

**REPORT OF THE:**

## **EXTERNAL COMPLIANCE MONITORING GROUP**

### **SALAYA – BHOGAT CRUDE OIL PIPELINE EXTENSION**

3<sup>rd</sup> Site visit: May 2011

India



*Prepared for*

International Finance Corporation



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*Prepared for:* International Finance Corporation

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### ***FREQUENTLY USED ACRONYMS***

AGI: Above Ground Installation  
AST: Aboveground Storage Tank  
BOD: Biochemical Oxygen Demand  
BSPT: Bhogat Storage and Pumping Terminal  
DISC: Dredging International Services  
CA: Competent Authority  
CDF: Community Development Framework  
CEIL: Cairn Energy India Pty Limited  
CGWA: Central Ground Water Authority  
COD: Chemical Oxygen demand  
CPCB: Central Pollution Control Board  
CSR: Corporate Social Responsibility  
DISC: Dredging International Services  
DG: Diesel Generator  
DO: Dissolved Oxygen  
ECMG: External Compliance Monitoring Group  
EHS: Environmental Health and Safety  
EIA: Environmental Impact Assessment  
EIRA: Environmental Impact and Risk Assessment  
EMP: Environmental Management Plan  
ESIA: Environmental and Social Impact Assessment  
ESMP: Environmental and Social Management Plan  
FAB: Fluidized Aerobic Bioreactor  
GPS: Global Positioning System  
HDPE: High-density polyethylene  
HS: Health and Safety  
IFC: International Finance Corporation  
IOTL: Indian Oil Tank Limited  
KP: Kilometer Pipeline  
KPI: Key Performance Indicator  
LA: Land Acquisition  
LACP: Land Acquisition and Compensation Plan  
LDPE: Low-density polyethylene  
L&T: Larsen and Toubro  
MPN: Most Probable Number  
MSDS: Material Safety Data Sheets  
NAAQS: National Ambient Air Quality Standard  
NGO: Non Governmental Organization  
NOC: No Objection Certificate  
PCDP: Public Consultation and Disclosure Plan  
PLEM: Pipeline End Manifold  
PLL: Punj Lloyd Limited  
PM: Particulate Matter  
PM<sub>10</sub>: Particulate Matter with diameter less than 10 µm

PM<sub>2.5</sub>: Particulate Matter with diameter less than 2.5 µm

PPE: Personal Protection Equipment

PS: Performance Standard

PVC: Polyvinyl chloride

RO: Reverse Osmosis

RoU: Right of Use

RPM: Respirable Particulate Matter

SBPL: Salaya-Bhogat Pipeline

SEHMS: Skin Effect Heat Management System

SMS: Short Message Service

SOP: Standard Operating Procedure

SPM: Suspended Particulate Matter

SPMo: Single Point Mooring

SRP: Special Reserve Police

SRT: Stakeholder Relations Team

STP: Sewage Treatment Plant

TOC: Total Organic Carbon

TSS: Total Suspended Solids

UN: United Nations

WHO: World Health Organization

WMP: Waste Management Plan





## **INTRODUCTION**

This report summarizes observations made during the third site visit (5<sup>th</sup> to 8<sup>th</sup> May 2011) by D'Appolonia S.p.A., Italy (D'Appolonia), serving as the External/Independent Environmental, Health and Safety (EHS) Compliance Monitoring Consultant (referred to as the External Compliance Monitoring Group – ECMG) for the Salaya – Bhogat Crude Oil Pipeline Extension Project, India (“the Project”).

This External Compliance Report is broken down into three key subject areas, as follows:

- compliance with International Finance Corporation (IFC) Policies and Guidelines;
- compliance with the Environmental Impact and Risk Assessment (EIA) documentation and Project Environmental and Social Management Plan (ESMP); and
- recommendations for improvements based on the findings of the visit and D'Appolonia's experience.

ECMG observations that require action and that will be reviewed in subsequent assessments have been collected in Table 1 – Follow-up Issues. Table 1 will be updated by the ECMG following each Project visit assessment. The Follow-up table is structured as follows: new issues are given a distinctive, progressive number with the first digit indicating the mission (1 for the first mission, 2 for the second, etc.); when applicable, issues closed during the current visit have been designated as such and highlighted in gray; closed issued from previous missions will be eliminated from the table. The ECMG has also provided recommendations for Project improvement based on the collective experience and expertise of the team members. These recommendations are not always to be considered compliance requirements and there is no onus on the operation for implementation. ECMG, however, encourages the Project to consider the usefulness of the recommendations and incorporate them, as appropriate, into management activities.

Cairn Energy India Pty Limited (CEIL), a subsidiary of Cairn India Limited, is party of the RJ-ON-90/1 Block (Rajasthan Block) Production Sharing Contract, dated May 15 1995, and Operator of it on behalf of a Joint Venture with the Oil and Natural Gas Corporation Ltd, a Public Sector Organization which holds 30% interests in the Joint Venture. In addition, in August 2007 the Government of India accorded to Cairn India and ONGC the right to acquire the Right of User for laying a crude transportation pipeline from Barmer to Salaya. The original plan included the construction of the Mangala Processing Terminal near Barmer, Rajasthan, a pumping terminal at Viramgam, Gujarat (Phase I), and the laying of a 600 km heated pipeline connecting the Mangala Processing Terminal to Viramgam and the Salaya nodal point with spur lines connections to the Essar and Reliance crude oil tank farms (Phase II). However, due to environmental constraints and eco-sensitivity issues along the coastline off Salaya, a new Single Point Mooring (SPMo) location was identified along the coast of the Arabian Sea near Bhogat.

To reach this SPMo location, CEIL has developed a new phase (Phase III) of the Project that includes the extension of the Barmer – Salaya pipeline for an additional 75 km to reach Bhogat (the Salaya – Bhogat section), a crude oil Storage and Pumping Terminal at Bhogat, and a Marine Offshore Tanker Loading Facility. The pipeline extension from Salaya to Bhogat will have the same design and characteristics of the Barmer – Salaya pipeline; it consists of a 24 inch diameter insulated pipe, equipped with a Skin Effect Heat Tracing System, and an 8 inch diameter gas line. Three Above Ground Installations (AGIs) necessary to heat the pipeline will also be part of this new pipeline section (AGIs 34, 35, and 36). The pipeline corridor passes through the Jamnagar District of the Gujarat State along mostly open scrub land and agricultural fields. The Bhogat Storage and Pumping Terminal (BSPT) area is located approximately 1.5 km from the Bhogat village and about 7 km from the coastline. The total Terminal area will cover approximately 100 hectares and includes: seven (7) Above ground Storage Tanks (AST) for crude oil with fixed roofs and a capacity of 300,000 barrels; four (4) diluent AST with floating roofs, one with a capacity of 300,000 barrel (approximately 48,000 m<sup>3</sup>) and three with a capacity of approximately 90,000 barrels; a blending facility; a captive power generation plant with an estimated output of 15 MW; and other associated facilities (emergency power generators, boilers, buildings housing offices workshops etc., water supply and treatment plant). The Marine Facility consists of a twin 24 inch pipeline running 7 km on land, from the BSPT to the landfall location, and approximately 6 km sub-sea, from the landfall point to the SPMo, a pipeline end manifold and interconnecting houses, and a tanker loading mooring. CEIL has obtained the necessary clearances from the Ministry of Environment and Forests (August 2009) and the Gujarat Maritime Board (November 2008) to develop the Project subject to compliance to the terms and conditions indicated by each Authority.

CEIL has sought financial assistance from IFC and committed to apply its Performance Standards (PS) on Social and Environmental Sustainability to the design, construction, operation, and closure of the Project. In general, IFC involvement and financing require both pre-finance project due diligence and post-finance project assurance with respect to various social, environmental, health, and safety and IFC Policy and PS relevant to the Project. CEIL has committed to external/independent social, environmental, health, and safety compliance monitoring to provide an additional level of transparency to the implementation of its management programs.

D'Appolonia scope of work is to conduct quarterly visits during the construction of the Project in order to:

- identify areas and degrees of compliance with the Equator Principles and the following IFC Policies and Guidelines:
  - IFC General Environmental, Health and Safety Guidelines (April 2007), and
  - IFC Environmental, Health and Safety Guidelines for Oil and Gas Development, Onshore (April 2007) and Offshore (December 2002);
- identify areas and degree of compliance with each of the following IFC PS:
  - Performance Standard 1: Social and Environmental Assessment and Management Systems,
  - Performance Standard 2: Labor and Working Conditions,
  - Performance Standard 3: Pollution Prevention and Abatement,
  - Performance Standard 4 Community Health, Safety and Security,
  - Performance Standard 5: Land Acquisition and Involuntary Resettlement, and
  - Performance Standard 8: Cultural Heritage;
- compliance with any previously developed Action Plans and/or agreements between Cairn and IFC and other Banks;
- identify areas and degree of compliance with the following CEIL developed plans:
  - Environmental, Health, Safety and Social Management System as described in the Cairn India Corporate Responsibility Management System,
  - Projects specific EIA and ESMP,
  - provide practical guidance and advice to Project's field teams, and
  - identify specific EHS issues and conduct follow-up and closure of open issues.

The Focus areas of the EHS reviews are the following:

- EHS Management performance;
- EHS compliance (versus Indian and International standards as presented in Project specific EIA and ESMPs);
- compliance with IFC PS on Social and Environmental Sustainability and EHS Guidelines;
- facilities review; and
- implementation of the EHS Action Plans (as presented in the EIA and ESMPs).

During the field activities, D'Appolonia assessed all Project's associated facilities (the Salaya to Bhogat pipeline, the BSPT and associated facilities, and the Marine Facilities area) based on direct observations, interviews with Project personnel, and pertinent documentation provided by CEIL.

Specific activities conducted during this site visit included the following:

- evaluation of implementation of the commitments contained within the Project specific EIA and ESMP. Items addressed in these documents include: air quality, surface and ground water resources, soil resources, natural resources (flora and fauna), noise and vibrations at off-site receptors, waste management, and cultural resources;
- evaluation of the Project compliance with Corporate Responsibility Guiding Principles and Management System, with the Public Consultation and Disclosure Framework Plan (Corporate, and for Gujarat) and with the Land Acquisition Framework Plans (Corporate, and those developed specifically for Gujarat);

- evaluation of the implementation of Project commitments contained within specific EHS Action Plans developed in the EIA and ESMP;
- evaluation of compliance with IFC PS Policies and Guidelines listed above;
- visit to the Project facilities including: the Ghi River crossing; sections of the pipeline corridor at Kilometer Pipeline (KP) 72-73; AGIs 34, 35 and 36; Khambaliya Base Camp and two storage yards; Larsen & Toubro Limited (L&T) Labor Camp at Haripar; the Bhogat Terminal under construction and its associated facilities like CEIL living quarter and Punj Lloyd Limited (PLL) labor camp; and the marine working area (including Leighton camp, Dredging International Serviced camp and the landfall point);
- meetings of the ECMG social team included:
  - o Corporate Social Responsibility, Stakeholders Relationship, Security and Land Acquisition teams in Bhogat and Khambaliya,
  - o the site management of Khambaliya; and
  - o the site management, Industrial relations, Community Liaison officers of Leighton;
- interviews with land-owners in Bhogat and Kharkhada villages;
- visit of the fishermen's settlement near the marine facility and meeting with the fishermen;
- visit to PLL and L&T labor camps;
- review of documentation provided by CEIL specifically related to the projects; and
- review of the documentation relating to the development program.

The final closeout meeting was conducted at CEIL's Gurgaon offices on May 11<sup>th</sup>, 2011, and the information presented in this meeting has formed the basis for this report. The information, observations, and opinions presented in this report are those of D'Appolonia and are independent of those of CEIL and the IFC.

## ***EXECUTIVE SUMMARY***

The overall Project, which is currently in the construction phase, could be subdivided into three main sub-projects: (1) Salaya-Bhogat Pipeline; (2) Bhogat Terminal; and (3) off-shore works. The total manpower working along the Salaya-Bhogat pipeline is approximately 500 persons (mainly from local villages), including staff personnel. Pipeline works along the 74 km corridor are still in early stage of construction with no major progress to be reported since the last site visit in January 2011. The total manpower at the Bhogat Terminal, which construction is slowly progressing, is approximately 580 persons, including staff personnel. The off-shore sub-project is at final stages of construction and early phase of demobilization. At the marine site, the current total manpower is approximately 550 persons, including staff personnel. Leighton's contractor, Dredging International Services is currently working on off-shore backfilling activities.

The Project EHS management organization is still divided in two main structures, one for the Bhogat Terminal sub-project and one that oversees the pipeline construction, including both the Salaya - Bhogat pipeline extension and the off-shore pipeline section. All Contractors currently on-site have developed and finalized their own EHS Management Plans. Updated Security documentation has been provided from CEIL. Monthly EHS reports are issued by Project contractors; however, no such reports were available for review during this visit from IOTL. Also, CEIL conducted an internal audit, from 21<sup>st</sup> to 24<sup>th</sup> February 2011, and provided the relative report results to the ECMG team. It should be noted that field observations of EHS practices by ECMG generally corresponded to the level of available documentation (EHS plans and procedures), with fairly good practices observed for contractors working at Project's sites. However, CEIL supervisor presence at site should be improved and intensified. In addition, CEIL personnel should continue their pro-active coaching and continuous field training of some contractors' workforce and supervisors.

EHS organizational structure for CEIL is unchanged since the January 2011 Audit visit while updated EHS organograms have been provided for review from IOTL, L&T and Leighton. The Project should consider increasing the EHS structures of VI Pandya that appeared very weak and not adequate to fulfil Project's standards. Overall, the current Project Environmental Management structure appears to be consistent with Project commitments and requirements at all key managerial positions and field personnel appear to be fully aware of Project's relevant EHS aspects/issues/procedures. EHS training is ongoing for all contractors and appropriate visitors' induction was delivered at all visited sites.

The ECMG team visited the Project sites at the end of the dry season when the dust issue should be more evident. Overall, dust control measures at Project sites have been found to be sufficient. However, dust issues are likely to increase when windy conditions are more pronounced. Stack heights of permanent DGs has been observed to be generally adequate at all Project sites. The Project conducted monthly ambient air quality monitoring campaigns at all Project sites between January and April 2011. In addition, comprehensive monitoring reports including graphs and remarks on reported exceedances. Sampling duration for Ambient Air monitoring parameters is 24 hours, which is in accordance with IFC requirements for most analytes except for NO<sub>2</sub> and O<sub>3</sub> that should be performed according to IFC requirements.

Results of Particular Matter monitoring show exceedances at most monitored locations throughout the Project sites against the IFC limits. However, national limits, which coincide with IFC interim target No. 2, are respected at all locations with few exceptions. It should be noted that, as indicated in the PM<sub>10</sub> baseline values reported in the Project EIA, PM measurements are probably affected by the arid and windy conditions of the area of interest. Therefore, achieving compliance with IFC standards is not feasible in this regional setting. Other parameters (SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, and CO) do not show abnormal values in comparison with both local and international standards, although a proper comparison of NO<sub>2</sub> and O<sub>3</sub> measurement was not possible against IFC limits. Stack emission tests were also performed on a quarterly basis showing no exceedances against local limits.

At most Project sites water to satisfy construction needs is currently withdrawn from bore wells (along the pipeline route) and open dug wells (at the Bhogat Terminal) with consumption records kept at all locations. The Project has obtained a groundwater abstraction permit from the Central Ground Water Authority of the Ministry of Water Resources allowing withdraws of 2,000 m<sup>3</sup>/day at the Bhogat Terminal. Permit for groundwater abstraction below 2,000 m<sup>3</sup>/d is not required since the Project reportedly falls into a declared

safe groundwater utilization zone. Records on industrial and domestic water consumption are kept by all contractors. The source location of hydro-testing water for the 11 oil storage tanks under construction at the Bhogat Terminal is in the overall hydro-testing plan is still in the preliminary stages. Therefore, the Project should develop a hydro-testing plan for the tanks at the Bhogat Terminal as soon as possible. The Hydrostatic Test Plan for SBPL Mainline Sections has been provided for review. The Project should ensure that the IFC limit of 10% of the average river flow is not exceeded in hydro-testing water withdraws. At the marine site, the full system leak test was scheduled for the end of May 2011 and seawater mixed with oxygen scavenger, bactericide, and corrosion inhibitor will be used and then left in the pipe until commissioning. CEIL will be responsible for discharge of this water. CEIL should develop a specific plan (detailing procedures, standards, test, etc.) for the discharge of hydro-test water used in the marine portion of the pipeline.

Monitoring campaigns (noise, waste and drinking water, soil) were conducted by CEIL and its main contractors at all Project sites in the period January-April 2011. Comprehensive reports summarizing monitoring results and including graphs and remarks on reported exceedances have been developed by all contractors. Noise monitoring results show minor exceedances with respect to the IFC limit; however, such measurements were below national limits. Exceedances in wastewater results have been detected and should be investigated and mitigated in accordance with IFC requirements. In particular, the Project should ensure that coliforms concentrations in the sewage treatment plants effluent water is quantified and is below the IFC limit and that treated wastewater complies with IFC requirements in terms of coliforms content before being used for dust suppression. Drinking water monitoring tests show that the water is suitable for potable use. In addition, Leighton also finalized the report on sea water and sediment quality monitoring during the dredging operations. Some parameters (such as Total Suspended Solids, Total Organic Carbon, Heavy Metals, *chlorophyll a*, phytoplankton and Dissolved Oxygen) were observed to be different from baseline data. The Project should consider performing monitoring studies of seawater/sediment nearby the off-shore corridor at regular intervals during the post-construction phase of the off-shore pipeline in order to study potential long-term impacts related to construction activities.

The Project is still at the initial stages of the pipeline on-shore works along the RoU while reinstatement activities at the marine site have already started and will be completed by the end of July 2011. The Project is aware that reinstatement is a potential critical issue and therefore the current SOP for reinstatement works is being revisited. L&T has updated a procedure for the sourcing of padding material and disposal of surplus excavated soil/rocks; however, the Project should finalize the Rock Disposal Plan identifying proper disposal quarries and/or document any agreement with local end users. The Project finalized a Greenbelt Development Plan identifying future areas for greenbelt plantation (AGIs and Bhogat Terminal). The Project is also tallying all trees cutting along the RoU.

The construction of the Viramgam spur line has started in late November 2010. CEIL, as per its commitment, should provide ECMG regular monthly report summarizing project status, any significant EHS issues, if present, along with relevant mitigating measures adopted, and photographic evidences of relevant work in progress. In addition, upon construction completion, CEIL has committed to submit a report detailing restoration activities, waste disposal, and other relevant EHS information. CEIL submitted to ECMG a detailed report, correlated with sites' pictures, on the final clean-up and restoration of the three former yards used during the construction phase of the Barmer – Salaya project. Overall, all yards have been reinstated according to Project commitments and IFC standards.

During the period January to April 2011, Project non-recyclable waste (mixed waste coming from surplus of waste segregation) was still sent to the two municipal dump sites located in the towns of Khambaliya and Dwarka, which were found to be not compliant with IFC standards. The Project stopped sending wastes to these landfills starting mid April 2011 and has identified an engineered landfill in Ahmedabad, Gujarat that is reportedly suitable for waste disposal. The Project should speed-up the delivery of non-recyclable waste to the engineered landfill in Ahmedabad. Non-hazardous recyclable waste is sent to appointed recycling facilities audited by the Project. At the Bhogat Terminal, non-hazardous waste was observed not to be properly segregated; therefore, the Project should consider improving segregation of waste and preferably performing it at source. Food/organic waste generated by the Project is transported to two municipal composting facilities that has been audited by the Project. The Project should consider performing capacity building programs for workers at composting facilities. Hazardous waste generated by the Project is sent to Reliance Barrel Supply Co., a hazardous waste recycler and disposal facility located in Ahmedabad, Gujarat. The PLL hazardous waste storage area should be provided with more ventilation.



Biomedical waste generated from all contractors' medical facilities is disposed by an authorized contractor (audited by the Project). Wastewater is currently treated at on-site STPs throughout the Project sites. In addition, septic tanks are provided at those locations where STPs are not present.

Overall, hazardous materials were observed to be properly segregated throughout the Project sites. However, along the Salaya-Bhogat pipeline and at Bhogat terminal, issues related to cement bag storage areas have been identified. The Project should ensure that cement bag storage areas are kept clean and provided with sufficient ventilation. In addition, use of PPEs (nose masks) and implementation of safety procedures for cement handling should be enforced. At all Project sites, spill kits were observed to be present where hazardous material is stored along with fire extinguishers. In addition, Diesel Generators are provided with secondary containment at all visited working sites and gas cylinders were observed to be properly stored and, when full, locked.

At the few active section along the RoU, safety fences and/or other protective means should be provided in order to prevent people or animals from falling into the open trench. All the visited working sites along the pipeline were found equipped with all the necessary EHS provisions.

Project specific HS plans/procedures have been developed by CEIL and adopted by contractors currently working at Project sites. Dangerous road and/or traffic conditions are still present in some areas. Of particular concern is the one lane road running from Bhatiya to Bhogat. The Project should particularly focus on in-house solutions like strengthening driver training, developing and delivering community awareness programs on road safety, in conjunction with its continuing efforts to find alternative ways to improve road safety. Medical facilities have been observed to be present at Project sites. At Bhogat Terminal, medical facilities are inadequate for the workforce currently present on-site (about 600 people). The Project should put on fast track actions to resolve the medical issue at Bhogat Terminal by providing the facilities with all necessary medical equipment/supplies. It should be noted that, according to Project management, CEIL is currently implementing plans to sensibly improving this facility. First aid kits were present and found adequate at all Project sites regularly. Emergency Mock Drill and a Fire Demonstration Drill are performed regularly at working sites. Moreover, the use of PPEs is widespread throughout the Project working sites, with few exceptions. Smoke detectors were found present at most labor/staff camp with the exception of the PLL labor camp where they have not been installed yet. Equipment inspection is reportedly performed before equipment is deployed to the field. However, according to field observation, equipment inspections should be increased by field officers in order to ensure it meets working specifications. Fencing is generally present at Project sites with few exceptions and housekeeping was found to be generally good at the time of the site visit.

With respect to land acquisition, CEIL is still confronted with strong opposition by landowners who are not satisfied with the compensation offered by the Competent Authority (CA). The CEIL strategy to solve the issue has been to dialogue at all levels; employment and contracts opportunities at the local level particularly to land owners; establishment of the Bhogat Village Committee; corporate social responsibility (CSR) activities; improved security; and negotiations with individual land owners. However, the final decision on compensation is the sole jurisdiction of the CA as Government's appointed authority for land acquisition and compensation. According to the Project team, the CA will exercise the maximum flexibility to accommodate genuine issues, in the spirit of the Land Acquisition and Compensation Plan (LACP), as done in the upper part of the pipeline.

The ECMG team acknowledged that the situation has not improved in the last quarter; on the contrary, the opposition of the land owners to give access to the RoU land has increased, and in some cases the compensation checks, accepted first were rejected and returned. The CSR staff, stakeholders relation team (SRT) and land acquisition (LA) team have all mobilized to interact with land-owners, even if, at this stage, negotiations are mainly carried out at higher levels (Gujarat and central government).

One outcome of these negotiations has been that CEIL persuaded the CA to calculate and deliver the compensation differently - increase the land acquisition rates based on current market value in the area and ensure compensation for crop losses for a period of two years (even if the land will be occupied for a shorter period). The result has been that some of the farmers got convinced and allowed the construction activities to commence on their land, on agreement that top-up compensation will be given in case of any increase in the compensation rate at a later time. This complex situation has pushed some farmers to agree to the commencement of work before compensation was actually paid to them. ECMG spoke with one land owner who represented one of these cases, and found that he was quite confident that he will receive

his checks and had no complaint. ECMG acknowledges the difficult situation, however, strongly recommends justifying and documenting any procedure agreed to with the landowners that is not in compliance with the LACP and IFC PS5. Furthermore, CEIL should document that timely and continuous information has been given to the landowner on when the various compensations will be paid, and when activities on their land will start and keep them abreast of the construction schedule and expected completion timeline.

ECMG met some of the landowners who have refused to give their land along the RoU due to lack of satisfaction by the compensation offered by the CA. Though the compensation seems the most important reason for their stalling position, they also raised concerns about the possible impacts of the pipeline during operation, and in particular they voiced their concerns on potential oil spills. ECMG's opinion is that complete, correct, and consistent information via illustrative tools (leaflets with drawings, slides, video) can reassure project affected communities and avoid or at least limit rumors and concerns.

CEIL had set up a Village Committee in Bhogat in order to manage local complaints and requests of employment and contracts. The Committee is composed mainly of influential local people who are landowners and/or are interested in obtaining contracts with the Project, and its representative base remains limited, according to the Project team. It was nevertheless useful in voicing some community concerns (channeling drains, widening the road, organizing health camp) and it also allows maintaining a continuous communication with a number of local influential people. However, other landowners set up different associations to lobby for their interests and many of them interact directly with the project on an individual basis. ECMG recommends that CEIL keep a balanced approach with the ensemble of land owners, with particular attention to the most vulnerable ones.

With respect to landowners who have allowed access to their land for the RoU (around 135 in total), the LA team reported only three grievances that have been raised at the CA level. According to the LA team, other minor issues are solved directly and immediately by contractors. ECMG recommends that also minor complaints reported to CEIL or contractors' team be recorded and their closure documented. Besides the proper record of all complaints from Project affected people being a requirement of IFC PS5 and LACP, in the context of the difficult relations with many local land owners, CEIL should document its good faith and best effort to manage grievances.

During the ECMG visit, the Project security team presented to the ECMG the current security threats and Project's security operations set up. The presentations also included a key stakeholders' analysis, a risk analysis and an assessment of issues where the Project needs to improve. The ECMG team found the presentations very informative and the planned restructuring of the security arrangement sound, as far as it is based on intelligence and passive defense of sites, together with stakeholder engagement and community development activities. The planned training for security personnel appears appropriate and complete and should be carried out as soon as possible and on a continuous basis. ECMG strongly recommends that all security personnel, including contractors', to be trained and briefed on CEIL policies, the objectives of their work and rules of engagement. ECMG would also like to recommend including in the training the risks associated with power abuse and disproportionate use of force. However, ECMG acknowledges that no complaint regarding security personnel abuse has been reported by the local people or raised during ECMG meetings with the communities. The Project team reported that three guards were terminated due to misconduct towards the workers.

ECMG found that, even if staff onsite is briefed on emergency contact numbers, they have not been fully instructed on the exact procedures to follow during security emergencies nor they have been involved in any drills to familiarize themselves with such procedures. ECMG recommends ensuring that security procedures are clear to all parties, including contractors' security personnel and key construction supervisors, and that security drills are carried out involving construction personnel.

At the time of ECMG visit, security up arrangement for Bhogat terminal and Salaya-Bhogat pipeline comprises comprised of a total of around 200 people (including one manager and three assistant managers). Most of guards are locals and not trained. Training provided by CEIL to security staff included: physical training, human rights, HSE, and first aid. The organization is in course of being restructured and a more complete set of training has been planned. All this security personnel is unarmed. Moreover, each main contractor is also deploying its own security (unarmed personnel). These personnel are not trained by CEIL. ECMG acknowledges that main contractors may have their own security and approach, but stresses

the importance of CEIL ensuring that CEIL policies are well understood, implemented and respected; security staff properly trained; and CEIL management timely informed of any issue or incident.

The security organization is complimented by the Stakeholders Relations Team (SRT), comprising of three former policemen (for the Salaya-Bhogat area) with responsibility midway between communication with stakeholders (both authorities and communities) and security. In the security arrangement, their main task is conducting intelligence and be the first to react, maintaining a dialogue with people; linking with local authorities and police; and avoiding as much as possible scaling up of confrontation. The SRT works in collaboration with land acquisition and CSR teams.

Since the very beginning of CEIL activity in the area, the tense situation with land owners not agreeing on the compensation fixed by the Competent Authority, and with locals looking for contracts with CEIL, has sometimes scaled up to verbal and even physical aggression, road blocks and works stoppages. According to the Project team, most of these incidents were resolved through the involvement of CEIL security team, SRT and CSR team, and/or the contractors' security, and only in a very few cases the local police was deployed.

The situation is reportedly calmer in the last months, also due to the negotiations and dialogue process undertaken by the Project (including CSR, LA, SRT as well as the senior management) with all stakeholders, even if the issue of compensation and opening of the RoU has not been resolved yet.

Following the episodes of threats and violence to staff, since December 2010 CEIL, engaged an armed Special Reserve Police Force (SRPF) to act as a deterrent. A platoon of 28 security personnel is deployed at Bhogat terminal and along the pipeline. The constables are armed with Self Loading Rifles/303 Rifles/carbine. They are not trained by CEIL. They reports to SRPF designated unit, undergo their own training and follow their own rules of engagement. CEIL has no control of their decision making processes and their ultimate conduct.

The presence of armed security not reporting directly to CEIL management is an issue of major concern for the ECMG team. ECMG recommends CEIL discontinuing as soon as possible the use of the SRPF, considering that the rationale of the mobilization, as expressed in the documentation submitted (delayed work; few cases of assault) appears disproportional in comparison to the risks caused by the presence of the arms. In this regard, the need for engagement of SRPF has been questioned even by some of CEIL managers during discussions with the ECMG team, considering that the level of tension and number of incidents have reportedly declined in the last months and all past cases resolved without the use of force. Furthermore CEIL should consider the reputational risk: the presence weapons onsite can potentially affect CEIL's credibility at the local, national and international level, which to date has been one of a responsible corporate citizen. ECMG reminds that CEIL is ultimately responsible in front of the public opinion in case of improper use of force by Government armed forces that it has solicited.

With respect to SRPF rules of engagement, as described in the documentation submitted to ECMG, it is obviously unacceptable by IFC/UN standards that human life could be threatened to protect assets. Consequently, while deploying the SRPF, ECMG recommends (i) changing the rules of engagement so as to limit the use of arms only as a matter of last resort and only for preventive and defensive purposes, in proportion and extent of the threat, and in a manner that respects human rights; (ii) briefing SRPF personnel on CEIL policies and principles of conduct; and (iii) ensuring that SRPF personnel are trained in Human Rights.

In light of these considerations, the Project has taken a pro-active approach and reported that armed forces have been demobilized from the pipeline locations effective June 28<sup>th</sup>, 2011 taking a significant step in the right direction

Notwithstanding the ongoing situation concerning the land acquisition, some community development activities commenced that can improve the relationship with local communities. The projects include support to Government health camps; support to the National Polio Surveillance Program; and Science Van for schools. Other programs have just started or about to be launched: an Agri Kiosk for farmers in Bhatiya; multi-specialty health camps; Green Belt Development around the Bhogat terminal; a new pilot program of English learning for youth.

In order to assess the Project's potential impact on fisheries and fishermen communities, the Project commissioned a "Socio -Economic Study of the Fishing Communities around the Pipeline Marine Project



at Bhogat Village, Jamnagar" (GES, March 2001). According to the study, the fishermen are well aware and properly informed of the Project and on the restrictions of access because of the work. However, during this visit, the fishermen reported some impacts: decline in fish catch as compared to the previous year and also that some nets have been damaged as a result of collision with the Project barges and vessels due to strong winds and currents. The major concern of the fishermen is potential oil spills. On the basis of the discussions with the communities, the study proposes a number of activities, which include support for the supply of potable water and electricity, support for the organization of a fishermen cooperative and programs to support access to education.

The CSR team informed ECMG that, following this study, some actions for the fishing communities are under development, including: contacts with the competent local administration to collaborate with Government schemes for fishermen; contacts with the Central Institute of Fishing Activities for training fishermen; health and education programs; coordination with the rural electricity board or alternatively with solar power schemes to explore opportunities for supplying electricity to the hamlet. ECMG recommends that CEIL now develop an action plan based on the consultants' findings and consultations with the fishermen communities to address issues and concerns raised.

ECMG was informed that during this time, neither CEIL CSR nor other CEIL staff were engaged with the fishermen community. CEIL's position is that there was a division of responsibility with Leighton, as the fishermen hamlet of Bhogat is near the marine facility. In fact, Leighton have employed five fishermen with their boats; organized one health camp and one month of free transportation; and carried out some distribution of food and medicines. In addition, the Leighton camp clinic is available on request for the fishermen's families. Fishermen reported that Leighton has also compensated them for the damaged nets.

ECMG reminds CEIL that Leighton, as other construction contractors, is present at Project sites only for a relatively short period of time, while CEIL needs to build long term good relationships with a community in close proximity to one of its major facilities. Furthermore, the follow-up of the Project's impacts on stakeholders is CEIL's responsibility and the fishermen are probably the most impacted group by construction to date. During the ECMG visit, the fishermen also expressed concerns regarding the end of the construction phase and the departure of Leighton, and were anxious to know the chances of being employed during operation.

ECMG is of the opinion that CEIL should have direct engagement with the fishermen communities (at Bhogat and Navadra), assess the claimed damages and losses and ensure that the project affected people have been adequately compensated and other issues addressed. CEIL should also regularly visit the communities and respond to their concerns and queries. Finally, CEIL should ensure the proper hand-over of Leighton liaison activities and consider retaining Leighton local liaison staff for CSR. In this context, ECMG noted that the CSR staff dedicated to the Salaya-Bhogat area is still limited to one officer based in Khambaliya. Given the intense engagement of the CSR officer with land owners, CEIL should evaluate whether the number of CSR staff is sufficient to manage all stakeholders and address the various construction issues and the new CSR activities.

ECMG received and reviewed the second draft of the Community Development Framework for the whole Mangala Development Pipeline Project. The second draft takes into consideration a number of specific comments made by ECMG and IFC. However, ECMG recommends again extracting from this scoping document a separate corporate document (CEIL Community Development Strategy) with precise commitments to community investments. Detailed suggestions have been given in the Barmer-Salaya report to facilitate the finalization of the document.

The Project submitted a draft of the revised Public Consultations and Disclosure Plan (PCDP) for Gujarat including the Salaya-Bhogat extension. The draft has been reviewed by ECMG, who has given a number of detailed suggestions to finalize the document.

The updated LACP for the operations in the Gujarat portion of the Project (Pipeline or Midstream project), presented by the Project has been assessed as adequate in the January ECMG report. However, ECMG recommends again correcting the title of the document to show it refers to the Gujarat project.

With respect to community health and safety, concerns for the road from Bathiya to Bhogat, intensively used by Project's vehicles, have been highlighted since the October 2010 ECMG report. CEIL has adopted a number of H&S measures to address the issue of the narrow road, including: drivers' training, issuing driver's passport to record feedback on driving skills from passengers, putting road signage. CEIL's

management reported that relevant Government department has been approached to improve the road conditions by means of widening the road and providing speed breakers at suitable locations. Apparently the speed breakers have not been accepted and the widening of the road, though commendable, is a long-term solution. ECMG recommends again (i) considering the launching of a road safety awareness campaign in schools along the road and (ii) continuing efforts for finding alternative ways to improve road safety on the Bhatiya to Bhogat one lane road.

Some initiatives on community H&S awareness have been carried out by the main contractors. Leighton conducted a community health and safety campaign at a Bhogat school. HIV-AIDS sensitization for workers has been conducted in PL labour camp. CEIL prepared a Plan to Sensitize Community on HIV/AIDS in Cairn's Operational Areas, within the framework of the United Nations AIDS (UNAIDS) and Gujarat State AIDS Control Society (GSACS). The Project should implement the plan, and organize a campaign addressed not only to communities but also to workers.

At the time of the ECMG visit, around 1,600 workers in total were reportedly mobilized for the Project. According to Project's records, this number includes a total of 498 locals.

In the village of Haripar, L&T has renovated a former boarding school to accommodate 55 skilled workers. In Bhogat, 219 workers live in PLL labour camp, while the IOTL labour camp for 300 workers is under construction. At the marine facilities, Leighton and DISC (offshore contractor) labour camps accommodate around 240 workers. The four labour camps currently operational were visited by the ECMG team. As mentioned in the previous ECMG report, Leighton and DISC camps are of high standard. The Haripar L&T camp is also adequate. The contractors have established grievance procedures for workers. ECMG team reviewed the grievance records and found they are overall adequately documented. However, contractors should improve the delay in addressing workers' grievances and properly record the closure of issues.

In PLL labor camp the health center ward toilet is now provided with water sink but the toilets system has still to be improved to control odors and, the gravel walk paths needs further improvement. ECMG commends the AIDS/HIV campaign carried out in the camp, including posters in the common spaces

**FOLLOW-UP ISSUES**

<b>Mission/ Issue No.</b>	<b>IFC Policy / ESIA Compliance</b>	<b>Description</b>	<b>Status</b>	<b>Comments</b>	<b>Priority</b>
<b>EHS Management Organization</b>					
M1.3	ESMP § 8.1	The Project should ensure that monthly EHS reports are completed for all contractors (IOTL and VI Pandya).	Partially implemented		High
M2.1	IFC General EHS Guidelines p. 2 ESMP - Table 3	DG Infra should develop all the necessary EHS documentation as soon as possible.	Closed by default	DG Infra developed a brief EMP but additional EHS procedures have not been provided.	Medium
<b>Environmental Impact Assessment – Marine Section</b>					
M1.6	IFC PS 1, 3, 4, 5, and 6	The Project should have a clear knowledge of fishing activities and fishing grounds in the area. Commercial and artisanal fisherman activities associated with the landing area should be identified and assessed as well as the direct and indirect impacts of construction and operations activities. If necessary mitigation measures should be developed and implemented by the Project.	Closed		N/A
M1.7	IFC PS 1, 3, 4, 5, and 6	The Project should study the impact on fish spawning and breeding in the area due to construction activities. If deemed necessary carry out surveys to provide evidence for fish eggs and larvae to demonstrate that construction and operational phases will not significantly affect fish spawning and rearing. If necessary mitigation measures should be developed and implemented by the Project.	Closed		N/A
M1.9	IFC PS 1, 3, 4, 5, and 6	The Project should develop detailed EMPs to be used during the off-shore construction activities ( <b>Modified</b> ).	Closed		N/A

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Environmental Organization and Staffing</b>					
M2.2	IFC General EHS Guidelines § 2 p.60 Contractors' EMPs	The Project should consider increasing the EHS structures of VI Pandya that appeared very weak and not adequate to fulfil Project's standards.	Pending		Medium High
<b>Air Quality</b>					
M1.13	IFC General EHS Guidelines § 1.1 p.4 EIA § 6 p. 24 ESMP § 8.3	NO <sub>2</sub> and Ozone monitoring should be performed according to the sampling duration as per IFC requirements in order to make feasible the comparison of the results with IFC limits <b>(Modified)</b>	Pending		Low
M1.15	IFC General EHS Guidelines § 1.1 p. 10	The Project should develop official reports that include detailed information on the monitoring campaign results and discussion on any exceedances.	Closed		Medium
M2.3	IFC General EHS Guidelines § 1.1 p. 4	The Project should respect at all working sites both local and IFC limits for ambient air monitoring and in particular stay below the most stringent limit, taking particular care of PM concentrations for ambient air.	Closed		High
<b>Groundwater and Surface Water</b>					
M1.17	IFC General EHS Guidelines § 3.1 p.77	The Project should develop a hydro-testing plan for the tanks at the Bhogat Terminal as soon as possible <b>(Modified)</b> .	Pending		Medium Low
M2.4	ESMP § 4.2	The Project should provide all the permits from the Local Authority on all the water abstraction locations being used by the Project.	Closed		Medium
M2.5	IFC Onshore Oil and Gas Development § 1.1 p. 6	CEIL should develop detailed plans (detailing procedures, standards, test, etc.) for the discharge of hydro-test water used in the marine portion of the pipeline.	On-going		Medium Low

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Monitoring</b>					
M1.18	IFC General EHS Guidelines § 1.1 p. 10	Comprehensive monitoring reports should be developed by the Project providing details on the monitoring campaigns (e.g. methodology, location of samples, results, applicable standards, etc.) and discussing any anomalous result.	Closed		Medium
M2.6	IFC General EHS Guidelines § 1	The Project should include IFC limits to the results to enable comparison with international standards.	Pending		High
M2.7	IFC General EHS Guidelines § 1.7 EIA § 6.1.5.2	The Project should consider establishing monitoring points at those locations (AGIs) along the pipeline corridor where workers may be exposed to noise.	Closed		High Medium
M2.8	IFC General EHS Guidelines § 3.0	The Project should ensure that all drinking water analytes are within the drinking water parameters and any excursion, in particular with respect to coliforms, should be quickly investigated and mitigations implemented.	Closed		Medium High
M3.1	IFC EHS Guidelines for Offshore Oil and Gas Development § 2	The Project should consider performing monitoring studies of seawater/sediment nearby the off-shore corridor at regular intervals during the post-construction phase of the off-shore pipeline in order to study potential long-term impacts related to construction activities.	New		Medium
M3.2	IFC General EHS Guidelines § 1.3	The Project should ensure that treated wastewater complies with IFC requirements in terms of coliforms content before being used for dust suppression, in order to avoid a potentially dangerous aerosol that may be a risk for workers in the area	New		High
<b>Reclamation, Revegetation, and Topsoil Management</b>					
M2.9	ESMP § 6.1.4 p.22-23 Contractors' EMPs	The Project should finalize the Rock Disposal Plan identifying proper disposal quarries and/or document any agreement with local end users.	Pending		High Medium
<b>Barmer – Salaya Construction Phase Closure</b>					
M3.3		CEIL, as per its commitment, should provide ECMG regular monthly report summarizing project status, any significant EHS issues, if present, along with relevant mitigating measures adopted, and photographic evidences of relevant work in progress.	New		Medium

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Waste Management</b>					
M1.28	IFC General EHS Guidelines § 1.6 p.48  IFC Guidelines for Waste Management Facilities § 1.1.1  EIA § 4.3.2  ESMP § 6.1.4	The Project should speed-up the delivery of non-recyclable waste to the engineered landfill in Ahmedabad ( <b>Modified</b> ).	On-going		High
M1.29	IFC General EHS Guidelines § 1.3 p.30	The Project should consider adding to the start-up reports also final tests for any new STPs units built in the field to ensure that optimal system conditions are reached before they become fully operational ( <b>Modified</b> )	Pending		Medium Low
M1.32	IFC General EHS Guidelines § 2.1 p. 62  Contractors' EMPs	The Project should provide toilets at all work sites (separate female facilities when necessary) and along the pipeline RoU sections when workforce is present.	Closed		Medium
M2.10	IFC General EHS Guidelines § 1.6  Contractors' EMPs	DG Infra should construct a proper waste accumulation area where non-hazardous waste (paper, plastic, wood, etc.) is kept segregated.	Closed by default		Medium
M2.11	IFC General EHS Guidelines § 2.7  Contractors' EMPs	The Project should consider performing capacity building programs for workers at composting facilities ( <b>Modified</b> )..	Pending		Low
M2.12	IFC General EHS Guidelines § 1.3 p.28	The Project should consider using the Leighton STP to process the excess of sewage from DISC camp and not sending it to the composting facility in Dwarka.	Closed		High Medium
M3.4	IFC General EHS Guidelines § 1.6	The Project should consider providing the PLL hazardous waste storage with more ventilation	New		High Medium
M3.5	IFC General EHS Guidelines § 1.6	The Project should consider improving segregation of waste at Bhogat Terminal and preferably performing it at source	New		Medium Low

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Hazardous Materials Management and Pollution Prevention</b>					
M2.13	Contractor's Emergency Response Plan	The Project should have enough oil spill emergency response equipment to cover all its onshore and offshore operations.	Closed		High
M2.14	IFC General EHS Guidelines	Ventilation in the Leighton work barge paint storage room was not adequate; therefore, the contractor should implement specific safety mitigation measures.	Closed		High
M3.6	IFC General EHS Guidelines § 1.5 Contractors' EMPs	The Project should ensure that cement bag storage areas are kept clean and provided with sufficient ventilation. Use of PPEs (nose masks) and implementation of safety procedures for cement handling should be enforced	New		High
<b>ROU Management</b>					
M2.15	Environmental and Risk Impact Assessment § 6.5.4 and 7.6.2.1 Contractors' EMPs	The Project should provide safety fences and/or other protective measures to prevent people or animals from falling into the open trench at working sites along the RoU.	Pending		Medium
<b>Health and Safety Management and Occupational Health</b>					
M1.37	IFC General EHS Guidelines § 3.4 p. 81	All Contractor EHS Plans should include specific road safety sections, pertinent to their specific work assignments, rather than just referring to CEIL requirements	Pending		High
M1.42	IFC General EHS Guidelines § 1.4	Sewer gas traps should be used and should also be accessible for inspection and maintenance.	Pending		Low
M1.43	IFC General EHS Guidelines § 2.1 p. 62	Install smoke detectors in bedrooms sleeping quarters at all camps.	Pending	Missing at PLL Labor Camp	Medium

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
M1.44	IFC General EHS Guidelines § 1.5 p. 39 Environmental and Risk Impact Assessment § 10.2.2 Environment and Social Management Plan - Table 3	Encourage the use of PPE, including gloves, safety shoes, and dust masks for some contractors' workforce.	Closed		Medium
M1.45	IFC General EHS Guidelines § 3.7 p. 86	Emergency contact information should be also posted in the prevailing local language(s) and not only in English.	Pending		Low
M1.48	IFC General EHS Guidelines § 3.4 p. 81 IFC General EHS Guidelines § 4.3 p. 95	The Project should consider strengthening driver training and developing and delivering community awareness programs on road safety and continuing its efforts for finding alternative ways to improve road safety on the Bhatiya to Bhogat one lane road <b>(Modified)</b>	Pending		High
M2.16	IFS Performance Standard 1 p.4	DG Infra should submit as soon as possible its HS plans.	Closed by default		Medium
M2.17	IFC General EHS Guidelines § 2	The Project should put on fast track actions to resolve the medical issue at Bhogat Terminal by providing the facilities with all necessary medical equipment/supplies <b>(Modified)</b>	Pending		High
M2.18	IFC General EHS Guidelines § 2 p.76 ESMP § 8.3	The Project should perform periodic emergency drills at all sub- project locations involving all working contractors.	On-going		Medium
M2.19	IFC General EHS Guidelines § 2	The Project should conduct at least one major emergency response drill in cooperation with local authorities and municipal response teams (e.g. local fire fighting brigade, local hospitals etc.).	Closed		Medium



<b>Mission/ Issue No.</b>	<b>IFC Policy / ESIA Compliance</b>	<b>Description</b>	<b>Status</b>	<b>Comments</b>	<b>Priority</b>
M3.7	IFC General EHS Guidelines § 1.5 p.43	The Project should increase visual inspection of equipment by field officers to ensure it meets specifications	New		Medium
<b>Security</b>					
M2.20	IFC PS4,	CEIL draft corporate security document (E5) expand and better detail Section 14 (Guards and Guard Management) to incorporate CEIL policies and procedures when private and/or governmental security forces are directly hired by CEIL.	Closed		N/A
M.2.21	IFC PS4 – CEIL E5 (§11) EIA § 10.3	A Project specific security risk assessments and security plans consistent with identified threats should be developed along with strong contingency planning, emergency response plans and specific training/briefing of security and EHS field management and personnel.	Closed		Medium
M3.8	IFC PS4 – CEIL E5 (§11) EIA § 10.3	CEIL should (i) change the rules of engagement of SRPF so to limit the use of arms only as a matter of last resort and only for preventive and defensive purposes, in proportion and extent of the threat, and in a manner that respects human rights; (ii) brief SRP personnel in CEIL policies and principles of conduct; and (iii) ensure that SRP personnel are trained in Human Rights	New		High
M3.9	IFC PS4 – CEIL E5 (§11) EIA § 10.3	Brief on CEIL policies and train on a continuing basis CEIL and contractors' security staff, including in the training the assessment of risks linked to power abuse and disproportionate use of force.	New		High
M3.10	IFC PS4 – CEIL E5 (§11) EIA § 10.3	Set up a grievance mechanism for communities and workers to allow the timely reporting and redress of any case of abuse by security staff.	New		High

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Social Management</b>					
M1.50	IFC PS 1 § 17 "Organizational Capacity"	A Community Development program (CSR Action Plan) dedicated to the Salaya-Bhogat extension should be included in the Community Development Framework in preparation.	Pending (Repeated)	Draft prepared, to be revised and disclosed. The Project should prepare a specific CSR Action Plan for the Salaya-Bhogat project.	High
M1.51	IFC PS 1 § 19 "Community Engagement"	Provide sufficient management sponsorship and human and financial resources on an ongoing basis to achieve effective and continuous social performance.	Pending (Repeated)	Two more officers were planned by the Project and have not been hired. One CSR officer is currently based in Khambaliya. The Project should monitor whether this is sufficient.	High
<b>Stakeholders Engagement</b>					
M1.55	IFC PS 1 § 19 CEIL framework PCDP	Prepare a Public Consultation and Disclosure Plan (PCDP) for the Bhogat-Salaya Project. Brief project staff and contractors on the Plan.	Pending (Repeated)	CEIL should amend as suggested the revised version of the PCDP for Gujarat	Medium
M2.22	IFC PS1 §19 CEIL framework PCDP	Intensify engagement and improve grievance management for those land owners that have provided the project access to land	Closed		N/A
M3.11	IFC PS 1 §19 CEIL CSR policy CEIL framework PCDP	Carry out regular direct engagement with all Project affected people, including fishermen, and ensure outreach to all groups	New		High
M3.12	IFC PS 1	Prepare an Action Plan for the fishermen communities	New		Medium
<b>Land Acquisition</b>					
M3.13	IFC PS 5 CEIL Framework LACP	Justify and document any procedure agreed to with the landowners that is not in compliance with LACP and IFC PS	New		High
M3.14	IFC PS 5 CEIL Framework LACP	Keep record of even minor complaints raised to CEIL or to the contractors' team by land owners and document their closure	New		High

Mission/ Issue No.	IFC Policy / ESIA Compliance	Description	Status	Comments	Priority
<b>Community Health and Safety</b>					
M1.57	IFC PS 4 § 6, 7	Mitigate the community exposure to risks from transportation of project goods on public roads.	Pending (Repeated)	The measures taken are not sufficient.	High
M1.58	IFC PS 4	Develop public awareness campaign on H&S issues ( <b>Modified</b> ).	Pending (Repeated)	Implement the HIV/AIDS campaign and road safety awareness.	High

EIA: Environmental Impact Assessment  
ESMP: Environmental and Social Management Plan  
EMP: Environmental Management Plan  
N/A: Not Applicable

## **THIRD SITE VISIT OF THE D'APPOLONIA ECMG TO THE BHOGAT CRUDE OIL PIPELINE EXTENSION, INDIA, MAY 2010**

### **1 CONSTRUCTION STATUS**

The overall Project, which is currently in the construction phase, could be subdivided into three main sub-projects: (1) Salaya-Bhogat Pipeline; (2) Bhogat Terminal; and (3) off-shore works. Current status (mid May 2010), as presented to ECMG, is as follows:

1. **Salaya-Bhogat Pipeline.** L&T is the engineering procurement and construction contractor for this sub-project. The total manpower working along the Right of Use (RoU) is approximately 500 persons (mainly from local villages), including staff personnel. The Khambaliya Base camp is still operational (housing about 160 staff personnel) and a new Labor Camp has been established near Haripar Village (housing approximately 55 skilled workers). The Project is using one pipe and maintenance yard, mainly storing equipment, and one pipe yard near Khambaliya Camp. Pipeline works along the 74 km corridor are still in early stage of construction with no major progress to be reported since the last site visit in January 2011. At present only 6.4 km have been cleared and graded, 5.2 km trenched, 5.7 km of pipeline welded, 3.6 km lowered, and 1.62 km and backfilled. In addition, all four river crossings and one Creek crossing, are in progress; four road crossings, out of eighteen, have been completed (one is ongoing); and one railway crossing, out of three, has been completed. Civil work at all three AGIs (no. 34, 35 and 36) along the pipeline route is in progress and about 57% completed.
2. **BSPT.** PLL, IOTL and VI Pandya, are the main contractors working at the Bhogat Terminal site while DG Infra and Janka have completed their activities at site). The total manpower is approximately 580 persons, including staff personnel. PLL labor camp (currently housing 290 people but having a maximum capacity of 430 people) and CEIL staff camp are operational while construction of the IOTL camp (designed for 300 people) is almost completed. Camps are designed following IFC Workers' accommodation guidance. PLL has been awarded the tank foundations (11 Tanks) and plate fabrication contract while IOTL is in charge of internal road construction (3,000 m road profile completed, 2,500 m duly compacted, and 1,800 m first layer completed) and Terminal building work (control building, administrative building, fire station building, medical centre building, workshop building and entrance canopy). The contract with VI Pandya, which was working on construction of the terminal perimeter fencing, was terminated on February 2011. Two batch plants are currently operational inside the Bhogat Terminal area, one used by PLL and the other by IOTL. The Hariom Batch Plant, located next to the Bhogat Terminal is no longer used by the Project.
3. **Marine Works.** Leighton is the engineering procurement and construction contractor for the off-shore sub-project. The current total manpower is approximately 550 persons, including staff personnel. Leighton's contractor, Dredging International Services (DISC), for dredging is currently working on off-shore backfilling activities. Ten off-shore vessels, including crew and material transfer boats, are reported to be operative. Leighton Camp, currently housing 150-160 people, and DISC camp, currently housing 80 people but which demobilization has already started, are still operational. One pipe yard is being used at Leighton working area for storing different kind of material. On-shore works include: pipe stringing/welding (completed) and onshore pipeline construction that was planned to start on May 12<sup>th</sup> 2011. Off-shore works include: dredging (completed); pipe pulling (completed); Pipeline End Manifold (PLEM) installation (completed); SPMo installation that was about to start; and off-shore trench backfilling that was ongoing at the time of the visit. Cleaning, gauging and pre-hydro-testing activities of the off-shore lines are completed, while the full system leak test was scheduled for the 17<sup>th</sup> of May 2011. About 120 m of on-shore pipeline under Leighton's responsibility (600 m total length) has been completed with the balance scheduled to be completed by the end of July 2011.

## **2 EHS MANAGEMENT ORGANIZATION**

### *Project Strategy:*

CEIL environmental, health, safety and social commitments are contained and grouped under the overall CEIL Corporate Responsibility Management System and are also outlined in the Project specific EIA and the ESMP. In addition, CEIL requires that all of its subcontractors, as part of their contractual obligations, develop their respective EHS and Social plans in line with CEIL commitments and standards.

The Environmental Impact and Risk Assessment, which is an integral component of CEIL Project overall planning, design and implementation, has been developed. The Project EIA, published in January 2009, identified the sub-projects management programs and specific mitigation measures that will be implemented to reduce potentially adverse impacts to acceptable levels. In addition, the ESMP developed by CEIL includes requirements for environmental monitoring in order to verify the effectiveness of mitigation during all phases of the Projects. Main contractors developed their own Environmental Management Plans (EMPs) and procedures providing guidance for environmental commitments to be followed during the construction activities.

### *Observations:*

The Project EHS management organization is still divided in two main structures, one for the Bhogat Terminal sub-project (with PLL, and IOTL being the main contractors) and one that oversees the pipeline construction, including both the Salaya - Bhogat pipeline extension (with the main contractor being L&T) and the off-shore pipeline section (work contracted to Leighton). Construction organizational charts are available from CEIL showing all contractors currently working on-site, EHS managers, lines of authority or responsibility matrices, and field level positions. Detailed information on the Project EHS staffing is presented in the Section 3.1. All Contractors currently on-site have developed and finalized their own EHS Management Plans.

At the Bhogat Terminal, PLL and IOTL already submitted for review to ECMG several plans/procedures on Environmental and Health and Safety aspects. Since the last Audit visit, VI Pandya provided its EHS plan and additional EHS procedures. It should be noted that, according to CEIL personnel, this contractor is working intermittently at site. DG Infra, which has worked on the construction of CEIL living quarters, has finished its activities at site. This contractor had developed a brief EMP at the time of the January 2011 Audit but no additional EHS procedures have been provided since then. Janak contractor was removed from the site because of violations of Project's EHS standards. This contractor has provided some additional EHS documentation such as *HSE Requirements for Site Establishment Job at Bhogat* (outlining very brief and general EHS requirements) and some forms for vehicles check, PPE register, and EHS Inspection, Incident Reporting Form.

As detailed in the January 2011 Audit report, L&T already submitted for review to ECMG several plans/procedures on Environmental and Health and Safety aspects.

Leighton already submitted for review several EHS plan/procedures. In addition, during this visit the contractor provided additional documentation relative to DISC's marine dredging operations (DISC's EHS Plan, Medical Emergency Response flowchart, Method Statement - Near Shore Trench Backfill, Method Statement - Offshore Trench Backfill).

Updated Security documentation has been provided from CEIL including a Security Management plan for SBPL and the Bhogat Terminal, the Strategy for Security Deployment at Bhogat Terminal, Site Access Control Procedures, Duties of Security Guards, Guidelines on the Management of the Security at Bhogat in Case of Local Unrest/Threat of Disruption. Security aspects will be described in Section 6 of this report.

Monthly EHS reports are issued by Project contractors. Samples of EHS monthly reports have been provided for L&T and Leighton (March 2011), and weekly reports for PLL (end of March – start of April). Minutes of weekly meetings contain details on EHS statistics, Key Performance Indicators (KPIs), activities performed, and other EHS related day to day matters. Monthly reports include analysis of EHS Project statistics, quantities of liquid and solid wastes generated during the reporting period, as well as environmental incidents, EHS training, and fuel, water, and power consumption. Details of worker hours, accidents, injuries, first aid cases, and other KPIs are also included in these monthly reports. No such

reports were available for review during this visit from IOTL. The Project should ensure that monthly EHS reports are fully completed and regularly submitted for all contractors (IOTL and VI Pandya).

CEIL conducted an internal audit, from 21<sup>st</sup> to 24<sup>th</sup> February 2011, and provided the relative report results to the ECMG team. In this report, EHS Project performance and the overall Contractors' compliance with their EHS practices and CEIL standards are presented. Audit findings of L&T, PLL and IOTL are shown in tabular form including elements such as observations, recommendation, and risk level. Summary tables showing the compliance percentage for several EHS aspects have been included in the CEIL internal Audit report. According to the information presented in the internal Audit report, the overall compliance is evaluated by CEIL personnel to be medium for all contractors working at the Project sites. In particular, for L&T the level of compliance in Occupational Health, Safety and Environment is medium, while it is high for Quality Assurance. For PLL the level of compliance is low for Occupational Health, while it is medium for Safety, Environment, and Quality Assurance. Finally, for IOTL the compliance level is high for Occupational Health, low for Safety and Quality Assurance and medium for Environment.

Field observations of EHS practices by ECMG generally corresponded to the level of available documentation (EHS plans and procedures), with fairly good practices observed for contractors working at Project's sites. CEIL supervision personnel appear to be sufficient, in terms of number of supervisors, to ensure that Project standards and procedures are applied throughout the Project activities. However, CEIL supervisor presence at site should be improved and intensified. In addition, CEIL personnel should continue their pro-active coaching and continuous field training of some contractors' workforce and supervisors.

*IFC Policy and/or EIA/ESMP Action Items*

M1.3 The Project should ensure that monthly EHS reports are completed for all contractors (IOTL and VI Pandya).

*Recommendations for Improvement:*

- a. CEIL supervisor presence at site should be improved and intensified. In addition, CEIL personnel should continue their pro-active coaching and continuous field training of some contractors' workforce and supervisors.

### 3 ENVIRONMENT

#### 3.1 ENVIROMENTAL IMPACT ASSESSMENT - MARINE SECTION

As outlined in the January 2011 report, CEIL has undertaken a socio-economic assessment of the Project impacts on the fishing communities around Bhogat during the construction and operational phases. Also part of this study was to acquire current information on the local artisanal fishermen activities in the area and the impacts the construction activities may have and determine, through a more detailed literature review, if there are any spawning areas in or near the Project affected section. The study report, issued in March 2011, indicates that potential impacts to the local fishermen community are limited to a likely decline of fish catch due to dredging activities. However, such impact is temporary and limited to the off-shore work that is almost completed. A literature review has indicated that most fish spawning areas are located in the continental shelf but off-shore and way from the coast and there is no record suggesting the occurrence of any fish breeding in the Project area.

Leighton and DISC, in cooperation with CEIL, have submitted a comprehensive EHS and Method statement for near shore and off-shore trenching covering all the principal issues related to the activities in the field.

As reported in Section 1, hydro-testing of the offshore section of the pipeline has been completed. According to Project personnel, seawater, mixed with oxygen scavenger, bactericide, and corrosion inhibitor chemicals was used for hydro-testing of the off-shore pipeline section. The water was left in the pipe until it is ready for commissioning and, as reported by CEIL management, effluent will be tested against Gujarat Pollution Control Board standards before being released in the ocean.

*IFC Policy and/or EIA/ESMP Action Items*

Nil

#### 3.2 ENVIRONMENTAL ORGANIZATION AND STAFFING

*Project Strategy:*

Overall, Health, Safety, Environment, Security, and Corporate Social Responsibility fall all under the umbrella of CEIL Corporate Responsibility Management System. At the head of each department is a Project Director, who reports directly to Company Operating Officer.

*Observations:*

EHS management structures are in place and information on the current CEIL's and main contractors' EHS structures have been provided through detailed EHS Organization Charts.

According to Project personnel, EHS organizational structure for CEIL is unchanged since the January 2011 Audit visit but updated EHS organograms have been provided for review from IOTL, L&T and Leighton. IOTL EHS structure is formed by a group of five EHS managers who reports to two EHS managers from CEIL. At field level, IOTL has two safety officers and one safety engineer along with a medical team present at site. From L&T three people make up the EHS management while eleven officers/engineers are present in the field supervising operations along the Salaya – Bhogat pipeline. Leighton's EHS structure is divided in two groups, one for off-shore and one for on-shore, overseen by three EHS managers. At field level, three EHS officers are assigned to off-shore works while four EHS officers oversee the on-shore operations (24hrs presence is guaranteed by day/night shifts). Medical staff formed by one doctor and one paramedic is present at both on-shore and off-shore sites.

According to the information provided in the field, one EHS officer is present at VI Pandya working sites. It should be noted that VI Pandya is engaged on small tasks mainly related to fencing/boundary work at the Bhogat Terminal. During the site visit, it was not possible to directly observe VI Pandya working activities since the contractor was not present at site. As mentioned in the January 2011 report, the Project should consider increasing the EHS structures of VI Pandya that appeared very weak and not adequate to fulfil



Project's standards. High level actions may be needed to be taken to compel VI Pandya to fulfill its EHS responsibilities.

Overall, the current Project Environmental Management structure appears to be consistent with Project commitments and requirements at all key managerial positions and field personnel appear to be fully aware of Project's relevant EHS aspects/issues/procedures.

EHS training is ongoing for all contractors. A comprehensive list of on-going EHS training have been provided from IOTL, PLL, L&T and Leighton detailing the several kind of EHS trainings performed, the number of workers that attended, and the date when the training was performed. Overall, contractors perform training on general EHS issues and specific to their field work activities. Furthermore, the Project is carrying out Emergency Mock Drill and a Fire Demonstration Drill programs, as described in Section 5.

Finally, appropriate visitors' induction was delivered at all visited sites. The inductions covered the Do's and Don'ts, the required use of PPE, alarms, locations of muster points, layout of the site, etc. A record of the visitor inducted is kept at most sites.

*IFC Policy and/or EIA/ESMP Action Items*

M2.2 The Project should consider increasing the EHS structures of VI Pandya that appeared very weak and not adequate to fulfil the Project's standards.

*Recommendations for Improvement:*

- a. High level actions may need to be taken to compel VI Pandya to fulfill their EHS responsibilities.

### **3.3 AIR QUALITY**

*Project Strategy:*

The Project EIA recognizes dust as the main potential impact on air quality during the construction phase since several activities (earth work, excavation, embankment formation, transport of construction materials, handling, laying and jointing of pipelines, etc.) could generate dust particles that will be mobilized by wind and affect the local ambient air quality. Other gaseous emissions are mainly generated from operation of Diesel Generators (DGs) and vehicular exhausts, although these emissions were evaluated to be minor, localized, and transient in nature.

Control measures to mitigate fugitive dusts, as outlined in the Project EIA and ESMP, include watering of the working areas, minimization of vehicle trips, storing dusty materials in sealed containers or taking other preventive measures to avoid putting it in suspension, compaction of soil during various construction activities, control of particulate emissions through water sprinkling of unpaved roads and active RoU, covering the payload of trucks hauling granular or particulate material, etc. During those activities where dust is a potential impact, nose masks are required as standard PPE for workers. Gaseous emissions should be mitigated through proper operation and maintenance of all equipment that, if appropriate (e.g. DGs), should have sufficient exhausts height to ensure adequate dispersion.

The Project has committed to implement dedicated air monitoring programs for both ambient air and gaseous emissions control. Air quality parameters to be checked during construction and operational phases are summarized in Tables 5 and 6 of the ESMP – Section 8 (Monitoring and Reporting). Additional site-specific requirements are outlined in the contractors' Environmental Monitoring Procedures and in the Project EIA – Chapter 6 (Environmental Monitoring Programme).

*Observations:*

The ECMG team visited the Project sites at the end of the dry season when the dust issue should be more evident. However, field observations indicated no instances where suspended dust had a visible impact at working sites. Dust suppression measures, by watering the grounds, are reported to be implemented at most Project sites on daily basis. The Project is using treated wastewater from the STPs present throughout the Project sites for sprinkling the ground in order to avoid dust emissions. In addition, at Leighton site,



grounds have been covered with a layer of crushed rocks to prevent dust dispersion. The Project may consider extending the use of a crushed rock cover at other sites, particularly for those areas where vehicular traffic is more intense. Overall, dust control measures at Project sites have been found to be sufficient for the weather conditions met during the site visit. However, dust issues are likely to increase when windy conditions are more pronounced.

Stack heights of permanent DGs has been observed to be generally adequate at all Project sites. As detailed in the January 2011 Audit report, the stack height of temporary DGs has been checked by CEIL personnel and found to be sufficient, in particular considering the small power of such DGs. During the site visit, only few small DGs have been observed having horizontal stacks but appeared not to be an issue given the small electrical power output and their temporary use.

The Project provided the ECMG team with the Air and Noise Quality Management Record Sheets for L&T, Leighton and contractors at Bhogat Terminal (January to March/April 2011) where information on preventive maintenance details of equipment and machineries is listed and in particular the frequency and checked parameters are outlined. Information on the total number, location, noise limits, fuel consumption, and other parameters, is also provided. The maintenance frequency is reported to be carried out every 250 hours for most equipment.

The Project conducted monthly ambient air quality monitoring campaigns at all Project sites between January and April 2011. Following ECMG recommendation, the Project developed comprehensive monitoring reports including graphs and remarks on reported exceedances. In addition, the Project developed detailed monitoring reports on Ambient Air and Stack emissions (including also water monitoring results) presenting relevant observations on monitored parameters.

Monitored parameters at all Project location are: Particular Matter with diameter less than 10  $\mu\text{m}$  ( $\text{PM}_{10}$ ) with IFC limit of 50  $\mu\text{g}/\text{m}^3$  and national limit of 100  $\mu\text{g}/\text{m}^3$ ,  $\text{PM}_{2.5}$  (IFC limit of 25  $\mu\text{g}/\text{m}^3$  and national limit of 60  $\mu\text{g}/\text{m}^3$ ),  $\text{SO}_2$  (IFC limit of 20  $\mu\text{g}/\text{m}^3$  and national limit of 80  $\mu\text{g}/\text{m}^3$ ),  $\text{NO}_2$  (IFC limit of 200  $\mu\text{g}/\text{m}^3$  and national limit of 80  $\mu\text{g}/\text{m}^3$ ), Ozone (IFC limit of 100  $\mu\text{g}/\text{m}^3$  and national limit of 100  $\mu\text{g}/\text{m}^3$ ) and CO (national limit of 2  $\mu\text{g}/\text{m}^3$ ). It should be noted that IFC limits for  $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$  and  $\text{SO}_2$  are related to sampling duration of 24 hours, while IFC limits for  $\text{NO}_x$  and Ozone are related to monitoring periods of 1 hour and 8 hours respectively. According to information provided, sampling duration for Ambient Air monitoring parameters is 24 hours, which is in accordance with IFC requirements for most analytes. However,  $\text{NO}_2$  and Ozone monitoring should be performed according to the sampling duration as per IFC requirements in order to make it possible to compare the results with IFC limits.

Inside the Bhogat terminal, samples were collected from six locations during the period from January to April 2011 (although monitoring results are not provided for each month): near the CEIL site office; at the PLL fabrication yard; at the PLL batching camp; between the PLL Office and the Batching Plant; at the IOTL batching plant; and near IOTL first aid center. In addition, two locations were monitored outside the Terminal area: PLL labor camp and CEIL camp. It should be noted that the monitoring locations for Ambient Air are well representative of the entire Terminal area since they are dislocated at the four cardinal points. A map showing the Ambient Air monitoring locations should be included in the monitoring reports. Along the Salaya-Bhogat pipeline, monthly Ambient Air monitoring results have been provided for March and April 2011 at six locations: AGIs 34, 35 and 36; at the L&T labor camp (near the Haripar village); and at the Bhatel and Kenedi Villages. At Leighton site, Ambient Air monitoring results have been provided for April 2011 at one location near the site main access gate. The Project should consider providing Ambient Air test results for each month during all the monitoring period.

Results of Respirable Particular Matter monitoring, equivalent to  $\text{PM}_{10}$ , show exceedances at most monitored locations throughout the Project sites against the IFC limit of 50  $\mu\text{g}/\text{m}^3$ . However, the IFC interim target No. 2 of 100  $\mu\text{g}/\text{m}^3$  (equal to the national limit for  $\text{PM}_{10}$ ) is respected at all locations with the exception of the PLL Batching Plant at Bhogat Terminal sample (128  $\mu\text{g}/\text{m}^3$ ). In addition, most monitoring results of  $\text{PM}_{2.5}$  are above the IFC limit of 25  $\mu\text{g}/\text{m}^3$  but below the local limit (60  $\mu\text{g}/\text{m}^3$ ) and in compliance with the IFC interim target No. 2 of 50  $\mu\text{g}/\text{m}^3$  with few exceptions (56.65  $\mu\text{g}/\text{m}^3$  at AGI 35 in March 2011 and 51.23  $\mu\text{g}/\text{m}^3$  at AGI 34 in April 2011). At the Bhogat Terminal, Suspended Particulate Matter (equivalent to Particular Matter with diameter less than 100  $\mu\text{m}$ ) has been monitored. Testing results show values below the national limit of 200  $\mu\text{g}/\text{m}^3$  with the exception of two monitored locations: at PLL Batching plant and between PLL Office and Batching Plant (290 and 240  $\mu\text{g}/\text{m}^3$  respectively).

It should be noted that, as indicated in the PM<sub>10</sub> baseline values reported in the Project EIA (PM<sub>10</sub> values around 100 µg/m<sup>3</sup> during the dry season), PM measurements are probably affected by the arid and windy conditions of the area of interest. Therefore, achieving compliance with IFC standards of 50 µg/m<sup>3</sup> for PM<sub>10</sub> and 25 µg/m<sup>3</sup> for PM<sub>2.5</sub> is not feasible in this regional setting. However, the Project overall complies with NAAQS limits, and IFC interim target No. 2, for PM<sub>2.5</sub> is overall good. In order to improve Ambient Air conditions, the Project should continue and strengthen dust control measures and consider the use of wetting agents (e.g. General Electric DusTreat) to decrease the water use and to increase dust suppression effectiveness, in particular at the Bhogat Terminal.

Overall, SO<sub>2</sub> concentrations are below the IFC limit of 20 µg/m<sup>3</sup> with the exception of the sample located near the First Aid Centre at Bhogat Terminal (26.46 µg/m<sup>3</sup>). NO<sub>x</sub> ranged between 12.25 and 35.94 µg/m<sup>3</sup> at all Project sites and Ozone ranged between 10.70 and 19.33 µg/m<sup>3</sup> at Bhogat Terminal (O<sub>3</sub> was not monitored by L&T and Leighton); however, as mentioned above, comparison with IFC limits was not possible since the sampling period is different. CO was found below the detection limit at all monitored locations (CO was not monitored by Leighton).

Stack emission tests were also performed on a quarterly basis by PLL, IOTL, L&T and Leighton. These tests included concentration measurements for PM, SO<sub>2</sub>, NO<sub>x</sub>, CO and HC as required by the Project EIA and ESMP. Test results show that Central Pollution Control Board (CPCB) local limits are respected at all Project sites.

*IFC Policy and/or EIA/ESMP Action Items*

M1.13 NO<sub>2</sub> and Ozone monitoring should be performed according to the sampling duration as per IFC requirements in order to make it possible to compare the results with IFC limits (**Modified**).

*Recommendations for Improvement:*

- a. The Project may consider extending the use of a crushed rock cover at other sites, particularly for those areas where vehicular traffic is more intense;
- b. A map showing the Ambient Air monitoring locations should be included in the monitoring reports;
- c. The Project should consider providing Ambient Air test results for each month during all the monitoring period; and
- d. The Project should continue and strengthen dust control measures and consider the use of wetting agents (e.g. General Electric DusTreat) to decrease the water use and to increase dust suppression effectiveness, in particular at the Bhogat Terminal.

### **3.4 GROUNDWATER AND SURFACE WATER**

*Project Strategy:*

According to the Project EIA and ESMP, the water requirement during the construction phase is negligible as compared with the operational phase. Industrial water for construction is needed for civil works, sanitation purposes, dust suppression measures, and hydro-testing of the pipeline and oil tanks at the Bhogat Terminal. In addition, domestic water is needed for the various workers camps and yards and Project offices. According to the Project EIA, peak industrial and domestic water requirements for the camps during the construction phase was estimated at 100 m<sup>3</sup> per day while during operations the Bhogat Terminal will require approximately 2,000 m<sup>3</sup> per day (for cleaning and domestic use). Therefore, according to Project EIA and ESMP estimates, the impact on the water environment during construction is expected to be minor and temporary. The Project EIA also remarks that during operations no impact on water resources is foreseen as water requirements are minimal and CEIL plans to tap brackish deep aquifer that is not in use in the region.

As outlined in the Project EIA and ESMP, impacts on surface water may arise from sediment washing during the laying of the pipeline. However, most water bodies along or near the RoU are small and not perennial. Furthermore, the marine environment can be affected by the effluent discharge from the ships and the vessels deployed for construction and by potential oil spills from increased of marine traffic near the SMP waters.

*Observations:*

At most Project sites the water to satisfy construction needs is currently withdrawn from bore wells (along the pipeline route) and open dug wells (at the Bhogat Terminal) with consumption records kept at all locations.

As detailed in the January 2011 Audit report, the Project has obtained a groundwater abstraction permit from the Central Ground Water Authority (CGWA) of the Ministry of Water Resources allowing withdraws of 2,000 m<sup>3</sup>/day from ten water wells. According to this permit, the total water abstraction is subdivided in 300 m<sup>3</sup>/day for industrial activities, 300 m<sup>3</sup>/day for residential/domestic purposes, and 1,400 m<sup>3</sup>/day for greenbelt development. Conditions to the permit include the Project commitment to monitor groundwater quality twice a year (pre and post monsoon), monitor groundwater abstraction by using its own water meters and piezometers, and implement groundwater recharge measures equal to 248,290 m<sup>3</sup>/year. According to information provided, groundwater monitoring (considering both the quality and the quantity of groundwater abstracted) will start during operations when groundwater withdraws will be more significant. With respect to the recharge requirement, the Project has already identified some abandoned dug wells inside the Bhogat Terminal that will be used for groundwater recharge that, according to the information provided, will occur during operation activities through rainwater harvesting inside the terminal area. Permit for groundwater abstraction below 2000 m<sup>3</sup>/d is not required since the Project reportedly falls into a declared safe groundwater utilization zone.

Bhogat Terminal

At the Bhogat Terminal, two/three water wells are being used for industrial water (40 existing wells are present inside the Bhogat Terminal area), while domestic water is supplied by local vendors and delivered on site by trucks. Reverse Osmosis (RO) plants, supplied by water wells, are present at the PLL and IOTL sites to purify water used for drinking and cooking purposes. Bottled water is also supplied to the PLL camp to supply the on-site offices. Water used for dust suppression at the Terminal is the treated wastewater from the on-site STPs.

The source location of hydro-testing water for the eleven oil storage tanks under construction at the Bhogat Terminal is in the overall hydro-testing plan that is still in the preliminary stages of development. Therefore, the Project should develop a hydro-testing plan for the tanks at the Bhogat Terminal as soon as possible. The hydro-testing plan should clearly indicate all sources, required permits and/or studies (in case of withdrawn from river flows), discharge points, monitoring requirements (water discharge analytes and standards, sediment controls, etc.), and specific procedures associated with hydro-testing operations. In addition, if rivers or local wells are used as water sources, the Project should expedite the required hydrologic or hydrogeological studies to ensure that water extraction at the proposed sites have no negative short, medium, or long range impacts on the local hydrogeology.

Records on industrial and domestic water consumption are kept by contractors (PLL, IOTL and VI Pandya) working at the Bhogat Terminal showing the total amount of fresh water consumption (for drinking, domestic and civil work purposes). The data showed that total water consumption in January (2,474 m<sup>3</sup>) and February (2417 m<sup>3</sup>) with a sensible increase in March (3422 m<sup>3</sup>) and April (3054 m<sup>3</sup>).

Salaya-Bhogat pipeline

Along the pipeline, industrial water is sourced from bore wells at AGIs 34, 35 and 36. One more well was operative at the L&T pipe coating yard but its activity has been stopped in March 2011. At the Khambaliya Camp, a bore well is being used for all domestic purposes. At the newly established Haripar labor camp, L&T uses the existing on-site bore well. It should be noted that this well is not provided with a flowmeter for registering water consumption because the owner did not grant the Project permission for its installation. The use of flowmeters should be implemented at all Project sites where borehole water is withdrawn. An on-site RO plant at the Khambaliya camp is used to supply drinking water to the camp

population and to workers along the pipeline RoU. The plant water is tested twice per month to ensure it falls within drinking quality standards.

Water used for dust suppression at Khambaliya Camp is the treated wastewater from the on-site STP.

Records on industrial and domestic water consumption are being kept by L&T showing the total amount of fresh water consumption (for drinking, domestic and civil work purposes) was 1,791.8 m<sup>3</sup> in January, 1,582.2 m<sup>3</sup> in February, and 1,538.45 m<sup>3</sup> in March 2011. It should be noted that in February seven cubic-meters, extracted from the bore well, were used for pre-hydro-testing operations.

The Hydrostatic Test Plan for SBPL Mainline Sections has been provided for review. This plan contains details on source of water (Ghi River, Kunthi River, Kalipat River or Creek) for the hydro-testing operations of the Salaya – Bhogat pipeline. However, permits application was not yet submitted to the local authorities for water abstraction from these surface water bodies since the schedule for hydro-testing operations has yet to be defined. The Project should ensure that the IFC limit of 10% of the average river flow is not exceeded in hydro-testing water withdrawals. Therefore, data on the average river flow need to be known before withdrawals commence in order to comply with IFC requirements.

#### Marine site

At the marine site, water is supplied from local vendors by trucks. Drinking and cooking water is provided in plastic bottles by a local vendor while water for sanitary purposes is supplied from private bore wells at on shore sites and from RO plants on off-shore vessel. Industrial water for civil works water is supplied from private bore wells at on-shore working sites and water for dust suppression is the treated wastewater from the on-site STP. Records on water use (domestic and industrial purposes) are kept on-site and indicate a consumption, at on-shore sites, of 1,867 m<sup>3</sup> in January, 1,780 m<sup>3</sup> in February, and 2,700 m<sup>3</sup> in March 2011. Water use on the off-shore vessels (for domestic purposes) was 1,030 m<sup>3</sup> in January, 1, 829 m<sup>3</sup> in February, and 1,106 m<sup>3</sup> in March.

Since the last Audit visit, Leighton had submitted a detailed plan describing pipeline flooding, cleaning, gauging, and hydro-testing and leak test operations. As detailed in the Construction Status section, all these activities, with the exception of the leak test, have been completed. Seawater has been used during pre-hydro-testing operations and then discharged in an evaporation pit near the landfall point. The full system leak test was scheduled for the end of May 2011 and, according to field personnel, seawater mixed with oxygen scavenger, bactericide, and corrosion inhibitor will be used and then left in the pipe until commissioning. CEIL will be responsible for discharge of this water and, according to CEIL personnel, the Project has a clear understanding of the procedures and monitoring/treating activities related to these operations. However, CEIL should develop a specific plan (detailing procedures, standards, test, etc.) for the discharge of hydro-test water used in the marine portion of the pipeline.

#### *IFC Policy Action and/or ESIA/EMP Actions Items*

- |       |   |
|-------|---|
| M1.17 | The Project should develop a hydro-testing plan for the tanks at the Bhogat Terminal as soon as possible ( <b>Modified</b> ).                                       |
| M2.5  | CEIL should develop a specific plan (detailing procedures, standards, test, etc.) for the discharge of hydro-test water used in the marine portion of the pipeline. |

#### *Recommendations for Improvement:*

- The hydro-testing plan should clearly indicate all sources, required permits and/or studies (in case of withdrawn from river flows), discharge points, monitoring requirements (water discharge analytes and standards, sediment controls, etc.), and specific procedures associated with hydro-testing operations;
- If rivers or local wells are used as water sources, the Project should expedite the required hydrologic or hydrogeological studies to ensure that water extraction at the proposed sites have no negative short, medium, or long range impacts on the local hydrogeology;

- c. The Project should ensure that the IFC limit of 10% of the average river flow is not exceeded in hydro-testing water withdraws. Therefore, data on the average river flow need to be known before withdrawals commence in order to comply with IFC requirements; and
- d. The use of flowmeters should be implemented at all project sites where borehole water is withdrawn.

### 3.5 MONITORING

#### *Project Strategy:*

Monitoring of key environmental parameters is both a Project commitment and an IFC requirement. The ESMP clearly outlines CEIL commitment to develop an Environmental Monitoring program covering both the construction and operational phases of the Project. Monitoring shall include direct measurements and recording of quantitative information of physical and chemical indicators to characterize ambient environmental quality in the Project areas. Also, the program should be designed and implemented to confirm that Project commitments are confirmed and to ensure compliance with statutory and corporate requirements.

According to the Project EIA (Section 6.1.5 – Monitoring Methods and Data Analysis), all environmental monitoring and relevant operational data will be stored in a relational database and linked GIS system. This should enable efficient retrieval and storage and interpretation of the data. Regular data extracts and interpretive reports should be sent to the regulator.

The Project ESMP described specific parameters and monitoring schedules to be carried out during the construction and operational phases. These parameters and schedules are summarized in Tables 5 and 6 of the ESMP – Section 8 (Monitoring and Reporting). Additional requirements are present in the contractors' Environmental Monitoring Procedures and in the Project EIA – Chapter 6 (Environmental Monitoring Programme). IFC requirements for environmental monitoring are described in the IFC EHS General Guidelines (April 2007). Table 3.1 summarizes the parameters to be monitored by the Project during the construction phase.

**Table 3.1: Monitoring Parameters**

Medium	Parameter	Frequency
Ambient Air	SPM, RPM, SO <sub>2</sub> , NO <sub>x</sub> , CO	Monthly
Stack emissions (DGs)	PM, SO <sub>2</sub> , NO <sub>x</sub> , CO and HC	Monthly
Noise	Leq(night), Leq(day), Leq(dn)	Quarterly
Soil	Particle size distribution, Texture, pH, Electrical conductivity, CEC, Alkalinity metals, SAR, Permeability, Water holding capacity, Porosity	Seasonal
Wastewater	pH, TSS, TDS, BOD, COD, Temperature Total Nitrogen, Total Phosphorus, Total Coliform Bacteria	Weekly
Drinking Water	Color, Turbidity, pH, Total Hardness, Calcium as Ca, Magnesium as Mg, Copper as Cu, Iron, Manganese, Chlorides, Sulphates, Nitrates, Fluoride, Phenols, Mercury, Cadmium, Selenium, Arsenic, Cyanide, Lead, Zinc Anionic detergents, Chromium as Cr+6, Poly nuclear aromatic, Hydrocarbons, Mineral Oil, Residual free Chlorine, Pesticides, Radioactive, Coliforms	Monthly



*Observations:*

Monitoring campaigns (noise, waste and drinking water, soil) were conducted by CEIL and its main contractors at all Project sites in the period January-April 2011. Details on ambient air and stack emission monitoring have been presented in the Section 3.3 of this report. Comprehensive reports summarizing monitoring results and including graphs and remarks on reported exceedances have been developed by all contractors. As observed in the January 2011 Audit report, in all monitoring results submitted for review, only the limits from the local legislation are reported while IFC and/or Project specific standards are not listed. The Project should include IFC limits to the results to enable comparison with international standards.

Bhogat Terminal

Noise monitoring campaigns were conducted on monthly basis by PLL in the period January-April 2011 at six working locations within and outside the Bhogat Terminal: the PLL Office area; the fabrication area; the PLL batching plant; the sand blasting and painting area; the PLL labor camp; and CEIL camp.  $L_{eq}$  values ranges from a minimum of 46.98 dBA to a maximum of 78.3 dBA. Only one noise measurement (78.3 dBA), out of a total of thirteen, recorded on February 2011 at the sand blasting area exceeded the daytime IFC limit (70 dBA) and the National Ambient Air Quality Standards (75 dBA) for industrial areas.

Wastewater is tested on monthly basis and monitoring results have been provided from PLL for the STP located at the labour camp (January-April 2011) and for the recently commissioned STP located at CEIL living quarter (first available result in April 2011). Wastewater results for the STP located at PLL office area has not been provided for review. Wastewater from the PLL and CEIL STPs (both inlet and outlet) has been tested for pH, temperature, BOD, COD, Coliforms, Nitrogen, Phosphorus, Oil and Grease, Total Suspended Solids, Total Dissolved Solids, Sulphate, Chloride, Total Hardness and Fluoride. Data for the February 2011 sampling of the PLL STP show exceedances against IFC and Gujarat Pollution Control Board limits in terms of BOD, COD, Nitrogen, and Phosphorus. Exceedances of TSS, BOD, COD, Nitrogen, and Phosphorus have been detected for the CEIL STP in April 2011 (start-up period). Exceedances in wastewater results should be investigated and mitigated in accordance with IFC requirements. It should be noted that monitoring results reported coliforms to be present in the effluents but no information on their concentration is provided (IFC requirements in terms of coliforms for Treated Sanitary Sewage Discharges is 400 MPN/100ml). Therefore, the Project should ensure that coliforms concentrations in STP effluent water is quantified and is below 400 MPN/100ml. In addition, the Project should ensure that treated wastewater complies with IFC requirements in terms of coliforms content before using this water for dust suppression, in order to avoid a potentially dangerous aerosol that may be a risk for workers performing activities nearby the water sprinklers.

Monthly drinking water test results have been provided from PLL and IOTL for the period January-April 2011 both at source and after RO treatment. No exceedances against the IS:15000 (Indian Standard Specifications for Drinking Water) have been reported. In particular, in compliance with the World Health Organization (WHO) Guidelines for Drinking Water Quality, Total Coliforms and Escherichia Coli (*E. Coli*) bacteria have not been detected in any sample.

As detailed in the January 2011 Audit report, one soil sample was collected at the IOTL site in November 2010 and tested for moisture, organic matter, pH, electrical conductivity, nitrogen, phosphorus, potassium, boron, iron and zinc. A new sample was collected at the Bhogat Terminal in March 2011 from the IOTL labour camp area and tested for the same parameters. It should be noted that these samples are used as baseline conditions for restoration activities that will take place after decommissioning so that sites can be restored equal or better conditions. These data are particularly important for areas that will be return to the original landowner at the end of the construction activities, like the area where the IOTL camp is being constructed.

Salaya - Bhogat Pipeline

Noise monitoring results have been provided by L&T for the Khambaliya camp on monthly basis during the period January-April 2011. Noise monitoring results at the AGIs sites and along the pipeline corridor (KP 72 and Creek crossing) have been provided for April 2011. The Project should consider providing monitoring test results for each month of the monitoring period. Noise monitoring has been performed for a 24 hours period. The Project should consider extending the noise monitoring period to 48 hours with

continuously or hourly data logging instrumentation, as per IFC requirements. Some exceedances against the IFC limit of 70 dBA for industrial areas have been detected at KP 72 (74.76 dBA) and at the Creek crossing location (74.99 dBA) while less significant exceedances have been detected at AGI 34 (70.5 dBA) and AGI 36 (70.7 dBA). However, such measurements were below the local limit of 75 dBA.

Monthly STP's wastewater monitoring tests at the Khambaliya Camp were provided for the period from January to March 2011. Three effluent samples were analyzed for odour and colour, pH, Suspended Solids, COD, BOD, Oil and Grease, and Total Bacteria Count, that overall are in line with IFC requirements. It should be noted that Total Bacteria Count is not the standard parameter indicated by IFC that instead lists Total Coliform Bacteria. The Project should monitor bacteriological contamination in treated wastewater from the STP at Khambaliya Camp also in terms of Total Coliform Bacteria (MPN/100 ml), besides Total Bacteria Count (cfu/ml), in order to compare the results with IFC limits. A high value of Total Bacteria Count has been observed in the sample of January 2011 (2,500 cfu/ml) as compared with the values found during the February, March and April monitoring campaigns that showed values less than 180 cfu/ml. No exceedances have been observed in the other tested parameters. As mentioned in the January 2011 Audit report, since discharge of treated wastewater in water bodies is not foreseen, eutrophication caused by excess of nitrogen and phosphorus (which are not monitored) does not represent a potential issue. In addition, the presence of nitrogen and phosphorus could be desirable given that treated wastewater is used for greenbelt development. However, if discharge of treated wastewater in water bodies occurs, the Project should also include in their analysis Total Nitrogen and Total Phosphorus, as required by IFC standards.

Drinking water monitoring tests have been conducted twice per month during the period January-March 2011 for the RO plant at Khambaliya Camp with samples collected before and after treatment. Samples were tested for chemical and biological (coliforms content) characteristics. Overall, test results show that the water from the RO plant in Khambaliya is suitable for potable use. However, bacteriological contamination was found in one sample of drinking water from the RO at Khambaliya in January 2011 (90 MPN/100ml of coliforms). According to information provided, the following measures to contain and eliminate this issue were promptly undertaken: i) the RO inlet water line connection was changed from the concrete storage tank to the borewell; ii) the concrete storage tank was thoroughly cleaned; iii) fresh water samples were taken in BOD bottles in order to reduce risk of contamination; and iv) chlorine dosing was initiated. It should be noted that the monitoring results for the drinking water at Khambaliya camp in February and March 2011 did not present exceedances in coliform content as evidence of the effectiveness of the undertaken measures.

#### Off-shore

Monthly noise monitoring results for the period January-April 2011 have been provided by Leighton. Three sampling locations were selected for the monitoring campaign: the site office the stringing yard and the DISC camp. Noise monitoring was performed through instant measures (at 10:00 and 23:00 hours). As mentioned above, the Project should consider extending the noise monitoring period to 48 hours with continuously or hourly data logging instrumentation, as per IFC requirements. Overall, no exceedances were reported for the Leighton site (average values below the IFC limit of 70 dBA for industrial sites during daytime and night time).

Wastewater monitoring results were provided by the Project for Leighton's outlet STP and for the STP at DISC camp for the period January to April 2011. Monitored parameters are: colour and odour, pH, Suspended Solids, COD, BOD, and Oil and Grease. Coliform content has not been monitored during the last four months. The Project should ensure that coliforms concentrations in STP effluent water is quantified and is below 400 MPN/100ml. In addition, the Project should ensure that treated wastewater complies with IFC requirements in terms of coliforms content before being used for dust suppression, in order to avoid a potentially dangerous aerosol that may be a risk for workers performing activities in the area. Exceedances have been detected for the Leighton's STP in January (164 mg/l of COD and 32 mg/l of BOD) and March (58 mg/l of TSS and 170 mg/l of COD) against the IFC limit of 125 mg/l for COD, 30 mg/l for BOD and 50 mg/l for TSS. DISC's STP monitoring results show significant exceedances in February (328 mg/l of COD and 45 mg/l of BOD), March (341 mg/l of COD, 94 mg/l of BOD and 62 mg/l of TSS) and April (215 mg/l of COD, 47 mg/l of BOD and 54 mg/l of TSS), while results of January 2011 have not been provided. Although these parameters are not critical to water discharged on the ground, the Project should consider verifying regularly the efficiency of the wastewater treatment.



Monthly drinking water monitoring test results were provided for the Leighton site covering the period January-April 2011. Tested parameters included colour, odour, taste, turbidity, pH, Total Suspended Solids, alkalinity, calcium, magnesium, iron, manganese, chlorides, sulphates, yeast and mold, E. Coli, Coliform Bacteria, Total Bacterial Count, *Pseudomonas Aureginos* and Sulphide Reducing Anaerobs. Monitoring results show that water samples comply with the drinking water parameters. The Project also conducted bio-chemical tests on water used for general purposes at the Leighton site.

Leighton also finalized the report on sea water and sediment quality monitoring during the dredging operations that included monitoring of physical, chemical and biological characteristics. Four off-shore stations, located at 0.4, 2.3, 2.9 and 5.5 km from the coast, close to the dredge site have been chosen for sea water and where possible sediment sampling. Monitoring points were located at 50-100 m from dredging activities and samples were collected during a one-hour period at different depths (varying from 2 to 32 m) at each sapling point for a total of 10 measurements. One monitoring point, located upstream to the main current, was selected as a control point. However, this sampling station was located only 50 m from the dredging line and may have been not far enough not to be affected by the construction activities. Baseline conditions from the EIA documentation are available but do not indicate the period of the year when samples were collected or give any indication on sampling methodology. Several parameters were monitored for the sea water and sediment quality (Dissolved Oxygen, TSS, Nitrite, Nitrate, Ammonical Nitrogen, Silicates, TOC, Heavy Metals, Hydrocarbons, Phytoplankton, Zooplankton, Chlorophyll, Benthic Fauna, etc.). The testing methodology is described and results are included in the final version of the report. Relatively high values of TSS, TOC, and Heavy Metals have been detected, likely due to sediments put in suspension during dredging activities. It should be noted that heavy metal values in water are within the prescribed limits of CPCB. Low *chlorophyll a* and phytoplankton contents have also been detected that indicates, as presented in the result discussion of the report, some effects on primary productivity (which is likely a temporary phenomenon observed in dredging processes). Furthermore, low values of Dissolved Oxygen (DO), between 3.01 and 3.77 mg/l, have been detected. The baseline concentration of DO reported in the EIA is 6 mg/l; however, there is not specific information on the depth of the sampling location or the location and the period of the year when the EIA baseline data were collected. Low DO concentrations during dredging activities were observed in comparison with baseline values reported in the EIA. Concentration of Naphthalene between 0.19 and 0.615 µg/l has been detected in seawater at two monitoring stations: at 5.5 and 2.9 km from the shore and also in a sediment sample (18.55 µg/kg). According to the result discussion presented in the report, Naphthalene is present in the environment only in case of crude oil spill; however, there is the possibility that this substance have been drifted from far off places of the Arabian Sea along with the currents. It should be noted that, benthic fauna has not been detected in the grab samples apart from one species of sponge found close to the dredging area. The Project should consider performing monitoring studies of seawater/sediment nearby the off-shore corridor at regular intervals during the post-construction phase of the off-shore pipeline in order to study potential long-term impacts related to construction activities.

*IFC Policy and/or EIA/ESMP Action Items*

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|------|---|
| M2.6 | The Project should include IFC limits to the results to enable comparison with international standards.   |
| M3.1 | The Project should consider performing monitoring studies of seawater/sediment nearby the off-shore corridor at regular intervals during the post-construction phase of the off-shore pipeline in order to study potential long-term impacts related to construction activities |
| M3.2 | The Project should ensure that treated wastewater complies with IFC requirements in terms of coliforms content before being used for dust suppression, in order to avoid a potentially dangerous aerosol that may be a risk for workers in the area.                            |

*Recommendations for Improvement:*

- a. The Project should consider extending the noise monitoring period to 48 hours with continuously or hourly data logging instrumentation, as per IFC requirements;
- b. Exceedances in wastewater results should be investigated and mitigated;
- c. The Project should ensure that coliforms concentrations in STP effluent water is quantified and is below 400 MPN/100ml;
- d. The Project should consider providing monitoring test results for each month during all the monitoring period;
- e. The Project should monitor bacteriological contamination in treated wastewater from the STP at Khambaliya Camp also in terms of Total Coliform Bacteria (MPN/100 ml), besides Total Bacteria Count (cfu/ml), in order to compare the results with IFC limits;
- f. If discharge of treated wastewater in water bodies occurs, the Project should also include in their analysis of wastewater those parameters Total Nitrogen and Total Phosphorus, as required by IFC standards;
- g. The Project should consider verifying regularly the efficiency of the wastewater treatment; and
- h. Testing of drinking water wherever bottled water is not being supplied should be done on a more frequent basis (e.g. once per week) and water dispensers, in particular at labor camps, should be regularly tested to ensure they comply with hygiene standards.

**3.6 RECLAMATION, REVEGETATION, AND TOPSOIL MANAGEMENT***Project Strategy:*

The Project EIA foresees impacts on the land environment during the construction phase. According to the EIA, physico-chemical changes in soil quality may occur during construction mainly due to clearing of vegetative cover along the pipeline route and at the crude oil terminal sites causing temporary soil erosion resulting in turbidity in surface run-off. Furthermore, as a result of construction activity, the vegetation covers (i.e. forest, avenue trees and agricultural land) are likely to be affected in a narrow strip along the pipeline RoU through forest and crop land. However, this impact will be of temporary in nature. The Project is committed to restore back the land to the original use for the agricultural activities.

According to the ESMP, the Project is committed to use any surplus rock, as a result of pipe laying activities, for social causes (e.g. embankment of water bodies, bounding/fencing of agricultural farms, disposal in low lying area) prior the necessary no-objection certificate and authorization from the competent agency(es) have been obtained.

The Project EIA and ESMP also define general measures to prevent or mitigate the impacts on soil resources. Potential impacts of concern include reduction of topsoil fertility and increased erosion due to surface disturbance, vegetation removal, and inadequate reclamation. CEIL is committed to implement measures for the protection and preservation of topsoil in the RoU along the pipeline and at road crossing sites. In addition, Contractors' EMPs define procedures for sourcing of earth material requiring that quarry material come from government approved quarry areas while illegal mining is not permitted.

*Observations:*

As described in the Section 1, the Project is still at the initial stages of the pipeline on-shore works along the RoU, while reinstatement activities at the marine site have already started and will be completed by the end of July 2011. According to interviews with staff personnel and management, the Project is aware that reinstatement is a potential critical issue and therefore the current SOP for reinstatement works is being revisited. Leighton provided the ECMG team with a Site Restoration Plan detailing responsibilities and procedures to be followed during restatement operations. It should be noted that Leighton is also developing a plan for the dismantling of the temporary Jetty. The Project should ensure that SOP for reinstatement is properly developed for all contractors and properly implemented during site restoration

activities at all Project sites. These procedures should include photographs of the reinstated site to be included in the Non-Objection-Certificate (NOC) documentation.

As described in the January 2011 Audit report, the Project conducted pre-construction soil fertility testing along the RoU (KPs 16-17 and 38-40) and at the Bhogat Terminal. CEIL will conduct a second top soil monitoring campaign at the end of the construction phase to verify if activities have impacted the soil in the areas. At working sites visited along the RoU (KP 72-73 and the AGIs), the Project is stripping and stockpiling the soil with good care. It should be noted that in the last quarter no many activities have been carried out or started along the on-shore pipeline corridor.

L&T has updated a procedure for the sourcing of padding material and disposal of surplus excavated soil/rocks. As detailed in the January 2011 Audit report, this procedure outlines Project commitments in identifying suitable locations for padding material sourcing, disposal of excess excavated rocks, obtaining all necessary legal permission from private landowners, and material tracking including sourcing and disposal locations, quantities, approvals, and use at KPs along the RoU. In particular, the Project contractors are committed to develop brief Environment and Social Impact Assessments (along with photographs) for each padding material sourcing location and submit these to CEIL for approval. Photographic records will also be maintained for each location for disposal of surplus earth material. However, as observed in the January 2010 Audit report, the Project should finalize the Rock Disposal Plan identifying proper disposal quarries and/or document any agreement with local end users. Furthermore, the environmental team should act in concert with the CSR team for addressing any issue arising from rock disposal management with the local communities.

Quarry material for construction (sand, gravel, etc.) is reportedly sourced from authorized private and government quarries. L&T is recording and tracking all quarry material used for construction from 10 sourcing locations along the SBPL for which six permits have already been obtained while for the additional four permitting is in progress. Tracking sheets providing information on location of quarries, dates, quantities of material sourced, and final use are being kept by the Project. According to information provided, surplus excavated earth material has not been disposed outside the Project sites. A form for tracking the surplus material disposal is available for L&T.

As detailed in the January 2011 Audit report, the Project finalized a Greenbelt Development Plan identifying future areas for greenbelt plantation (AGIs and Bhogat Terminal) and selected plant species to be used according to Gujarat Pollution Control Board guidelines and EIA recommendations. According to this plan, the Project will ensure that the areas assigned to the greenbelt are not used for any temporary purpose during the Project's construction phase. However, in case of unavoidable circumstances, top soil will be stripped and stocked properly to prevent contamination and then the area restored right after use. Training will be provided to all relevant Project personnel for management of the greenbelt areas and for proper preservation of top soil. In addition, tool box talks will be conducted at those sites where grading and filling activities are performed. Implementation of the Greenbelt Development Plan has not been started yet.

The Project is tallying all trees cutting along the RoU. The information is logged in a *Tree Cutting and Plantation Data Sheet*, which now also includes a photographic records, where the total number of trees identified during survey and the number cut and saved is reported. According to updated information, still only nine trees have been surveyed at KP 16-17 of which seven needed to be cut.

*IFC Policy and/or EIA/ESMP Action Items*

M2.9 The Project should finalize the Rock Disposal Plan identifying proper disposal quarries and/or document any agreement with local end users.

*Recommendations for Improvement:*

- a. The environmental team should act in concert with the CSR team for addressing any issue arising from rock disposal management with the local communities;

- b. The Project should ensure that SOP for reinstatement is properly developed for all contractors and properly implemented during site restoration activities at all Project sites; and
- c. CEIL should include photographs of the reinstated site in the Non-Objection-Certificate (NOC) documentation.

### **3.7 BARMER – SALAYA CONSTRUCTION PHASE CLOSURE**

The Barmer – Salaya Project construction has been completed and is now in the operational phase. In concert with CEIL and the Lenders, as outlined in the January 2011 Audit report, tracking of the final closure and reinstatement of some yards and the construction activities of the spur line from Viramgam terminal to Oil India Terminal have been shifted to the Salaya – Bhogat Crude Projects Oil Pipeline Extension Project.

#### *Project Strategy:*

The Project philosophy on reinstatement is clearly outlined in both Upstream and Midstream ESIA documents and in CEIL Site Restoration Guidelines document. Project development will be done with due regard for local development plans and compatible with the surrounding land use. Restoration will be carried out so that the site will be returned to near original conditions. As part of the reinstatement process, the Project recognizes the importance of the correct management and preservation of topsoil during construction activities. Topsoil stripped during site clearance should be properly stored to preserve its physical-chemical characteristics and to avoid loss due to erosion.

#### *Observations:*

##### Viramgam Spur Line

The construction of a short 10 inch, 2.5 km spur line, connecting the Viramgam Terminal to a nearby Indian Oil Terminal, has started in late November 2010. This short spur line has only 1.2 km that lay outside the terminals' boundaries on bare land already owned by Indian Oil Corporation. The spur line construction does not present particularly challenging and/or sensitive EHS and, as outlined in the January 2011 report, CEIL had committed to submit monthly EHS reports to the ECMG for review. However, these regular reports were never submitted to ECMG and only in late April 2011 CEIL forwarded some documentation covering the period from February 26<sup>th</sup> to March 25<sup>th</sup>, 2011. The documentation consists of weekly progress reports, filled by the construction contractor Larsen and Toubro, and weekly EHS statistics and reports. According to these reports, no major EHS were recorded during the period covered as the construction is reaching around 57% completion (as of March 25<sup>th</sup>, 2011). CEIL, as per its commitment, should provide ECMG regular monthly report summarizing project status, any significant EHS issues, if present, along with relevant mitigating measures adopted, and photographic evidences of relevant work in progress.

Upon construction completion, CEIL has committed to submit a report detailing restoration activities, waste disposal, and other relevant EHS information. An EHS corporate representative will inspect the restored site to document proper closure. This information will be submitted to the ECMG for review.

##### Reinstatement of Yards

CEIL submitted to ECMG a detailed report, correlated with sites' pictures, on the final clean-up and restoration of the three former yards used during the construction phase of the Barmer – Salaya project: the Sachana and Wakaner yards, used by Larsen and Toubro, and the Dhrol yard used by Kazstroy Service. CEIL site environmental team personnel verified that demobilization and reinstatement procedures by contractors followed the Project guidelines and directives. Furthermore, CEIL representative inspected final restoration work and a corporate representative verified compliance status. Copies of the No Objection Certificate (NOC) of restored yards, along with relative photographic documentation, are maintained on record by the Project.

According to the documentation provide, Sachana yard was fully demobilized, restored, and handed over to the land owner(s) who signed the NOC on January 11<sup>th</sup>, 2011. Wakaner yard was vacated by the Project at the end of January 2011 and NOC requested by Larsen and Toubro on January 30<sup>th</sup>, 2011. Dhrol yard lease terminated on January 31<sup>st</sup>, 2011 with the site NOC signed by the owner on February 7<sup>th</sup>, 2011.

Overall, based on review of the documentation and photographs submitted for review to ECMG by CEIL, all yards have been reinstated according to Project commitments and IFC standards.

*IFC Policy and/or EIA/ESMP Action Items*

M3.3 CEIL, as per its commitment, should provide ECMG regular monthly report summarizing project status, any significant EHS issues, if present, along with relevant mitigating measures adopted, and photographic evidences of relevant work in progress.

*Recommendations for Improvement:*

Nil

### **3.8 WASTE MANAGEMENT**

*Project Strategy:*

Site specific Waste Management Plans/Procedures (WMPs) have been developed at the corporate level by CEIL and the main contractors currently working on the Project. Such plans/procedures provide general requirements for waste identification, segregation and storage, record keeping, and final disposal. A general action plan with activities, waste generation locations, actions to be undertaken, and responsibilities/accountabilities for final disposal are included in the documents.

In particular, the WMPs adopted by CEIL and its main contractors foresee that in the absence of adequate waste treatment and/or disposal facilities in the Project area, appropriate infrastructure will be established and maintained until Project completion and that all off-site waste handling facilities will be audited before contracts are awarded.

The Waste Management Procedure adopted by CEIL and L&T classifies waste into recyclable general waste, non-recyclable general waste, hazardous, and biomedical waste. The non-recyclable fraction includes used light bulbs, glass, food waste, septic tank waste, leather, PVC/HDPE/LDPE, and concrete debris. The WMPs developed by other contractors, together with CEIL, do not adopt such a classification; however, they do consider a non-recyclable fraction in their plans/procedures.

The Project intends to identify waste streams, their sources, estimated daily quantities generated, waste characteristics, and re-use/recycle. This information, in addition to treatment and disposal plans, should be recorded in a waste Management Tracking Sheet. Furthermore, according to the Corporate Environmental and Social Management Plan (ESMP) adopted by CEIL, the Project will collect, segregate and recycle to the maximum extent possible all the waste generated at offshore/onshore/pipe laying facilities and labour camps. The Project strategy for all domestic wastewater, as reported in the ESMP, is to treat it with on-site STPs or to process it via septic tanks and soak pit systems.

*Observation:*

Waste stream data have been provided by the Project for the Bhogat Terminal (January-April 2011) and for L&T and Leighton (January-March 2011) sites in the form of summary tables for hazardous and non-hazardous waste. Waste tracking sheets, giving information on the type and quantity of waste generated, generation frequency, collection, and storage, and kind of treatment/reuse/disposal are used throughout the Project areas.

According to the information provided, during the period January to April 2011, Project non-recyclable waste (mixed waste coming from surplus of waste segregation) was still sent to the two municipal dump sites located in the towns of Khambaliya and Dwarka, which were found to be not compliant with IFC standards. However, this practice has been reportedly stopped since mid April 2011 when non recyclable waste started to be stored on site. The Project has identified an engineered landfill in Ahmedabad, Gujarat (approximately 400 km from the Bhogat Village) that is reportedly suitable for waste disposal and is in the final stages of receiving approval for the use this facility. According to information provided, an internal audit to verify e compliance with IFC standards has been carried out by the CEIL personnel, but the audit



report is yet to be submitted to ECMG team for review. The Project should speed-up the delivery of non-recyclable waste to the engineered landfill in Ahmedabad. It should be noted that L&T production of non-recyclable waste that was sent to the municipal landfill in Khambaliya, has gradually decreased from the initial 560 kg in September 2010 to 13 kg in March 2011.

Dedicated receptacles (separate food waste and solid waste bins) for non-hazardous waste have been observed to be present and well maintained at all Project sites visited. When full, these containers are carried to non-hazardous waste accumulation areas to be emptied and where waste types are manually segregated. Waste from these accumulation areas is reportedly removed on daily basis by appointed sub-contractors. Most waste facilities and receptacles are provided with permanently signs in English and only at the IOTL site signs were observed to be both in English and local language. The Project should use permanent labels written in English and local languages for all recycling bins and waste facilities.

#### Non-hazardous waste

Central accumulation areas for non-hazardous waste are in place and in use at all visited sites.

At the Bhogat Terminal, non-hazardous waste is being collected at two waste central accumulation areas: one used by PLL and one for IOTL. VI Pandya is reported not to have a waste facility given its limited presence at site and the small amount of waste generated. Waste facilities managed by PLL and IOTL are properly constructed (built in cement and covered) and with sufficient capacity to store paper, plastic, and wood in separate sections but at both sites waste was observed not to be properly segregated. The Project should consider improving segregation of waste at the Bhogat Terminal and preferably performing it at source. Metal scrap at the Bhogat Terminal is segregated in delineated areas near construction sites. As detailed in the January 2010 Audit report, non-hazardous waste is sent to appointed recycling facilities audited by the Project.

As part of the tank construction, sand blasting operations, for cleaning of corroded steel surfaces, are carried out at the Bhogat Terminal with sand reported to be reused to the maximum extent. According to the SOP on Grit Blasting and Painting provided, grit dust is collected in dust bins then transferred to gunny bags and waste materials stored in a waste storage room. Finally, the grit dust will be disposed in a non-hazardous municipal landfill (reportedly at Ahmedabad, Gujarat). The Project should ensure the grit dust is non-hazardous and verify the possibility to reuse this waste (e.g. asphalt concrete production) given that spent sandblasting grit has a high content of iron and may become an environmental concern in landfill leachate.

Non-hazardous waste produced along the Salaya – Bhogat pipeline and at the Khambaliya camp is transported and collected at a central accumulation area built within the Khambaliya Camp area. This area (built in cement and covered) appears to be properly constructed and with sufficient capacity to store paper, plastic, and wood in separate sections. As detailed in the January 2010 Audit report, non-hazardous waste is sent to appointed recycling facilities audited by the Project.

At the Leighton site, the waste accumulation area for non-hazardous material is built in cement and provided with a roof cover. This facility, which capacity appears sufficient to cover current operations, is used to store paper and plastic plus the general garbage to be sent to the municipal landfill in Ahmedabad. Metal scrap is accumulated in a designated area located near the construction activities. DISC camp has a separate accumulation area for non-hazardous waste inside its camp. As detailed in the January 2011 Audit report, non-hazardous waste from Leighton and DISC camps and from the marine vessels involved in off-shore activities is sent to appointed recycling facilities audited by the Project.

#### Food waste

At all Project sites, food/organic waste generated by the Project is collected in dedicated bins that are regularly emptied by the appointed contractor and transported to two municipal composting facilities: the Khambaliya Nagarpalika and the Dwarka Nagarpalika Vermi-compost plants. The first facility receives the organic waste from the Khambaliya Camp while the other facility receives the organic waste from the Leighton camp and the Bhogat Terminal. Following ECMG recommendation, the Project reportedly provided workers at these composting facilities with basic PPE (reflecting jackets and gloves) but training and capacity building programs for proper waste handling have not been provided. The Project should consider performing capacity building programs for workers at composting facilities. In addition, regular monitoring of the composting facilities is recommended to ensure their good status and housekeeping.

### Hazardous waste

Hazardous waste generated by the Project (waste oil, empty chemical drum, paint drum, incinerable waste) is sent to Reliance Barrel Supply Co., a hazardous waste recycler and disposal facility located in Ahmedabad, Gujarat. This facility has been audited by CEIL and was found suitable for the disposal of hazardous waste. The Project should conduct audits at least once per year to ensure that facilities/contractors are still operating within Project standards/requirements.

At the Bhogat Terminal, PLL is collecting hazardous waste at a central accumulation area provided with a concrete floor, bermed, locked, and covered, but not provided with sufficient ventilation. Therefore, the Project should consider providing the PLL hazardous waste storage with more ventilation. IOTL has now a diesel and waste oil storage shed covered and provided with drip trays. It should be noted that ventilation of the hazardous material/waste storage has been improved since the last visit. Hazardous waste produced by the Salaya – Bhogat pipeline sub-project is collected at a central accumulation area built at the L&T yard, in a delimited and isolated area that is bermed and covered. The facility has been observed to be properly built and well ventilated. At the Leighton site, the hazardous waste accumulation area has been now completed. It appeared to be in good conditions, properly located in a delimited and isolated area, bermed and covered.

### Biomedical waste

Dedicated bins for biomedical waste segregation are present at medical facilities throughout the Project sites. However, sharps are being stored in plastic bags which may represent a potential hazard. The Project should consider storing sharps at medical facilities in specifically designed containers. As detailed in the January 2010 Audit report, an authorized contractor (audited by the Project) is used to dispose the biomedical waste generated from all contractors' medical facilities.

### Wastewater

At the Bhogat Terminal, wastewater is currently treated at three on-site STPs: two belong to PLL, one located at the PLL labor camp (100 m<sup>3</sup>/d capacity) and the other at the PLL office area within the Bhogat Terminal (15 m<sup>3</sup>/d capacity); the third is used by CEIL to treat wastewater at their living quarters (12 m<sup>3</sup>/d capacity). The STP unit at the PLL labor camp is also receiving wastewater from the nearby CEIL construction staff camp via an underground pipe that is buried under an agricultural field at a depth, according to field personnel, of 70 to 100 cm, well below tillage depth. A fourth STP unit is located at the IOTL labor camp (located just outside the terminal and where construction is almost completed) and will be commissioned shortly. As mentioned in Section 3.5, outlet monitoring results from the STP at PLL labor camp for February 2011 show some exceedances in terms of BOD, COD, Nitrogen, Phosphorus concentrations and exceedances in TSS, BOD, COD, Nitrogen, Phosphorus have been detected for the CEIL STP in April 2011.

A detailed start-up report for the new STP operating at CEIL living quarter has been provided. However, final wastewater tests, showing the system is operating properly, were not included in the start-up report. The Project should consider adding to the start-up reports the final tests for any new STPs units built in the field to ensure that optimal system conditions are reached before they become fully operational. Monitoring reports should also include the results of the test conducted during start-up in addition to those relative to full operation to help identifying problems and treatment deficiencies, if any.

At the Khambaliya camp, along the Salaya-Bhogat pipeline, wastewater is treated by a Fluidized Aerobic Bioreactor (FAB) that is operational since October 2010 (35 m<sup>3</sup>/d capacity). Test analyses (see Section 3.5) for the January-March 2011 period indicated that tested parameters for this STP are below IFC limits with few exceptions for coliforms bacteria concentration.

At the Leighton site, a Sintex decentralized wastewater treatment system is operational (60 m<sup>3</sup>/d capacity). A second STP is also present at the DISC Camp (30 m<sup>3</sup>/d capacity). Test analyses for the Leighton's STP (see Section 3.5) show that all parameters concentrations fall below the required Project/IFC limits with the exception of COD concentrations recorded during the period January-March 2011. According to the information provided, the STP at the DISC camp is now working properly, facilitated by the decreased number of people occupying the camp. In addition, mitigation measures like reducing the detergent used for washing have been implemented to improve the STP performance. No excess of sewage is now sent to the composting facility in Dwarka.



According to the information provided, the sludge produced from the biological systems at Project's STPs is entirely re-circulated. Depending on the efficiency of the process, some sludge may need to be removed once a year. The Project plans to compost this sludge and use it for the greenbelt development.

Septic tanks are provided at those locations where STPs are not present (L&T labor camp at Haripar). In addition, portable toilets are provided at working sites throughout the Project sites. The Project should ensure that toilets are provided at sections along the RoU corridor when major works will start. Wastewater from septic tanks and portable toilets (hauled by vacuuming trucks), is processed through the STPs present at Project sites.

*IFC Policy and/or EIA/ESMP Action Items*

- |       |   |
|-------|---|
| M1.28 | The Project should speed-up the delivery of non-recyclable waste to the engineered landfill in Ahmedabad ( <b>Modified</b> ).   |
| M1.29 | The Project should consider adding to the start-up reports the final tests for any new STPs units built in the field to ensure that optimal system conditions are reached before they become fully operational ( <b>Modified</b> ). |
| M2.11 | The Project should consider performing capacity building programs for workers at composting facilities ( <b>Modified</b> ).   |
| M3.4  | The Project should consider providing the PLL hazardous waste storage with more ventilation.  |
| M3.5  | The Project should consider improving segregation of waste at Bhogat Terminal and preferably performing it at source.   |

*Recommendations for Improvement:*

- a. The Project should audit all disposal/recycling facilities to verify they comply with Project and IFC standards before they are used or contract awarded;
- b. The Project should use permanent labels written in English and local languages for all recycle bins and waste facilities;
- c. The Project should ensure the grit dust is non-hazardous and verify the possibility to reuse this waste (e.g. asphalt concrete production) given that spent sandblasting grit has a high content of iron and may become an environmental concern in landfill leachate;
- d. Monitoring regularly the composting facilities is recommended to ensure the good status and housekeeping;
- e. The Project should conduct audits at least once per year to ensure that hazardous waste facilities/contractors continue to operate within Project standards/requirements;
- f. The Project should consider storing sharps at medical facilities in specifically designed containers;
- g. STP monitoring reports should include the results of the test conducted during start-up in addition to those relative to full operation to help identifying problems and treatment deficiencies, if any; and
- h. The Project should ensure that toilets are provided at sections along the RoU corridor when major works will start.

### **3.9 HAZARDOUS MATERIALS MANAGEMENT AND POLLUTION PREVENTION**

#### *Project Strategy:*

The Project strategy for the management of hazardous materials is outlined in the relevant EIA and ESMP. Storage areas for paint and similar materials, diesel generators locations, and fuel and oil storage areas should be underlined by an impervious surface and be surrounded by berms to contain accidental spills.

Hazardous materials are to be stored in secure and well ventilated facilities. In particular, Contractors' Plans for Hazardous Material Management state that ventilation should be guaranteed in enclosed storage areas by opened windows and fans. Spill kits should be available where hazardous materials are stored. Workers should also be trained in the proper handling and storage of hazardous materials.

According to Project ESMP, all the facilities having potential to contaminate like maintenance yards, DG sets, diesel storage yards, chemical/oil storage area, and hazardous waste storage area, should be provided with paved/impervious concrete floor, bunding and secondary containment to avoid oil spillage to soil.

#### *Observations*

Overall, hazardous materials were observed to be proper segregated throughout the Project sites.

Along the Salaya-Bhogat pipeline hazardous materials are stored in an appointed roofed facility at the L&T pipe yard. This facility was observed to be well ventilated with a silled concrete floor, in an area separate from other materials, and with drums covered by plastic sheets. Oil drums are also stored in a properly silled area. The L&T pipe yard is also equipped with a maintenance area that was observed to be provided with the necessary secondary containments. At AGIs 34 and 35, the storage areas for cement bags have been observed to be full of cement dust and, overall, insufficient housekeeping. Even if the quantity of cement bags stored was not big, these areas pose a potential hazard for workers' health because of the amount of dust on the floor and the insufficient ventilation. The Project should ensure that cement bag storage areas are kept clean and provided with sufficient ventilation. Use of PPEs (nose masks) and implementation of safety procedures for cement handling should be enforced.

At the Bhogat Terminal, hazardous materials being used by PLL are stored in a locked space, located in an isolated area away from workers, provided with concrete floor. A storage area for cement bags was also re-visited by the ECMG team at the PLL batching plant and still found unsuitable for its purpose. As already outlined in the January 2011 Audit Report, the floor and walls of this facility are still covered with cement dust, the facility is not provided with an overhead extraction fan on top of the cement loading funnel, and lacking sufficient. Since the facility is regularly used to load the cement silos from the stored bags, current conditions pose a health risk to personnel working inside. Also, the cement bags storing room at IOTL batching plant was found in bad cleaning conditions. However, this facility is only used as a back-up since cement is received in bulk and directly stored in silos. As mentioned above, the Project should ensure that cement bag storage areas are kept clean and provided with sufficient ventilation. Use of PPEs (nose masks) and implementation of safety procedures for cement handling should be enforced. The Project should consider supplying batching plants with bulk cement stored in silos when feasible. As mentioned in Section 3.8, IOTL has now a diesel and waste oil storage shed covered and provided with drip trays. It should be noted that ventilation of the hazardous material/waste storage has been improved during the last visit.

At the Leighton on-shore camp, unopened drums of chemicals are stored in an open yard together with other non-hazardous material. This area was observed not to be provided with a concrete floor but given the temporary nature of this storage area and that all drums were closed and protected with plastic, the absence of a concrete floor is not a critical issue. Oil drums were observed to be kept in an isolated roofed area provided with metal pan for secondary containment. It should be noted that Leighton is completing its activities and is starting demobilizing the site so that the utilization of hazardous material is minimal. Paint quantities on the Leighton work barge storage room have been reported to be sensibly reduced (to 1/3) and a specific SOP for access has been reportedly developed.

At all Project sites, spill kits were observed to be present where hazardous material is stored along with fire extinguishers. In particular, on-shore and off-shore sites at Leighton are now reportedly provided with the necessary oil spill response equipment.

According to field observation, DGs are provided with secondary containment at all visited working sites. In addition, spill trays are used at temporary locations. Furthermore, at all working areas gas cylinders were observed to be properly stored and, when full, locked.

A fuel and chemical storage inventory, recording amounts of hazardous material, have been provided from L&T and Leighton. It provides information on the location, type, quantity, condition of storage including details on secondary containments, spill events. In addition, information on diesel consumptions at Bhogat Terminal has been provided. Material Safety Data Sheets (MSDS) are being kept at hazardous material storage locations.

*IFC Policy and/or EIA/ESMP Action Items*

M3.6 The Project should ensure that cement bag storage areas are kept clean and provided with sufficient ventilation. Use of PPEs (nose masks) and implementation of safety procedures for cement handling should be enforced.

*Recommendations for Improvement:*

- a. The Project should consider supplying batching plants with bulk cement stored in silos when feasible.

## **4 ROU MANAGEMENT**

### *Project Strategy:*

Activities along the RoU include survey and clearance, pipe laying, stringing, welding, trenching and backfilling operations. Potential EHS issues associated with these activities include safety (e.g. stringed pipe, open trench sections), crossing of the pipeline or trench, length and timing of any open trench sections, and crowd control during working activities.

The Project EIA (Section 6.5.4) outlines a Code of Environmental Practice that describes basic commitments for the Project with respect to onshore pipeline construction. In addition, the EIA (Section 7.6.2.1) provides an overview measures to mitigate pipeline hazards detailing safety aspects to be considered by the Project.

### *Observations:*

Work activities along the pipeline route have started since September 2010 but actual pipeline construction is still in the early stages. As outlined in Section 1, construction work has been limited to only very short sections of the pipeline route.

Considering that the monsoon season is about to commence, the Project should consider completing works on open excavated ditch in order to prevent any potential risk for local population related to flooded sections of the trench. According to the information provided, blasting is carried out at river crossings and along some sections of the on-shore pipeline to facilitate trenching operations. No blasting has been used for any sections of the off-shore pipeline. At road and railroad crossings, micro-tunnelling technology is being used.

Open ends of assembled pipe strings are provided with end caps to prevent access by children or animals. However, fencing along open those trenched sections was found to be missing at most sites. The Project should provide safety fences and/or other protective means to prevent people or animals from falling into the open trench at all working sites along the RoU.

All the visited working sites along the pipeline were found equipped with all the necessary EHS provisions. Protection cages are still being used by workers during welding operation inside the trench. In addition, portable toilets were found present at the visited open trench along RoU (KP 72-73) and at road/river crossings and AGIs construction sites.

#### *IFC Policy and/or EIA/ESMP Action Items*

M2.15 The Project should provide safety fences and/or other protective means to prevent people or animals from falling into the open trench at working sites along the RoU.

### *Recommendation for Improvement:*

- a. Considering that the monsoon season is about to commence, the Project should consider completing works on open excavated ditch in order to prevent any potential risk for local population related to flooded sections of the trench.

## **5 HEALTH AND SAFETY**

### **5.1 HEALTH AND SAFETY MANAGEMENT AND OCCUPATIONAL HEALTH**

#### *Project Strategy:*

CEIL has adopted a Corporate Responsibility Management System that incorporates health, safety, environment, security and corporate social responsibility. The system includes well defined performance standards, procedures and guidelines, and key performance indicators (lost time incidents, total recordable incidents, etc.), which are used to track compliance with annual HS targets.

Project specific HS plans are also required by CEIL to be developed and adopted by all main contractors. The contractors' HS plans include risk assessments, plans for safety management and supervision, initial induction and task specific training, PPE, hazard communication, first aid requirements, and accident reporting. In addition, contractors' HS plans provide recommendations for cement bags stocking areas (required training, use of PPE, adequate ventilation, etc.). Use of PPE for workers is also encouraged in the Project EIA and ESMP.

The Project EIA recognizes road safety as a major Project HS issue. In particular, the Project is committed to undertake a road safety awareness campaign to better inform the communities about safer road habits. The Project ESMP also recognizes that the construction phase of the Salaya - Bhogat pipeline is expected to have an impact on local infrastructure such as roads. The Project is therefore committed to avoid using village infrastructure, such as roads, and wherever possible and feasible, construct and use alternate roads. In case the above is not feasible, the Project should upgrade existing roads before use and restore roads to improved quality levels after Project completion.

#### *Observations:*

As outlined in the previous reports, Project specific HS plans/procedures have been developed by CEIL and adopted by contractors currently working at Project sites (L&T, Leighton, PLL, IOTL and VI Pandya).

During the site visit, the ECMG team observed that dangerous road and/or traffic conditions are still present in some areas. Of particular concern is the one lane road running from Bhatiya to Bhogat. For this reason, as recommended in the previous reports, all contractors' EHS plans should include specific road safety sections, pertinent to their specific work assignments, rather than just referring to CEIL requirements. It should be noted that the Project applied to the Local Authority on the 2<sup>nd</sup> of January 2011 for installing speed breakers on this road stretch as a safety measure to control vehicles' speed. According to updated information, the Project finally got a negative response from the Local Authority denying the permission for the Project to install speed breakers on the road. Therefore, the Project is developing alternative plans for road improvements before submission for approval to the Local Authority. In the meantime, the Project should seriously consider and quickly implement all feasible measures to improve road and traffic safety. These could include driver training, use of GPS devices to record or reduce speed, control of material delivery schedules with the possibility of organizing convoys of large trucks. Other measures include road improvements like the construction of sidewalks or alternative pathways for pedestrians, in particular along those sections close to schools or other public areas, and increased community awareness programs in schools and nearby villages. The Project should particularly focus on in-house solutions like strengthening driver training, developing and delivering community awareness programs on road safety, in conjunction with its continuing efforts to find alternative ways to improve road safety on the Bhatiya to Bhogat route.

Medical facilities have been observed to be present at Project sites: CEIL, PLL and IOTL medical rooms at the Bhogat Terminal, L&T medical facility at Khambaliya camp (servicing the Salaya – Bhogat pipeline area), and Leighton and DISC facilities at the marine site. At the Bhogat Terminal, the PLL facility is manned by one paramedic and one doctor (from Bhatiya) working in shifts while the IOTL site has two paramedics, working in shifts, with one doctor visiting the facility twice per week. A dedicated patient transfer vehicle is present at each facility (an ambulance is stationing at the PLL labour camp during the night). Both facilities keep a log register (no major injuries reported) and are provided with insufficient medicine supplies and specific medical equipment. As outlined in the January 2011 Audit report, these medical facilities are inadequate for the workforce currently present on-site (about 600 people) also considering that the nearest hospital is located in Jamnagar, about one and a half hour drive from the Bhogat Terminal. According to CEIL management, CEIL has deployed one doctor and two paramedics

(since the start of May 2001) and an advance life support ambulance (middle of May 2011) at Bhogat Terminal to augment the medical services at the site. The Project should put on fast track actions to resolve the medical issue at Bhogat Terminal by providing the facilities with all necessary medical equipment/supplies. The L&T medical facility at Khambaliya Camp has been improved and found adequate to the current workforce. It is manned by a doctor and a paramedic present 24 hours. Medical supplies and equipment have been found sufficient for the ongoing activities. At the marine site, two medical facilities are present, one for Leighton and another for DISC. As observed during the last visit, both facilities were found to have all the necessary equipment to handle major problems. In particular, DISC's medical facility, managed by International SOS, was equipped with advanced equipment including a defibrillator. A paramedic is permanently based at the camp with a doctor present during the day and on call during the night. No major injuries have been reported to date and weekly and monthly reports are kept on site as well as specific forms for each patient. Well equipped ambulances are present at site.

First aid kits, which are reported to be regularly checked by paramedic staff, were present and found adequate at all Project sites regularly. Furthermore, emergency contact numbers were posted in English but not in local languages, at all visited camps. Emergency contact information should be also posted in the prevailing local language(s) at all sites. Overall, HS warning signs throughout the Project were found to be sufficient and effective as they were written in both English and local language.

L&T and Leighton provided updated information on Emergency Mock Drill and a Fire Demonstration Drill indicating that they are performed regularly at working sites. No information on EHS drills has been provided for the contractors working at the Bhogat Terminal during the January-April 2011 period. The Project should perform periodic emergency drills at all project locations involving all working contractors.

According to the information provided, the local fire fighting brigade declined a formal request to perform an emergency drill in cooperation with the Project. However, a emergency drill has been conducted in cooperation with the local hospital in September 2010. The Project should continue performing major emergency response drills in cooperation with local authorities and municipal response teams on a regular basis.

The use of PPEs is widespread throughout the Project working sites, with few exceptions.

During the visit, the ECMG team visited the L&T, PLL, CEIL, Leighton and DISC labor/staff camps. IOTL camp is still under construction and was not visited by the ECMG team. It should be noted that L&T has recently rented an ex boarding school, located close to the RoU, to house skilled workers. Overall, camps were constructed following IFC Workers' accommodation guidance and are kept in good conditions and well maintained. One observation, as also outlined in the January 2011 report, is the sill missing smoke detectors inside the living quarters at the PLL labor camp. The Project should install smoke detectors in bedrooms and sleeping quarters at all camps. In addition, plumbing traps in sewage piping to prevent unpleasant smell and flammable sewer gas from coming out of drains were not installed in any of the camp washrooms or kitchens (smell was detected at some toilet facilities inside the camps) although at the Leighton labor camp gas traps were reported to be present in the sewage piping beneath each structure. Sewer gas traps should be installed and accessible for inspection and maintenance.

Equipment inspection is reportedly performed before equipment is deployed to the field. Checklists and stickers are used to track equipment inspection but ECMG observed some cranes in the field where wire clippings were not compliant with specifications. The Project should increase visual inspection of equipment by field officers to ensure it meets specifications.

Fencing is generally present at Project sites and access to work sites is restricted by entrance gates and security personnel. The only exception was observed at the L&T pipe yard where the side facing the batching area was not provided with a fence. At the Bhogat Terminal, even if boundary wall construction has yet to start, fencing is present around the terminal boundaries. However, as mentioned in Section 4 of this report, fencing is missing at most locations along the trenched pipeline creating a potential hazard for the local population or animals.

Housekeeping was found to be generally good at the time of the site visit. At all Project sites visited, material and equipment was found to be neatly staged in appointed areas and waste was not observed to be accumulated outside the appointed accumulation areas.



*IFC Policy and/or EIA/ESMP Action Items*

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|-------|---|
| M1.37 | All Contractor EHS Plans should include specific road safety sections, pertinent to their specific work assignments, rather than just referring to CEIL requirements.   |
| M1.42 | Sewer gas traps should be installed and accessible for inspection and maintenance.  |
| M1.43 | Install smoke detectors in bedrooms and sleeping quarters at all camps.   |
| M1.45 | Emergency contact information should be posted also in the prevailing local language(s) at all sites.   |
| M1.48 | The Project should particularly focus on in-house solutions like strengthening driver training and developing and delivering community awareness programs on road safety in conjunction with its continuing its efforts to find alternative ways to improve road safety on the Bhatiya to Bhogat route ( <b>Modified</b> ). |
| M2.17 | The Project should put on fast track actions to resolve the medical issue at Bhogat Terminal by providing the facilities with all necessary medical equipment/supplies ( <b>Modified</b> ).   |
| M2.18 | The Project should perform periodically emergency drills at all Project locations involving all working contractors.  |
| M3.7  | The Project should increase visual inspection of equipment by field officers to ensure it meets specifications  |

*Recommendations for Improvement:*

- a. The Project should seriously consider all feasible measures to improve road and traffic safety. These could include driver training, use of GPS devices or other methods to record or reduce speed, control of delivery schedules with consideration of concentrated convoys of large trucks, improvements (e.g. road shoulder and potholes repairs) or alternatives to roads – such as sidewalks or other pathways to schools or other public areas, and community awareness; and
- b. The Project should continue performing major emergency response drills in cooperation with local authorities and municipal response teams on a regular basis.



## 6 SECURITY

### *Project Strategy:*

Security is recognized by the Project EIA (Section 10.3) as an issue of concern. CEIL's Security Policy commits to provide security to everybody involved with Project activities and people who come into contact with Project operations. CEIL is therefore committed to provide a secure working environment and adopt appropriate international standards to protect employees and contractors, physical assets and operations against risks of injury, loss, damage or impairment from criminal, hostile or malicious acts. In addition, strong security presence/surveillance is required along the export pipeline and at all intermediate stations on the pipeline in order to manage the security issues of the facility and infrastructure.

CEIL has developed a corporate document, *HSE, Security & CSR Procedures E5 – Security guidelines*, specifically covering security issues. The document provides general security guidelines, policies, and procedures as a framework for the development of detailed security management plans for CEIL operations. No Project security plans drafted according to this framework were provided for review.

### *Observations:*

CEIL final corporate document on security includes the principles and guidelines outlined in IFC PS4 and the United Nations Voluntary Principles on Security and Human Rights. The shortcomings of the draft document outlined in the January 2011 report have been addressed. The document has referenced and included details on CEIL policies and procedures requirements for private and government security forces in Section 14 (*Guards and Guard Management*). This section also includes overall responsibilities of each party and outlines the underlying principles, standards, and procedures that should regulate any security agreement. Furthermore, in Section 15 (*Weapons/Firearms & Use of Force*) it is now clearly stated that CEIL may be held accountable by the public opinion for any incident connected with its operations.

With respect to the Bhogat Project, CEIL has drafted several area specific documents. An overall *Bhogat Security Plan* that includes a risk assessment of the area, guidelines in case of local unrest at or near the Terminal area, and contingencies along the pipeline RoU. In addition, the Project has developed a *Strategy for Security Deployment at Bhogat Terminal*, a document on *Duties of Security Personnel*, and a *Site Access Control Procedures*.

At the time of ECMG visit, security set up for Bhogat terminal included one site manager and three assistant manager; 15 supervisors and 129 guards in three shifts of eight hours. Security along the pipeline works is ensured by four teams of four staff based in Khambaliya. Each construction site on the RoU (currently four operational) has one security team in plain clothes. In addition, two Quick Response Teams are based in Jamnagar and Bhogat (one supervisor and 12 personnel each). Most of the guards are locals and, with training supplied by CEIL which includes: physical training, human rights, EHS, and first aid. A more complete set of training has been planned. All the security personnel are unarmed.

The security organization is complimented by the Stakeholders Relations Team (SRT), comprising of three former policemen (for the Salaya-Bhogat area) with responsibility midway between communication with stakeholders (both authorities and communities) and security. In the security arrangement, their main task is conducting intelligence and be the first to react, dialoguing with people and avoiding as much as possible scaling up of confrontation. The SRT works in collaboration with LA and CSR teams (See also section 7.2).

Each main contractor is also deploying its own security (unarmed). According to the information provided to ECMG these personnel is not trained by CEIL and while some contractors, like Leighton, do brief security personnel on basic engagement requirements, other contractors have not provided ECMG with these details.

Following episodes of threats and violence to staff, since December 2010 CEIL has decided to involve an armed Special Reserve Police Force (SRPF) to act as a deterrent. A platoon of 28 men is deployed at Bhogat terminal and along the pipeline. The constables are armed with Self Loading Rifles/303 Rifles/carbine. They are not trained by CEIL. They reports to SRPF designated unit, undergo their own training, and follow their own rules of engagement. CEIL has no control of their decision making processes and their ultimate conduct. However, ECMG reminds that CEIL is ultimately responsible in

front of the public opinion in case of improper use of force by Government armed forces that it has solicited.

Since the very beginning of CEIL activity in the area, the tense situation with land owners not agreeing on the compensation fixed by the Competent Authority (see sections 7.2 and 7.3 for more details) and with local contractors looking for contracts with CEIL, has sometimes scaled up to verbal and even physical aggression, road blocks and works stoppages. According to Project team, most of these incidents were solved through the involvement of CEIL security team, SRT and CSR team, and/or the contractor's security, and only in a very few cases the local police was deployed.

However, the situation is reportedly calmer in the last months, also due to the negotiations and dialogue carried out by the Project (including CSR, LA, SRT as well as the senior management) with all stakeholders, even if the issue of compensations and opening of the RoU has not been resolved yet.

During the last ECMG visit, the Project security team presented to the ECMG the current security threats and Project's security set up. The presentations also included a key stakeholders' analysis; a risk analysis; and, an assessment of points where the Project needs to improve. The ECMG team found the presentations very informative and the planned restructuring of the security arrangement sound, as far as it is based on intelligence and passive defense of sites, together with stakeholders' engagement and community development activities. The planned training for security personnel appears appropriate and complete and should be carried out as soon as possible and on a continuing basis. ECMG strongly recommends that all security personnel, including contractors', be trained and briefed on CEIL policies.

ECMG would like to recommend including in the training, when speaking of risk assessment, the risks linked to power abuse and disproportionate use of force as well. ECMG also stresses the importance of having a grievance mechanism for communities and workers to allow the timely report and redress of any case of abuse by security staff. The Project team reported that three guards were terminated because they were found guilty of abusive behavior towards workers. However, no complaint for security personnel abuse has been reported by local people or raised during ECMG meetings with communities. ECMG team met two guards who are local and land losers: they appeared well briefed and have been trained for one week in various topics, including dispute solving, interpersonal skills, and human rights protection.

ECMG found that, even if staff onsite is briefed on emergency contact numbers, they have not been fully instructed on the exact procedures to follow during security emergencies nor they have been involved in any drills to familiarize themselves with such procedures. ECMG recommends ensuring that security procedures are clear to all parties, including contractors' security personnel and key construction supervisors, and that security drills are carried out involving construction personnel.

ECMG acknowledges that main contractors may have their own security and approach, but stresses the importance of CEIL ensuring that CEIL policies are respected; security staff properly trained; and CEIL management timely informed of any issue. ECMG reminds that construction contractors will leave and CEIL will inherit any good or bad relations developed by them. Moreover, CEIL has the ultimate responsibility in front of the public opinion of any improper behavior or incident may happen.

With respect to the deployment of the SRP, the presence of armed security not responding directly to CEIL management is an issue of major concern for the ECMG team. ECMG considerations are the following:

First, ECMG wonders whether the presence of the armed deterrent is necessary at all. The "Note on the Employment of Special Reserve Police (SRP) Force and Rules of Engagement" supplied to ECMG, explains that the mobilization of the SRP *"was done primarily due to the continuing and forcible demand of the locals in Bhogat on issues concerning the favorable award of Project contracts, which resulted in poor quality of work /and delayed project execution. Few cases of assault and affray/misbehavior of locals with Cairn staff/third party/contractors were also demoralizing the employees/contractors."* The rationale for the mobilization (delayed work; few cases of assault) appears disproportionate in comparison to the risks caused by the presence of the arms. The need of the involvement of SRP has been questioned even by some of CEIL managers during discussions with the ECMG team, considering that the level of tension and number of incidents have reportedly declined in the last months and all past cases could be solved without the use of the force.

Secondly, CEIL should consider the reputational risk given that the presence of weapons onsite can potentially affect CEIL's credibility at the local, national and international level, which to date has been

one of a responsible corporate citizen. Considering the political issues involved in the land acquisition, it could also be used against CEIL.

In light of these considerations, the Project has taken a pro-active approach and reported that armed forces have been demobilized from the pipeline locations effective June 28<sup>th</sup>, 2011; therefore, taking a significant step in solving this issue.

Third, the SRP responds to their higher authorities, training and rules of engagement. CEIL has no direct control on the decisions they take and their ultimate behavior. ECMG reminds that CEIL is ultimately responsible in front of the public opinion in case of improper use of force by Government armed forces that it has solicited.

With respect to SRP rules of engagement, paragraph 5 of the Note states that the SRP will "*open fire as a last resort when there is danger to life and property of the asset they are guarding*" (underlined by us). It is obviously unacceptable by IFC/UN standards that human life could be threatened to defend assets.

Consequently, ECMG recommends CEIL discontinuing as soon as possible the mobilization of the SRP. While deploying the SRPF, ECMG recommends (i) changing the rules of engagement so to limit the use of arms only as a matter of last resort and only for preventive and defensive purposes, in proportion and extent of the threat, and in a manner that respects human rights; (ii) briefing SRPF personnel in CEIL policies and principles of conduct; and (iii) ensuring that SRPF personnel are trained in Human Rights, otherwise supply this training.

*IFC Policy and/or EIA/ESMP Action Items*

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|-------|--|
| M3.8  | CEIL should (i) change the rules of engagement of SRP so to limit the use of arms only as a matter of last resort and only for preventive and defensive purposes, in proportion and extent of the threat, and in a manner that respects human rights; (ii) brief SRPF personnel in CEIL policies and principles of conduct; and (iii) ensure that SRPF personnel are trained in Human Rights |
| M3.9  | Brief on CEIL policies and train on a continuing basis CEIL and contractors' security staff, including in the training the assessment of risks linked to power abuse and disproportionate use of force   |
| M3.10 | Set up a grievance mechanism for communities and workers to allow the timely report and redress of any case of abuse by security staff.  |

*Recommendations for Improvement:*

- CEIL should discontinue as soon as possible the mobilization of the SRP;
- CEIL should ensure that security procedures are clear to all parties, including contractors' security personnel and key construction supervisors, and that security drills are carried out involving construction personnel.
- CEIL should ensure that CEIL policies are respected by contractors' security; their staff properly trained; and CEIL management timely informed of any issue; and
- Agreements between CEIL and government and private security forces were not submitted to ECMG for review. Such agreements should clearly outline roles and responsibilities, include CEIL and IFC standards and procedures for engagement and proportionality in the use of force, and outline training/briefing activities to ensure that security forces engaged in field activities are aware and knowledgeable of CEIL/IFC/UN principles and Human Rights.

## **7 SOCIAL ISSUES**

### **7.1 SOCIAL MANAGEMENT**

#### *Project Strategy:*

The social aspects of the whole Mangala Development Pipeline Project are managed by the Communication and Corporate Social Responsibility (CSR) department. The CSR is part of the general Cairn Corporate Responsibility Management Plan that includes also Environment, Health, Safety, and Security.

The CSR staff dedicated to the Mangala Pipeline Development Project comprises two field teams. One is based in Barmer and oversees the Upstream Project in Rajasthan that includes the Mangala and Raageshwari terminals and the oil fields. The other team, involved in the Midstream (Pipeline) Project and the Salaya - Bhogat extension, includes six officers based in Sanchore, Viramgam, Radhanpur, Rajkot, Jamnagar, and Khambaliya. A CSR manager, based in Barmer, but who travels frequently to the Project area, supervises both teams.

A Corporate Social Responsibility Policy was issued in January 2008. Before disclosure of the ESIA for the Barmer - Salaya Pipeline Project (March 2008), a corporate level Public Consultation and Disclosure Plan (PCDP) and a corporate level Land Acquisition and Compensation Plan (LACP) were prepared, followed by more specific PCDP and LACP for each of the States affected by the Project (Rajasthan and Gujarat).

An Environmental Impact and Risk Assessment (EIRA) for the proposed Oil Evacuation Pipeline with Associated Facilities was prepared in January 2009 for the Salaya-Bhogat extension of the pipeline, which includes a socio-economic survey of 16 villages and a study of the impacts on the socio-economic environment. An EIA was also prepared for the proposed SPM and associated activities in the Arabian Sea off the coast of Bhogat (marine EIA).

A specific study on Project's impact on fisheries and the fishermen community was launched in February 2011. The draft report has been submitted in the end-April.

According to an agreement with IFC, a "Community Development Strategy" was required by June 2008. In October 2010 CEIL hired a consultant to prepare a Community Development Framework (CDF), a comprehensive scoping document that synthesizes most of CEIL policies and practices and gives sound recommendations, including best practices and methodologies. The document was reviewed and commented in the previous ECMG report and by IFC. The main recommendation was to extract from this scoping document a separate corporate document with precise commitments to community investments (CEIL Community Development Strategy).

#### *Observations:*

The CSR staff dedicated to the Salaya-Bhogat area is still limited to one officer based in Khambaliya. Again, ECMG suggests increasing the team, given the intense engagement of the CSR officer with land owners. The Project should avoid neglecting other stakeholders and should have sufficient staff for the start of new CSR activities (see also Section 7.2).

The Project submitted a "Socio -Economic Study of the Fishing Communities around Pipeline Marine Project at Bhogat Village, Jamnagar" (GES, March 2011) that is adequate. The study identifies two fishing communities in the radius of 5 km from the Project facilities that are or can be affected by CEIL activities: the fishing hamlets of Bhogat and Navadra. There are 500 - 600 people living in the Bhogat hamlet and 700 in Navadra during the fishing season (October through May). In the rest of the year, only 20% of the fishermen stay on site, while the other move to the nearest town (Porbander) for alternate livelihood activities (boat repairing). The communities are Muslims and very poor, with residents of Navadra being slightly better off. Fish is sold in Porbander or Dwarka.

According to the study, the fishermen are well aware and properly informed of the Project activities and relative access restrictions because of the work being done in the area. Some negative impacts have been reported: fishermen reported a decline in fish catch as compared to the previous year ("*due to dredging activities the fishermen have reported fish death and 80% of the fishermen have reported a 10% decline in*

*catch in comparison with the previous year"); and that some nets have been torn due to trawlers movements. However, the major concern of fishermen is potential oil spills.*

In the communities, the study included a prioritization of needs exercise according to the different groups of population (men, women, and children). The exercise could have been more complete if the various needs had been "scored" and classified accordingly. Nevertheless, based on discussions with the communities, the study proposed a number of activities, which include support for the supply of potable water and electricity, support for the organization of a fishermen cooperative and programs to support access to education.

ECMG received and reviewed the second draft of the Community Development Framework for the whole Mangala Development Pipeline Project. The second draft takes into consideration a number of specific comments made by ECMG and IFC. However, ECMG recommends again extracting from this scoping document a separate corporate document (CEIL Community Development Strategy) with precise commitments to community investments. Detailed suggestions have been given in the Barmer-Salaya report to facilitate the finalization of the document.

Detailed suggestions to finalize the document are given in the Barmer - Salaya report (Document 08-497-H8).

*IFC Policy and/or EIA/ESMP Action Items*

- M1.50 Provide sufficient management sponsorship and human and financial resources on an ongoing basis to achieve effective and continuous good social performances.
- M1.51 A Community Development program (CSR Action Plan) dedicated to the Salaya-Bhogat extension should be included in the Community Development Framework currently under preparation.

*Recommendations for Improvement:*

- a. The Project should evaluate whether the number of CSR officers dedicated to the Salaya-Bhogat project is sufficient for the construction period.

## **7.2 STAKEHOLDERS ENGAGEMENT IN UPSTREAM PROJECT**

### *Project Strategy*

#### Public Consultation and Communication

The communication program for the Salaya - Bhogat Project is implemented within the PCDP framework for Gujarat.

In the Salaya - Bhogat Project, the interactions with the communities and the stakeholders are carried out by three different teams with different tasks. The CSR team, dealing mainly with development programs, includes one manager, who is based in Khambaliya. The land team, which manages the land acquisition activities, includes two CEIL staff (one land acquisition manager and one assistant), three land acquisition consultants and three Competent Authority's staff. The Stakeholder Relations Team (SRT) includes three people for the Salaya - Bhogat section who coordinate with CSR, land and security teams in order to manage stakeholders' relations. The SRT responsibilities are midway between communication with stakeholders (both authorities and communities) and security. The Head SRT gives overall direction to the consultation process and guides the teams in the implementation of the PCDP.

A baseline survey of 21 Project-affected villages was carried out in the Bhogat area (Jamnagar District), collecting data at sub-District and village level on demographic composition, health, education, infrastructures and economic activities. A participatory approach was used so that villagers themselves could convey the conditions and needs of their own area. Separate meetings with women were held where necessary.



### Development Programs

Since the end of 2009, the CSR team launched a number of programs targeted at communities, land contributors, and farmers along the Barmer-Salaya (Midstream) pipeline. Some of these programs are implemented (or will be implemented) in the Salaya - Bhogat area as well.

The Agricultural Information Program, based on Reuters Market Light, is a SMS-based information service for farmers developed by Thomson Reuters. CEIL finances free subscriptions for land-contributing farmers. The pilot phase of this program is on-going, covering two districts and about 4,000 farmers. Later, the program will be extended across the entire pipeline corridor. The service is customized by language and type of crop and includes a feedback toll-free service. The system is also used to complement the security system along the pipeline since farmers can send alerts directly to CEIL.

The Rural Facilitation Centers (Gramin Suvidha Kendra or G.S.K), or Agri Kiosk initiative, is a private-public partnership program developed by MCX (a multi-commodity exchange market based in Mumbai) in collaboration with the Indian public postal service. The program uses the ubiquitous network of post offices to offer crop price information, training, and other agricultural input services to farmers. CEIL has supplied the equipment and the staff salary of three such Agri-Kiosks in sub-post offices as a pilot project and will apply the lessons learned to upgrade the program to 26 kiosks, each of which will reach out to approximately 70 branch post offices (village level).

Other community programs include Health Camps, which offer free of cost diagnostic health care and medicines, with the participation of specialized doctors in the areas of pediatrics, gynecology, orthopedic, ophthalmology and other areas; and Mobile Health Van, which includes a doctor, a pharmacist and a social worker. Furthermore, awareness on water, sanitation, and health in village schools is carried out by the Non Government Organization (NGO) named SHARP and libraries for school is implemented by ILFS. Since mid-2009, a Maternal and Child Health program, implemented by the NGO Chetna in coordination with Government funded nutrition centers, is on-going in 42 villages of the Banaskantha District (Gujarat). CSR finances health awareness communication material and sponsors special events in schools.

Wherever possible, active community involvement is ensured and the CSR team also responds to *ad-hoc* reasonable requests from communities (micro-projects) such as de-silting of village ponds and forestation programs with a social forestry component.

In the Bhogat area, CSR activities included support to Government health camps, support to the National Polio Surveillance Program, and Science Van for schools. Other programs have just started or are to be launched soon: an Agri Kiosk for farmers in Bhatiya; multi-specialty health camp; Green Belt Development around the Bhogat terminal; and a new pilot program of English learning for youth.

### *Observations:*

In light of the ongoing situation concerning the land acquisition (see Section 7.3), the CSR staff, SRT, and LA team are still all mobilized to interact with land-owners. Nevertheless, some community development activities have started that can improve the relationship with local communities (see above).

Main contractors have their liaison office on site. L&T has officers interacting with land owners along the pipeline and in proximity of the work sites. However, communication between the contractor and CEIL should be improved, as apparently not all interactions and complaints are properly recorded and/or passed on to CEIL staff (see also Section 7.3).

Leighton has a good liaison office that organized some CSR activities in nearby villages (distribution of school equipment, organization of two health camps, and organization of free transportation during the busiest period of the Project's trucks traffic). In this context, Leighton carried out the interaction with the nearby fishing community of the Bhogat-hamlet as well. As part of this interaction, five fishermen were employed with their boats by the company, the camp clinic was made available on request for the fishermen's families, one health camp and one month of free transportation were organized, and some distribution of food and medicines was carried out. ECMG was informed that during this time, neither CEIL CSR nor other CEIL staff were engaged with the fishermen community. CEIL position is that there was a division of responsibility with Leighton and that Leighton management plan was approved by CEIL and their activities monitored by CEIL CSR. In addition, it was observed that Leighton was doing a good

job implementing the plan. According to CEIL CSR team, a formal handover of these activities from Leighton is planned.

ECMG reminds that Leighton, as other construction contractors, are present at Project sites only for a relatively short time while CEIL needs to build long term good relationships with a community so close to one of its major facilities. Furthermore, the follow-up of Project's impacts on stakeholders is CEIL responsibility and fishermen are probably the most impacted group by construction so far. During the meeting with ECMG team, fishermen mentioned damages to their nets by Project vessels (which that they say have been compensated by Leighton) and complained about a decrease in catches (see also the results of the Socio-Economic Study of the Fishing Communities in Section 7.1). Fishermen also expressed concerns for the end of the construction phase and the departure of Leighton, and were anxious to know the chances of being employed during operation. ECMG opinion is that CEIL should have direct engagement with the fishermen communities (at Bhogat and Navadra), assess the claimed damages and losses, and ensure that the Project affected people have been adequately compensated. CEIL should also regularly visit the communities and respond to their concerns and queries. Finally, CEIL should ensure the proper hand-over of Leighton liaison activities and consider retaining Leighton local liaison staff for CSR. As mentioned in Section 7.1, CEIL should evaluate whether the number of CSR staff (presently only one dedicated to the Salaya - Bhogat area) is sufficient to take care of all stakeholders and follow the various construction issues.

The Socio -Economic Study of the Fishing Communities highlighted some potential or actual impacts and proposed a number of recommended actions as mitigation or compensation measures. The CSR team informed ECMG that some actions are under development, including: contacts with the competent local administration to collaborate with Government schemes for fishermen; contacts with the Central Institute of Fishing Activities for training fishermen; health and education programs; coordination with the rural electricity board, or alternatively with solar power schemes, to explore the opportunity to supply electricity to the hamlets. ECMG recommends that CEIL now develop an action plan based on the consultants' suggestions and consultation with the fishermen communities.

The Project submitted a draft of the revised PCDP for Gujarat including the Salaya - Bhogat extension. The draft has been reviewed by ECMG, who has the following suggestions for improvement:

- Add a paragraph "Key Principles for Public Consultation and Disclosure" as in framework PCDP 2008 Section 1.1;
- Add a paragraph "Regulatory Framework for Consultation and Disclosure in India" as in framework PCDP 2008 Section 2.2;
- Mention social baselines and needs surveys carried out by the Project in Gujarat and on-going consultation activities (as in framework PCDP 2.3.2);
- Mention current/planned CSR activities (as in framework PCDP 2.3.3);
- Add a paragraph specifying the different challenges and engagement requested by stakeholders affected by the pipeline and by the terminals works and operation;
- In Section 3.1 (*Objectives of Public Consultation & Disclosure*) modify the first bullet as follows: "Provide local community and other stakeholders with regular information on the progress of work and receive feedback";
- In Section 4.2.1 (*Internal monitoring mechanism*) add a bullet "Identification of any problems, especially problems facing any vulnerable households, unresolved issues from Project-related activities" as in Framework PCDP 2008;
- In Section 4.2.2 (*External monitoring system*) modify the first sentence as in Framework PCDP ("Rajasthan JV will engage an independent external organization to undertake audits of Project related PCDP activities, as and when required");
- PCDPs should include the paragraph on the process for response to grievances (reference to Section 3.5.1 of Rajasthan Framework PCDP) specifying the lapse of time (30 days) for responding to queries and complaints. Furthermore, in Section 5.3 (*Grievance Redress Mechanism*), the PCDPs should mention the maximum delay of 15 days for acknowledging a grievance. Also to be included is the process for appeal should resolution of a complaint not to be of the satisfaction to the plaintiff;



- Add a table with a stakeholders identification/analysis such as the one included in the Word document titled *Midstream Stakeholders Plan Draft for discussion*, dated October 29, 2009;
- Add a table like Table 3.1 *Action Plan for Public Consultation and Disclosure* included in the Framework PCDP 2008;
- The roles and responsibilities of the Stakeholder Relations Team, their interactions with the CSR team and involvement in the engagement process should be well defined and more detailed under the section “Stakeholder Engagement Team”;
- The Project should explicitly outline the responsibilities of other teams – CSR and Land. The section on stakeholder consultation team states that now SRT is responsible whereas on the ground CSR/Land still undertake engagement activities. The Project should define the roles and responsibilities of all those involved;
- On page 7 of the Upstream PCDP, under the thematic areas, the Project should include Capacity Building with Economic Development (i.e. Economic Development and Capacity Building);
- Under Information Request – include provisions for posting notices and announcements of availability of Project documentation when new documents are made available for the public;
- Include the frequency of meetings/engagement sessions for the local communities and surrounding villages similar to those identified for local authorities under Section Periodicity of Public Consultation. Change the title to Public Consultation Frequency;
- Language such as “would be” needs to be converted into a commitment. E.g. section 4.3 of the Upstream PCDP. Language in both documents should be changed to reflect CEIL’s commitment;
- Quarterly reports on grievances should be issued and distributed to the Project team to ensure that future similar problems can be avoided (share the lessons learned); and
- The Gujarat PCDP is incomplete – section missing.

*IFC Policy and/or EIA/ESMP Action Items*

- M1.55 A Public Consultation and Disclosure Plan (PCDP) for the Bhogat-Salaya project should be prepared. CEIL should brief project staff and contractors on the Plan.
- M3.11 Carry out regular direct engagement with all Project affected people, including fishermen, and ensure outreach of all groups.
- M3.12 Prepare an Action Plan for the fishermen communities.

*Recommendations for Improvement:*

- a. CEIL should have direct engagement with the fishermen communities (at Bhogat and Navadra), assess the claimed damages and losses and ensure that the Project affected people have been adequately compensated.
- b. CEIL should ensure the proper hand-over of Leighton liaison activities and consider retaining Leighton local liaison staff for CSR; and
- c. CEIL should amend as suggested the revised version of the PCDP for Gujarat.

### **7.3 LAND ACQUISITION**

*Project Strategy:*

The Land Acquisition for the Salaya - Bhogat Pipeline Project is being implemented according to the LACP framework and the specific Gujarat LACP used for the Midstream pipeline project. A revised LACP has been prepared in December 2010 and commented by ECMG in the January report.

According to national law and the Gujarat LACP, the land needed for temporary use (e.g. installation of the pipeline) is acquired through the provisions of the Petroleum and Minerals Pipelines Act and returned to

the landowners after the pipeline is buried and the RoU restored. The annual lease rate for the land (10% of the land value at market rate on an annual basis) is determined by a Competent Authority (CA) appointed by the Government and crops are compensated until the pipeline construction is completed and land is reinstated for arable use. Trees, crops and other encumbrances are separately evaluated and compensated. As directed by the Act, once the pipe is buried, some restrictions on the use of the RoU, like construction of structures and planting of trees, will still remain. Consistent with the requirements of the LACP, opportunity cost for not being able to fully use the land and the disruption effect will be considered by the CA while finalizing the RoU compensation.

Land needed for all pipeline permanent infrastructures, including the Bhogat Terminal, has been acquired through direct negotiation with the landowners on a "willing seller-willing buyer" basis.

According to the Petroleum and Minerals Pipelines Act, complaints are logged with the CA. Logs of complaints are filed and kept by the CA and CEIL. CEIL Land Acquisition team (8 people plus one CEIL manager), CA staff, CSR, SRT, and construction contractors maintain interactions with land-losers. Cellular phone numbers of the CA and CEIL Land Acquisition staff have been distributed to land-losers.

In the Salaya - Bhogat area, CEIL has been confronted with hard opposition by most landowners who are not satisfied with the compensation offered by the CA. The CEIL strategy to solve the issue includes: dialogue at all levels; employment and contracts opportunities at the local level particularly to land owners; establishment of the Bhogat Village Committee (that meets regularly with CEIL); CSR activities; improved security; and negotiations with individual land owners. The final decision on compensation is the sole jurisdiction of the CA as Government's appointed authority for land acquisition and compensation. According to the Project team, the CA will exercise the maximum flexibility to accommodate genuine issues, in the spirit of the LACP, as done in the upper part of the pipeline.

#### *Observations*

During this visit, the ECMG team acknowledged that the situation with respect to land acquisition has not improved; on the contrary, the opposition of the land owners to give access to the RoU land has widened and in some cases the compensation checks, which were accepted initially, were rejected and returned. Even if, as mentioned in Section 7.2, the CSR staff, SRT and LA team are all mobilized to interact with land-owners, at this stage negotiations are mainly carried out at higher levels (Gujarati and central government).

One outcome of these negotiations has been that CEIL persuaded the CA to calculate and deliver compensations differently: increase the land acquisition rates based on current market value in the area and ensure compensation for crop losses for two years (even if the land will be occupied for a shorter period). The result has been that some of the farmers got convinced and allowed the start of the works on their land, on agreement that top-up compensation will be given in case of any increase in the land rate is decided later. This complex situation has pushed some farmers to agree to begin construction activities before the compensation was actually delivered. ECMG spoke with one such land owner and found that he was quite confident to receive his checks and had no complaints.

ECMG acknowledges the difficult and complex situation; however, it strongly recommends justifying and documenting any procedure agreed to with the landowners that is not in compliance with the LACP and IFC PS5. Furthermore, CEIL should document that timely and continuous information has been given to the landowner on when the various compensations will be paid and inform them when activities on their land will start and keep them abreast of the construction schedule and expected completion time.

ECMG met some of the landowners who refuse to give their land along the RoU because not satisfied with the compensation offered by the CA. Though the compensation appears to be the most important reason for their stalling position, they also raised concerns about possible impacts of the pipeline during operation and in particular they voiced their concerns on potential oil spills. CEIL has actually prepared a video on safety issues concerning the pipeline, but disseminate the video only during operation (at the end of the construction period). ECMG opinion is that complete, correct, and consistent information via some illustrative support (leaflets with drawings, slides, video) can reassure Project affected communities and avoid, or at least limit, rumors and concerns.

The Village Committee established in Bhogat, composed mainly of influential local people who are landowners and/or are interested in obtaining contracts with the Project, is still operational. However,

according to the Project team, the Committee's representative base remains limited. To date, CEIL's plan for managing local complaints and requests of employment and contracts through this arrangement has not been effective. Nevertheless, the Committee voiced some community concerns and helped CEIL to identify some needs of the community at large (channeling drains, widening the road, organizing health camp). It also facilitates maintaining a continuous communication flow with a number of local influential people. However, other landowners set up different associations to lobby for their interests and many of them interact directly with the Project on an individual basis. ECMG recommends that CEIL keep a balanced approach with the ensemble of land owners, with particular attention to the most vulnerable ones.

With respect to landowners who have allowed access to their land (around 135 in total), the LA team reported only three grievances that have been raised at the CA level. According to the LA team, other minor issues were solved directly and immediately by contractors. ECMG recommends that the minor complaints reported to CEIL or contractors' team be recorded and their closure documented. In addition to the proper recording of all complaints from Project affected people being a requirement of IFC PS5 and the LACP, CEIL should document its good faith and best efforts to manage grievances in the context of the difficult relations with many local land owners.

The updated LACP for the operations in the Gujarat portion of the Project (Pipeline or Midstream project), presented by CEIL has been assessed as adequate in the January ECMG report. However, ECMG again recommends correcting the title of the document to show it refers to the Gujarat project.

*IFC Policy and/or EIA/ESMP Action Items*

- |       |  |
|-------|--|
| M3.13 | Justify and document any procedure agreed with the landowners that is not in compliance with LACP and IFC PS.          |
| M3.14 | Keep record of even minor complaints raised to CEIL or to contractors' team by land owners and document their closure. |

*Recommendations for Improvement:*

- CEIL should document that timely and continuous information has been given to the landowners on when the various compensations will be paid and when the works will start and be over as per schedule;
- CEIL should consider preparing adapted communication tools (leaflets with drawings, slides, video) in order to give complete and consistent information on pipeline impacts and risks and mitigating measures that can reassure Project affected communities; and
- CEIL should change the title of the revised LACP in "Gujarat" LACP.

## **7.4 COMMUNITY HEALTH AND SAFETY**

*Project Strategy:*

The EHS system is expected to prevent and minimize air and water pollution, noise and risks of accidents. The Project strategy is outlined in Section 5.1.

*Observations:*

Road

As first highlighted in the October 2010 ECMG report, the road from Bathiya to Bhogat is intensively used by the Project's vehicles (including trucks) and appears to be potentially dangerous, considering the driving style of most drivers and conditions of the road. CEIL adopted a number of health and safety measures to address the issue of the narrow road, including drivers' training, issuing driver's passport to record feedback on driving skills from passengers and posting road signage. According to CEIL management, the Government has been approached to improve the road conditions by means of widening the road and

installing speed breakers at suitable locations. The speed breakers solution has not been approved and the widening of the road, though commendable, is a long-term solution.

ECMG again recommends; (i) considering the launching of a road safety awareness campaign in schools along the road; and (ii) continuing efforts for finding alternative ways to improve road safety on the Bhatiya to Bhogat one lane road (see also Section 5.1).

#### Public Health

Some initiatives on community health and safety awareness have been carried out by main contractors. Leighton conducted a community health and safety campaign in a Bhogat school. HIV/AIDS sensitization has been conducted at the PLL labour camp. CEIL prepared a Plan to Sensitize Community on HIV/AIDS at CEIL Operational Areas, within the framework of the United Nations AIDS (UNAIDS) and Gujarat State AIDS Control Society (GSACS) programmes. The Project should implement the plan, and organize a campaign addressed not only to communities but also to workers.

#### *IFC Policy and/or EIA/ESMP Action Items*

M1.57 Mitigate the community exposure to risks from transportation of Project goods on public roads.

M1.58 Develop public awareness campaign on HS issues.

#### *Recommendations for Improvement:*

- a. CEIL should implement the Plan to Sensitize Community on HIV\_/AIDS, but including the sensitization of workers.

## **7.5 LABOR AND WORKING CONDITIONS**

#### *Project Strategy:*

Cairn has a human resources policy, which is in compliance with Indian law, core International Labor Organization conventions, and IFC PS2. Employment conditions are communicated to employees verbally during recruitment. Wages and other conditions are posted on site in local languages.

Construction work is awarded to several contractors who have an agreement with CEIL to recruit 70 to 80% of the local workforce for unskilled tasks if available, and to make best efforts to source skilled workers directly from Gujarat. Among local candidates, members of land-losers families are prioritized.

CEIL is developing a number of initiatives to ensure that its operations offer the maximum benefit to the local population in terms of contracts and employment. A Local Content Policy has been issued in August 2010. The policy mandates the engagement of minimum 60% locals (i.e. from local Districts), when available, with priority to land-losers and long term residents. CEIL has developed a format a monthly report to track local employment commitment and actual engagement and imposed a financial deterrent (5% of contract value withholding of bank guarantee or final payment) to ensure compliance with the original commitment and that reporting requirements are fulfilled. To guarantee that all upcoming contracts comply with the policy, the Project has introduced the local content policy to contractors at the pre-bid phase.

Wages for unskilled workers are calculated on the basis of national and State minimum wages, which are modified by central authorities periodically. Wages are given each month in the presence of a CEIL administrative personnel.

Workers who come to the Project sites from distant locations are accommodated either in labor camps or in rented houses in the villages around the Project areas. The contractors have also to comply with Cairn guidelines for workers' accommodation.

*Observations:*

At the time of the ECMG visit, around 1,600 workers in total were reportedly mobilized for the Project: around 500 by L&T, which is working on the pipeline; around 580 by various contractors, including PLL and IOTL, working at the Bhogat terminal; and around 550 by Leighton and DISC at marine terminal (on-shore and off-shore). According to Project's records, a total of 498 locals are employed by the Project.

In the village of Haripar, L&T has renovated a former boarding school to accommodate 55 skilled workers. In Bhogat, 219 workers live in PLL labor camp while the IOTL labor camp for 300 workers is under construction. At the marine facilities, Leighton and DISC labor camps accommodate around 240 workers.

Four labor camps are currently operational and were visited by the ECMG team. As mentioned in the previous ECMG report, Leighton and DISC camps are of high standard. The Haripar L&T camp is also adequate and contractors have established grievance procedures for workers. The ECMG team reviewed the grievance records and found them overall adequately documented. However, some improvement is required in the delay in addressing grievances and the recording of their closure.

In PLL labor camp's management, the health center ward toilet is now provided with a water sink, but the toilets system has still to be improved to control odors, and the gravel walk paths needs further improvement. ECMG commends the AIDS/HIV campaign carried out in the camp, with posters in the common spaces.

*IFC Policy and/or EIA/ESMP Action Items*

Nil

*Recommendations for Improvement:*

- a. PLL should further improve the outdoor walking paths and surrounding grounds in the labour camp; and
- b. Contractors should improve the delay in addressing workers' grievances and properly record their closure.





**ANNEX A**

**TRIP SUMMARY- 3<sup>RD</sup> MISSION BY D'APPOLONIA FOR THE  
SALAYA – BHOGAT CRUDE OIL PIPELINE EXTENSION PROJECT,  
MAY 2011**



For the third mission, two members for the environmental team and one for the social team visited the Salaya - Bhogat crude oil pipeline extension project and associated facilities. The Project is currently in the construction phase.

**Field:**

May 5 – Jamnagar. In the morning, the team traveled to Jamnagar and attended a kick-off meeting and CEIL presented the current status of the Salaya-Bhogat Project. In the afternoon, The EHS team visited the Salaya-Bhogat Pipeline. In particular, the team visited the Ghi River crossing, AGI 34, L&T Labor Camp at Haripar, the pipe and maintenance yard and one pipe yard near Khambaliya and the Khambaliya Base Camp. The social team held a meeting with the security team. In the afternoon, the social team visited the L&T labour camp in the village of Haripar and had a meeting with management in Khambaliya camp on land acquisition issues.

May 6 – Jamnagar. The EHS team continued the visit to the Salaya-Bhogat Pipeline. In particular, the team visited AGIs 35 and 36. In the afternoon, the team attended a kick-off meeting at Bhogat Terminal and visited the PLL and IOTL working sites. The social team met with land owners refusing to give access to their land in Kharkhada village, then assisted to a briefing at Bhogat terminal. In the afternoon, the social team visited the PL labour camp and met a RoU land owner who accepted to give the land. Later the social team met security local personnel in Bhogat.

May 7 – Jamnagar. The EHS team visited the Marine off-shore works. In particular the team visited: the Leighton working site, DISC camp, landfall point, onshore marine pipeline (Leighton), KPs 72-73 (L&T), PLL labor camp. An informal close-out meeting was held at the marine facility. In the morning, the social team assisted to a briefing meeting at the marine facility with Leighton management and met with Leighton Human Resources and Community Liaison officers. Later, the social team visited the fishermen settlement near the site (Bhogat-hamlet) and met a land owner on the RoU near the marine facility. An informal close-out meeting was held at the marine facility. Then the social team held a meeting with the CSR and land team in Bhogat.

May 8 – Jamnagar. The ECMG team held an informal close-out meeting with the Salaya-Bhogat team.

**Cairn Offices in Gurgaon:**

May 10 – Gurgaon. The EHS and Social team reviewed available documents collected in the field and prepared the close out meeting.

May 11 – Gurgaon. In the afternoon, a close out presentation was held by the ECMG at Cairn offices with the participation of Cairn management and high level staff.

May 12 – Gurgaon. The ECMG team departed from New Delhi.