Refer to the World Bank's Physical Cultural Resources Policy Guidebook and Section 3.10. During construction phases, intended to compliment and work alongside relevant CEMPs. In particular, the procedure includes: • Definition of cultural resources / archaeological features • Ownership of the artefact • Recognition training • Procedure upon discovery: – Conditions and requirements for work stoppage – Fencing and protection of the find – Internal reporting – Expert analysis – Instructions for moveable finds	Immediately. Procedures to be communicated to contractors / requirement within contractors contracts.	Overall responsibility of chance finds procedure with Head Office EHS department. Project Manager (construction) responsible for implementation at project level.	Notification to the Archaeological Heritage Office / Institute of Archaeology.
Air Quality	Air Quality Monitoring Programme (see Section 3.11)	Monitoring programme to verify baseline concentrations of key pollutants assumed within the ESIA and monitor concentrations in an area of community exposure during construction and operation.	To commence as soon as practicable and no later than 6 months prior to commissioning. To be reviewed annually.	Overall responsibility of air quality monitoring programme with Head Office EHS department.	State Committee for Nature Protection (SCNP).

Aspect	Plan / Policy	Objective / Content	Timescale	Uz-Kor Responsibility	Institutional responsibility
Biodiversity	Biodiversity Action Plan (BAP) (see Section 3.12)	The overall goal of the Surgil BAP is to ensure that the Surgil Project leads to a net gain in biodiversity. The BAP includes the following information: • Determination of the regulatory requirements; • Summaries the ecological baseline conditions; • Summaries the key impacts of the development, and the required mitigation and compensation measures; • Identifies the overarching goal of the Surgil BAP; • Outlines the processes needed to establish the conservation priorities and identification of actions for the BAP actions; • Outlines the actions which need to be included in the implementation of the BAP; and • Outlines the monitoring, evaluation and improvement needs of the BAP to ensure that the Surgil development meets its obligations following the ESIA	Production of the Surgil BAP: 10 months prior to start of construction, including consultation	Uz-Kor will nominate a Project Wildlife Warden (PWW) with responsibility for delivering the Surgil BAP. EPC contractors will be required to have an identified Ecological Clerk of Works (ECW) to work in conjunction with the Uz-Kor PWW.	State Committee for Nature Protection

3.2 Construction Environmental Management Plan Framework

3.2.1 Background

The following sub-sections provide a framework construction environmental management plan to avoid, mitigate and minimise environmental and social impacts associated with construction activities and to provide the implementation vehicle of specific mitigation activities identified through the ESIA process. Each EPC contractor will be required to provide detailed CEMPs as part of their obligations under their EPC contracts. This framework CEMP will be included as an exhibit under each EPC contract as a basis for consistent approach to environmental and social management across various construction activities.

It is intended that the framework CEMPs plans to be elaborated by the EPC contractors will be complimented by an overall framework CEMP which will be elaborated by Uz-Kor. The detailed CEMP to be elaborated by Uz-Kor will compliment its overall Environmental, Health and Safety Management System to be developed specifically for the Project. Where relevant, under respective contracts, individual EPC contractor CEMPs will be supplemented with other dedicated management plans such as site waste management plans, traffic management plans, temporary worker accommodation management plan and chance find procedural plans. Frameworks for these plans are provided in later sub-sections.

All CEMPS will be required to strictly follow and comply with the general IFC Environmental, Health and Safety Guidelines (EHS) during construction activities at all construction sites (UGCC areas, upstream well sites, upstream CGTU, gas and condensate pipeline route etc.).

3.2.2 Objective

The overall objective of the CEMP is to ensure that the environmental and social impacts of construction activities are managed according to the best practices of the industry. Furthermore, the CEMP is intended to provide the implementation route of various mitigation activities specific to the Surgil Project as identified through the ESIA.

3.2.3 Approach

3.2.3.1 Preparation by EPC Contractors of CEMP

The various EPC contractors will be required to prepare a dedicated CEMP compliant with this framework and requirements of the Government of Uzbekistan which will be structured as follows:

1. A Master CEMP providing organisational and operational procedures for the implementation of both project specific mitigation as identified through the ESIA process and general best practices of the industry;
2. Parallel framework plans elaborating complimentary environmental / social management measures by themes and indicating the responsibility for implementation, technical details and how implementation will be monitored. Table 3.2 lists the main parallel plans expected to properly manage the construction activities and to be in compliance with the IFC EHS guidelines;

The content of the expected EPC contractor CEMP and the applicable guidelines and standards are defined in each EPC contract as specific exhibits and the EPC contractor is required to impose this content. The CEMP for each EPC contractor will include performance / monitoring indicators consistent with those presented in Section 2 of this ESMP.

Table 3.2: List of Parallel Framework Plans

Parallel Framework Plan	Sub-Section
Recruitment Policy	3.3
Retrenchment Policy	3.4
Labour Grievance Mechanism	3.5
Site Waste Management Plan	3.7
Traffic Management Plan	3.8
Temporary Worker Accommodation Management Plan	3.9
Chance Finds Procedure	3.10
Air Quality Monitoring Programme	3.11
Biodiversity Action Plan	3.12

The Contractor's CEMP documentation has the following objectives:

- Provide the environmental and social policy of the construction contractors;
- Provide operational and emergency procedures, developed to address the environmental aspects and risks associated with the construction activities;
- Clarify the implementation and operation of the CEMP to ensure that structure and responsibilities are assigned, staff is trained, aware and competent, and that there is proper communication, documentation, operational control and emergency preparedness and response;
- Provide organisational and technical procedures for implementation of the CEMP which ensure that construction activities associated with potential environmental and social impacts are carried out in a controlled and responsible way;
- Provide checking and corrective action through monitoring and measurement;
- Provide records collection and storage.

The various plans need to be approved by Uz-Kor ahead of implementation to check for consistency and that all committed mitigation activities have been adequately included and accounted for by the EPC Contractors. They will be submitted to IFIs and the lenders as part of the annual implementation plans.

3.2.3.2 EPC Contractor Monitoring of the Implementation of CEMPs

The various EPC contractors will be responsible for the implementation of these plans and for monitoring and assessing how environmental and social management at each site is undertaken. This monitoring will include the activities undertaken by their sub-contractors. This will be done through the monitoring of environmental controls at each site and for the overall construction activities in general.

Routine monitoring of construction sites and construction activities will be undertaken by the EPC Contractors in order to ensure that the requirements and measures specified in respective CEMPs are properly implemented and that the impacts are minimised or mitigated. This will be undertaken on a site-by-site basis.

The EPC contractors will employ specialist environmental, health and safety staff to undertake this monitoring. The EPC contractors will prepare and maintain reports of their inspections and ensure that corrective actions are taken when necessary and to track environmental performance.

3.2.3.3 Uz-Kor Monitoring and Auditing of the Implementation of CEMPs

Similarly Uz-Kor will employ a number of specialist site based environmental, health and safety staff to undertake the monitoring of each construction site and assess compliance with the IFC EHS guidelines. A system of non-conformance, using three levels of non-conformance, will be put in place to prioritise action according to importance and severity.

The non-compliance procedure will allow for the following safeguards:
1. Work can be stopped in the event of a serious non-compliance situation;
2. Follow-up visits will be required to verify that the situation has been appropriately rectified by the EPC Contractor;
3. Investigations will determine the causes of incidents and evaluate if changes need to be made to the documentation to prevent similar incidents from occurring in the future.

Periodic auditing will also take place, two months after construction has commenced at each site and six-monthly audit after that, to verify conformance and that the proper procedures are in place.

Together, monitoring, non-conformance systems and auditing will allow evaluation of environmental performance, analysis of causes of problems, assessment of compliance with contractual and legal requirements, and enable identification of required corrective actions.

3.2.4 Activities

3.2.4.1 Environment

As per the IFC EHS guidelines, the contractors are obliged to implement all reasonable measures with regards to noise and vibration, soil erosion, air quality, solid waste, hazardous materials, wastewater discharges, and contaminated land. Furthermore, the EPC contractors are required to adopt and implement those specific mitigation activities identified through the ESIA process and presented in Section 2 which are relevant to their construction activities.

3.2.4.2 Occupational Health and Safety

As per the IFC EHS guidelines, the contractors are obliged to implement all reasonable precautions to protect the health and safety of workers. Various aspects which should as a minimum be take into consideration include: the integrity of workplace structures, severe weather and facility shutdown, workspace and exit, fire precautions, lavatories and showers, potable water supply, clean eating area, lighting, safe access, first aid, disease prevention, communication and training, over exertion, slips and falls, work in heights, struck by objects, moving machinery, dust, confined spaces and excavations, protective equipments, etc. The occupational health and safety measures identified in the EPC contractors CEMP will be reviewed to ensure they are consistent with those measures included in Uz-Kor's overarching OHS management plan.

3.2.4.3 Community Health and Safety

In a similar way, as per the IFC EHS guidelines, the EPC contractors are obliged to implement risk management strategies to protect the community from (1) physical, chemical, or other hazards associated with sites under construction, (2) hazards associated with the increased traffic, (3) communicable and vector-borne diseases associated with the population of workers.

3.2.5 Staff and Resources

As indicated above, the preparation, approval, implementation, and monitoring of the various activities will require specialist environmental, health and safety staff both from Uz-Kor and from the side of the various EPC contractors and sub-contractors.

Dedicated equipment will also be required to undertake the monitoring of the various parameters.

As the respect of the IFC guidelines and need for a detailed CEMP is a contractual obligation for the EPC contractors, it will be up to each EPC contractor to staff its EHS divisions appropriately to be able to comply with these obligations.

To undertake this function, Uz-Kor intends to have a dedicated EHS senior Manager, assisted by two EHS officers, one EHS manager for upstream, one EHS manager for downstream, 4 EHS engineers and two environmental technicians, all permanent staff of the environment, health and social department. Uz-Kor will contract specialists to support its activities in this field, on an as-required basis.

3.2.6 Budget and Schedule

The cost of implementing the various measures, including the preparation of the various plans and their monitoring, by the EPC contractors is incorporated into the overall cost of the EPC Construction Contracts and is not mentioned here.

The cost of reviewing and monitoring these measures by Uz-Kor is presented in Table 3.3. It amounts to US$5.4 million pre-commissioning for CEMP Compliance monitoring and auditing with an additional $0.5 million committed for Uz-Kor's independent environmental monitoring under its own overarching CEMP. It does not include the cost of the associated programmes and activities such as construction social management (including implementation of recruitment policy, retrenchment policy, labour grievance mechanism, temporary workers accommodation management plan for which a combined indicative budget of US$1.74 million is identified) and the Community Investment Plan (US$2 million).

Table 3.3: Indicative Budget of Uz-Kor Environmental Monitoring and CEMP Monitoring / Auditing

Activity	Per Year Construction	Approximate Total for Construction Term	Per Year Operation
CEMP Compliance Monitoring / Auditing	$1,360,000	$5,440,000	$232,500
Uz-Kor Environmental Monitoring	$135,000	$540,000	$65,000

3.3 Recruitment Policy

The Local Recruitment Policy will include but not be limited to the following:

- Policy statement of Uz-Kor's commitment to meeting Uzbekistan Laws and international best practice with regards to recruitment and labour management including non-discrimination and equal opportunities;
- Description of the types of employment opportunities to be provided to local people from the construction and operational phases of the project including skills levels, indicative timeframes of recruitment, remuneration and benefits packages and likely duration of contracts;
- Description of the local recruitment processes including timely (at least once month prior to recruitment) disclosure of information about vacancies through community meetings with District Employment Committees as well as the job application procedures for candidates; and
- Information about how job opportunities are advertised equitably between the different villages in the assessment area to ensure equal opportunities for all local people subject to appropriate skills availability.

Where it is justified in respect of considerations of cost and quality, Uz-Kor and its contractors will adopt a quota for local staff and ensure that their unskilled labour workforce is proportionally distributed between ethnic groups (based on ethnic distribution in the region/district) and will be targeted towards poverty stricken areas in the Project locality, for example Muynak, without discrimination towards any specific disadvantaged ethnic groups (including Kazakhs and Uzbek/Koreans) taking into account that poverty is shared across ethnicity within Karakalpakstan and the Project localities.

Uz-Kor will monitor contractors in this regard, and where these quotas are not met, it will be incumbent Uz-Kor and Contractors to demonstrate absence of appropriate skills availability among the local population. Uz-Kor will disclose this policy document to the District offices of Muynak and Kungrad in the assessment area to promote transparency in the recruitment process and address community misconceptions of favouritism being shown to some villages over others.

3.4 Retrenchment Policy

Uz-Kor will develop a retrenchment policy to meet international best practice standards. The Retrenchment Policy will include but not be limited to the following:

- Statement of intent that: if Uz-Kor anticipates the elimination of a significant number of jobs or a layoff of a significant number of employees (i.e. in cases where this cannot be avoided), Uz-Kor will develop a plan to mitigate the adverse impacts of retrenchment on employees;
- The plan will be in accordance with Uzbekistan Law and based on the principle of non-discrimination;
- The plan will reflect the Uz-Kor's consultation with employees, their organizations and, where appropriate, the government;
- The retrenchment plan will be disclosed to employees at the outset of the process will in advance of any lay offs; and
- A grievance mechanism will be developed to deal with claims that any provisions in the retrenchment plan were not followed.

The policy will be formalised within Uz-Kor's Human Resources Management System.

3.5 Labour Grievance Mechanism Framework

The labour grievance mechanisms will include but not be limited to the following:

- A Uz-Kor policy statement that grievances can be raised by any member of staff without fear of reprisals;
- Response times for grievances categorised according to the severity of the grievance or the issue in question;
- A process for logging grievances and when and how they are closed out;
- A process for monitoring grievances to identify repeat or unresolved grievances and reporting these issues to senior management in order to expedite remedial action; and
- Contact details for staff to whom grievances should be raised.

The grievance mechanisms will be explained to all contractor and Uz-Kor staff on appointment and a notice summarising the approach and providing contact details for staff to whom grievances should be raised will be posted in the site accommodation areas and offices.

3.6 Community Investment Framework

3.6.1 Background

The ESIA identified that the local communities suffer from inadequate community infrastructure, facilities and services, high levels of poverty and deprivation and a lack of employment and livelihood opportunities for local residents. The local communities are in need of additional investment; however government finance is constrained in addressing these problems.

The Project will contribute to addressing these challenges through the implementation of Community Investment Programmes (CIP) which channel private sector finance and other resources into community development in partnership with local community stakeholders. CIPs are increasingly being used by infrastructure developers to go beyond compliance with minimum regulatory requirements, by providing long-term sustainable community development benefits.

Uz-Kor recognises that while local communities clearly benefit from CIPs, private companies also benefit, for example, through better community relations, increased ability to attract and retain employees, increased sales and customer loyalty, meeting investors' expectations for responsible behaviour, enhanced corporate image, and even improved financial performance.

CIPs can also contribute to the local government management of induced development effects by supporting local infrastructure and developing local capacity to assimilate migrant populations.

This Community Investment Framework (CIF) lays the foundation for the development of targeted CIPs throughout the lifecycle of the Project.

3.6.2 Objectives

The primary goal of this CIF is to provide a framework for the development and implementation of specific CIPs that will be used by Uz-Kor to implement a number of the ESIA mitigation and enhancement commitments outlined in Section 2, namely:

- Prioritise employment and training for locals and women based on proportional distribution of jobs between ethnic minorities (for example Karakalpaks and Kazakhs) corresponding with the ethnic distribution in the districts and region.
- Modify procurement practices in order to maximise local community benefits, especially for women and ethnic minorities.
- Provision of money management brochures for local communities to reduce the impact of boom/bust cash flow scenarios for construction workers and local people who may benefit from economic opportunities as a result of the project.
- Implementation of the cross cutting gender equality actions elaborated in the ESIA.

In addition to facilitating these specific ESIA commitments, this CIF lays the parameters for the creation of CIPs that include a wide range of community investment activities designed to promote community development. The approach to developing CIPs and the types of community investment activities that will be considered for inclusion within them, is elaborated in the following sub-section.

3.6.3 Community Investment Programme Approach and Activities

Uz-Kor will implement CIPs that are designed to meet the needs and demands of local communities and foster the development of long-term sustainable relationships with these communities. The CIPs will be underpinned by the principles of transparency, inclusiveness and fair and equitable distribution of benefits.

The CIPs will be developed in partnership with local community stakeholders. Communities will be mobilized to form Community Investment Stakeholder Committees (CISC) with targeted representation from local community members, women and ethnic minorities. The committees will be assisted to prepare Community Investment Plans for each settlement in order to decide how funds will be utilized.

The first stage in the preparation of CIPs will be for the CISC to hold a participatory community needs assessment workshops where annual CIP budgets will be allocated between different CIP components (health, education, environment, etc) and specific activities to be funded. The draft CIPs must be agreed on a consensual basis by the CISC.

The draft CIP which will then be disclosed in a leaflet format to local communities for a four week comment period, where community stakeholders can propose alternative or additional components or activities. After this, the CIP will be finalised, disclosed to the communities and implemented on an ongoing basis throughout the year.

This process will occur annually as the CIPs are revised. After the first CIP has been developed, stakeholders will be able to provide written proposals for investment that will be considered during each annual revision period.

CIPs components and activities that will be proposed to the CISC for consideration will include various types of social, environmental and economic activities that cut broadly across social and environmental sectors and fall outside of most of Uz-Kor's core business. Examples of the types of components and activities that could be considered are presented in Table 3.4.

Table 3.4: Examples of Community investment Programmes that will be Considered

Examples of CIP Component	Examples of Activities
Education	Provide college or technical school scholarships for deserving students, in particular from poor families, cultural minorities, physically handicapped persons, and single parent families.
	Use skilled company personnel to offer training in basic accounting, computer applications, management, inventory control, and so forth for microenterprises and community based organizations.
	Support educational programs to enhance productive skills for women, such as running small businesses, sewing, and crafts production.
	Develop a community computer-resource centre, including donations of older computers and computer time.
	Provision of text books, warm clothing and/or feeding programs for school children as a means to encourage school attendance.
Health	Support a health clinic or sponsor visits by medical personnel, including company doctors and nurses.
	Upgrade the community's potable water system and provision of small water desalination plants which have been implemented in other parts of Karakalpakstan with success.
	Promote women's health-care issues, including maternity and prenatal care..

Examples of CIP Component	Examples of Activities
	Support alcohol and substance abuse programs
	Improved heating through greater gas pressure supply, recognising that the cold conditions greatly effect household health
Poverty Reduction	Finance a self-sustaining endowment for a microcredit program, or financing for small and medium enterprises.
	Provide financing, technical, and managerial assistance to develop cooperatives in areas such as crafts, food services, and building materials, and provide marketing assistance.
	Expanding access to solar panelling which has been introduced in remote areas of Karakalpakstan to provide lighting, radio and TV use, water pumping and street lighting, which provides recreation opportunities and greater safety in public areas.
	Sponsor social and financial empowerment programs for poor women and ethnic minorities.
Community empowerment and development	Offer company facilities and funds to be used by community groups.
	Build, maintain, and support multipurpose community centres.
	Develop local centres to provide internet and telephone access.
Environment	Promote water conservation and re-use programs.
	Provide support to local environment-friendly (responsible) companies.
	Promote use of barren land for sustainable housing, reforestation, or other environmental use.
Cultural and historical heritage	Sponsor an inventory of local cultural and historical resources, especially related to the Karakalpak traditional way of life.
	Host exhibitions of employee, family, and community art, culture, and history.
	Provide space for clubs or groups to discuss local history and culture.

Some of the example activities in the above table are closely linked to ESIA commitments already defined, for example those related to providing technical scholarships for students. Others are tailored to addressing other community needs identified throughout the ESIA process, for example those related to water shortages. Addressing gender equality will be a cross-cutting objective of all activities.

3.6.4 Monitoring and Reporting

The CISC will be responsible for preparing monitoring reports every six months to ensure that allocated funds are being spent as intended, and to assess the results and sustainability of the investment, and suggest revisions to the annual CIP where/if considered necessary.

Summary monitoring reports will be provided included in the Project's and Uz-Kor's overall reporting mechanisms and the detailed monitoring reports will be provided to recipients of funding and made available to stakeholders upon request from the CLO.

3.6.5 Staff and Resources

It will be the responsibility of the Uz-Kor CLO to oversee the design and implementation of the CIPs in a participatory manner in partnership with local community stakeholders. The first task will be to appoint the CISC, which will include the representatives of the following as a minimum:

- Existing community residents of Uchsay, Akchalak and Elabad;
- New worker community residents who will be living in the Akchalak settlement;
- Local community ethnic minorities and women; and
- Local Aksakals and other community government representatives.

The CISC will be responsible for the monitoring of CIP implementation and reporting will be the responsibility of the CLO and Uz-Kor.

There are a number of non-governmental organisations working in the local communities and there are international development agencies working more widely in Karakalpakstan with whom the Project will consider partnering for the implementation of the CIP. Relevant bodies will be engaged through inclusion in all CIP activities.

3.6.6 Budget and Timescales

The three project affected settlements (Uchsay, Akchalak and Elabad) will be the target beneficiaries of the CIP funds and an annual CIP fund will be split between the according to the decision of Uz-Kor and the CISC. The indicative annual budgets are presented in Table 3.5 below.

Table 3.5: Indicative Budget and Timescales

Annual activities	Timescale	Indicative Cost Estimate (per year)	
		Construction	Operations
CIP development / revisions[1]:	Total 6 weeks (annually)	$10,000	$5,000
Participatory needs assessment workshop and drafting of CIPs	1 week		
Disclosure of draft CIPs to communities	4 weeks		
Revision to address comments and finalisation of CIPs	1 weeks		
Implementation:	Ongoing	$480,000	$340,000
Monitoring and reporting:	Bi-annual	$10,000	$5,000
Total:		**$500,000[2]**	**$350,000[3]**

The above budget is indicative and will be revised by Uz-Kor according to needs of the community.

[1] The CIP will be revised on an annual basis. CISC members will work largely on a voluntary basis but will a small allowance for their time and expenses will be covered.

[2] This includes $50,000 for the gender equalities actions.

[3] This includes $50,000 for the gender equalities actions.

3.7 Site Waste Management Plan Framework

3.7.1 Background

This section presents a structure for a site waste management plan (SWMP) which Uz-Kor and EPC Contractors will use and develop further in order to create a fully bespoke SWMP's for each of the relevant components of the Project. The SWMPs should be complimentary and in parallel to the EPC contractors CEMPs.

3.7.2 Objective

The overall objective of a SWMP is to ensure that waste generated is segregated and managed appropriately in order to ensure maximisation of re-use and recycling and overall waste minimisation. Furthermore, the SWMPs ensure that residual waste requiring off-site management is managed according to best practices of the industry.

3.7.3 Approach and Activities

The following key steps will need to be considered for each SWMP:

- Identify who is responsible for each key stage and inform individuals of their responsibilities. They will be required to hold sufficient authority to ensure compliance with the WMP by other site operatives;
- Identify the types and quantities of waste - all waste streams that will be produced during construction, operation and decommissioning require to be identified;
- Identify waste management options - Where hazardous wastes are being generated, particular attention to the arrangements for identifying and managing such waste will need to be addressed and procedures put in place;
- Identify suitable waste management sites / landfill sites - the location of waste management sites will need to be identified, ideally the most local sites should be used to minimise transportation costs. Use waste disposal contractors that comply with the environmental legislative requirements of the local and national area;
- Training - all staff must be trained to ensure they understand the requirements of the WMP;
- Plan - using the steps above, establish indicative percentages of the waste quantities to be produced over the life span of the Project;
- Measure - the quantities of wastes produced should be recorded on a monthly basis, and where possible measures taken to re-use, reduce or recycle waste as appropriate; and
- Monitor - throughout the Project life cycle, waste management on site should be monitored, to ensure compliance with the WMP;
- Hazardous Classes – hazardous wastes should be classified according to national requirements ;
- Identify waste management options - as described in the construction and operational ESMPs provided in Volume II, a waste hierarchy of reduce, reuse, and recycle and needs to be considered and prepared. Where hazardous wastes are being generated, particular attention to the arrangements for identifying and managing such waste will need to be addressed and procedures put in place;

Within each WMP it maybe necessary to provide bespoke disposal management plans for various waste streams, particularly those considered hazardous or which are potentially problematic in terms of storage and/or disposal. Where required, these will be prepared as supplementary documents and will be linked to the relevant WMP for the project component (i.e. Surgil Field, Pipelines or the UGCC). Some of the expected waste disposal management plans for the Project are, but not necessarily limited to the following:

- Slug collection and disposal management plan;

- Collection and disposal management plan for waste oils;
- Collection and recycling plan for waste catalysts, and;
- Collection and recycling plan for polymer waste.

The example SWMP given in this instance is for drilling phase to expand the Surgil Field. It has been designed to be broadly applicable to each component of the Project and each phase (i.e. construction, operation and eventual decommissioning). However, it is acknowledged that each of the SWMP headings may not be fully applicable to each aspect of the Project so it is expected that some minor modifications will need to be made in order to specifically tailor certain parts of the document. In particular, some of the roles and responsibilities may need to be redefined and this will happen prior to the commencement of each component phase.

3.7.4 Implementation (Monitoring, Staff Resources, Budget)

Each SWMP which is subsequently developed for each component of the Project will become controlled documents and form part of the CEMP documentation being parallel plans.

Monitoring requirements of the EPC contractors and Uz-Kor in relation to the elaboration and implementation of SWMPs is consistent with that described previously for the CEMPs. Staff and resources for both EPC contractors and Uz-Kor is the same as those previously defined for CEMP implementation. Furthermore, Uz-Kor monitoring budget is included under the overall CEMP monitoring budget previously presented.

3.7.5 Example SWMP for Gas Field

Document Title and Number

Document Title: Site Waste Management Plan (SWMP) for the drilling phase of the Upstream Surgil Gas Field.

Document Number: TBC

Version History

Rev 1 First issue

Location

The Upstream Surgil Gas Field which is located in the district of Muynak, within the footprint of the former Aral Sea basin.

Nature of Operations

The drilling of wells for the abstraction of gas from the Surgil Gas Field including expansion of the complex gas treatment unit (CGTU) for the removal of hydrocarbons and water.

The Project intends to develop the Surgil Field to an approximate total of 160 wells between 2007 and 2035, with an anticipated 78 wells drilled in the first 4 years. Over the period of production, a total of 81.8 billion m^3 of gas (61% of overall reserve) and 2.8 million tons of condensate (48% of overall reserve) will be extracted.

Relevant Policy and Legislation

National Laws

- Law of the Republic of Uzbekistan on Wastes No.362-II of 05.04.2002 (as amended on 04.01.2011);
- Law No.754-XII on Nature Protection dated December 9, 1992 (as amended on 04.01.2011).

Regulations

- Decree of the Cabinet of Ministers of the Republic of Uzbekistan on Improving the System of Pollution and Waste Disposal Charges in Uzbekistan No.199 of 01.05.2003 (as amended on 02.04.2010);
- Decree of Oliy Majlis of Uzbekistan on Enactment of the Law of the Republic of Uzbekistan on Wastes issued on 05.04.2002 No.363-II;
- Decree of the Cabinet of Ministers of the Republic of Uzbekistan on Enhancing the Use and Recycling of Mercury Lamps and Devices No.405 of 23.10.2000.

Guidelines and Instructions

- O'z RH 84.3.22:2006 - Production and consumption waste. Waste inventory and waste disposal limits approval procedure (issued by the Goskompriroda of Uzbekistan, 2006);
- O'z RH 84.3.21:2005 - Production and consumption waste. Guidelines for setting waste generation norms (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.19:2005 – Environment Protection. Production and consumption waste management. Terms and definitions (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.18:2005 - Production and consumption waste. Waste Data Sheet (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.17:2005 - Production and consumption waste. Procedure for developing the Waste Disposal Limit Document (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.16:2005 - Production and consumption waste. Guidelines for setting waste disposal limits (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.15:2005 - The waste inventory procedure (issued by the Goskompriroda of Uzbekistan, 2005);
- O'z RH 84.3.11:2004 - Requirements for handling mercury and its compounds, mercury-based waste, and mercury containing devices (issued by the Goskompriroda of Uzbekistan, 2004);
- O'z RH 84.3.10:2004 – Regulation on handling mercury-containing products in the Republic of Uzbekistan (issued by the Goskompriroda of Uzbekistan, 2004);
- O'z RH 84.3.8:2004 – Methodology for integrated waste hazard rating (issued by the Goskompriroda of Uzbekistan, 2004);
- Instruction for hazardous wastes generation, use and storage reporting as per Form No.3 - Hazardous Waste (half-year, annual reporting) (issued by the State Statistics Department of the Republic of Uzbekistan, 1997);
- KMK 201.12-96 – A Landfill for burial and land storage of industrial hazardous wastes. Tashkent, 1996;
- Provisional waste norms for cities and regions of Uzbekistan approved by khokims.

SanPins and GOSTs

- SanPiN RUz №0157-04 - Sanitary requirements for storage and disposal of municipal solid waste at MSW landfills in Uzbekistan;
- SanPiN RUz №0128-02 29.07.02 - Hygienic classifier of toxic industrial waste;
- SanPiN RUz №0127-02 29.07.02 – Sanitary procedures for industrial waste inventory, classification, storage and disposal;

- SanPiN RUz №0068-96 - Sanitary regulations for collection, storage, transportation, disposal and recycling of municipal solid waste (MSW);
- GOST 17.0.0.05-93 - Unified system of standards for environmental protection and rational use of resources. Waste Data Sheet. Composition, content, presentation and amendment procedures (adopted as the interstate standard by Uzstandart letter № 05/01-144 of 11/06/2003);
- GOST 30333-95 Material Safety Data Sheet. Basic principles. Information on safety during production, use, storage, transportation, and recycling (adopted as the interstate standard by Uzstandart letter №05/01-144 от 06.11.2003);
- GOST 17.9.0.2-99 Environment protection. Waste management. Waste Data Sheet. Composition, content, presentation and amendment procedures (adopted as the interstate standard by Uzstandart letter №05/01-144 от 06.11.2003);
- GOST 17.9.1.1-99 Environment protection. Waste management. Waste classification. Waste definition by the genetic principle and categorization (adopted as the interstate standard by Uzstandart letter №05/01-144 от 06.11.2003);
- GOST 30774-2001 Resources saving. Waste management. Waste Hazard Data Sheet. Main provisions (adopted as the interstate standard by Uzstandart letter №05/01-144 от 06.11.2003);
- GOST 30775-2001 Resources saving. Waste management. Identification and coding. Main provisions (adopted as the interstate standard by Uzstandart letter №05/01-144 от 06.11.2003).

International

- IFC General EHS guidelines (2007)
- IFC Onshore Oil and Gas Development (April 2007);

Roles and Responsibilities

The drilling contractor's Site Manager is the SWMP co-ordinator and is therefore responsible for ensuring the instruction of workers, implementation and overseeing of the SWMP.

The Operations Manager will monitor the effectiveness of the SWMP during routine site visits. Independent audits will also be conducted. Roles and responsibilities are defined in Table 3.6.

Table 3.6: Roles and Responsibilities

Position	Name	Responsibility	Contact details
Site Manager (drilling contractor)	TBC	Co-ordination of the SWMP	TBC
Operation's Manager (Uz-Kor)	TBC	Monitoring the effectiveness of the SWMP	TBC
EHS Manager (Uz-Kor)	TBC	Internal auditing. Recommending changes to the SWMP	TBC
Document controller (Uz-Kor)	TBC	Logging audit findings and making amendments to the SWMP	TBC

Distribution

The drilling contractor's Site Manager should distribute copies of the SWMP to each sub-contractor where relevant. This should be undertaken each time the SWMP is updated.

Instruction and Training

The drilling contractor's Site Manager should provide on-site briefing via induction sessions of the SWMP and in particular the appropriate separation, handling, recycling and re-use methodologies for all waste streams. Regular toolbox talks are to be carried out on waste issues with sub-contractors expected to attend.

Waste Management Hierarchy

From the outset the Project has looked at ways in which waste production can be minimised. All sub-contractors are likewise expected to periodically review their operations to also ensure they are minimising waste arisings wherever possible in the first instance.

Residual waste materials which can't be avoided fall into three categories for management as follows:

- Re-use
- Recycle
- Recovery
- Landfill

If surplus materials can be used in the permanent works they are classified as materials which have been re-used. If they are surplus to requirements and need to be removed from site and they can be used in their present form they can be removed from site for re-use.

When the surplus material cannot be re-used in its present form but could be used in a different form, it is sent for recycling or recovery (i.e. used for fuel in power or heat generation).

If any of the first three options cannot be satisfied then the only option left is to send surplus materials to landfill.

Continual review of surplus materials being produced will be ongoing and where the site set up can be changed to maximise re-use or recycling then this will be undertaken. The use of landfill is to remain the last resort.

Waste Management on Site

Surplus or waste materials arise from either the materials imported to the site or from those generated on site. The drilling contractor is required to store and dispose of each waste stream in accordance with the measures detailed in Table 3.7.

It should be noted that the drilling contractor's Site Manager is required to organise a toxicity test of drilling muds prior to drilling activities taking place so that bespoke disposal arrangements can be made for waste mud arisings should they be required.

Table 3.7: Waste Streams and Associated Waste Management

Waste stream	Waste classification under Uzbek Legislation	Source of waste	Temporary storage method	Disposal	Comments
Drilling mud	TBC after toxicity testing	From drilling activities	Collected in dedicated drilling waste disposal basins lined with clay or other impermeable liner constructed near the gas wells.	Neutralised and mixed with hardening agents such as cement or proprietary hardening agent to stabilise the drilling waste and react and encapsulate hydrocarbon contaminants and other drilling mud additives. Solidified material settles creating a solid layer that builds up over the duration of operation of the disposal basin.	Toxicity testing of drilling muds prior to drilling commencing.
Produced sand	IV	From drilling activities	To be treated as oil contaminated waste	Sent to licensed waste oil disposal facility	Sand production to be minimised using downhole measures
Tank cleaning cuttings	III	Cleaning during the maintenance of tank internal surfaces from the gas condensate tank farm		Disposal to territory landfill	None
Waste glands	IV	Gland replacement during repair of gate valves	Stored with the hard domestic waste (HDW)	Disposed along with hard domestic waste (HDW)	None
Iron and steel scrap	III	Generated during process equipment repair	Segregated and stored in the waste storage area	Sent for recycling to Vtorsvetmet	None
Non ferrous metal	III	Generated during process equipment repair	Segregated and stored in the waste storage area	Sent for recycling to Vtorsvetmet	None
Stubs	III	Generated during electrical welding works	Segregated and suitably protected storage	Sent for recycling to Vtorsvetmet	None
Hard domestic waste	IV	From the workers settlement	Temporarily stored in a segregated waste storage area	Disposal to territory landfill	None
Sweepings from asphalt area	IV	Generated during process equipment repair	Stored with the hard domestic waste (HDW)	Disposed along with hard domestic waste (HDW)	None
Oil contaminated cleaning cloths	IV	Generated during process equipment repair	Segregated and suitably protected storage	Sent to licensed waste oil disposal facility	None
Mercury lamps	II	Facilities such as offices and	Careful segregated storage.	Sent to licensed mercury disposal	None

Waste stream	Waste classification under Uzbek Legislation	Source of waste	Temporary storage method	Disposal	Comments
		other lighting equipment	Avoiding glass breakage is important due to the mercury content.	facility.	
Food waste	IV	From the workers settlement	Container near the dining room trailer	No waste all used by dinning room personnel	None

Temporary Waste Storage and Segregation

On-site waste storage facilities are mainly for non-hazardous wastes, but also include for storage of waste oils and drilling chemicals. Each waste type is to be stored in the segregated waste storage facilities provided to allow recycling and reuse where appropriate. Any hazardous waste is to be segregated and stored in a separate area from non-hazardous waste. Uzbek regulations require certain materials such as scrap metals to be recycled, but there are also a range of other wastes that will also be sent to recycling facilities including paper, cardboard, waste wood, waste glass and plastics.

A map showing the correct waste storage locations is to be prepared by the Operation's Manager (Uz-Kor) and included as part of this SWMP in order to inform the workforce where to correctly dispose of waste materials.

Recycling and waste bins are to be kept clean and clearly marked in order to avoid contamination of materials. If skips are clearly identified, the bulk of the workforce will deposit the correct materials into the correct skip. Skips and bins for segregation of waste identified currently are as follows:

- Iron and steel scrap
- Non-ferrous metal scrap
- Stubs
- Hard domestic waste
- Oil contaminated cleaning cloths
- Mercury lamps

If processes change and new waste streams arise then the opportunity to segregate these waste streams should be explored and provisions made to allow segregation.

Monitoring, Reporting and Auditing Requirements

SWMP requirements with respect to monitoring, reporting and auditing are provided in Table 3.8 and the template for recording monthly waste volumes is provided in Table 3.9.

Table 3.8: Monitoring, Reporting and Auditing Requirements

Aspect	Frequency	Responsibility	Reporting	Comments
Waste related environmental incidents	As they arise	Member of staff who discovers the incident Site Manager (drilling contractor)	Environmental incidents to be immediately reported to the Site Manager (drilling contractor) and onto the Operation's Manager (Uz-Kor) upon discovery All incidents are to be recorded	None
Site walkover, including the waste storage areas	Daily	Site Manager (drilling contractor)	Comments to be put into the site diary. Any issues elevated to the Operation's Manager (Uz-Kor)	None
Site walkover to monitor effectiveness of the SWMP	Approximately weekly	Operation's Manager (Uz-Kor)	Discussion's with the Site Manager (drilling contractor) regarding the effectiveness of the SWMP	None
Follow a waste consignment to ensure correct final disposal	Once every six months	Site Manager (drilling contractor)	Prepare a short report to be issued to Operation's Manager (Uz-Kor)	Required in accordance with IFC General EHS guidelines (2007) Required under Law on Wastes No.362-II of 05.04.2002
Waste carrier licences to be obtained	Every time a new waste contractor is engaged	Site Manager (drilling contractor)	A copy of waste carrier licence to be kept on site	Required under Law on Wastes No.362-II of 05.04.2002
Waste transfer notes to be obtained	Each waste uplift from the site	Site Manager (drilling contractor)	A copy of each waste transfer note to be kept on site	Required under Law on Wastes No.362-II of 05.04.2002
Record waste volumes generated by the site and indicate the final disposal option for each waste stream by volume	Monthly	Site Manager (drilling contractor)	Completed monthly and to be issued to the Operation's Manager (Uz-Kor) Report sent to respective authorities (the Waste Inventory Document, the Waste Data Sheet, Waste Hazard Data Sheet, Form № 3- Environment. Toxic Waste Generation, Handling and Storage Report)	Required under Law on Wastes No.362-II of 05.04.2002
Review of current operations to further minimise waste and current waste disposal options	Annually	Site Manager (drilling contractor)	Review of the processes to highlight ways in which waste can be minimised. Review of currently available and feasible waste disposal options to ensure they continue to represent best practice. Brief report highlighting any recommendations to be issued to	Required under Law on Wastes No.362-II of 05.04.2002

Aspect	Frequency	Responsibility	Reporting	Comments
			EHS Manager (Uz-Kor) and Operation's Manager (Uz-Kor)	
Audit of waste management practices on site and the effectiveness of the SWMP	Annually	EHS Manager (Uz-Kor)	Audit report to be prepared on the waste management practices on site. Report to include any recommendations and actions for improvement as applicable	None
Rate the level of generated waste hazard	Every 5 years	Site Manager (drilling contractor) in conjunction with the EHS Manager (Uz-Kor) and the Operation's Manager (Uz-Kor)	Waste hazard report to be prepared and issued to the respective authorities	Required under Law on Wastes No.362-II of 05.04.2002

Table 3.9: Waste volume recording

Waste stream		January	February	March	April	May	June	July	August	September	October	November	December
Drilling mud	Re-use												
	Recycling												
	Landfill												
Produced sand	Re-use												
	Recycling												
	Landfill												
Tank cleaning cuttings	Re-use												
	Recycling												
	Landfill												
Waste glands	Re-use												
	Recycling												
	Landfill												
Iron and steel scrap	Re-use												
	Recycling												
	Landfill												
Non ferrous metal	Re-use												
	Recycling												
	Landfill												
Stubs	Re-use												
	Recycling												
	Landfill												
Hard domestic waste	Re-use												
	Recycling												
	Landfill												
Sweepings from asphalt area	Re-use												
	Recycling												
	Landfill												

Waste stream		January	February	March	April	May	June	July	August	September	October	November	December
Oil contaminated cleaning cloths	Re-use												
	Recycling												
	Landfill												
Mercury lamps	Re-use												
	Recycling												
	Landfill												
Food waste	Re-use												
	Recycling												
	Landfill												
TOTAL	Re-use												
	Recycling												
	Landfill												

Relevant Signatures

Site Manager (drilling contractor): Date:

Operation's Manager (Uz-Kor): Date:

3.8 Traffic Management Plan Framework

3.8.1 Introduction

Pre-defined access routes will be used by long, wide and/or heavy load vehicles transporting power plant components, e.g. turbines, condensers, cooling towers, electrical equipment. These routes will be agreed with the relevant authorities in advance and the police will be notified.

A number of abnormal loads will be generated through construction activity associated with but not limited to:

- Drilling rigs
- Construction plant
- Gas turbine – engine/generator;
- Cooling tower – prefabricated elements
- Ethylene plant;
- HDPE and PP plant; and
- Storage tanks.

3.8.2 Delivery Plan

UGCC and CGTU components shall be delivered to site in accordance with the following:

- Plant to be delivered in sufficient time to meet the agreed erection programme;
- Plant to be delivered in accordance with the requirements of the local municipality, police and road authority
- Loads to be delivered to site by road and stored on site. It will be the contractor's responsibility to identify a suitable storage location and obtain any necessary authorisations;
- A pilot escort vehicle should be used to provide an escort for all abnormal load vehicles travelling to the site. The general preference in these situations is to employ a convoy system, with a vehicle at the front and rear to warn oncoming vehicles of the approaching load. The escort would also help to minimise disruption of flow for other road users by pulling the convoy over at pre-identified locations to allow build up of following traffic to pass. Drivers responsible for operating the convoy should be fully briefed on the route, where and when to make the pre-defined stops, and be aware of all contingency measures in place in the event of an incident occurring. All vehicles and lead traffic management staff shall be in contact with the use of two-way radios;
- Employ additional traffic management staff (to be agreed with police if required prior to transportation) for any locations where pedestrians are most likely to be present;
- Ensure clear roadways to allow transporters passage through geometrically constrained sections of the route. At strategic locations parking will need to be restricted at times of delivery; and
- Develop contingency plan, in consultation with the police, to cover an event where an abnormal load becomes immovable on the public road, for any reason (for example, breakdown, un-anticipated route restriction, accident).

A driver's induction for abnormal load vehicles will include:

- Safety briefing including detail of all contingency measures;
- The need for appropriate care and speed control;
- Identification of specific sensitive areas; and
- Clarification of identified route, the requirement not to deviate from this route, the requirement to adhere to convoy system and pull over at pre-defined points to allow build up of traffic to pass.

3.8.3 Site Traffic

The following points will apply to general site traffic:

- General site traffic and general construction traffic will not require the presence of an escort when travelling to and from site;
- Drivers shall be aware of route and contingency measures as pre-defined at induction stage;
- Drivers of HGV are to be briefed in good road practice and will be instructed to pull over on narrow sections of road to allow build up of traffic to pass;
- All general site traffic and construction vehicles, including concrete related deliveries, will run to coincide with site working hours;
- Normal load construction vehicles will use a defined route and obey site speed limits, which will need to be agreed for each construction phase;
- Signage will be kept to a minimum, however temporary direction signs indicating local routes to site and site entrances will be required at strategic locations on local roads;
- The detailed signing arrangement will be agreed between the appointed contractor in close liaison with the local municipality and the police service;
- Wherever possible, arrangements will be made for site workers to be transported to site via shared transport to minimise unnecessary traffic movements locally; and
- The contractor will be required to implement induction procedures and regular up-dates for all drivers to establish and promote an overall culture of safety and awareness of other road users.

3.8.4 Implementation (Monitoring, Staff Resources, Budget)

Each Traffic Management Plan Framework which is subsequently developed for each component of the Project will become controlled documents and form part of the CEMP documentation being parallel plans.

Monitoring requirements of the EPC contractors and Uz-Kor in relation to the elaboration and implementation of Traffic Management Plan Framework is consistent with that described previously for the CEMPs. Staff and resources for both EPC contractors and Uz-Kor is the same as those previously defined for CEMP implementation. Furthermore, Uz-Kor monitoring budget is included under the overall CEMP monitoring budget previously presented.

3.9 Temporary Worker Accommodation Management Plan Framework

3.9.1 Background

The ESIA Volume II identified the need for special considerations and measures to ensure that the health, safety, security and well-being of temporary workers, and where relevant, their families is upheld in both the construction phase of the Project and across all camps in the upstream and downstream areas. To meet this requirement, this subsection presents a framework of the Temporary Workers Accommodation Management Plans to be elaborated and implemented by the EPC contractors during construction.

3.9.2 Objectives

The overarching goal of the plans will be to ensure that workers accommodation complies with international best practice as exemplified by "Workers' accommodation: Processes and standards, a guidance note by IFC and the EBRD" (2009).

Specific objectives of the plans will include ensuring that workers accommodation is:

- Provided free of charge to workers;
- Provides adequate living space for each worker;
- Provides sanitary, laundry and cooking facilities and potable water;
- Has adequate health, fire safety measures including first aid and medical facilities;
- Has adequate heating and ventilation;
- Non-restrictive to workers' freedom of movement to and from the accommodation.

The ways in which the plan is to meet these objectives is elaborated in the sub-section below.

3.9.3 Approach and Activities

Temporary Worker Accommodation Management Plans will be developed for all new construction accommodation camps prior to them being inhabited as per each EPC contract requirements. These plans will be developed in accordance with international best practice guidance and follow a standard format addressing the following:

- Assessment of the need for workers' accommodation (availability of workforce, availability of existing housing; and assessment of impacts of workers' accommodation on communities including:
  - Specific impacts during the construction phase;
  - Community infrastructure;
  - Community services and facilities;
  - Local businesses and local employment;
  - Community health and safety;
  - Community cohesion; and
  - Dismantling and reinstatement.
- Demonstrating how national and international best practice standards for workers' accommodation will be met in relation to:
  - General living facilities;
  - Room/dormitory facilities;
  - Sanitary and toilet facilities;
  - Canteen, cooking and laundry facilities;
  - Standards for nutrition and food safety;

  - Medical facilities; and
  - Leisure, social and telecommunication facilities;
- Description of the management and monitoring approach, structure, roles and responsibilities of the accommodation area in relation to:
  - Management and staff structure;
  - Charging fees for accommodation and services;
  - Health and safety on site;
  - Security of workers' accommodation;
  - Workers' rights, rules and regulations;
  - Consultation and grievance mechanisms; and
  - Management of community relations.

These plans will be integrated with the fire-fighting and safety response plans.

3.9.4 Staff and Resources

Temporary accommodation will be provided for the construction workers for each component of the Project. The construction of the temporary accommodation and supporting facilities will be the responsibility of the EPC contractor. Uz-Kor will review and approve the EPC contractors and drilling contractors elaborated Temporary Worker Accommodation Management Plans for the construction phase of the Project.

It is noted that the Heads of Works EPC contract includes an overarching statement that commits the contractor to the adherence with international lender standards. However Uz-Kor will ensure that during the contract negotiation stage the EPC contractor fully understands their obligations.

The EPC contractor will be required to appoint or assign duties to an Accommodation Manager to implement the Temporary Workers Accommodation Management Plans and ensure that international standards are followed and the accommodation is well maintained.

The Uz-Kor Project Manager and EHS Manager will audit the accommodation facilities and workers grievance log in relation to these areas on a monthly basis and will implement corrective actions where non-compliance with the plans is identified. Monitoring reports will feed in to the overall reporting schedule for the Project as explained in section. Workers will be able to submit complaints directly to Uz-Kor at any time through the workers' grievance mechanism.

3.9.5 Budget and Timescales

The cost of developing and implementing the Temporary Workers Accommodation Plans will be the responsibility of the EPC contractors.

Uz-Kor has set aside an annual budget of Audit of $35,000 to audit and report on the workers camps.

3.10 Chance Finds Procedure

3.10.1 Overview

Effective protection of cultural heritage is based on an understanding of the key issues, appropriate assessment and the correct action to minimise damage or loss. As unknown features / objects could be encountered during works, in particular earthworks, a 'chance finds procedure' will be in place to stop works and require investigation by an archaeologist in case of such findings.

This section of the ESMP contains a 'chance finds procedure' for use by the EPC contractors and drilling contractors. Uz-Kor will consult with the relevant authorities (the Institute of Archaeology and Ethnography at the Uzbek Academy of Sciences in Nukus) and NGO's including "Golden Heritage of the Aral" and "Karakalpak State Art Museum" to ensure that it is acceptable to them and that it complies with local and national regulations. Updates or amendments will be made by the EPC contractors and drilling contractors where appropriate.

3.10.2 Framework Chance Finds Procedure

3.10.2.1 Definitions

'Chance finds' are defined for the purposes of this procedure as physical cultural resources encountered unexpectedly during project implementation.

'Physical Cultural Resources' (PCR) are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, palaeontological, historical, architectural, religious, aesthetic, or other cultural significance. Their cultural interest may be at the local, provincial, national or international level.

3.10.2.2 Ownership

The ownership of any chance finds discovered on the Project will be determined by the Institute of Archaeology and Ethnography at the Uzbek Academy of Sciences in Nukus.

3.10.2.3 Recognition

So that the contractor and employees such as equipment operators and supervisors on the Project can identify physical cultural resources, training will need to be given. Prior to commencement of works the EPC contractors and drilling contractors (in collaboration with Uz-Kor) will consult with the authorities mentioned above in order to arrange training for its employees. Uz-Kor will monitor this process to ensure that effective training is given to the correct members of the workforce.

3.10.2.4 Procedure Upon Discovery

Suspension of work:

- Upon discovery of physical cultural resources, the responsible contractor shall stop work (responsible contractor will vary depending upon which Project component the find is associated with – e.g. EPC contractors for UGCC or EPC contractor for pipeline corridor area).

- In some cases, all work will need to be suspended, in others just the work in the immediate vicinity of the find will need to stop, in others still, all work within a certain radius of the find must cease. This issue will depend on the type of find and will be informed by a qualified archaeologist.
- After stopping work, the contractor must immediately report the discovery to Uz-Kor's Environmental Officer. The contractor may not be entitled to claim compensation for work suspension during this period.
- Uz-Kor's Environmental Officer (in consultation with Uz-Kor management) may be entitled to suspend work and to request from the contractor some excavations at the contractor's expense if he thinks that a discovery was made and not reported.

Conditions and requirements for work stoppage:

- With the approval of Uz-Kor's Environmental Officer (EO), the contractor is then required to temporarily demarcate and limit access to the site, or, the EO may decide that the item can be removed and work may continue, for example where the item is a single coin of archaeological value.

Chance Find Report:

- The contractor will submit a Chance Find Report within one day of the find. This will record the following information:
  - Date and time of the discovery;
  - Location of the discovery;
  - Description of the PCR;
  - Estimated weight and dimensions of the find; and
  - Temporary protection that has been implemented.

The Chance Find Report will be submitted to Uz-Kor's EO, and other concerned parties as agreed with the provincial cultural authorities, and in accordance with national legislation (to be agreed upon submission of this Chance Finds Procedure to the provincial authorities for their comment/approval).

Uz-Kor's EO is required to inform the cultural authority immediately following the submission of the Chance Find Report.

3.10.2.5 Arrival and Actions of Cultural Authority

The cultural authority (the Institute of Archaeology and Ethnography at the Uzbek Academy of Sciences in Nukus) undertakes to send a representative to the discovery site, who will arrive within a stipulated time frame, such as 24 hours if all work has been suspended (details will be agreed between the authority, Uz-Kor and the contractor). The representative will determine the action to be taken which may include, but will not be limited to:

- Removal of the PCR(s) deemed to be of significance;
- Execution of further excavation within a specified distance of the discovery point;
- Extension or reduction of the area demarcated by the contractor.

These actions should be taken within seven calendar days of the representative arriving on site in the case of the suspension of works.

The contractor may or may not be entitled to claim compensation for work suspension during this period (to be elaborated by Uz-Kor within the tender documents).

If the cultural authority fails to arrive within the stipulated period (for example, 24 hours), Uz-Kor's EO will have the authority to extend the period by a further stipulated time.

If the cultural authority fails to arrive after the extension period, Uz-Kor's EO may have the authority to instruct the contractor to remove the PCR or undertake other mitigating measures and resume work. Such additional works can be charged to the contract. However, the contractor may not be entitled to claim compensation for work suspension during this period.

3.10.2.6 Further Suspension of Work

During this seven calendar day period (see above section on arrival and actions of cultural authority) the cultural authority may be entitled to request the temporary suspension of the work at or in the vicinity of the discovery site for an additional period of up to 30 calendar days or longer if deemed necessary.

The contractor may, or may not be, entitled to claim compensation for work suspension during this period (to be elaborated by Uz-Kor within the tender documents). However, the contractor will be entitled to establish an agreement with the cultural authority for additional services or resources during this further period under a separate contract with the cultural authority.

3.10.2.7 Resumption of Work

Following approval from the cultural authority (the Institute of Archaeology and Ethnography at the Uzbek Academy of Sciences in Nukus), Uz-Kor's EO will issue the contractor with the instruction to recommence works.

3.10.2.8 Review

Uz-Kor's EO will review the process and amend it as necessary to ensure efficiency and effectiveness of the chance finds procedure in the future.

3.10.3 Implementation (Monitoring, Staff Resources, Budget)

Each EPC contractor will be required to have a Chance Finds Procedure which is subsequently developed for each component of the Project will become controlled documents and form part of the CEMP documentation being parallel plans.

Monitoring requirements of the EPC contractors and Uz-Kor in relation to the elaboration and implementation of Chance Finds Procedure is consistent with that described previously for the CEMPs. Staff and resources for both EPC contractors and Uz-Kor is the same as those previously defined for CEMP implementation. Furthermore, Uz-Kor monitoring budget is included under the overall CEMP monitoring budget previously presented.

3.11 Air Quality Monitoring Programme

3.11.1 Overview

This section presents the minimum specification for an ambient air Monitoring Programme which will be implemented as part of the Project, in light of the air quality assessment results described within the ESIA Volume II.

The introduction of an ambient air quality Monitoring Programme is in accordance with the IFC EHS Guidelines which recommend that monitoring programmes should be determined based on the findings of the ESIA. In addition, the IFC Performance Standards note that monitoring should be carried out to alert operators to significant impacts on ambient conditions that may indicate problems with manufacturing processes or pollution control equipment that could require corrective action. Whilst the assessment has predicted that the Project would not cause a significant impact on ambient air quality during normal operation, monitoring of ambient concentrations of NO_2 and VOCs at one location representative of existing community exposure is considered prudent and proportionate.

As described within the ESIA Volume II concentrations of NO_2 and VOCs are also predicted to be well below the occupational exposure limits. Nevertheless, a detailed monitoring programme for occupational exposure to poor air quality during the construction, commissioning and operation will be developed as part of the detailed Project design. Occupational monitoring of air pollutants is therefore not given further consideration here.

3.11.2 Purpose

The overall purpose of the Monitoring Programme is to carry out a high level verification of the baseline concentrations of key pollutants assumed within the ESIA (predicted in the baseline modelling scenario) and monitor concentrations in an area of community exposure during construction and operation. This is achieved through two steps:

- Collecting data on ambient NO_2 and VOC concentrations at one location representative of existing community exposure near to the Project before construction begins; and
- Collecting data on ambient NO_2 and VOC concentrations at one location representative of existing community exposure near to the Project during construction and operation.

3.11.3 Schedule

In order to provide sufficient data on existing ambient pollutant concentrations, the Monitoring Programme will commence as soon as is practicable, and no later than 6 months before commissioning. The effectiveness of the ambient air quality Monitoring Programme shall be reviewed annually. After continuous operation of the Project for three calendar years the Monitoring Programme could be simplified or reduced if monitored concentrations are found to be below 75 percent of the relevant standards. As a maximum the Monitoring Programme will cease upon the decommissioning of the project.

3.11.4 Data Collection Methods

There are a number of methods available for the monitoring of NO_2 and VOCs in ambient air. For this Programme, only continuous automatic monitoring methods shall be used (i.e. not periodic) due to the

short term national standards and the potential for unexpected short term releases of VOCs from the Project components.

In addition, continuous automatic analysers allow the availability of near real-time data on pollutant concentrations to facilitate early detection and warning which is important for potential short term pollution episodes.

In order to provide reasonable flexibility during the implementation of the Programme, the specification of the equipment to be used is described below rather than identifying specific manufacturers. Where other equipment is available that can be proven to provide the same level of data quality and meet the Programme objectives this can be used.

3.11.4.1 Volatile Organic Compounds (VOCs)

As described in Volume II, VOCs are organic chemical compounds that have high enough vapour pressures under normal conditions to significantly vaporize and enter the atmosphere. A wide range of carbon-based molecules, such as aldehydes, ketones, and other light hydrocarbons are VOCs. The most common VOC is methane, a greenhouse gas sometimes excluded from analysis of other VOCs using the term non-methane VOCs. Common artificial VOCs include paint thinners, dry cleaning solvents, and some constituents of fuels (e.g. petrol and natural gas).

Continuous monitoring of VOCs shall be carried out using gas chromatography. As described above, the term 'VOCc' encompasses a wide range of chemical species, however as a minimum the monitoring shall provide concentrations for the following individual pollutants:

- Ethylene;
- Benzene;
- Toluene;
- Ethylbenzene; and
- Xylenes

The unit shall have a lower detection limit of no more than 50% of the most stringent national standard and an upper range of no less than 1000% of the least stringent national standard. The monitor will incorporate an internal data logger, capable of recording average concentrations over the applicable national standard averaging periods, based on readings taken at least every minute, and record data for periods of up to a year.

The continuous analyser will require a weatherproof, air conditioned enclosure and a continuous electrical power supply in accordance with the chosen manufacturer's specifications.

3.11.4.2 Nitrogen Oxides (NO_x)

Monitoring of NO_x will be undertaken using a chemiluminescent analyser capable of reporting concentrations of NO_x and NO_2. The unit shall have a lower detection limit of not more than 1ug/m^3 and an upper range of no less than 20,000 ug/m^3. The analyser will incorporate an internal data logger, capable of recording average concentrations over 30 minutes, 1 hour and 24 hour periods, based on readings taken at least every minute, and record data for periods of up to a year.

The continuous analyser will require a weatherproof, air conditioned enclosure and a continuous electrical power supply in accordance with the chosen manufacturer's specifications.

3.11.4.3 Meteorological Monitor

In addition to the air quality analysers, basic a meteorological station capable of recording the following parameters shall be installed within 100 metres of the air quality monitors;

- Wind speed;
- Wind direction; and
- Temperature.

The ancillary components of the meteorological monitor will require a weatherproof, air conditioned enclosure and a continuous electrical power supply in accordance with the chosen manufacturer's specifications.

3.11.5 Locations

The proposed locations of the air quality analysers are presented in Figure 3.1. Given the requirements for relatively costly enclosures for the VOC and NO_2 analysers and meteorological monitor it is expected that they would be enclosed within the same housing, however, provided they are close to each other (and within the area identified Figure 3.1) this is not a necessity.

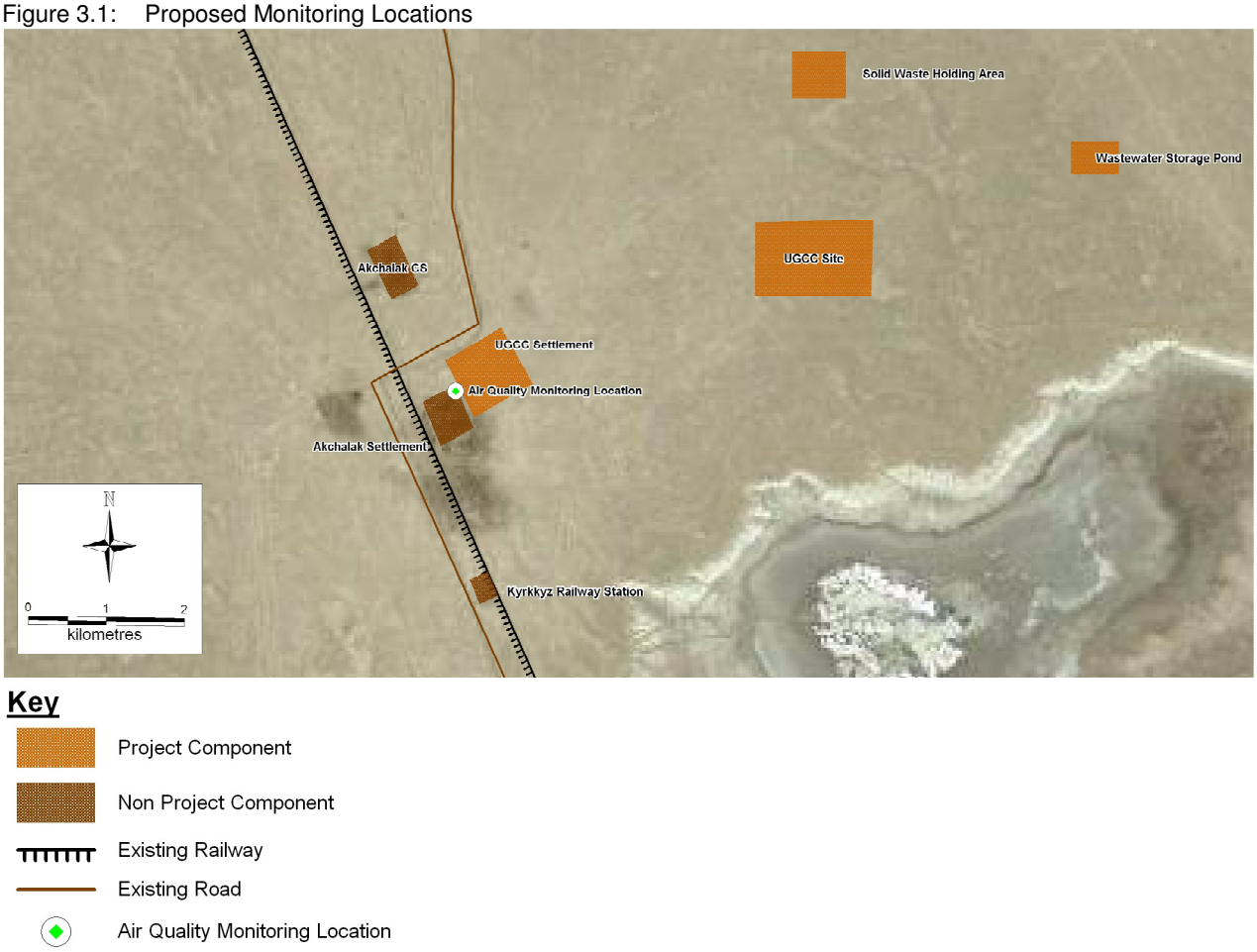
The identified location of the continuous analysers (and meteorological monitor) is within the existing Akchalak settlement. This is considered the most appropriate location as, although modelling results indicate that the Project will have greater impacts in the vicinity of the Upstream components, this is the only area where members of the existing community are present and is due to the conservative assumptions used within the assessment relating to the operation and location of the drilling rigs.

As described above, the monitoring will be used to provide a high level verification of the baseline concentrations used within the assessment. Although concentrations in the vicinity of the Upstream Component could be different to the Downstream Component (where monitoring will be carried out), the monitoring will allow verification of the baseline modelling approach (which incorporates all major emissions sources with the Proiject area) which has been used for both Project Components.

Notwithstanding these proposals, the monitoring equipment will be installed in accordance with the manufacturer's instructions and be consistent with siting principles describe below:

- The continuous analyser inlet heights shall be between 1 metre and 3 metres from the ground;
- Monitoring sites shall be open to the sky, with no overhanging structures or buildings;
- Monitoring sites shall not be within 50 metres of non-project related combustion sources.

Figure 3.1: Proposed Monitoring Locations



Source: Mott MacDonald

3.11.6 Quality Assurance/Quality Control

Calibration of the continuous analysers shall be carried out in accordance with the manufacturer's instructions and no less than every six months using calibration gases and following reliable and traceable calibration standards. As described above, the air quality analysers shall be housed within an enclosure suitable to protect the equipment from the effects of local meteorological conditions.

3.11.7 Analysis, Reporting and Actions

3.11.7.1 Normal Reporting

Every quarter a report will be produced based on the preceding calendar months' data, detailing the following information:

- Validated hourly VOC, NO_x and NO_2 data from the continuous analysers and data capture rates;
- Summary data for comparison with the national air quality standards:
- Summary meteorological data for the preceding month;
- Discussion of any salient quality assurance issues;
- Copy of the calibration report (if applicable); and
- Details of any investigation or remedial action taken as a result of an exceedence.

In all cases the target data capture rate for an averaging period should be over 75%. In the event that data capture rates are below this level, this should be noted in the monthly report and steps taken to remedy any recurring causes.

The reports will be reviewed by the Project Environmental Manager and a copy stored at the Project site.

3.11.7.2 Action in the Event of an Exceedance

Data from the continuous analysers will be checked on a daily basis by a representative of Uz-kor. Where concentrations are found to be above national standards, this shall be reported immediately to the Project Environmental Manager. An investigation into the cause of the exceedence(s) shall be carried out by the Environmental Manager and appropriate remedial action taken if emissions from the Project are found to be the cause.

3.11.8 Budgets

The estimated initial purchase cost of the two continuous analysers and meteorological stations is $100,000. Additional costs will be associated with their delivery, installation, and power supply, amongst others which could be substantial given the remote location.

It is estimated that these additional costs could add up to $60,000 on to the initial costs. Maintenance (including calibration) is likely to cost up to $20,000 per year.

3.11.9 Responsibilities

The installation (including power supply provision), operation, maintenance and reporting procedures set out above for the Monitoring Programme will be the responsibility of Uz-kor.

3.12 Biodiversity Action Plan Framework

3.12.1 Background

3.12.1.1 What is a Biodiversity Action Plan?

A Biodiversity Action Plan (BAP) is a plan to conserve or enhance biodiversity: which includes a set of actions that lead to the conservation or enhancement of biodiversity and ecosystem services for, in the context of oil & gas development, a specific site or project.

A Surgil BAP needs to be produced as a facilitation document to ensure that the mitigation, compensation and biodiversity offsetting measures within the ESIA are implemented as part of the Surgil Project.

3.12.1.2 The Process in Developing a BAP

The International Petroleum Industry Environmental Conservation Association (IPIECA) provides detailed guidance on the need and development of a Biodiversity Action Plan for the oil and gas sector, and a summary is provided here.

It is important to recognise that a BAP is not just the production of a single document which details what actions are needed for the conservation and management of biodiversity. A BAP is a process from which a BAP document is formulated through the review of previous studies and from consultation with local stakeholders. The ESIA is part of this process in that the ecological assessments of the ESIA provide the baseline upon which the BAP objectives and conservation priorities are based.

In accordance with IPIECA, a BAP should include eight specific tasks:

- Task 1: Determination of the legal, regulatory, planning, permitting & third party requirements.
- Task 2: A desktop assessment of the project
- Task 3: A baseline survey of the biodiversity
- Task 4: A biodiversity impact assessments
- Task 5: Preparation of the BAP
- Task 5.1 Establishment of priorities for conservation
- Task 5.2 Identification of conservation actions
- Task 6: Implementation of the BAP
- Task 7: Monitoring, evaluation and improvement
- Task 8: Reporting, communication and verification of BAP performance

In relation to the Surgil Project, Task 1 to 4 have been completed as part of the ESIA. Task 5 to 8 now needs to be implemented.

3.12.1.3 Scope of this Framework

The purpose of this document is to outline what is needed to completed Task 5 to Task 8 in relations to the preparation, formulation and implementation of the Surgil BAP. Specifically this document includes the following information:

- Determination of the regulatory requirements (Task 1)
- Summaries the ecological baseline conditions (Task 2 & 3);
- Summaries the key impacts of the development, and the required mitigation and compensation measures (Task 4)
- Identifies the overarching goal of the Surgil BAP (Task 5.1);
- Outlines the processes needed to establish the conservation priorities and identification of actions for the BAP actions (Task 5.1 & 5.2);
- Outlines the actions which need to be included in the implementation of the BAP (Task 6); and
- Outlines the monitoring, evaluation and improvement needs of the BAP to ensure that the Surgil development meets its obligations following the ESIA (Task 7 & 8).

The key function of this Surgil BAP framework is to act as a link between the ESIA, the ESMP and the formulation of the final Surgil BAP. It is important that the final BAP is formulated through stakeholder consultation and implemented alongside the community development plan.

The IPIECA guidelines have been used in the formulation of this framework document, which will subsequently lead to the production of the Surgil BAP.

3.12.1.4 Task 1: Determination of the legal and regulatory requirements for a Surgil BAP

There are two key reasons why a BAP for Surgil is needed:

- To ensure that the Surgil Project complies with national policy requirements, specifically in relation to Uzbekistan's commitment to biodiversity conservation in the oil and gas sector; and,
- To ensure that the Surgil Project implements its environmental commitments as stipulated in the Surgil ESIA.

Environmental & Social Impact Assessment Requirement

A detailed ecological impact assessment was completed for the Surgil Project as part of the ESIA. The ESIA identified a number of mitigation and compensation measures which were necessary to ensure that there would be no significant loss in biodiversity. As a result of consultations with the Asian Development Bank (ADB), it has been agreed that a Biodiversity Action Plan is needed to ensure that mitigation and compensation measures are fully and properly implemented, with stakeholder consultation, to meet conservation goals and objectives.

Policy Requirements

The national biodiversity policy in Uzbekistan is based on the provisions of 1992 National Constitution defining that flora and fauna as well as other natural resources are protected by the state and considered to be resources of national wealth subject to sustainable use (Article 55) and is governed to a certain extent by the respective commitments undertaken by Uzbekistan under international conventions and memorandums signed and ratified by RUz.

Two key policy documents for the conservation in biodiversity in Uzbekistan are:
- National Biodiversity Strategy and Action Plan (NBSAP) (United Nations Office in Uzbekistan), 1998; and
- National Action Plan for Environmental Protection and Ecological Provisions for Uzbekistan's Sustainable Development (NAPEESD), 1999.

The NBSAP, developed and approved in 1998, outlines the country commitments under the Convention on Biological Diversity (1992), ratified by RUz in 1995 in recognition of the importance of biodiversity conservation for the purpose of sustainable development. Under the CBD, Uzbekistan is committed to meeting the Aitchi Targets by 2020, which need to be delivered through five strategic goals:
- Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use
- Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services
- Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building

The Surgil BAP will ensure compliance with each of these goals at the project level.

In addition to international requirements as stipulated within the CBD and requirements in accordance with national legislation, the Government of Uzbekistan, supported by the Global Environment Facility (GEF) is committed to mainstream biodiversity into Uzbekistan's oil and gas sector policies and operations (GEF, July 2010). Two of the important components in achieving this stipulation are the:
- Integration of avoidance and mitigation technologies into the design of a major oil-and-gas development within the Ustyurt Plateau; and
- Introduction of biodiversity offsetting schemes.

Both of these components will be delivered through the implementation of the Surgil BAP.

3.12.1.5 Task 2 & 3: Summary of the Ecological Baseline

The ecological baseline has already been detailed across the Surgil area as part of the ESIA. The ESIA, in accordance with the legislative requirements of the Government of Uzbekistan, and the international guidance under the IFC Performance Standards was based on primary data collected during the ecological field surveys, and secondary data from the review of previous studies, including inputs from the Institute of Biology of Uzbekistan.

The ESIA identified a number of key ecological features within the area notably:
- The Sudoch'ye Lake State Nature Sanctuary;
- Modified habitats with the former Aral Sea bed;
- Natural habitats within the Ustyurt Plateau;
- A population of the Uzbekistan Red Data Book plant species Salsola chivensis;
- Ten species of IUCN/Red Data Book listed birds, including seven birds of prey species;
- One species of IUCN Red list reptile; and
- Saiga antelope (IUCN Critically Endangered).

Full details are provided in the ecology chapter of the ESIA and summary is provided in Appendix A.

3.12.1.6 Task 4: Summary of Key Impacts, Mitigations and Compensation Measures

Details of the impacts of the Surgil Project on ecology are covered in the ESIA. The ESIA also detailed mitigation and compensation measures which will be delivered through the EMSP, and will subsequently significantly reduce the impact of the Surgil Project, and the residual impacts predominantly associated with construction activities and largely temporary. In summary:

- During construction and operations the upstream components of the Project will not have any significant residual effects on any of the ecological features, with the exception of the habitats which are of low conservation value.
- During construction of the pipeline component and associated infrastructure, there will be slight and temporary adverse impacts on bird species associated with the Sudoch'ye Lake, temporary loss of natural habitats of the Ustyurt Plateau, localised disturbance to breeding bird species (notably pin-tailed sandgrouse and Houbara bustard), and potential disturbance or killing of individual Saiga antelope.
- During the operations of the pipeline component and associated infrastructure, the only residual impact is likely to be result from increased hunting of bird and mammals, although this will be managed through the appointment of a Wildlife Warden.
- During construction of the downstream components of the Project and associated infrastructure, there will be slight and temporary adverse impacts on natural habitats of the Ustyurt Plateau & escarpment, localised disturbance to breeding bird species (notably pin-tailed sandgrouse and Houbara bustard), and potential disturbance or killing of individual Saiga antelope.
- During the operations of the downstream component and associated infrastructure, there will be some loss of natural habitat on the Ustyurt Plateau and potential electrocution of individual IUCN/RDB birds of prey as part of the 12km 110Kv transmission line.

A summary of the mitigations is provided in Table 3.10 below and full details are provided in the ESIA. While the Project is likely to lead to some slight adverse impacts on habitats and specific species (as summarised above), there will be significant benefits to biodiversity within the ZoI, this will include:

- Consultation with the Sudoch'ye Lake State Sanctuary NGO Committee management team with a view to supporting a Sudoch'ye Biodiversity Education Programme.
- Consultation with the Saiga Conservation Alliance to determine areas of support for further research on the migration of Saiga across the region and to better understand the ecology of Saiga, subsequently to identify what measures are needed to conserve the Uzbekistan Saiga population in the long-term.
- Creation of 24 Ha of wetland and reedbed habitats which would significantly benefit the biodiversity within the region, especially for migrating bird species, but also enhancing the local flora and fauna, and will have a moderate beneficial impact on biodiversity within the area.

Table 3.10: Summary of Ecological Mitigation Measures of the Project

Type of Mitigation	Provisions to Address Ecological Impacts & Effects
Embedded mitigation – mitigation which is built-in to the project during the EPC procurement and design process: These activities do not form part of the BAP	Finalisation of pipeline routing to minimise the impacts on natural habitats. Transmission lines and associated infrastructure being constructed within the corridors of existing infrastructure. Elimination of continuous flaring in the Surgil Field reducing potential impact of migrating birds.
Mitigation of significant effects	Ban hunting and poaching activities Appointment of a Wildlife Warden to oversee the construction and operational ecological impacts Develop a habitat removal and re-instatement plan No construction activities to encroach within 2km of the Sudoch'ye nature reserve boarder. Bird reflection mitigation will be installed on the 10kV distribution lines that run within 20km of Sudoch'ye protected site, and on the entire length of the 110 kV transmission line. The OHL poles and insulators to be design in accordance with the Birdlife International Position Statement.
Mitigation of non-significant effects	All working areas to be kept to a minimum. Implement through the BAP IPIECA guidelines for prevention and management of alien invasive species. Access routes for construction and operation works to be kept to a minimum along pre-defined routes to limit off-road activity. Collection of *S.chivenis* seeds for preservation and inclusion in habitat reinstatement. No night time construction. Implement best practicable means (BPM) for reduction of noise Excavated aggregate to be stored to minimise wind blown dust Where possible, along the pipeline route the stripping of vegetation and scraping off top layers should be undertaken before the start of the bird breeding season (September- April) Excavated material to be returned in the same phasing to ensure the top soil is returned to the surface in line with Uzbek national requirements for reinstatement. Sloped pipeline trench side provided every 250m to enable any trapped animals a means of egress. Ecological issues to be included in the site staff induction for all components. For those with specific responsibilities, the wildlife warden will undertake specific training.
Enhancement	Consult with the NGO Committee for the management of the Sudoch'ye Lake Sanctuary regarding support for a Sudoch'ye Biodiversity Education Programme Wildlife warden work with local schools and other bodies to raise general awareness of the community to nature conservation / water conservation issues. Consult with the Saiga Conservation Alliance with a view to identifying possible support. Undertake habitat creation around the waste water storage pond. Support to the Government of Uzbekistan's initiative on mainstreaming biodiversity into Uzbekistan's oil-and-gas sector policies.

3.12.2 Approach and Activities

3.12.2.1 Goal, Objectives & Conservation Priorities

The overall goal of the Surgil BAP is to ensure that the Surgil Project leads to a net gain in biodiversity.

Subsequently any adverse impacts associated with the construction and operational activities of the Surgil Project are appropriately mitigated, compensated or offset, in accordance with the ESIA and international and national policy requirements.

The specific objectives and conservation priorities for the BAP will need to be formulated following consultation with appropriate stakeholders. An outline of what will be included in the Surgil BAP is detailed here. This is in accordance with the IPIECA guidance on the formulation of BAP in the oil and gas sector. However, the objectives of the BAP must fully encompass the mitigation and compensation measures detailed in the ESIA and ESMP, which include the objectives to:

- Protection of the Sudoch'ye State Nature Sanctuary;
- Minimise habitat loss and disturbance;
- Minimise disturbance to mammals and birds;
- Minimise incidental mortality to mammals and birds;
- Control of invasive plant and animal species;
- Minimise hunting and poaching;
- Enhancement of biodiversity and habitats;
- Capacity building through the recruitment and training of local staff;
- Support to the Government of Uzbekistan's initiative on mainstreaming biodiversity into Uzbekistan's oil and gas sector;
- Monitor and evaluate the effectiveness of the BAP.

The purpose of this framework for the BAP is to outline the process needed to formulate the BAP and to detail the actions necessary which with then form part of the BAP. Additional objectives and specific actions may be identified following the consultation process.

3.12.2.2 Next Steps in the Preparation of the BAP

A series of activities need to undertaken to facilitate the development of the BAP. These are summarised thus:

- A draft Surgil BAP to be formulated based on this framework document and information within the ESIA and ESMP.
- Consultation to be undertaken with local stakeholders to identify the conservation priorities and actions relating to the Surgil Project.
- Production of the final Surgil BAP, including agreements on the monitoring and evaluation procedures to assess the performance of the BAP.
- Dissemination of the final Surgil BAP to stakeholders.
- Implementation of the Surgil BAP including relevant obligations of EPC contractors to be established as part of their respective CEMPs.
- Monitoring and evaluation of the BAP, and dissemination of results on the performance of the BAP to stakeholders, including international donor agencies.

Consultation is an integral component in the formulation of the BAP and this need to be done in conjunction with other stakeholder activities, notably those related to community development plan. The following organisations were consulted as part of the ESIA and it is recommended that these stakeholders are consulted further in relation to the BAP with regards to ecology and biodiversity matters:

- State Committee of the Republic of Uzbekistan for Nature Protection - Goskompriroda;
- Ministry of Agriculture and Water Resources (MAWR) of the Republic of Uzbekistan;
- Committee of Management of the Sudoch'ye Lake (CMSL)
- Bird Conservation Society of Uzbekistan, Tashkent;
- Institute of Biology of the Academy of Sciences of the Uzbekistan Academy of Sciences;
- SPE Botanica of the Academy of Sciences of the Uzbekistan Academy of Sciences;
- Lower Amu Darya River Basin Management Board ('NABUIS'), Ministry of Agriculture and Water Resources, and
- Local communities of Uchsay and Akchalak.

3.12.2.3 Monitoring & Evaluation

Key to a successful BAP is continuous monitoring of the BAP actions and evaluation of there effectiveness in meeting the BAP conservation priorities and objectives. This is critical to ensure that the proposed mitigation and compensation measures meet the objectives of reducing the ecological impacts of the Project.

These monitoring activities need to be undertaken during construction and post construction. Because the Project is within the relatively extreme environmental condition on the Aral Sea bed and on the Ustyurt Plateau, habitats and species population are slow to recover and therefore it can take several years before the success of the mitigation measures can be assessed and therefore post-construction monitoring should be for a minimum of 20 years.

The actions for monitoring the ecological features during construction include, but not limited to:

- Ensuring no Project work is carried out within 2km of the Sudoch'ye State Nature Sanctuary;
- Monitoring of the construction footprint, ensuring that habitat loss is minimized;
- Monitoring of the works to minimise the risk of spreading or introducing alien species, and checks to ensure that alien species have not been introduced;
- Enforcing the ban on hunting and poaching;
- Supervising, where appropriate, the clearance of vegetation and top soil stripping to minimise disturbance to breeding birds, and take appropriate mitigation measures to avoid disturbance to breeding birds as necessary;
- Monitoring the entrenchment works to ensure that correct disposal of soils; and,
- Monitoring and checks for entrapped mammals within the open trenches.

The actions for monitoring the ecological features post-construction include:

- Assessments of the recovery of the habitats and botanical diversity following reinstatement along the pipeline route with surveys at specific locations every two years for 20 years post-construction;
- Monitoring of the effectiveness of the OHL pole designs to ensure no accidental killing of birds, monthly checks along the OHL route;
- Annual monitoring of Saiga antelope to assess the annual migration patterns across the area for 10 years post-construction. This monitoring can form part of the biodiversity offsetting, following consultation with the Saiga Conservation Alliance;
- Monitoring hunting activities across the region to assess the effectiveness of the enforcement measures; and,

- Checks and surveys for invasive alien flora and fauna every two years for 20 years.

As the Surgil Project is within the proposed project area for the Government of Uzbekistan's initiative on mainstreaming biodiversity into Uzbekistan's oil-and-gas sector policies, the long-term monitoring will comply and report into the proposed monitoring of the Government's initiative.

Annual environmental reports will be submitted for review to the Goskompriroda and other ecological bodies for their information. Information from these surveys will be regularly reviewed. If evidence suggests a decline in the ecological conditions relating to the construction and operational activities of the Project then intervention and further mitigation measures will need to be defined and implemented. Intervention measures would be facilitated through the revision and re-submission of the Surgil BAP and consultation with stakeholders.

3.12.3 Staff and Resources

3.12.3.1 Biodiversity Staff

Similar to other environmental staff, there is an opportunity for capacity building within Uz-Kor to provide staff responsible for biodiversity action plan. Uz-Kor will nominate a Project Wildlife Warden (PWW) with responsibility for delivering the Surgil BAP and the associated mitigation and monitoring measures as outlined in the ESMP. In addition, contractors will be required to have an identified Ecological Clerk of Works (ECW) to work in conjunction with the Uz-Kor PWW. The Uz-Kor PPW and the contractor ECW may require training to ensure he/she is capable of fulfilling the commitments of the role. The PPW will be required to work closely with the CLO on stakeholder consultation matters.

Depending on consultation with Sudoch'ye Lake Management Board, it may also be appropriate to recruit an Environmental Education Officer to be responsible for the delivery of the education programme. Details would be included in the Surgil BAP.

3.12.3.2 Project Wildlife Warden

The primary purpose of the PWW role is to facilitate the implementation of the BAP and the mitigation and enhancements measures associated with the Surgil Project and as stipulated in the ESMP, with the aim of helping to maintain and improve the wildlife and biodiversity interests within the Surgil Project area. This is to include, but not limited to:

- Facilitation of the Surgil BAP, Uz-Kor may appoint a local consultant to produce the Surgil BAP
- To inform, explain and where necessary enforce the environmental policies associated with the Surgil Project.
- To enforce the ban on all hunting across the Project area, raise awareness of the importance of the ban across all employees.
- To assist in the design and construction and the long-term management of the wetland habitat creations.
- Provide support in the provision of support to establish a Sudoch'ye Ecology Education Programme, involving local schools and raising awareness of biodiversity across the Project area.
- Act as a key point of contact with the NGO Committee for the Sudoch'ye Lake State Sanctuary.
- To undertake patrols across the Project area land and oversee and provide guidance on activities which may affect the biodiversity features within the Project area.
- To undertake and arrange for the clear demarcation and signage which may prohibit entry to ecologically sensitive areas.

- To provide advice to contractors regarding the ecological sensitivities within the Project area, and if necessary supervise contractors to ensure that they adhere to environmental requirements to minimise disturbance to flora and fauna.
- To ensure the implementation of IPIECA guidelines on the prevention and management of alien species.
- To develop working relations with local community groups; land-owners, land-managers and business interests (particularly those related to recreation and tourism) by maintaining close liaison with local individuals and communities.
- Providing advice to Uz-Kor and Project staff, as necessary, in relation to the conservation and management of wildlife areas.
- To design and implement the ecological monitoring requirements for the Surgil Project, as detailed in the ESIA.

3.12.4 Budget and Schedule

An indicative budget during the construction stage of up to $865,000 has been set for the implementation and support of the Surgil BAP. During operation, an indicative budget of up to $628,500 has been identified. An indicative breakdown of costs and schedule of work against individual activities as outlined in the ESMP is provided in below.

Pre-construction activities	Timescales	Cost Estimate
Production of the Surgil BAP	10 months prior to start of construction, including consultation	$28,500
Appointment of a Project Wildlife Warden	PWW to be in place at least 12 months prior to the start of construction	$30,000 per annum
	Initial one off cost of $28,500 **Total estimated cost (per year): $30,000**	

Construction activities	Timescales	Cost Estimate
Establishment of buffer zone around Sudoch'ye, enforcement and monitoring activities	1 months prior to commencement of construction Ongoing throughout construction	Monitoring checks & auditing estimated at $9,500 per annum
Monitoring of construction lay down, layout of associated infrastructure and temporary working areas	6 months prior to commencement of construction Ongoing throughout construction	Monitoring checks & auditing estimated at $9,500 per annum
Habitat removal prior to construction activities, supervision of works	Production of habitat management plan within 6 months prior to commencement of construction Ongoing throughout construction	$2,000 for production of habitat management plan $1,500 for collection or plant seed
Training of construction workers as part of environmental awareness training	Preparation of all materials 1 month prior to start of construction. Ongoing throughout construction	Production of environmental displays and materials estimated at $10 000 one off cost
Vegetation clearance, earthworks, and spoil disposal during construction.	Checks no more that 1 month prior to the start of work and monthly monitoring throughout the construction period	Monitoring surveys estimated at $80,000 per annum
Trenching, checking of trenches for wildlife	During construction period	Monitoring surveys estimated at $24,000 per annum
Vegetation clearance, earthworks, and spoil disposal	6 months prior to construction	Development and implementation of non-native species management plan

Construction activities	Timescales	Cost Estimate
during construction. Control of invasive species		estimated at $12 500: a local contractor could be commissioned to undertake this work. Monitoring surveys estimated at $19,500 per annum
Implement anti-hunting measures including awareness training to staff and local communities	Production of materials 1 month prior to construction.	Uz-Kor production of hunting prohibition brochures estimated at $3 000 one-off cost. Monitoring and liaison with local communities estimated at $18,500 per annum
	Initial one-off cost: $15,000 plus up to $12,500 one-off costs if required	
	Total estimated cost up to (per year): $162,500	

Operational activities	Timescales	Cost Estimate
Reinstatement of habitats	Re-instatement plan to be produced within 1 month of the start of construction. Re-instatement to occur within 3 months of construction activities, depending on the location and timing of the works. All habitat re-instatement completed within 12 month of the final construction activity. Monitoring to continue for 20 years	$8,000 each year for checking of re-instatement (for 20 years)
Development of reed beds in UGCC wastewater retention pond.	Timescale for the production of the detailed designs to be confirmed. Construction of the reedbeds to be completed before end of project construction period. Annual monitoring of the reedbeds for 5 years	Monitoring costs estimated at $6,000 per annum for 5 years. Excludes design and build costs.
Development of Sudoch'ye Biodiversity Education Programme	Consultation with the Sudoch'ye Management Board within one month of appointment of the PWW Education action plan for the Surgil BAP agreed within 6 months. Implementation of the education action plan within 12-18 months. Long-term permanent commitment.	Estimated cost of $45,000 per year ($60,000 in the first year)
Research and monitoring of Saiga population	Consultation within 3 months of appointment of the PWW. Implementation of the research activities within 12-18 months of the start of construction. Research activities likely to be required for a minimum of 5 years to provide sufficient data to determine the migration patterns of the Saiga	Estimated cost of $50,000 per year (for 5 years), $60,000 in the first year.
Support to the Government of Uzbekistan's initiative on mainstreaming biodiversity into Uzbekistan's oil and gas sector	To be agreed following consultations	
	Total estimated cost (first year): $134,000 **Total estimated cost per year after first year: $109,000**	

3.12.5 Summary of Ecological Features

Ecological Features	Legal protection and importance	IFC/International status	Conservation value
Protected Sites			
Sudoch'ye Lake State Nature Sanctuary	International Protected under national legislation, Important Bird Area & proposed Ramsar site	Critical habitat, as holds significant populations of IUCN/RDB species.	Very high
Key vegetation communities			
Within the Aral Sea bed:			
Open drifting sand habitats with spare ephemeral plant species	None	Modified habitat, due to habitat degradation, low species richness and invasive species.	Low
Natural *Haloxylon aphyllum* communities	None	Modified habitat, due to habitat degradation, low species richness and invasive species.	Low
Tamarsk thickets with halophytes	None	Modified habitat, due to habitat degradation, low species richness and invasive species.	Low
Within the Ustyurt Plateau:			
Tamarsk thickets with halophytes	None	Natural habitats, RDB/IUCN listed species present, but not in significant numbers	Medium
Hummocky sands with Peganum associations	None	Natural habitats, RDB/IUCN listed species present, but not in significant numbers	Medium
Grey-brown takyr with Anabasis salsa communities	None	Natural habitats, RDB/IUCN listed species present, but not in significant numbers	Medium
Shrub and saxual communities	None	Natural habitats, RDB/IUCN listed species present, but not in significant numbers	Medium
Grey-brown takyr with Artemisia terrae-albae communities	None	Natural habitats, RDB/IUCN listed species present, but not in significant numbers	Medium
Ustyurt escarpment with bare rock and scree	None	Critical habitat, due to presence significant populations of RDB/IUCN species	High
Plant species			
Salsola chivensis	Uzbekistan Red Data Book	Rare	Medium
Bird species			
Lesser kestrel *Falco naumanni*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
Steppe eagle *Aquila rapax*	Uzbekistan Red Data Book	Near Threatened	Medium
Eastern Imperial eagle	IUCN Red List; Uzbekistan Red	Vulnerable	High

Ecological Features	Legal protection and importance	IFC/International status	Conservation value
Aquila heliaca	Data Book		
White-tailed eagle *Haliaeetus albicilla*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
Long-legged buzzard *Buteo rufinus*	IUCN Red List	Least Concern	Low
Pallas's Fish Eagle *Haliaeetus leucoryphus*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
Saker falcon *Falco cherrug*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
Pin-tailed Sandgrouse *Pterocles alchata*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
European roller *Coracias garrulus*	IUCN Red List; Uzbekistan Red Data Book	Near Threatened	Medium
Houbara bustard *Chlamydotis undulata*	IUCN Red List; Uzbekistan Red Data Book	Vulnerable	High
Reptile species			
Tortoise *Testudo horsfieldii*	IUCN Red List	Vulnerable	High
Mammal species			
Mongolian Saiga *Saiga tatarica*	IUCN Red List; Uzbekistan Red Data Book	Critically Endangered	Very high

4. Institutional Arrangements and Implementation

4.1 Construction Project Structure

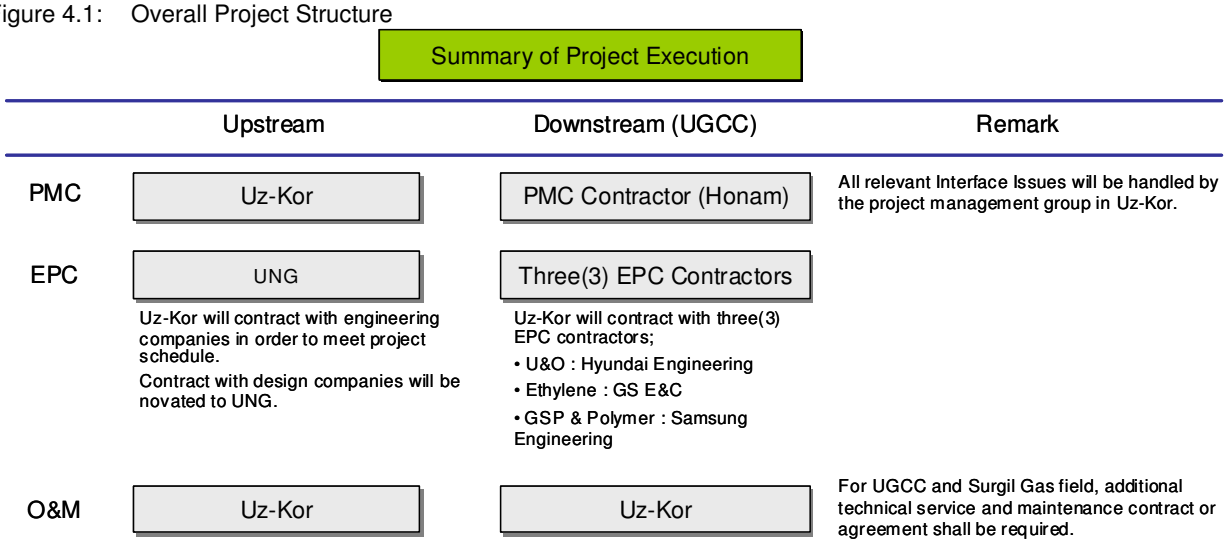
4.1.1 Overview

The Project Sponsors are UNG (50%) and a Korea Consortium (50%) consisting of Kogas (22.5%), Honam (22.5%) and STX Energy (5%). The Project Company set up to deliver the project is Uz-Kor Gas Chemical LLC registered in Nukus, Uzbekistan.

For the construction phase, each of the upstream and downstream components of the project will have a project management company (PMC) to take on the overall project management role and will be responsible for the management of all contractors and construction staff.

The overall structure of the project is summarised below.

Figure 4.1: Overall Project Structure

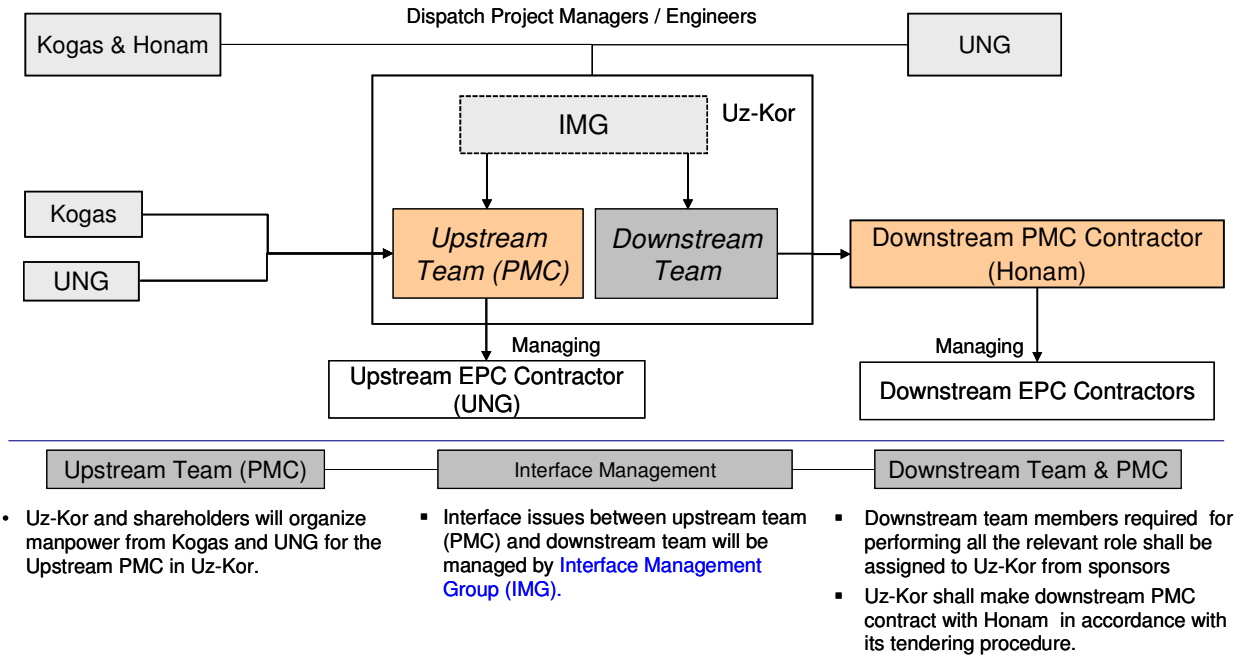


Source: Uz-Kor

Manpower will be seconded from the Sponsors into the Project Company and in order to carry out roles in the Upstream PMC and Operations and Maintenance (O&M).

The project will be controlled and managed from an overall PMC group that includes the Upstream and Downstream PMC organisations along with the Downstream Team as represented in Figure 4.2. An interface management group (IMG) will be responsible for management of interface issues between the upstream and downstream workstreams.

Figure 4.2: Overall PMC Structure for Construction Phase



Source: Uz-Kor

The Upstream PMC shall be organized to manage EPC contractors and will consist of approximately 26 people from Kogas and UNG. Kogas's representatives will provide five key roles within the Upstream PMC including PMC Co-Leader and supervising specialists in four main directions of PMC, EHS Manager, Development Manager, Construction Manager and Procurement Manager. A further three EHS specialists will also be part of the Upstream PMC team providing a team of four EHS professionals to oversee EHS issues for the upstream works.

The Downstream Team will be organized to manage the Downstream PMC contractor and the EPC contractors. Key members of downstream team are well experienced in the petrochemical business, including management of environmental issues, in order to perform all the relevant roles. Uz-Kor will also be hiring engineers and operators of downstream team who are being trained at Shurtan Gas Chemical Complex for the UGCC project. The role of downstream team will be transferred to downstream O&M after construction of UGCC.

The Downstream PMC Contractor (Honam) will be responsible for day to day management of the EPC contractors constructing the downstream components. Within the Downstream PMC Contractors team will be four EHS specialists to monitor management of EHS and social issues by the EPC contractors during construction on a day to day basis.

4.1.2 Construction EHS Management

4.1.2.1 Overview

The key parties and their primary roles in EHS Management for the Project are summarised as follows:

- Uz-Kor – responsible for overseeing compliance with environmental policy and monitoring compliance of the Project, and ensure compliance with the obligations set out in the ESMP during the construction phase and operation phase;
- Upstream and Downstream PMCs – monitoring compliance with the obligations set out in the ESMP and the EPC contractors Construction Environmental Management Plans on a day to day basis during the construction phase;
- EPC Contractor(s) (Gas Field, pipelines and UGCC) - responsible for implementing the site specific construction ESMP via their own environmental management system to be approved by Uz-Kor; and
- Sub Contractors, including drilling contractors – responsible for following and complying with construction ESMP requirements set out by the EPC contractor and Uz-Kor.

4.1.2.2 Uz-Kor Environmental Health and Safety Management

Uz-Kor, as a recently formed organisation, has not yet set up formal EHS and social policies and systems along with many of the other management systems that will need to be in place for the commencement of construction and into operation. It is their intention to develop a comprehensive EHS Department to oversee and manage all EHS issues during the construction and operational phases. Whilst some evolution of the department structure, staff numbers and responsibilities will change as the project moves through construction into operation the overall structure and roles and responsibilities will be defined during its inception and modifications implemented as required.

A number of the Project Sponsors have, and operate under, existing corporate EHS systems that can provide input and support in the development of the required systems and processes for Uz-Kor. This includes the following:

- Uzbekneftegaz has an environmental department within its structure, which maintains a dialog between the oil-and-gas industry and the State Committee for Nature Protection and other ministries where appropriate with responsibility for ensuring environmental sustainability of the oil-and-gas sector. Its capacity is however in need of further development in order to provide an appropriate level of oversight of EHS matter for Uzbekneftegaz operations.
- KOGAS has established an integrated management system that encompasses environment, health and safety. KOGAS adopted the EHS management system as the core guideline for its business activities and has actively cooperated with stakeholders working in the environment sector.
- Honam has operated an ISO 14001 certified environmental management system since 1996 and currently is focussing on improvements in air quality, water quality and waste management. The company is also accredited under the Occupational Health and Safety Management System 18001. Honam has an active programme of Health and Safety initiatives and training programme as part of its continuous improvement objectives.
- STX obtained its ISO 14001 Certificate in 2004 and the OHSAS 18001 Certificate in 2007. It has developed and operated the integrated EHS Management System to pursue environmental protection, safety, and health management in its operations.

The EHS and social capabilities of the parent companies will provide useful resource and guidance to Uz-Kor as it develops its own integrated management system. The extent to which support is drawn from any

one of the project partners will be determined as the Uz-Kor EHS department is created and specific areas for support identified. In addition, Uz-Kor will be seeking external independent support from experienced environmental and social consultants in the development of its EHS department, policies, procedures and systems.

The proposed staffing structure of the EHS department is under development but is expected to consist of the key roles as set out in Table 4.1. Uz-Kor's personnel key roles and responsibilities will be set out in procedures created as part of the EHS management system, including organisational and individual working procedures.

Table 4.1: Proposed Uz-Kor EHS Department

Role	Responsibility	Location	Construction	Operation
Head of EHS Department	Policy, overall responsibility, government liaison	Head Office with regular visits to site	✓	✓
EHS Officers (2)	Reporting, management of EHS system, auditing	Head Office and/or Surgil Project Office at Nukus with regular visits to site	✓	✓
EHS administration staff (2)	Administrative duties	Head Office and/or Surgil Project Office at Nukus	✓	✓
Environment Manager (Upstream)	Compliance, reporting	Surgil Project Office at Nukus and CGTU site	✓	✓
Environment Manager (Downstream)	Compliance, reporting	Surgil Project Office at Nukus and UGCC site	✓	✓
Social Manager (Upstream and Downstream)	Compliance, reporting	Surgil Project Office at Nukus with regular visits to site	✓	✓
Environmental engineers (4)	Monitoring of EHS for construction then operation, day to reporting	On site	2 at upstream site, 2 at downstream site	1 at upstream site, 2 at downstream site
Environmental Technicians (2)	Environmental monitoring including air quality, noise, soil sampling etc	On site	1 at upstream site, 1 at downstream site	1 at upstream site, 1 at downstream site
Social and Community Specialists (2)	Social and community monitoring, implementation of Community Investment Programme	On site	✓	✓
Wildlife Warden	Monitoring wildlife and habitats for damage or disturbance. Involvement in implementation of biodiversity action plan	On site	✓	✓
Community Liaison Officer	Community liaison	On site	✓	✓

Note: Final job titles and numbers of staff to be confirmed

Uz-Kor recognises that there is an urgent need to build its capacity to implement and manage the ESMP requirements and address any E&S issues that may arise. Recruitment for the EHS team is underway and is expected to be completed by mid 2012, with the focus at this stage being to recruit key staff with responsibility for managing construction phase environmental and social issues and implementing the

ESMP. Further detail on capacity building including more detail on some of the roles set out above is provided in 4.2.3.

Uz-Kor has appointed a leading Uzbek environmental manager to head up the developing EHS Department. Mr. Ravshanjon Mamatkulov has been Head of Department for the State Committee on Nature Protection and has worked widely with international organisations including UNDP and OECD. He therefore has a comprehensive understanding of Uzbek legislative requirements and also a broad appreciation of international environmental requirements. He managed a project with UNDP and TACIS for developing the Uzbekistan national strategy on waste management, which will provide guidance, advice, support and coordination for waste management initiatives at the municipal level and within the industrial sector. His responsibility is to oversee EHS and social management and ESMP implementation.

He will be supported by a team that will include environmental and social specialists based in the Head Office in Tashkent and on site. Key staff will be identified to act as the main point of contact with the PMC teams and the EPC contractor as part of ensuring E&S issues are properly managed. The EHS Manager will report to the Uz-Kor Management and to the IMG. Uz-Kor staff will be located at each of the two main construction sites (CGTU (upstream) and UGCC (downstream)) to enable day to day oversight of EHS and social issues at each site is maintained. Environmental technicians will also be required to undertake specific environmental monitoring activities. The Community Liaison Officer (CLO) will also be based at site prior to commencement of construction to ensure a local route for communities to report grievances and resolve issues.

Uz-Kor EHS staff will be located in the following locations/offices:

- Uz-Kor representative office in Tashkent
- Uz-Kor head office in Nukus
- CGTU site and construction offices
- UGCC site and construction offices.

It is expected that for certain activities there will be a requirement to employ or contract staff on a temporary basis. This is expected to include an archaeologist, ecological specialists and staff for training either worker or the community including on health care, financial management etc. These staff would be expected to be located at the construction offices for the duration of their work.

4.1.2.3 Upstream and Downstream PMCs

As noted above, each of the PMC will include an EHS manager and four EHS officers/engineers to manage and monitor implementation of E&S requirements of the ESMP and the contractors CEMP. The proposed PMC EHS staffing is set out in Table 4.2.

Table 4.2: PMC EHS Staffing

Role	Number	Responsibility	Location
Upstream PMC			
EHS Manager	1	Management of EHS issues, reporting to Uz-Kor on issues and performance	CGTU site
EHS officers	4	Day to day monitoring, auditing, reporting etc	CGTU, gas field and pipeline route
Downstream PMC			
EHS Manager	1	Management of EHS issues, reporting to Uz-Kor on issues and performance	UGCC site
EHS officers	4	Day to day monitoring, auditing, reporting etc	UGCC

The PMC EHS staff will report to the PMC management that in turn will report to Uz-Kor. On a day to day basis the EHS staff will work closely with Uz-Kor EHS site staff and head office staff to implement and monitor E&S issues and requirements.

4.1.2.4 EPC Contractor EHS Management

All EPC contractors will be encouraged to adhere to the principles of ISO 14001:2004 and OHSAS 18001:2007 or equivalent if not already accredited. This standard places strong emphasis on the need for continuous improvement of the environment and health and safety management systems and resultant environmental and health and safety management performance. In particular, for the UGCC, as part of the tender process for the construction phase there was a requirement that the EPC contractors provided copies of their EHS policy, procedures, an overview of their management system and an example construction EHS management plan for review. In addition the EPC contractors were required to include within their proposal for a dedicated EHS professional to be part of the project team based on site full time.

The appointed EPC contractors will be required to agree to the following actions:

- Develop a site/project specific CEMP, the framework for which is set out in Section 3.2.
- Elaborate other parallel plans, the framework for which are set out in Sections 3.3, 3.4, 3.5, 3.7, 3.8, 3.9, 3.10 and 3.12.
- Implement the requirements of the mitigation activities in the construction ESMP via the above plans;
- Provide a construction site layout plan that identifies key activity area including laydown, accommodation and welfare blocks, parking etc. prior to commencement of works;
- Produce detailed method statements relating to key activities that include specific reference to requirements of the plans contained herein during the project progression;
- Provide all training necessary to oversee and implement ESMP requirements;
- Be responsible for producing comprehensive suite of EHS management and coordination procedures; and
- Identify a full time person on site with dedicated EHS responsibilities to oversee works on site.

The EPC contractor's project management organisation will be required to be responsible for sub-contractors' performance, including ensuring that sub-contractors adhere to the requirements of the construction ESMP.

The public consultation and disclosure plan (PCDP) identifies the need for the EPC contractor to further identify someone within their full time team to act as EPC Community / Stakeholder liaison officer (CLO), who will work in conjunction with Uz-Kor's CLO. This person will be the first point of contact between Uz-Kor and the EPC contractor for coordinating the implementation of the PCDP including advance notification of works with the potential to impact on wider stakeholders and the community, and for processing and closing out of community grievances.

Each EPC contractor will be required to have dedicated environmental and social staff to implement the CEMP and to monitor and manage this on an on-going basis. Further details on staff responsibilities are set out below. The EPC contractor EHS staff will be required to liaise closely with Uz-Kor's and the PMC's EHS staff including the provision of monthly reports, participation in weekly construction review meetings etc. The proposed EPC EHS staffing is set out in Table 4.3.

Table 4.3: EPC Contractor EHS Staffing

Role	Number	Responsibility	Comment
EPC Environmental Officer	1-2	Management and monitoring of environmental issues and performance	Number of officers may vary depending on level of construction activity
EPC Social and Community Liaison Officer	1	Management and monitoring of social issues and performance, contractor community liaison officer	To work closely with Uz-Kor CLO
Ecological Clerk of Works	1	Day to day monitoring, auditing, reporting etc	To work closely with Wildlife Warden in implementing habitat protection and mitigation measures

EPC Environmental Officer

The EPC Contractor will be required to nominate a person(s) be appointed to take the primary responsibility for day-to-day implementation of the ESMP, the CEMP and parallel EHS management plans. The formal job description would be generally in accordance with the elements provided below.

The nominated person will carry out the following responsibilities:

- Take prime responsibility for practical implementation of the environmental management;
- Oversee and ensure the implementation of the ESMP, CEMP and parallel EHS management plans (with support from the EPC Contractor Construction Manager (see below for further details)) and ensure all contractors and sub-contractors are in compliance with the ESMP requirements;
- Review and report performance to the EPC Contractor Construction Manager and Uz-Kor;
- Review sub –contractors environmental protection/mitigation measures to ensure compliance with the ESMP;
- Report on a daily basis any ESMP / CEMP non-compliances to the EPC Contractor Construction Manager;
- Carryout regular environmental awareness sessions and assist personnel in applying environmental standards on site;
- Conduct regular audits/inspections to check that committed impact mitigation measures are being implemented; and

- Act as the first point of contact on environmental matters for the EPC contractor for the government authorities, other external bodies and the general public.

There are certain criteria that the EPC environmental officer will be required to have knowledge and experience in, including:

- An understanding of the international standard techniques of environmental management;
- Familiarity with local environmental legislation and the likely developments in this field;
- Practical operation of environmental monitoring techniques;
- Ability to summarise environmental data in order to produce concise and conclusive reports;
- Hold the confidence to enforce strict, but pragmatic, environmental control procedures and to motivate the construction staff to a high level of environmental awareness; and
- Minimum of five years practical experience on construction sites.

EPC Contractor Construction Manager

The EPC Contractor Construction Manager will need to work to co-ordinate efforts based on inputs from the Environment Officer(s) and assist in the allocation of staff with the skills for applying the ESMP on site. It is envisaged that the Construction Manager will:

- Ensure that the Environment Officer is adequately qualified to understand and implement the ESMP;
- Nominate personnel to assist the Environment Officer as required; and
- Be responsible for communications with Uz-Kor and other project management with regard to environmental issues and non-compliances.

4.1.3 Operational EHS Management

The proposed organisational structure for the operational phase is shown in Figure 4.3 and the EHS management for operation phase is presented in Figure 4.4, which demonstrates the expected relationship with the project partners. Some of the roles initially identified for the construction phase are retained for the operational phase, although the nature of the role is expected to change along with some of the day-to-day responsibilities.

Figure 4.3: Uz-Kor and Project Partner Inputs at Operational Stage

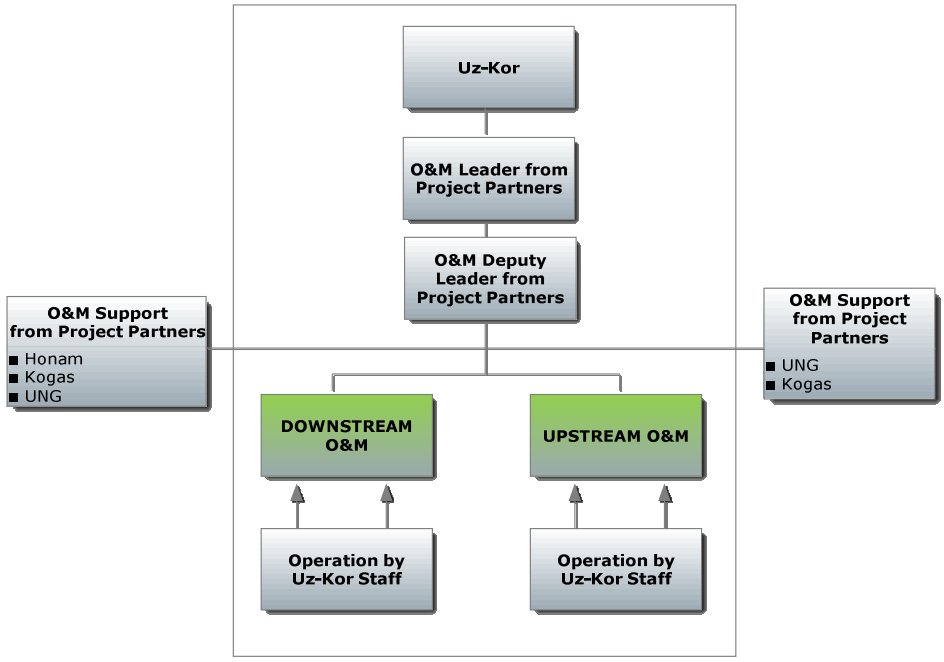
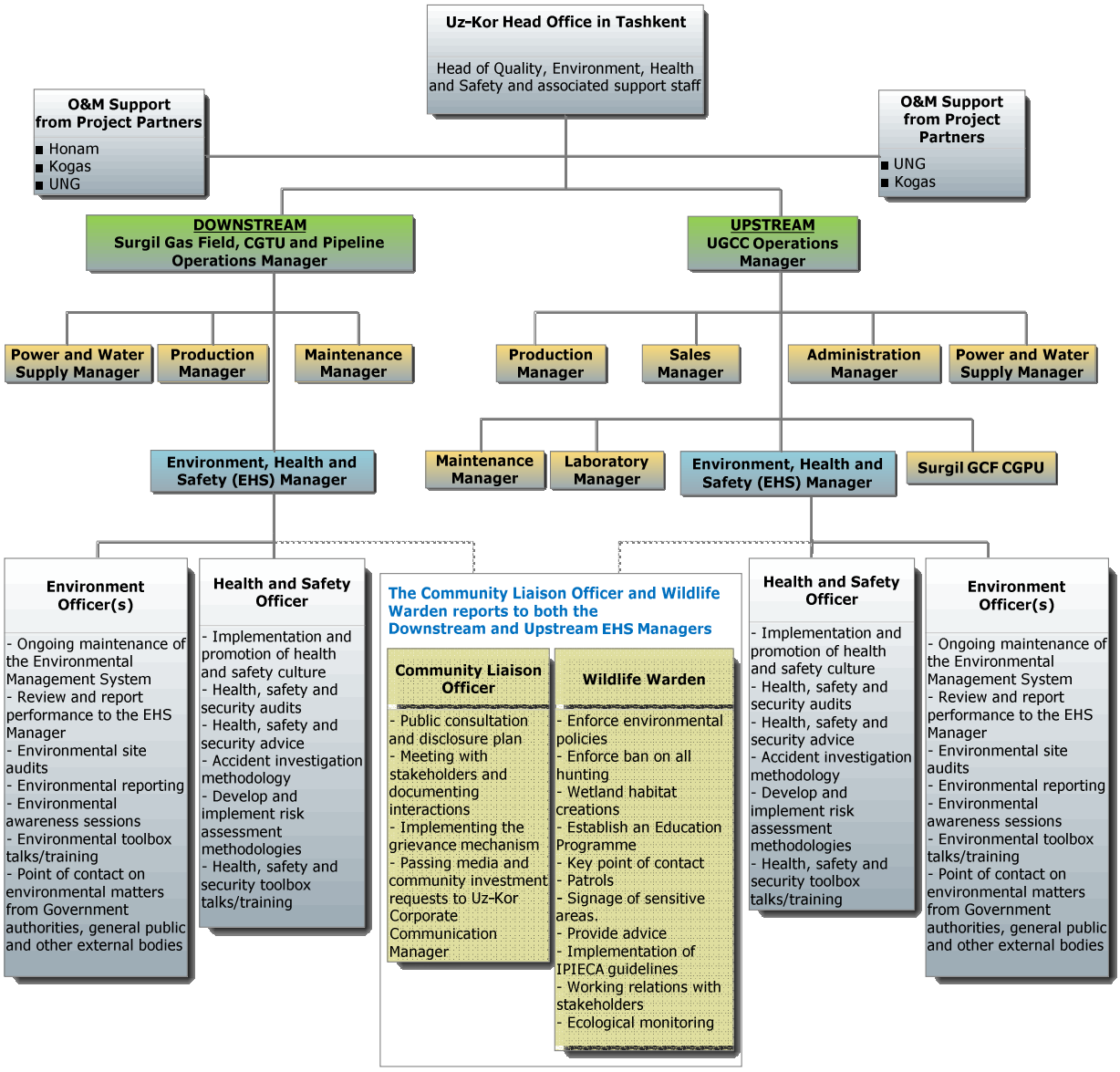


Figure 4.4: Operational Phase EHS Organisational Structure



4.2 Capacity / Institutional Requirements

4.2.1 Introduction

As Uz-Kor has effectively been a project start up company up to the point at which financial close will be reached its capacity to deliver on the ESMP commitment associated with the project is recognised to need significant development. Uz-Kor has commenced a programme of recruitment of experienced Uzbek environmental professionals but it recognises that during the next 2-3 years significant input from experienced external independent environmental and social specialists will be required. Uz-Kor is committed to developing / commissioning all required resources (external and internal) in order to ensure that the ESMP commitments are properly implemented.

This section provides a summary of the current capacity requirements needed to ensure effective implementation of the environmental and social management and monitoring measures. However this will be reviewed on a regular basis in order to identify any further staff or resources needed.

4.2.2 EHS Systems

The key capacity requirement will be development of an overarching Environmental and Social Management System by Uz-Kor that can encompass overall management of the construction phase and then evolve to provide a robust management system for management of environmental and social issues for all the Project components. An important part of delivering on environmental and social management commitments will be the appointment of an Environmental Team by Uz-Kor (Head Office and site based specialists) to co-ordinate Uz-Kor's environmental and social responsibilities and to oversee the activities of the contractors / EPC contractor, as well as the contractors (drilling) and EPC contractor (power plant). As noted above, the Head of the EHS Department has been appointed but recruitment of other members of the team is on-going.

Uz-Kor will develop an environmental and social management system (ESMS) in line with international standards such as ISO 14001 at the corporate level. This should include the following aspects;

- Identification and production of register of environmental and social aspects
- Preparation of register of legislation and consent requirements
- Development of an Environmental Policy
- Development of Environmental Improvement Plan based on legislative requirements and identified environmental aspects to be implemented through development of;
  - Environmental and Social Management and Monitoring Procedures
  - Environmental Operating Procedures
- Preparation of action lists and responsibilities
- Development of training materials and key performance indicators

Inherent in the successful operation of an ESMS will be to include a review and improvement cycle whereby the regular management review of key performance indicators and the successful implementation of the ESMS on a day to day basis will ensure that it is functioning properly.

The ESMS will be developed prior to commencement of construction and expanded into a detailed suite of relevant policies and procedures relevant to operation prior to commencement of operation. Construction phase environmental and social management will be managed through the ESMS and the EPC contractor's construction environmental management plan. The PCDP will also be implemented through

the pre-construction and construction stage with the Community Liaison Officer taking a key part in its delivery.

4.2.3 Capacity Building

4.2.3.1 Environmental Staff

There is a requirement for capacity building within Uz-Kor to implement the ESMP and successfully manage EHS and social issues during the construction and operational phases. Currently, the only key EHS roles recruited are the Head of EHS and the CLO, but at this stage they do not have any environmental and social support, so this structure will need to be set up to ensure comprehensive corporate level responsibility for the implementation of environmental management across all construction site (gas fields, pipelines and UGCC) and for then when the gas field and UGCC move into operation.

The key responsibilities of the head office environmental team will include;
- Ensuring all commitments/requirements of ESIA are met;
- Co-ordination with various government agencies during the construction and operation phases;
- Implementation of the ESMS and oversight of all on-site environmental engineers; and
- Environmental training for on-site environmental engineers.

Adequate resource will be assigned to the environmental team, under the new Head of the EHS department. The exact number of staff to be assigned environmental responsibilities for the construction and operational phases will be established prior to the start of that phase and kept under review to confirm that sufficient resources are available. Indicative staffing numbers have been presented in Table 4.1. At least some of the environmental staff recruited or assigned responsibilities will need to be experienced environmental specialists with comprehensive training then provided to any staff without a suitable background in order to ensure they are capable of undertaking their assigned tasks. The Head of EHS is an experienced environmental professional so provides a good starting point on which to development the team further. Uz-Kor will also be supported by experienced external environmental and social specialists on a consultancy basis who will activity be involved in the capacity building process.

Training for proposed on-site environmental engineer(s) will be undertaken in order to ensure they have adequate skills and knowledge to fulfil their roles. This training will be supported by experienced external environmental and social specialists where necessary. Uz-Kor will hold quarterly co-ordination meetings for all of its on-site environmental engineers starting at the commencement of construction during which training briefings can be facilitated. These quarterly meetings will include all site environmental engineers (Uz-Kor and contractors) with Uz-Kor Head of EHS and any other head office environmental officers or retained national and/or international environmental consultants to review environmental performance and brief the site environmental engineers on the following (but not limited to):
- Updates in any relevant Uzbekistan environmental regulation;
- Updates in any relevant Uz-Kor environmental management systems / procedures;
- Environmental issues arising from construction or operation for wider dissemination on lessons learnt in order to prevent repeat occurrences;
- Guest lectures from external agencies when possible (e.g. State Committee for Nature Protection

The success of this quarterly co-ordination programme for on-site environmental engineers is subject to sufficient environmental officer(s) being available in the head office or from supporting environmental resources from other sources.

The environmental officers will carry out the following responsibilities:

- Take prime responsibility for the environmental management of the project as a whole in compliance with requirements of the ADB Safeguards Policy Statement and other social policies, and IFC Performance Standards;
- Review reporting and compliance audits undertaken by EPC Contractors environmental officer;
- Review and report on performance of the EPC Contractor to the State Committee on Natural Resources (as required) and to the ADB;
- Prepare compliance reports on progress of achieving obligations identified in the Uz-Kor ESMP for submission to the ADB;
- Report on a daily basis any ESMP non-compliances to the EPC Contractor General Manager;
- Act as public liaison officer representative for Uz-Kor.

4.2.3.2 Social Staff

Overview

Similar to environmental staff, there is a need for capacity building within Uz-Kor to provide staff to be responsible for social and community management. Uz-Kor has nominated a community liaison officer (CLO) with responsibility for delivering the public consultation and disclosure plan (PCDP) and other social commitments included within this ESMP, e.g. implementation of the Community Grievance Mechanism, Community Investment Plan, HIV / AIDS awareness programme, the traffic safety sessions and impact enhancement commitments related to gender equality and promoting the development of local communities. More details of the CLO's role are provided below. In addition, contractors are required to have a CLO identified to work in conjunction with the Uz-Kor CLO. The Uz-Kor CLO will require training to ensure he is capable of fulfilling the commitments of the role. In addition, contractors are required to have a CLO identified to work in conjunction with the Uz-Kor CLO.

As with environmental staff, there is no capacity in head office for overall co-ordination / support to the site based CLO or in terms of wider public relations and government relations. Coverage of this area will also be incorporated into the EHS team to be developed at head office.

The head office public relations and government relations and the site CLO will be involved in the mitigation and enhancement activities set out in Sections 2 of this ESMP.

Community Liaison Officer - Job Description

Uz-Kor has appointed a Community Liaison Officer (CLO) to manage engagement with local communities. Uz-Kor also needs to include the requirement for contractors working on the project to appoint a CLO whose activities will be monitored by Uz-Kor's main CLO. The CLO position does not necessarily have to be a stand alone role and CLO duties can be assigned to existing members of staff, however the CLO must be provided with the necessary training, financial resources and time to undertake the role effectively.

The role of the CLO is to develop and maintain good working relationships with the local communities. Since their job will involve listening and responding to local concerns and suggestions, the CLO must have the following qualities and skills:

- Good people and communication skills;
- A good understanding of the local language and community/cultural dynamics;
- Open-mindedness and respect for the views of others;
- A solution-oriented approach;

- A high integrity/degree of trustworthiness; and
- A genuine commitment to the position and its goals.

One of the key responsibilities of the CLO will be to implement community level components of the Project's Stakeholder Engagement Plan (SEP) which includes the following activities:

- Being the main point of contact for community stakeholders to request information or lodge grievances which the CLO must process and work to resolve in a timely and satisfactory manner according to the Project's grievance mechanism.
- Disclosing all relevant information as specified in the ESIA (for example the project employment policy proposed as mitigations, grievance mechanism), meeting with stakeholders and documenting all interactions;
- Organising meetings with stakeholders (except for media), especially the local group leaders (for instance there are women's groups, youth groups, village elders, religious leaders) and the elected and appointed local authorities to provide a regular opportunity to discuss any issues or concerns stakeholders may have.

The other key responsibility relates to overseeing and facilitating the development and implementation of Community Investment Plans (CIPs) in a participatory manner in partnership with local community stakeholders, specifically:

- Establish the Community Investment Stakeholder Committees (CISC) with targeted representation from local community members, women, ethnic Karakalpaks and ethnic minorities;
- Facilitate the development of the CIP, its disclosure and implementation of the CIPs, including disbursing funds in a timely manner in accordance with the specifications of the CIPs;
- Producing annual summaries that provide details related to community investment activities and the use of the grievance mechanism. These will be submitted to the Corporate Secretary for inclusion in the Project's Annual Reports.
- Passing media and community investment requests to, and interacting regularly with, Uz-Kor's Corporate Communication Manager; and
- Monitoring the effectiveness of beneficial community investment and other impact enhancement commitments related to gender equality and promoting the development of local people.

In order to ensure that someone is always available to receive stakeholder concerns, the CLO should appoint a deputy to assume their role when they are out of town or otherwise engaged.

In order to be effective, the CLO needs to have the authority to negotiate on behalf of Uz-Kor. This requires a clear reporting structure and clarification as to which decisions CLO can take unilaterally, and which are to be passed on to higher levels within the company. Direct reporting lines should be used to enable senior managers to more effectively control risks by being kept informed of field-level information in a timely manner. The more likely it is that the concerns of local stakeholders might pose a risk or reputation issue for the project, the more important it is for the CLO to have a direct channel to senior managers.

4.2.3.3 Wildlife Warden - Job Description

The primary purpose of the role, employed by Uz-Kor, is to facilitate the implementation of mitigation and enhancements measures associated with the Surgil Project and as stipulated in the ESMP, with the aim of helping to maintain and improve the wildlife and biodiversity interests within the Surgil Project area. This is to include, but not limited to:

- To inform, explain and where necessary enforce the environmental policies associated with the Surgil Project.
- To enforce the ban on all hunting across the Project area, raise awareness of the importance of the ban across all employees.
- To assist in the design and construction and the long-term management of the wetland habitat creations.
- Provide support in the provision of support to establish a Sudoch'ye Ecology Education Programme, involving local schools and raising awareness of biodiversity across the Project area.
- Act as a key point of contact with the NGO Committee for the Sudoch'ye Lake State Sanctuary.
- To undertake patrols across the Project area land and oversee and provide guidance on activities which may affect the biodiversity features within the Project area.
- To undertake and arrange for the clear demarcation and signage which may prohibit entry to ecologically sensitive areas.
- To provide advice to contractors regarding the ecological sensitivities within the Project area, and if necessary supervise contractors to ensure that they adhere to environmental requirements to minimise disturbance to flora and fauna.
- To ensure the implementation of IPIECA guidelines on the prevention and management of alien species.
- To develop working relations with local community groups; land-owners, land-managers and business interests (particularly those related to recreation and tourism) by maintaining close liaison with local individuals and communities.
- Providing advice to Uz-Kor and Project staff, as necessary, in relation to the conservation and management of wildlife areas.
- To design and implement the ecological monitoring requirements for the Surgil Project, as detailed in the ESIA.

5. Reporting Requirements

5.1 Introduction

Effective reporting is essential for rendering an ESMP (and associated ESMS) of practical value. Routine independent auditing provides the necessary impetus for continual improvement. Without these two fundamental elements, such systems simply degenerate into data collecting exercises. Performance monitoring, reporting and auditing should be carried out to ensure compliance with the requirements of this ESIA, ESMP and overall ESMS. The following provides an outline approach which is aligned to the requirements of ISO 14001. The final scope and format of all reports proposed herein will be agreed with the ADB prior to them being required and produced. Furthermore, each of these reports will be submitted to the ADB for review and disclosure on the ADB website in accordance with the disclosure requirements of the SPS (2009) and the ADB's Public Communication Policy (2005).

5.2 Adaptive Management

The ESMP and plans contained herein will adopt an "adaptive management" approach throughout the life cycle of the project. The creation of the plans at the outset is a fluid process with the management objectives and performance indicators tailored to the current design and objectives of the project. The ESMP utilises to the extent possible existing project knowledge to fully address the actual environmental and social impacts of the project at the time and allow flexibility in environmental and social management decisions made on the project.

To ensure adaptive management of the ESMP the following actions will be implemented:

- The ESMP will be reviewed and amended in accordance to the project design and status as it evolves. Key information about any changes to project description will be regularly reviewed (monthly) and site visits undertaken by Uz-Kor EHS staff to identify the true impacts of the project. For example, if the pipeline route identified in the initial design differs from the pipeline route proposed for construction, then additional habitat surveys maybe required and depending on the impacts alternative ecological management techniques required.
- Ongoing evaluation of the effectiveness of measures included in the ESMP will be undertaken on a regular basis as the project evolves and develops and throughout design, construction, operation and decommissioning of the project. Evaluation will be undertaken through ongoing communication with, EPC contractors, stakeholders and lenders supplemented by site audits and monitoring data review to identify weaknesses and / or gaps in the management plan. The ESMP will be changed and / or updated accordingly to ensure appropriate, robust and effective environmental and social management commensurate to the scale of the Project through its lifetime.

5.3 Monitoring and Reporting by Uz-Kor and Others

5.3.1 EPC Contractor Monthly Internal Reports

Each EPC contractor Environment Officer will be required to prepare a monthly report for issue to the Uz-Kor Environmental Engineer. These reports should normally be no more than one or two pages in length, to summarise the following:

- Progress in implementing their CEMP and parallel management plans;
- Findings of the monitoring programmes, with emphasis on any breaches of the control standards, action levels or standards of general site management;
- Outstanding Non-Compliance Reports (NCRs);
- Summary of any complaints by external bodies and actions taken/to be taken; and
- Relevant changes or possible changes in legislation, regulations and international practices.

Any breaches of the acceptable standards specified by law/construction permits and/or this ESIA should be reported to Uz-Kor, using a NCR Form.

5.3.2 Uz-Kor Monitoring of Construction Activities

Uz-Kor will undertake, on a daily basis, compliance monitoring of the contractors' environmental and social activities as per the IFC Environmental, Health, and Safety guidelines, the approved EPC Contractor CEMP and parallel plans to be prepared by the Contractors. Internal audits should be undertaken every six months focussing on the performance of the implementation of the Contractors' ESMP. Uz-Kor will also audit contractors' workers' accommodation camps.

Any breaches of the acceptable standards specified by law/construction permits and/or this ESIA through the Uz-Kor monitoring of EPC contractors will be reported to the EPC contractor, using a NCR Form.

A copy of each completed NCR (whether prepared by the EPC contractor or Uz-Kor) should be held on file by the Uz-Kor Environment Officer, to be replaced by the reply copy when it is received. A record of corrective actions should also be made and tracked to their completion.

During the construction phase, Uz-Kor will undertake semi-annual reporting, based on their own monitoring results (e.g. air quality monitoring) as a project requirement. This will feed in to annual sustainability reporting (see below).

5.3.3 Uz-Kor Monitoring of Operational Activities

The environmental and social impacts that will occur during the operation phase have been assessed through the ESIA. Impacts will be managed and monitored through the commitments outlines in this ESMP. The Uz-Kor Environmental Officer will prepare annual reports for issue to the Lenders summarising progress against implementation of the Uz-Kor's ESMP obligations through the operational phase. This will include full reporting of monitoring results where relevant (e.g. air quality monitoring, biodiversity action plan monitoring etc.).

Adherence to the OHS plan and procedures will be taken seriously and audited frequently. A warning system for violations and non-compliance will be established and implemented for the monitoring system to be effective.

Regular monitoring of the project performance grievance mechanism and stakeholder engagement will take place. The impact of the enhancement activities, including community investment program, will also be monitored and reviewed.

5.3.4 Uz-Kor Annual Sustainability Reporting

During the construction phase, Uz-Kor will undertake semi-annual reporting, based on monitoring results as a project requirement. During the operational phase, the frequency of reporting will revert to annual reporting, based on monitoring results, and will again be undertaken by Uz-Kor. It will address the full range of environmental and social issues addressed in this ESIA.

Two of the most common frameworks used by international private sector companies for annual sustainability reporting are the Global Reporting Initiative (GRI) and UN Global Compact. The GRI's Sustainability Reporting Framework sets out the principles and performance indicators which organisations can use to measure and report their economic, environmental, and social performance. The GRI has been working with the IFC to align some of its reporting requirement with the IFC's PS. The Global Compact is a framework for businesses that voluntarily commit to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labour, the environment and anti-corruption. Global Compact companies are expected to:

- Set in motion changes to business operations so that the Global Compact and its principles become part of its strategy, culture and day-to-day operations;
- Publicly advocate the Global Compact and its principles; and
- Annually communicate on progress in implementing the ten UN Global Compact principles.

Uz-Kor's annual sustainability reporting will contribute to a positive corporate reputation.

5.3.5 Uz-Kor External Reporting for Regulatory Compliance

Adhering to the external reporting requirements as set out in Uzbek Legislation is important. A register of all necessary external stakeholder reporting requirements under Uzbek Legislation and for regulatory compliance purposes should be developed and form part of the ESMS. The frequency of reporting, the required reporting format and the person(s) responsible for producing the report (along with any necessary specialist service providers/constructors required to assist for data collection or interpretation purposes) is to be noted in the register.

Uz-Kor will ensure that all the necessary reports are produced and submitted in a timely fashion in order to achieve ongoing regulatory compliance throughout the life of the Project. Meeting regulatory reporting requirements is to also form part of the scope for any internal audits and management reviews.

5.4 Annual Independent Audits and Lenders Reviews

5.4.1 Independent Monitoring

The EPs required that all 'Category A' Projects and 'Category B' projects as appropriate require independent environmental and/or social expert to verify project monitoring information. Furthermore, for projects that are deemed to be highly complex and sensitive, ADB requires the borrower to engage an independent advisory panel during project preparation and implementation. As the Surgil Project is considered a Category A project according to ADB categorisation, the engagement of an independent advisory panel during project preparation and implementation is considered warranted.

As a minimum, throughout the first three years of the operations, arrangements should be made for an industrial environmental management specialist to carry out an independent annual audit of the existing practices against the requirements of the ESMP manual. The key objectives of the audit should be as follows:

- Report on the practical implementation of the ESMP and progress since the last visit; and
- Establish feasible improvement objectives for completion before the next visit.

These audits should be used to re-examine the continued appropriateness of the ESMP and to provide advice on any up-dates required. Attention should be given to lessons learnt in the light of experience. In particular, consideration should be given to the monitoring programmes in place to determine whether their purpose has been served and they can therefore be terminated or reduced in frequency.

Monitoring of social issues will be important, especially with regards to worker management, workers' terms and conditions (including the labour accommodation), occupational health and safety and grievances. External monitoring will need to verify that the Project commitments to worker's rights are implemented, in particular with regards to:

- Use of child labour;
- Payment of minimum wages and overtime;
- Not taking any action to prevent employees from exercising their right of association and their right to organise and bargain collectively;
- Ensuring no workers are charged fees to gain employment on the Project;
- Implementation of plans, procedures and training for occupational health and safety;
- Non-discrimination and equal opportunity;
- Use of the labour grievance mechanism;
- The existence of human resource policies, job descriptions, written contracts;
- Provision of information to labour force regarding rights and working conditions; and
- Employee training activities.

Annual monitoring reports of the independent advisory panel will be made available for public disclosure on the project's website and on applicable IFIs website.

5.4.2 Monitoring by ADB and other Lenders

Representatives of ADB and lenders will be involved in regular field visits to monitor the project's progress in implementing environmental and social measures. Prior notice will be provided to the project before field visits. Uz-Kor's field staff will provide further information of specific local environmental and social activities and help to coordinate interviews with contractors' representatives, community representatives, and government representatives, if required.

6. ESMP Budgets

6.1 Indicative Budget

The overall ESMP indicative budget for the Surgil Project totals $14,185,000 before commissioning and operation of the project. Thereafter, an indicative ESMP budget for the operational phase totals $1,526,500 per year. A further 10% contingency has been allowed for on top of these total indicative budgets. The contingency fund is provided for given the scale of the project and given the uncertainty in terms of some potential environmental and social impacts.

The ESMP budget is organized around the following areas:

- Company Level EHS Management, Co-ordination and Communication
- ESMP Compliance Monitoring
- Uz-Kor Environmental Monitoring
- Ecological Management, Monitoring and Enhancement
- Construction Social Management
- Community Improvement Programme

Table 6.1 shows its distribution over the different areas and over the key development periods of construction and early years of operation. The table also outlines the nature of the activities included.

Table 6.1: Indicative ESMP Budget (US Dollars)

ESMP Budget	Construction		Operation
	Per Year	Total	Per Year
Company Level EHS Management, Co-ordination and Communication	**$900,000**	**$3,600,000**	**$400,000**
Capacity building programme for Health, Safety and Environment Department in Uz-Kor	$300,000	$1,200,000	$50,000
Operation of Health, Safety and Environment Department including personnel costs etc	$200,000	$800,000	$150,000
EHS Department facility and equipment costs including offices, vehicles, equipment etc	$250,000	$1,000,000	$100,000
External Independent Expert Verification	$150,000	$600,000	$100,000
ESMP Compliance Monitoring	**$1,360,000**	**$5,440,000**	**$232,500**
Monitoring of Contractor (Construction and Operational) Environmental Management and Pollution Prevention activities including chemical storage and spill prevention, noise management, waste management, wastewater management, road condition, air quality etc	$255,000	$1,020,000	$107,500
Land Contamination prevention and monitoring	$95,000	$380,000	$125,000
Management of drilling cutting and mud including construction of drilling cuttings ponds	$1,000,000	$4,000,000	$0
Archaeological chance finds monitoring	$10,000	$40,000	$0
Environmental Monitoring	**$135,000**	**$540,000**	**$65,000**
Ambient air quality monitoring including set up of monitoring station in construction phase then operational costs following	$60,000	$240,000	$40,000
Groundwater monitoring	$5,000	$20,000	$5,000

ESMP Budget	Construction		Operation
	Per Year	Total	Per Year
Geology and erosion monitoring	$70,000	$280,000	$20,000
Ecological Management, Monitoring and Enhancement	**$248,500**	**$865,000**	**$164,000**
Development of ecological plans	$43,000	$43,000	$0
Training and signage materials, seed collection, habitat protection	$14,500	$58,000	$0
Monitoring activities including hunting, habitat disturbance	$37,500	$150,000	$0
Monitoring surveys including vegetation clearance, trench checking, control of invasive species	$123,500	$494,000	$0
Wildlife warden	$30,000	$120,000	$30,000
Habitat reinstatement	$0	$0	$8,000
Biodiversity enhancement measures	$0	$0	$126,000
Construction Social Management	**$435,000**	**$1,740,000**	**$315,000**
Development and implementation of recruitment and employment policies including equality provisions	$75,000	$300,000	$75,000
Preparation and dissemination/training of worker code of conduct, cultural training, worker grievance mechanism, health awareness, occupational health and safety, sustainable resource use, hunting etc	$160,000	$640,000	$80,000
Monitoring of workers camp conditions and compliance with code of conduct etc	$35,000	$140,000	$0
Development and implementation of community awareness and disclosure programme including community health and safety, project progress, community liaison, skills training etc	$135,000	$540,000	$130,000
Community Liaison officer	$30,000	$120,000	$30,000
Community Improvement Programme	**$500,000**	**$2,000,000**	**$350,000**
Development of CIP annually and monitoring its implementation	$20,000	$80,000	$10,000
CIP fund	$480,000	$1,920,000	$340,000
Total	**$3,578,500**	**$14,185,000**	**$1,526,500**
Contingency Fund	**$357,850**	**$1,418,500**	**$152,650**

6.2 Reallocation of Funds / Update of Budgets

A number of costs have been estimated on the basis of the information available at the time of the preparation of the ESIA documentation. It is expected that the cost associated with some measures may change. Although a provision was always made when the budget was prepared, it is possible that budgets allocated prove to be either under-estimated or over-estimated. Uz-Kor will propose twice per year an update of the overall environmental and social budget with suggestions on the way to reallocate funds. These suggestions will be presented to lenders for review.