

REPORT OF THE EXTERNAL COMPLIANCE MONITORING GROUP

DATE: March 28, 2001

TO: Ron Anderson, Acting Manager, CTESR

FROM: D'Appolonia S.p.A. ECMG team members:

Roberto Carpaneto - Project Manager, pipeline engineering, HSE specialist
Paolo Lombardo - Project Coordinator, environmental engineering specialist
Frédéric Giovannetti - Socio-economic specialist
Jean Le Bloas - Environmental specialist
William Johnson - Earth science specialist

SUBJECT: INITIAL VISIT OF THE D'APPOLONIA ECMG TEAM TO CHAD AND CAMEROON, FEBRUARY 23 THROUGH MARCH 3, 2001

SCOPE

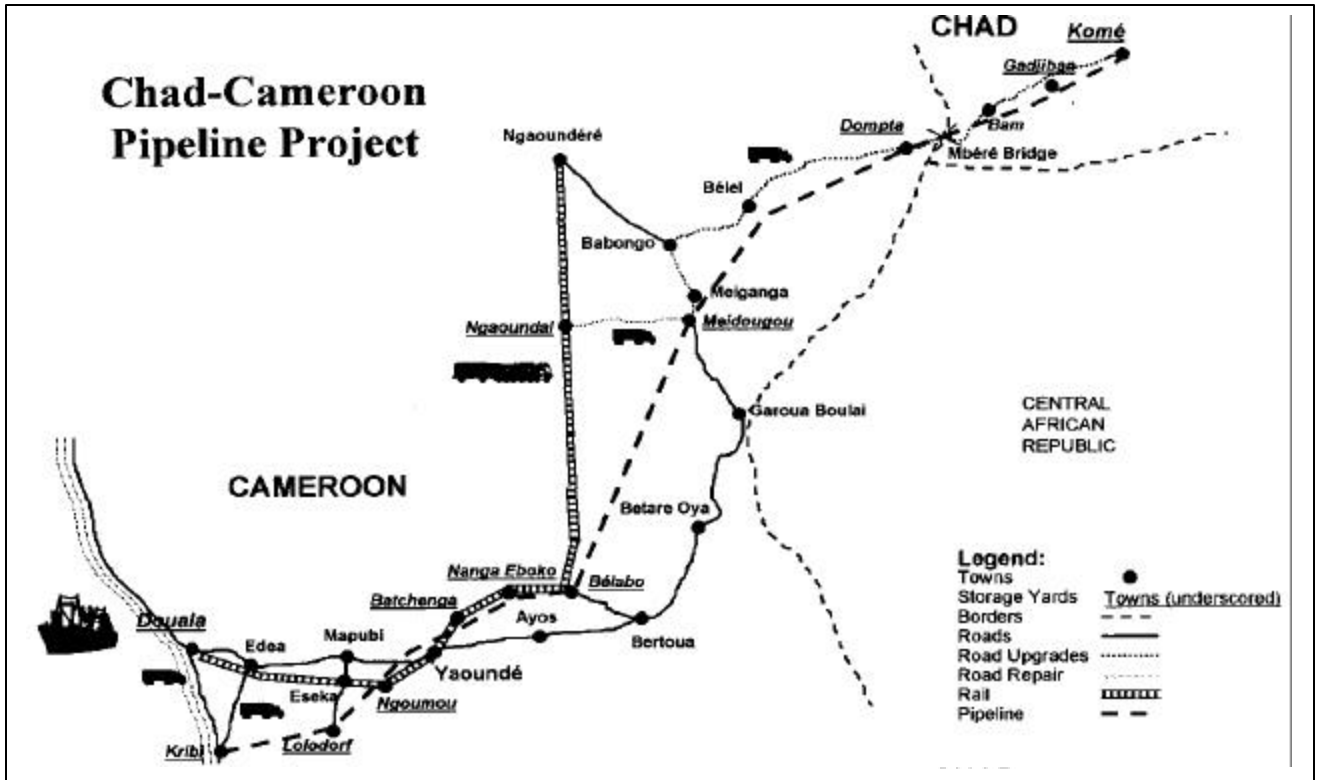
1. Under contract by the International Finance Corporation (IFC), D'Appolonia S.p.A. (D'Appolonia) of Genoa, Italy, as the Environmental Management Plan (EMP) External Compliance Monitoring Consultant for the Chad/Cameroon Oil Development and Transportation Project (referred to as the External Compliance Monitoring Group – ECMG), is responsible for providing an independent assessment of the compliance of the development Consortium [Esso Exploration and Production Chad Inc., Petronas Carigali (Chad EP) Inc., and Chevron Petroleum Chad Company Ltd.], the Tchad Oil Transportation Company S.A. (TOTCO) and the Cameroon Oil Transportation Company S.A. (COTCO) with obligations under the EMP and the relevant Environmental Commitments in the Finance Documents and the World Bank Project documents.
2. D'Appolonia is also responsible for monitoring performance on two World Bank Technical Assistance/Capacity Building (WBTA) projects. This monitoring is being conducted under a parallel contract between the World Bank and D'Appolonia. Under this contract D'Appolonia will monitor:
 - Chad: Petroleum Sector Management Capacity-Building Project;
 - Cameroon: Petroleum Environment Capacity Enhancement Project (CAPECE project).
3. While there are two separate contracts, D'Appolonia will prepare one report.
4. The Lender Group and the World Bank will use the information provided by D'Appolonia, as well as other available relevant information, to determine, subject to

provision of the Finance Documents and the World Bank Project Documents, whether it finds the Consortium, TOTCO and COTCO are in compliance with the EMP and the relevant the Environmental Commitments. The World Bank, subject to provisions of the World Bank Project Documents, will similarly determine if the capacity building programs are being implemented in a timely manner and, in particular, if the specific EMP obligations of the respective Governments are being met. D'Appolonia's engagement as the ECMG does not affect the continuation of the current practices of the World Bank Group and the Lender Group for consultation with NGOs, both local and international, universities, governmental agencies and other resources.

5. The Chad/Cameroon Oil Development and Transportation Project (referred to as the Chad Export Project) is currently starting initial infrastructure development prior to the placement of pipeline. Both of the capacity-building projects are in their initial stages of organization. Because of this limited activity, the primary scope of this initial visit has been for the D'Appolonia team to become acquainted with site conditions and project activities such that future visits can focus on specific critical issues. Activities conducted during this initial trip have included:
 - Fly over the pipeline right-of-way (ROW);
 - Visit Project and Oilfield Development work sites and associated infrastructure upgrades in Chad and Cameroon;
 - Visit representative ecological areas and representative impacted communities;
 - Meet with representative NGOs (represented by GCA in Yaoundé);
 - Meet with representatives of the Chad and Cameroon governments who will assume responsibility for the capacity-building projects;
 - Meet with parties responsible for EMP compliance monitoring and review relevant monitoring records;
 - Conclude a closeout meeting with representatives of the development Consortium, TOTCO, COTCO and Lender Group and World Bank focusing on key findings, correction of any factual inaccuracies and discussing possible corrective actions.
6. The closeout meeting was conducted on March 3 and the information presented in that meeting has formed the basis for this report as related to the Chad Export Project. The information and opinions presented in this report are those of D'Appolonia and are independent of those of the development Consortium, the Lender Group and the World Bank Group.

DAILY ACTIVITY SUMMARY

7. Between February 23 and March 3, 2001, the D'Appolonia ECMG team conducted an initial site visit and audit of the Chad Export Project in Chad and Cameroon and the assessment of capacity building programs in Chad and Cameroon. Specific activities were (see location map):
 - February 23 — safety briefing, review of logistics, and project overview with Esso Exploration and Production Chad, Inc. (EEPCI) in N'Djaména, Chad; visit representatives of the Chadian government in the World Bank office in N'Djaména to review capacity building (status of the WBTA project);



- February 24 — fly to Bessao and then drive to Bam Camp to meet David Terrassement (DT) personnel (EPC contractor, Chad infrastructure) and observe activities around Bam; travel to the Komé Base Camp with several local sites visited separately by different group members (Kagopal Camp, graves at Ouao, road bypass at Mokassa, Komé oil field, construction areas and resettlement sites); spend night at Komé Base Camp.
- February 25 — fly to M'Baibokoum and then drive to Mbéré at the Chad/Cameroon border to visit the Mbéré Camp and future pipe storage yard; review activities at Mbéré River (new bridge); review local road construction activities; visit to village of Bingo to review compensation and road bypass; fly to N'Djaména and spend night in N'Djaména.
- February 26 — fly to N'Gaoundéré, Cameroon and visit a meat packing business financed with project support and the proposed storage yard location at the CAMRAIL rail head station in N'Gaoundéré. View the pipeline route and road upgrading activities in northern Cameroon from the air between Bélel Camp and Dompla Camp near the border with Chad; land in the Bélel Camp and receive an orientation of road upgrading activities in Cameroon from COTCO and Sogea-Satom (EPC contractor) representatives.
- February 27 — break into two groups, the first to tour Bélel Camp in Cameroon and drive to observe borrow pits and the infrastructure upgrade activities (road) being carried out by Sogea-Satom; the second group to conduct a socioeconomic field visit to Mbangrey and Doforo 2 villages; the groups reunite and fly the pipeline route to Kribi and finally arrive in Douala, Cameroon.
- February 28 — break into three groups, one traveling to Kribi to tour the active storage yard and the proposed pipeline landfall area; another to meet with TROPENBOS at Kribi and review status of activities related to the Campo Ma'an

- Unité Technique Operationelle (UTO) and the National Park (one of the two “Offsite Environmental Enhancement Program” sites); and the other to travel to areas where compensation to the Bakola Pygmies is being undertaken and review compensation practices; all groups reunite in Douala;
- March 1 — meet with COTCO EMP representatives at the COTCO offices in Douala to review status of the project, including compensation and security risk assessment processes; tour docks where pipe is being offloaded, and visit the active P2 storage yard; in afternoon meet with Willbros-Spie Capag (pipeline construction), SDV-Doba Logistics (project logistics) and Sogea-Satom (Cameroon infrastructure) EPC contractors.
 - March 2 — travel to Yaoundé, Cameroon and break into two groups, one meeting with Cameroonian government officials on capacity building issues (CAPECE WBTA project) and also with GCA, the organization of local NGOs with concerns about project implementation, and the other traveling north of Yaoundé to review the compensation process near Batchenga.
 - March 3 — wrap-up meeting with TOTCO/COTCO/EEPCI EMP and management personnel and World Bank Group representatives, in Douala.

FOOTPRINTS

8. Field activities with potential direct environmental impact at the time of this visit were confined primarily to infrastructure development prior to the placement of pipeline. The following footprints were identified and visited during the mission:

Chad

- Temporary tent camps at Bam and Kagopal have been established;
- A permanent camp is under construction at Bam. The camp is at a central location for road construction in Chad that has not yet started. The Bam camp will include housing accommodations and catering facilities for DT personnel, as well as workshop, fuel storage, three water wells, water and wastewater treatments, domestic waste incinerator and waste handling system. Topsoil is properly being maintained in perimetral berms for subsequent reuse. Minor amount of oily waste is properly collected and temporarily stored for subsequent disposal at the Komé waste management facility. The wastewater treatment is in place, but still to be connected. Wastewater is currently collected in storage tanks and trucked for off-site disposal in an approved facility;
- Operations are ongoing at the existing Komé Base Camp and it is being enlarged to house the Kellogg Buoygues Cegelec (KBC) – Sub-Sahara Services contractor. An upgraded existing airstrip services the Komé base. A spontaneous settlement (Quartier Satan) has developed near Komé base camp, housing personnel related to or working for sub-contractors. The camp provides potable treated water to the community;
- Site preparation activities have started at the location of the Komé Operations Center with associated gathering station, Central Treating Facility (CTF), power plant, Community, Operation Support Activities and airfield of 3,200-meter length, yet to be constructed. Clearing and grubbing activities are underway at the Operation Center site. Timber from clearing and in excess of construction and reclamation requirements is cut up into manageable pieces and placed at the edge of the work site

- so that it is safely accessible to local inhabitants for their use. Five groundwater monitoring wells have been installed at the selected location of the Komé Waste Management Facility, which has not yet been constructed;
- Mbéré River bridge and truck park construction activities have been initiated with earthmoving. The truck park area on the Chad side of the bridge site, aimed at facilitating the transit of equipment and materials at the border, has been cleared. The Mbéré River bridge site is located approximately 5 km southeast of Mbai Mboum at the Chad-Cameroon border. The bridge is currently designed to have a total length of 108 meters, with three piers and abutments founded on the gneiss bedrock, and an access embankment. The design of the Mbéré bridge is reportedly based on a 25-year return period flood level, with the addition of a further 1.5 meter buffer/gap between the bridge deck and the design flood level. The bridge superstructure will consist of a prefabricated reinforced concrete slab 10 meter wide and will be fabricated outside of the riverbed, on the upper terrace of the Mbéré alluvial system on a special designed work platform (launching area), minimizing the construction works to be conducted on the lower terraces of the Mbéré river itself. The bridge deck will then be pushed onto the piers. The launching area is under construction on the Chad side abutment. Construction of the bridge over the Mbéré River is scheduled so as to take maximum advantage of the dry season window. However, work at the bridge site has exceeded the scope approved by TOTCO, causing a Level 2 non-compliance situation¹, and has therefore been stopped by TOTCO until the Baseline Assessment is completed by DT and approved by TOTCO EMP group. It was reported that DT will submit the design of erosion and sedimentation control systems to be constructed at the Mbéré River site by the end of March 2001;
 - At the time of the visit, three alternatives for the temporary water crossing of the Mbéré minor riverbed were still under evaluation. The temporary water crossing is needed to start construction of the bridge abutment on the Cameroonian side of the Mbéré River.
 - Mbéré temporary camp, established in 1998, is in operation and construction of a new permanent camp has started. The permanent camp design is similar to the one at Bam. Two cement plants and a temporary incinerator are installed, as well as the wastewater treatment plant. The camp will have both fuel and hazardous waste storage areas.
 - Road upgrade activities are in progress between the Mbéré temporary camp and the village of Ouli Bangala. This section of road upgrade is about 30 meters wide, with this width taken up by the new roadway (approximately 15 meters wide) and two lateral strips, one of which is used as a service road during construction, as well as vegetation clearing on each side of the road to improve visibility and provide safe driving conditions. Topsoil has been stripped and stockpiled along the road upgrade for subsequent use as a suitable growth medium for revegetation of disturbed areas. Approximately 700,000 cubic meters of laterite are reportedly needed to upgrade approximately 170 km of roads between the Mbéré River crossing and Komé.

¹ For definitions of non-compliance levels, refer to the Chad-Cameroon Development Project Quarterly Report No. 1

Cameroon

- A temporary storage yard (for project logistic support, not pipe storage) is being planned at the railhead in N'Gaoundéré. The site is located near the Cameroon northern railhead and workshop facilities managed by Camrail. The area is a morphological depression near the rail tracks and it is neither cultivated nor inhabited;
- The P2 storage yard located in Douala is in operation with about 25% of the pipe having been delivered at the time of the visit. This existing permanent yard, managed by Doba Logistics, is being used solely for the storage of the pipe joints. The site is equipped with lighting and it is manned 24 hours per day;
- The temporary Kribi pipeline storage yard with portions still under construction is currently accepting pipe trucked from Douala, with the access road connecting the yard to an the existing road. This facility is paved with laterite and fencing foundations were under construction at the time of the visit;
- The Belabo pipeline storage yard, connected with the main railroad by a rail siding, is ready for operation, and the upgrade/rehabilitation of the existing airfield was being completed at the time of the visit.
- Lolodorf, N'Gaoundal and Ngoumou storage yards are under construction;
- Bélel Camp is operational with an associated airstrip. Bélel is located halfway between the Chad/Cameroon border (Mbéré River crossing) and Babongo. The camp was built about three years ago by Sogea/Satom, before activity was temporarily suspended (1998). The camp is a well designed and managed facility, with state-of-the-art wastewater treatment, waste oil and hazardous waste storage areas, potable water treatment, domestic waste incinerator, simple laboratory for water testing, medical clinic. The camp provides potable treated water to the local community;
- Dompla Camp (Northern Cameroon) is in operation with an associated airstrip. Some spontaneous settlements have developed near the camp, where about 80 households have recently settled;
- Road upgrade operations with associated stream crossings and borrow pits are taking place near Bélel. The EPC contractor (Sogea/Satom) is upgrading approximately 300 km of laterite roads and 135 km of paved roads between Ngaoundal and Meidoungou to be repaired. Construction works started in January 2001. The team visited the upgrade operations in Sector 4, near Bélel, including a stream crossing, a borrow pit under rehabilitation, two borrow pits (No. 2A4 and 2A8) in operation, and several kilometers of roads under construction and/or recently upgraded. Approximately 500,000 cubic meters of laterite gravel are reportedly needed to upgrade the Cameroonian project roads.

MAJOR OBSERVATION

9. The ECMG team did not identify any critical non-compliance situations such that damage was observed to a specifically protected sensitive resource or there was a reasonable expectation of impending damage. Only Level 1 and 2 non-compliance situations have been identified by the Project EMP monitors and all of them were or are being addressed by the Project and/or EPC Contractors. The comments in this mission report relate to possible improvements to the EMP and design process that are intended to avoid potential critical situations in the future. The ECMG intends to follow up on the issues

identified as potentially critical for the next Project development phases and listed in the table presented at the end of this report.

EMP OBSERVATIONS

Socioeconomic Issues

10. Individual Compensation

Project Strategy: Detailed procedures have been developed in both Chad and Cameroon to identify stakeholders and provide them an appropriate compensation for their losses associated with the Project. The Project has also developed grievance management processes consistent with applicable legal procedures. Compensation is largely complete and most grievances have been resolved.

Observations: Procedures and documentation for compensation management appear to be well developed in Chad. Based on our field observations including on-site interviews, the identification of stakeholders appears complete and well documented. Household economic sustainability is assessed, orthography and name problems are well-treated (double-counts avoided), mapping of affected plots is precise and a map is electronically attached to the affected household's file. In Cameroon, payment procedures were checked in Douala and the Sous-Prefecture of Obala. The security arrangements, staff dedicated to the payment exercise, on-spot handling of grievances, general atmosphere towards the affected persons, have been found to be appropriate and well managed.

Recommendations: None required

11. Community Compensation (Chad)/Regional Compensation (Cameroon)

Project Strategy: The development of a strategy is in progress. Rates are being prepared that take into account the total length of the pipeline in the District or village. The framework being considered at present by the Project is derived from the individual in-kind compensation approach: villages would be provided with a catalogue of community items among which they would be invited to choose what suits them best within their entitlement. Examples of items are schools, wells with hand pumps, football pitches, health centers, among others. This compensation is not a requirement under the regulations of either country, and therefore does not need to be served prior to the clearance of land rights.

Observations: This concept is oriented to the provision of equipment and must be integrated into a more holistic development approach of the village priorities. Also, some conditions required for the long-term sustainability of the equipment are beyond the control of the Project, like the staffing of schools or health centers, or the provision of hand pump spare parts.

Recommendations:

- 11.1 Revise the concept and use a consultant/organization with experience in rural development for this purpose;
- 11.2 Include productive equipment/services in the “list” proposed for consultation and adapt the list to regional conditions accordingly. Examples include communal irrigated gardens, communal collective granaries, communal granaries, provision of micro-credit, provision of agricultural inputs like fertilizers, seeds, plants;
- 11.3 Consult with Governments, aid agencies, volunteer organizations, NGOs;
- 11.4 Incorporate the equipment/services provided into a development, training and follow-up program;
- 11.5 Remove potentially non-sustainable equipment from the list;
- 11.6 Resume consultations with the population on this wider, more flexible basis.

12. *Resettlement Habitat*

Project Strategy: Following consultations with resettlers, host villages and local NGOs, the Project strategy in Chad has been to avoid creating disparities between resettlers and host villagers. As a result, the standard of resettlers’ houses has been deliberately kept similar to that of the neighboring existing houses, except for the significant improvement of providing a corrugated iron roof. The construction has been managed by an NGO, ACODE.

Observations: A site visit was conducted in Dildo, one of two villages where resettlement has taken place. Three houses were visited (26 households have been resettled in two villages to date). Two out of the three houses visited exhibit cracks and resident resettlers are complaining.

Recommendations:

- 12.1 Repair existing cracks and check the structural integrity of the houses built to date;
- 12.2 Keep following the Project’s current general strategy for Phase II resettlement houses;
- 12.3 Provide technical assistance to the Chadian NGO through the involvement of an organization with experience in adobe construction for the design and technical implementation of new structures;
- 12.4 Use the opportunity of the future Phase II operation to train local masons in improved simple construction techniques like “geobeton” or “adobeton” (adobe stabilized with a small proportion of cement) and compressed bricks.²

² Information on these techniques can be found at www.refer.fr/faso_ct/technolo/adobeton (website of the Burkina Faso National Research Center, in French) or www.gtz.de/basin (website of the German Technical Cooperation Agency, in German or English). Expertise is available, among others, at Ecole Inter-Etats des Ingénieurs de l’Equipement Rural (EIER) in Ouagadougou, Burkina Faso, a multinational technical school of which Chad is a member.

13. ***Road Bypasses***

Project Strategy: Villages that are crossed by an upgraded Project road are given the option of a bypass, for safety and health reasons. In spite of extensive consultation and education efforts, many communities in both countries have expressed their preference to keep the roads where they are without bypass construction. Consultations are continuing with affected villages with compromises sought where some straightening of the road is required for technical reasons.

Observations: One site visit in Chad (village of Bingo) has shown that the issue had not been clearly understood by the villagers. Two other site visits, however, showed the opposite. In one of these latter cases, the village had accepted the bypass (Mbang Rey, Cameroon), in the other one, the villagers have not accepted the bypass option and negotiations are continuing (Mokassa, Chad).

Recommendations:

- 13.1 Pursue consultation and education efforts, and ensure that these socio-economic components are well synchronized with technical surveys and works;
- 13.2 Develop a mitigation package against dust and road hazards (i.e., paving of the village crossing, speed bumps);
- 13.3 Create dedicated areas for temporary vehicle parking in villages (whether crossed or bypassed) to reduce hazards related to parked vehicles and provide better business opportunities to small local retailers.

14. ***Bakola Pygmies***

Project Strategy: An Indigenous Peoples Plan (IPP) has been prepared as part of the EMP to target this vulnerable group. The IPP is to be implemented under the banner of the Environmental Foundation, presently being established.

Observations: Due to various legal and financial requirements, the Foundation will not be in a position to award contracts and consequently the Community Development Facilitator (CDF) will not be operational before end of 2001. Also, our interviews with Pygmies show that land management is an issue to them and to the neighboring Bantu communities as well. To comply with an IPP main objective of developing agriculture, land management needs to be addressed with the participation of Bantu and Bakola communities and the local administration. The experience of specialized institutions like CIRAD, GEPFE, or GRET, may help in this respect.

Recommendations:

- 14.1 Expedite the process leading to the Foundation being operational;
- 14.2 In the meantime, initiate a study of the detailed implementation plan for the IPP;
- 14.3 Incorporate efforts on participative land management (“gestion des terroirs”) and participative mapping into the objectives and the implementation plan for the IPP, and into the scope of work of the CDF.

15. *Social Closure*

Project Strategy: No social closure mechanism is currently in place.

Observations: One village meeting in Bukondo (Cameroon, between Kribi and Lolodorf) has shown that there are misunderstandings with the compensation process. The villagers have claims related to issues that are to be processed at a later stage including in-kind compensation. They also claim not to be aware of the status of pending disputes.

Recommendations:

- 15.1 Develop a procedure to “close the book” on social issues when the Project has fulfilled its commitments to the communities in terms of individual compensation, resettlement and community/regional compensation. The procedure could include the public review of a checklist for affected individuals and the community, together with the relevant documentation. Any pending issues could be identified and the Project could commit to milestones for their resolution. Local/national NGOs and the administration could witness this process. The process should be applied to a few villages before the procedures are finalized.

16. *Spontaneous Settlements*

Project Strategy: Some spontaneous settlements have developed near base camps, but it is still a limited phenomenon. The largest are in Quartier Satan located across the road from Komé base and in Dompla (Northern Cameroon), where about 80 households have recently settled. The Project has initiated social and economic monitoring, and information on job opportunities and the hiring policy has been disclosed to residents of these settlements. In some cases, the camp water systems have been expanded to serve the neighboring settlements (Bélel, Komé).

Observations: The service of water will not be sustainable when the base camps either are closed down (Bélel) or move to their final location (Komé).

Recommendations:

- 16.1 Work with residents to create a water committee, responsible for water source hygiene and revenue collection (water could be sold either by the bucket or at a monthly flat rate per household);
- 16.2 Expand the water committee’s responsibilities to land management, sanitation, and interaction with authorities, with base camps and with new settlers.

17. *Socio-economic monitoring*

Project Strategy: A sample of approximately 3,000 households has been surveyed to form a baseline for future socio-economic monitoring of such factors as income, schooling, health, etc.

Observations: All these households are affected by the Project, and therefore are in the process of being compensated.

Recommendations:

- 17.1 Expand the sample to take into account non-affected/non-compensated households (representative “blank” sample to be used as a term of comparison).

18. *Registration of Land Rights (Cameroon)*

Project Strategy: Most of the land along the pipeline easement is presently part of the National Domain and is used under conventional laws. This land is to become Private Property of the State after compensation is paid to the present users. The EMP states that once construction is completed, this land will be made available to present users. The land registration and incorporation process includes the creation of land titles in the name of the State of Cameroon with an encumbrance in favor of COTCO.

Observations: In spite of the intent of the EMP, future access of the present users may not be legally secure. When land is part of the National Domain, customary use is recognized, but when it is Private Property of the State, customary use rights might not be recognized unless they are duly registered.

Recommendations:

- 18.1 Take legal advise on this matter;
- 18.2 If above-mentioned legal advise indicates that customary users may be at risk of being deprived of their use rights in the future, a possible solution could be to register these rights as an encumbrance in their favor on the land titles to be issued in the name of the State.

19. *Project Organization for Compensation and Resettlement*

Project Strategy: The Project staff in charge of social aspects includes sociologists/anthropologists and engineers.

Observations: At present, the Project team does not have an experienced rural development specialist.

Recommendations:

- 19.1 Recruit one rural development specialist with the following profile: socio-economist, agriculture engineer or water development specialist, with 10 years of experience in one or more of the following fields in Africa: agriculture, water supply, micro-financing, resettlement, community work, training.

20. *Archaeology and Cultural Properties*

Project Strategy: The Project is beginning to focus worker awareness on cultural property issues and archaeologists have conducted surveys in advance of current activities. A guideline entitled *Handbook on Archaeological Sites in the Chad Development Project Area* has been developed for use by the Project’s environmental monitoring staff.

Observations: Archaeological findings formed the basis for relocating a borrow pit in Cameroon, but a reported Level 2 non-compliance situation occurred during the fourth quarter of 2000 when earthmoving activities damaged two medium-priority archaeological sites at the Lolodorf Storage Yard in Cameroon. In Cameroon, a few graves will be relocated consistent with Cameroonian law.

A visit was made to a gravesite in the village of Ouao in Chad where an NGO Internet report indicated that Project road construction had defiled graves. The gravesite was observed in the field and found not to be impacted and roadwork not yet started. Apparently, there was some confusion as surveyors staked out an initial right-of-way next to a prominent grave and local villagers were concerned that the gravesite would be affected. Project design documents were changed as a result of scheduled cultural property truthing of the initial right-of-way, to reflect a change to the routing of the road to avoid the gravesite, but the original stakes were left in the ground.

Recommendations:

20.1 Project staff involved with surveying activities needs support, through the socio-economic staff, to improve communications with villagers so that similar future misunderstandings do not occur.

21. **Safety during the Construction Phase:**

Project Strategy: The Project is placing a considerable emphasis on the issue of safety, not just from the standpoint of worker safety, but also safety to the surrounding community, especially with respect to the control of truck traffic. Traffic control devices, such as signs, barricades, etc., are being implemented during construction. Project driver training has been a priority and the Project is attempting to enforce that their contractors employ a similar degree of training and control for their activities. Incident reporting for safety has been initiated following US-based OSHA procedures.

Observations: Although much effort has been placed on enforcing safety measures during the construction phase, more effort is needed, also taking into consideration the expected workers' stress due to the pace necessary to meet the tight construction schedules.

Traffic safety in the construction areas appears to be an integral and high priority element of the Project. Our experience with COTCO/TOTCO drivers was positive, but we observed some safety violations from contractor drivers. Project-related traffic levels are envisaged to be significant, reportedly peaking at approximately 35 truck movements per day (each way) between Ngaoundal and Komé. Approximately 15 truck movements per day are reportedly expected between Kribi and Douala and between Lolodorf and Douala. Truck loads of freight are expected to reach 13,000, whereas 17,000 railcars will be moved. These figures do not include contractors' movements for infrastructure upgrade and other vehicles directly or indirectly involved with the Project construction.

In addition a significant amount of fuel is needed during this phase at the construction locations. EPC Contractors have developed Spill Response Plans and spill response equipment is available at the construction sites. However, fuel management and

transportation for the Project construction phase are not fully addressed in these Spill Response Plans and a specific Fuel Plan has not been prepared.

During the visit to the road upgrade near Bélel in Cameroon, local villagers, who were contracted to collect and break rocks for construction uses, were observed to work without proper personnel protective equipment (PPE).

Pipe storage areas at Kribi and Douala, which were already in operation, were not properly fenced to prevent third party interaction.

Recommendations:

- 21.1 Road safety needs to be improved during the construction phase, especially to reduce hazards for local users, pedestrians and villagers;
- 21.2 The safety of hydrocarbon handling and transportation needs to be developed and put in place as a Fuel Plan, different from Spill Response Plans developed by the Project and by the EPC Contractors;
- 21.3 Storage facilities, including P2, need to be fenced to avoid third party interaction;
- 21.4 Continue to use local village subcontractors, but provide PPE and minimum training for them;
- 21.5 Monitor contractors' work schedules to avoid over-stressed workers that could lead to significant accident rates - verify that contractor's rotation plans are acceptable.

22. **Road and Traffic Safety:**

Project Strategy: Roads are designed for maximum vehicle speeds of 60 km per hour under normal loads as defined by national standards. Some villages will be by-passed. Safety analyses for each village crossing are being developed by the Project, to define safety measures to be implemented, including roadway signs, speed limitation devices, pedestrian zones, etc.

Observations: Refer to Paragraph 13 for a discussion on road bypasses. During the visit, it was apparent that the average vehicle speed of non Project-related traffic will significantly increase along the upgraded road sections. We note that there is little difference between new road construction and a road upgrade. In either case, the final roads will represent the potential for a number and speed of vehicles that many local villagers will not be familiar with. Although we understand that the Project is developing mitigation plans, we were not able to review road design details at the time of our visit. This is a concern, particularly at village crossings, but also between villages, where the road is commonly used by pedestrians who are not accustomed to coping with an increased and high-speed traffic flow.

Recommendations: (NOTE: the first two bullets are also presented in Paragraph 13, and they are repeated for completeness)

- 22.1 Develop a mitigation package against dust and road hazards (i.e., paving of the village crossing, speed bumps);
- 22.2 Create dedicated areas for temporary vehicle parking in villages (whether crossed or bypassed) to reduce hazards related to parked vehicles and provide better business opportunities to small local retailers;

- 22.3 Review the design criteria of the roads in order that they reflect their final usage (country road standards and classification);
- 22.4 Strengthen the public information campaign on traffic safety and develop a strategy with both Governments, with the goal of traffic safety training and increasing the monitoring and enforcement capacity of the Police bodies in charge of traffic speed control.

23. **Waste Management:**

Project Strategy: Waste management as defined in the EMP includes education and training, recycling, transport, treatment, disposal, and media monitoring of solid and hazardous waste (hazardous waste landfill, solid waste landfill, hazardous waste incinerator); groundwater monitoring; sewage collection, treatment and effluent monitoring.

Observations: At the time of the initial EMPG visit, the permanent landfill/incinerator facilities had not been developed. Waste management practices at the camps and storage areas were found to be consistent with reasonable practice taking into account the status of the facility, either temporary or permanent. The systems in place included the incineration of non-hazardous combustible waste through temporary incinerators located at the main camps, recycling when practical (e.g., some recyclable wastes are currently made available to the local community of Bélel by Sogea/Satom), segregation and stockpiling of hazardous and oily waste, bioremediation of small amounts of soil contaminated with petroleum hydrocarbons, and wastewater treatment. Groundwater monitoring wells have been installed at the landfill site selected at the Komé field. Chemical testing equipment has either been installed or is about to be installed at the campsites.

Recommendations: None; the status of the waste management program is consistent with project requirements for the current field activities. However, it is recommended that the environmental staff of EEPCI/TOCTO/COTCO and EPC Contractors in Chad and Cameroon will share their experiences in the field of waste management, taking advantage by the one-year experience of Sogea/Satom in the field.

24. **Water:**

Project Strategy: The EMP contains requirements for the installation of monitoring wells around the waste management facilities, as well as the monitoring of community water wells to be assured that Project water supply wells do not adversely affect local water quantity or quality. Limits to surface water usage are also defined in the EMP documents.

Observations: Water supply and monitoring wells have already been installed and a monitoring program has been initiated or is about to be initiated. Where observed near the Bélel Camp in Cameroon, the extraction of surface water for use as dust control did not exceed 10% of the stream flow. Some of the Project water supply system has been made available for local community usage (see also Paragraph 16). It will be necessary

to review monitoring data yet to be gathered before any conclusions can be reached as to EMP compliance.

Recommendations: None in addition to the relevant recommendations of Paragraph 16. The status of the water management and monitoring program is consistent with project requirements for the current field activities. It is anticipated that a monitoring program will be fully developed by the time of the next ECMG visit.

25. **Worker and Community Health:**

The subject of worker and community health was not reviewed in detail during the initial site visit. The subject will be assessed during upcoming visits attended by the ECMG public health specialist, Dr. Jorge Ossanai.

26. **Infrastructure:**

Project Strategy: The Project needs to complete significant infrastructure development before the construction of the Operation Center in Komé field and of the pipeline can begin. Work includes the construction of temporary and subsequently permanent work camps, road upgrades, airfield construction and upgrades, the Mbéré River bridge and other stream crossing structures, and pipeline storage yards. In Chad DT is the main infrastructure EPC contractor and in Cameroon the EPC Contractor is Sogea-Satom. EMP procedures require that each contractor submit their own EMP plans specific to their infrastructure development activities. These plans have been approved and EMP monitoring of the ongoing activities has started.

Observations: The Project EMP does not fully address the level of effort and environmental impact associated with the development of infrastructure. As an example, the Project Description portion of the EMP, indicates “*Topsoil stripping and construction of new borrow pits will be limited through the reuse of laterite from old exploration infrastructure such as well pads and airstrips*”. The scope of borrow pit development substantially exceeds this concept. Borrow pits have potentially significant environmental impact, such as dust generation, traffic impacts, noise, soil erosion, water accumulation and landscape impacts. Our concern is that some construction decisions, such as the development of a new borrow pit or the selection of a design scheme for the temporary Mbéré River crossing, might be made without the same level of necessary consideration of EMP issues, which is implemented for the decisions relevant to the oil field facilities and pipeline construction.

Significant dust was observed at some of the road upgrade sites and borrow pits, during operations. Although it is important to note that construction operations are intermittent and short-term in nature and that they move quickly along the spreads, dust emissions are a concern from an environmental and human health point of view, temporarily impacting the local air quality.

Also, we were not able to ascertain if the basic design of certain infrastructure components such as the road construction or the permanent Mbéré River bridge fully accounts for potential adverse environmental impact. In the case of the roads, we note

that there is little difference between new road construction and a road upgrade. In either case, as mentioned in Paragraph 22, the final roads will represent the potential for a number and speed of vehicles that many local villagers will not be familiar with. Although we understand that the Project is developing mitigation plans, we were not able to review road design details at the time of our visit. Similarly, we were not provided documentation that would demonstrate that the constriction of the Mbéré River high water floodplain by bridge construction would not have an adverse environmental impact in terms of changes of local sedimentation and erosion patterns, as well as impairment of river water quality due to increased turbidity during high water seasons. During the visit we were informed that the EPC Contractor was finalizing a specific environmental baseline study and an erosion and sedimentation mitigation plan, which were under final review by the Project EMP staff.

Recommendations:

- 26.1 Review road design to minimize the volume of materials used for construction;
- 26.2 Review permanent Mbéré River bridge design from the standpoint of hydraulic performance; note that the Mbéré River bridge design should comply with World Bank Group policy on international waterways;
- 26.3 Review the potential disturbance to riverbed and low water flow patterns from the temporary Mbéré River bridge and timely select the preferred design option from the point of view of minimizing potential environmental impacts; implementing flow maintenance device during the construction period as appropriate;
- 26.4 Review the potential disturbance to riverbed and natural riverbanks from the permanent Mbéré River bridge and implement specific erosion and sediment controls consistent with EMP requirements and again considering that the Mbéré River is an international boundary and waterway. Design the permanent structures at the crossing in such a manner that pre-construction flow regimes are maintained;
- 26.5 Review the design criteria of the roads to verify consistency with their final usage (country road standards and classification);
- 26.6 Develop siting plans for Project borrow pits for both Chad and Cameroon that account for EMP issues (location of environmental and human receptors potentially impacted by quarrying operations and truck traffic, favorable land morphology to allow site closure and rehabilitation, minimization of soil erosion issues, etc.), as well as geotechnical considerations;
- 26.7 Improve Project dust control to the extent practical, especially at village crossings and work sites.

27. **EMP Organization:**

Project Strategy: Each EPC Contractor has the requirement for dedicating staff to verify implementation of their EMPs. These contractor staff members are, in turn, monitored by the EEPCI/TOTCO/COTCO EMP staffs who receive support from EMP staff from Exxon-Mobil in Houston, Texas. The field monitors are guided by an EMP Monitor's Handbook, Procedural Manual and Training Modules. A primary tool in the EMP process is a tracking and compilation database, which formed the basis for the presentation of reportable EMP situations in the first Quarterly Report presented to the ECMG team during the initial field visit.

Observations: The day-to-day monitoring effort has functioned sufficiently well to obtain the necessary information from which the environmental compliance of the Project can be tracked. Project activities to date have not produced any critical non-compliance situations. Nevertheless, we have observed some poorly located and operated borrow pits and other field activities that indicate the EMP monitoring staff should function beyond basic monitoring and have more involvement with planning activities.

The EMP organization in Cameroon is close to being fully staffed and functioning as anticipated in the EMP. The infrastructure EPC Contractor Sogea-Satom in Cameroon started to develop their EMP organization in 1998 and their procedures and organization reflect a long lead-time for preparation. The EMP organization in Chad is not working as effectively. The infrastructure EPC Contractor DT still has to complete the staffing of their EMP monitors and develop a functioning EMP organization. Other two EPC Contractors, Willbros-Spie Capag (pipeline construction), SDV-Doba Logistics (project logistics) and KBC/Sub-Saharan Services (field facilities), are in the process of developing their EMP staff and organization, as well as their EMP Plans, which were not yet approved for implementation by EEPCI/TOTCO/COTCO EMP organization at the time of the visit.

Recommendations:

- 27.1 The EMP monitors at all levels should be more proactive than reactive; most of the reportable EMP situations identified in the Quarterly Report could have been avoided if the EMP monitors had involvement with the Project development staff when activities were being planned;
- 27.2 Develop mechanisms to improve communications of the EMP staff with the surrounding community, to avoid situations such as the Ouao graves misunderstanding;
- 27.3 Develop mechanisms to improve communications among the EEPCI/TOTCO/COTCO and Chad/Cameroon Contractors EMP staff and to share experiences and resources;
- 27.4 Further develop the EMP monitoring staff in Chad;
- 27.5 Revise the contractors' EMP documents as the project evolves to reflect any changes to actual versus anticipated issues, for example develop a borrow pit siting plan;
- 27.6 Review procedures for approving engineering design to make sure EMP issues are accounted for.

CHAD CAPACITY-BUILDING PROJECT

28. *Government Requirements:* The World Bank project for capacity-building of the petroleum sector of the government of Chad has three specific goals:
- *Manage the development of its petroleum resources in an environmentally and socially sound manner, beginning with the Doba Petroleum Project in southern Chad;*
 - *Minimize and mitigate the potential negative environmental and social impacts of the Doba Petroleum Project on the producing region, strengthen local capacity in the region, and provide opportunities for the region's residents to improve their living conditions; and*
 - *Establish an effective framework for further sound private sector investment in the petroleum sector, and engage effectively with such investors.*

To achieve these goals the Government of Chad has an important role to play, primarily in helping to mitigate induced impacts in the producing region and in supervising the private sector operators. In the short term, anticipated efforts include the mitigation of the impact of in-migration at the petroleum Project work sites in the form of social investments in health facilities, water supply, management of woodfuel resources, and STDs/AIDS prevention.

29. *Observations:* The Government has established an inter-ministerial committee (Comité Technique National de Suivi et de Contrôle --CTNSC), which is responsible for the monitoring and control of the environmental and social impacts of the Project. CTNSC has established an Executive Secretariat, recruited an Executive Secretary, and has staffed some key positions. The status of the Chad Capacity-Building Project was reviewed in an initial meeting of the ECMG team with the Chadian National Coordinator Mr. Nassour G. Ouaidou and his team on February 23.

The Government of Chad has started to take some actions:

- Several key officials have been assigned;
- The Supervisor of Doba antenna sites has been appointed and is already based in the Komé Camp.

Nevertheless, the Chadian government has not begun to implement its responsibilities, as key project components of the necessary infrastructure are not in place:

- Concerning the main World Bank loan conditions, Chad has opened a special project account with an initial deposit of US\$ 30,000 out of US\$ 60,000. However, the remaining amount of US\$30,000 is expected to be deposited soon;
- Project Implementation Manual is being finalized, after discussions on legal aspects. It is expected that the Implementation Manual will be approved by March 15, 2001.

The following additional statements were made about the current situation of the Capacity Building Project:

- A World Bank officer who will provide long term support to project implementation arrived in N'Djaména;
- The Project "FACIL" component, based in Bebedja, is ongoing;
- The Regional Development Plan (RDP) is under preparation. RDP will be implemented in the Doba region within the Chad new decentralization policy.

However, the current situation prevents the Chadian government from being able to review EEPCI documents or Contractor's EMPs. No monitor is operational in the field and, even if monitors are made available, training requirements will prevent effective monitoring for at least several weeks. Important activities by the infrastructure EPC Contractor DT are ongoing and already involve about 500 workers. EMP plans and baselines are being submitted by Contractors and should be reviewed by CTNSC along with TOTCO. There is a strong need for environmental and social monitoring in the Doba basin by Chad, as well as a real capacity to address on-site emergency and safeguard issues. Government capacity required to fulfill its obligations has not yet been put in place. It was agreed among all parties that the IDA funded project would provide this "capacity-building".

30. *Recommendations:*

- 30.1 Expedite the finalizing of Implementation Manual through close collaboration between Chad officials and World Bank;
- 30.2 Effectively start the IDA funded "Petroleum Sector Management Capacity-Building Project" as soon as possible;
- 30.3 Appoint at least 3 field teams to be based in Komé (socioeconomic, biophysical, health) and make sure that payment of salaries and *per diem* for nationals is well budgeted;
- 30.4 Recruit international technical assistance for Doba antenna and for N'Djaména headquarters; initial tasks will be to update training manuals and develop measures for their implementation;
- 30.5 Organize training activities, as well as consultant services, accounting for the types of field activities being undertaken by the Contractors;
- 30.6 Start procurement of office activities, equipment and vehicles.
- 30.7 Clarify the contribution of Regional Development Plan (RDP) under preparation as it relates to the RDP presented in the Chad EMP (which has milestones and responsibilities).

CAMEROON CAPACITY-BUILDING PROJECT

31. *Government Requirements:* The World Bank Cameroon Petroleum Environment Capacity Enhancement Project (CAPECE) is to develop and establish a national capacity in Cameroon for the environmental management and monitoring of the Chad Export Project. CAPECE anticipates that the following will take place:

- *National environmental standards and norms in the petroleum sector are established,*
- *The Petroleum Development Pipeline Project meets environmental standards and norms,*

- *The Government of Cameroon develops its capacity to monitor and mitigate the environmental impacts of large infrastructure/energy projects, a condition for continued sound foreign investment in the country, and*
- *Information on the environmental and social safeguards implementation is disseminated to all relevant stakeholders.*

The Government of Cameroon established, by Decree 97-116 of July 7, 1997, the *Comité de Pilotage et de Suivi du Pipeline* (CPSP) under the trusteeship of SNH, the national oil company. The CPSP is an interministerial body mandated to oversee and monitor all environmental and social aspects of pipeline construction and operation. The CPSP has two arms: (a) the *Comité de Suivi* (CS) which is the steering, monitoring and administrative arm and (b) the *Secretariat Permanent* (SP), which is the operational arm of the CPSP.

In addition to monitoring the construction of the pipeline, with the associated requirements for protecting the public and the environment, the Cameroon government also has responsibility for developing a National Oil Spill Response Plan. It is also responsible for the implementation and monitoring of an Indigenous Peoples Plan (IPP) for the forest dwelling peoples living in the area crossed by the Atlantic Forest part of the pipeline route and the implementation and monitoring of two Offsite Environmental Enhancement Projects (OEEP) established to compensate for generalized biodiversity loss in the Atlantic Coastal Forest and the semi-deciduous forest zones, respectively in Campo-Ma'an and in Mbam & Djerem.

32. *Observations:* The ECMG team attended a meeting in Yaoundé at the SNH headquarters conference room on March 2, 2001 attended by Mr. Augustine Ndum, Permanent Secretary of CPSP and most of the CPSP senior staff. The CPSP technical staff, comprised of senior civil servants from the ministries concerned with the pipeline project, has been appointed and is available to work within the CAPECE project requirements. Field teams will be comprised of officers from regional administrations of areas crossed by the pipeline. They have been instructed to fulfill their mandate as per CAPECE Project documentation. However, it is recognized that this national CPSP capacity, particularly at the field level, is not operational without the support of CAPECE and that CAPECE is not yet operational. The World Bank task manager attended the meeting and indicated that efforts are being made to coordinate with SNH to work out the details of establishing CAPECE, including finalizing the Project Implementation Manual.

It appears that Government capacity required to fulfill its obligations has not yet been put in place. CPSP is not yet in a position to fully monitor current project activities (review of EMP and baseline documents; monitor field works of storage yards; road upgrading; actions within the Campo Ma'an National Park with the support of the Foundation). It was agreed among all parties that the IDA funded CAPECE project would provide this "capacity-building".

33. *Recommendations:*

- 33.1 Expedite the finalizing of the Project Implementation Manual, which is a condition of effectiveness of the IDA credit, through close collaboration between SNH and Government officials and the World Bank;
- 33.2 Initiate the CAPECE Project;
- 33.3 appointment and training of headquarters engineers and three field teams (as defined in the CAPECE document), such that officers and field monitors are operational before September 1st;
- 33.4 make procurement arrangements for consulting services and training;
- 33.5 Procurement of equipment and vehicles.

ENVIRONMENTAL FOUNDATION

34. *Responsibility:* This Foundation, formally designated the Foundation for Environment and Development in Cameroon (FEDEC), has the goal of providing long-term financial support the two new national parks and the IPP. The precise nature of activities is to be decided by its Management Board.
35. *Observations:* A provisional Management Board has been selected (five members including one member of MINEF, one from COTCO and three senior scientists) and has held an initial meeting. The foundation is expected to be formally registered/established in the Netherlands by end of March and in Cameroon (through CPSP) by April 15 and it is expected to have a financial closing in May 2001. Issues that will be faced by the Foundation were discussed with Campo Ma'an UTO Conservateur and the Tropenbos Principal Technical Assistant in a meeting in Kribi on February 28. The main concern expressed was that the Campo-Ma'an UTO has no real operational means to fight poaching and control logging.
36. *Recommendations:*
- 36.1 Improve the capacity of the Campo Ma'an UTO to manage poaching and logging – mainly a responsibility of the Cameroonian government, through MINEF. This includes for the Campo-Ma'an unit urgent support in terms of staffing of the guard bases with motorbikes, equipment, supplies and utilities, salaries and allowances;
 - 36.2 The EIA study for forest unit UFA 024 needs to be carefully reviewed by all concerned parties such that World Bank safeguard policies are met and stringent controls are established, as they relate to the protection of the Campo Ma'an National Park which is an important component of the Cameroon EMP.

Follow-up Issues

N°	Description	Status	Ref. Section
	EMP ISSUES		
1	Demonstrate improved system for community/regional compensation: revise the "catalogue" concept	New/Pending/Closed	11
2	Demonstrate that damaged houses occupied by resettlers have been repaired	New/Pending/Closed	12
3	Demonstrate development and implementation of mitigation and safety measures, particularly where roads pass through villages	New/Pending/Closed	13, 21, 22
4	Bakola Pygmies: include land management in the CDF's priorities	New/Pending/Closed	14
5	Social closure: develop and test mechanism	New/Pending/Closed	15
6	Demonstrate development of community infrastructure in spontaneous settlements (joint Project and government responsibility)	New/Pending/Closed	16
7	Expand the sample of households surveyed for socio-economic indicators to non-compensated households	New/Pending/Closed	17
8	Registration of land rights: resolve issue of villagers having access to the land they formerly occupied before construction	New/Pending/Closed	18
9	Demonstrate that road safety during construction phase is improved	New/Pending/Closed	13, 21
10	Develop and implement a Fuel Plan	New/Pending/Closed	21
11	Provide fencing at storage facilities	New/Pending/Closed	21
12	Provide documentation that minimal quantities of road construction materials are used	New/Pending/Closed	26
13	Provide documentation that Mbéré River crossing construction activities will not have an adverse environmental impact	New/Pending/Closed	26
14	Provide documentation that road design is appropriate for final usage	New/Pending/Closed	22, 26
15	Demonstrate development and implementation of borrow pit siting plan	New/Pending/Closed	26
16	Demonstrate improvements to dust control, especially when passing through villages	New/Pending/Closed	13, 22, 26
17	Demonstrate that local village labor has appropriate PPE	New/Pending/Closed	21
18	Demonstrate that EMP monitoring system is fully staffed and functional, especially with respect to Chad	New/Pending/Closed	27

N°	Description	Status	Ref. Section
	CAPACITY-BUILDING CHAD		
18	Complete initial project funding (Government of Chad funds)	New Pending /Closed	29, 30
19	Complete Implementation Manual	New Pending /Closed	29, 30
20	Appoint government field monitors	New Pending /Closed	29, 30
21	Train government field monitors	New Pending /Closed	29, 30
22	Start effective government field monitoring	New Pending /Closed	29, 30
	CAPACITY-BUILDING CAMEROON		
23	Start CAPECE project as defined in WB project appraisal document	New Pending /Closed	32, 33
24	Complete Implementation Manual	New Pending /Closed	32, 33
25	Appoint government field monitors	New Pending /Closed	32, 33
26	Train government field monitors	New Pending /Closed	32, 33
26	Start effective government field monitoring	New Pending /Closed	32, 33
	ENVIRONMENTAL FOUNDATION		
27	Have Foundation registered and operations started	New Pending /Closed	35, 36
28	Protect the National Park within Campo Ma'an UTO from poaching and illegal logging	New Pending /Closed	35, 36
29	Expedite implementation of IPP (Indigenous People Plan)	New Pending /Closed	35, 36
30	Review EIA study for forest unit UFA 024 such that WB safeguard policies are met and stringent controls established	New Pending /Closed	35, 36