Since its inception in 2000, the Chad/Cameroon Development Project has an unbroken record of publishing periodic reports on its operations in French and English.

By publishing these reports, Esso and its Consortium partners, Petronas and La Société des Hydrocarbures du Tchad (SHT), keep project stakeholders, including the citizens of the host countries, the governments of Chad and Cameroon, interested non-governmental organizations (NGOs), the World Bank and others, well-informed about the project. These reports are posted on the ExxonMobil website (www.exxonmobil.com), and printed reports are also distributed in Chad and Cameroon.

The following companies share responsibility for implementing the project:

• Oilfield development and production in Chad: Esso Exploration and Production Chad Inc. (EEPCI)
• Pipeline activities in Chad: Tchad Oil Transportation Company S. A. (TOTCO)
• Pipeline activities in Cameroon: Cameroon Oil Transportation Company S. A. (COTCO)

October 2000 is the start date of the project for data compilation purposes. Currency conversions are based on the rate of exchange at the time of the expenditure.
I am very pleased to report that 2016 was a year of significant achievements as COTCO and TOTCO continued their successful adaptation to operating in a multiple-shippers environment.

First, and most important, was our safety performance. With the pipeline companies’ over 1,200 employees and contractors recording hundreds of thousands of hours worked, sometimes involving highly demanding maintenance activities, the Export Transportation System (ETS) has not had a reportable injury in over two and a half years except for a guard receiving a minor bite. This performance is not due to luck; we’ve worked very hard to embed safety as the top priority of all aspects of our operations.

We believe every member of our workforce, now made up almost completely of Cameroonian and Chadian nationals, deserves to work in an environment where “Nobody Gets Hurt.”

Second, the ETS achieved an all-time best reliability record in 2016, with the pipeline experiencing only one unplanned shutdown, an incident that lasted just 45 minutes.

Third, our efforts to become even more cost efficient allowed both companies to reduce the transportation cost per barrel by 8% vs. 2015, even though the volumes transported were 8% lower in 2016.

Our ability to achieve these results was due to the strong commitment of the TOTCO and COTCO employees to three core values that guide all our operations – safety, reliability and efficiency. One of the ways this mindset was instilled in both organizations was to reinforce that cost, while important, should not be the first consideration when planning an activity; doing the job safely and reliably almost always proves to be the most cost effective approach. This does not mean we are not relentless in seeking cost efficiencies. In 2016 our managers began using a set of cost management tools to ensure our spending is precisely optimized to what we can afford without site management leaders should not be the first consideration when planning an activity; doing the job safely and reliably almost always proves to be the most cost effective approach. This does not mean we are not relentless in seeking cost efficiencies. In 2016 our managers began using a set of cost management tools to ensure our spending is precisely optimized to what we can afford without site standards made significant progress in 2016. Our goal is to complete a number of adjustments to our cost structure that will allow us to establish a sustainable business model regardless of price volatility. We spent the past year adding to the major cost reduction initiatives undertaken in 2015 by becoming even more efficient in the ways in which we do business.

Thanks to the efforts of the entire EEPCI team the results have been impressive: we reduced our 2016 operating costs by nearly 20% compared to the year before. Having suspended the drilling of new wells in 2015, we focused this year on maximizing recovery from existing wells through a strategic well maintenance program. This initiative allowed us to service and repair as many existing wells in 2016 as we did the previous year, but at a 30% lower cost. Our actions also resulted in a 95% reduction in our 2016 capital investment costs compared to 2014.

Our Enhanced Oil Recovery program continues to show excellent promise for maximizing recovery of the substantial reserves that remain in the Doba Basin.

The Production and Operations chapter of this report contains detailed information about some of the steps we took that have not only reduced expenditures but have also increased efficiency.

I am especially pleased to report that despite these operational changes, our safety record in 2016 was the best in the history of the project. EEPCI experienced only one recordable incident, which happened to be a dog bite. This strong performance was due to our unchanged commitment to instilling and maintaining a culture of safety and a number of new safety practices that were instituted in 2015. Some of these activities, such as strengthening teambuilding, recognizing safety leaders and conducting comprehensive workers reviews by leadership of every activity that has the potential to be hazardous, are described in the Health & Safety chapter.

Our strong outreach to local communities took many forms in 2016, including productive two-way dialogues and the donation of equipment, materials and school and medical supplies. However, our approach going forward is evolving as a result of EEPCI reaching a tripartite agreement with NGOs and the Moral Authorities, a group of senior clerics representing the main faiths of the region and Traditional Authorities. This agreement established a forum at which the parties can discuss the development needs of the communities and create a one-year plan that EEPCI will implement. The plan for 2017 recognizes that in light of the fact EEPCI is returning and not taking land from the communities, the focus of its activities should be on supporting capacity building and sustainable development.

EEPCI’s health and environmental programs also excelled this past year. Only two members of our non-immune workforce contracted malaria in 2016, the lowest number since oil production began in 2003. Our anti-malaria campaign in communities in the Oil Field Development Area included a program to make residents aware of ways behavioral changes, such as sleeping under nets, can help them avoid the disease. Regarding the environment, we continued to reduce our land footprint and had no major spills or other incidents – another strong performance.

In closing, I want to emphasize that the business model we are building is not based on an assumption that the price of oil will recover. We are working to keep EEPCI’s cost baseline as low as possible so that in the future we can be both profitable and able to make the capital investments needed to fully develop the Doba Basin’s untapped potential over time. In 2017 we will continue to build on the progress achieved over the last two years while challenging ourselves to focus on increasing efficiency even more and maintaining the safety and operational integrity standards which have been the hallmark of EEPCI.

Sincerely,

Christian Lenoble
President and General Manager
Esso Exploration and Production Chad Inc.
All three companies that make up the Chad/Cameroon Development Project focused many of their efforts in 2016 on adapting to the changes facing the oil industry. TOTCO and COTCO took significant steps to ensure the pipeline continues to operate reliably, safely and cost effectively. EEPCI concentrated on increasing efficiency while maintaining high operational standards and using enhanced oil recovery techniques to maximize production.
MEETING A MAJOR TECHNICAL CHALLENGE: TRANSPORTING VARIOUS TYPES OF CRUDE

Expecting increases in the volumes of crude produced in Chad, the pipeline companies tackled the challenge of adapting the system to accommodate the different types of crude that will be transported. Each crude has different characteristics, such as viscosity, wax content and “pour point” – the temperature below which crude oil gels and loses its ability to flow – that affect how the Export Transport System (ETS) must operate to remain reliable and cost competitive.

While all of these factors impact pipeline capacity and modifications, the pour point is the most critical. The ETS was designed to transport crude from the Doba Basin, which has a relatively low pour point. Short- and long-term solutions are being developed to accommodate crude from PetroChad Mangara/Glencore and the China National Petroleum Company (CNPCIC), both of which have higher pour points.

The pipeline companies have implemented a short-term solution and are evaluating several longer term solutions to this challenge.

- **BLENDING STREAMS**: Commingling crude from the three current shippers has resulted in an acceptable pour point for transportation down the ETS. However, as existing and future companies develop fields that produce more crude with higher pour points, the effectiveness of commingling will be limited by EEPIC’s production of low pour point crude. Current projections estimate this will happen in late 2017 unless other remedial steps are taken.

- **POUR POINT DEPRESSANTS (PPDs)**: One potential solution involves mixing polymer chemicals with the oil streams of high pour point shippers to keep the blended crude from hardening at a given temperature. PPDs are widely used throughout the industry to allow refiners, producers and pipeline operators to store, transport and process crude at lower temperatures. Field tests to identify the most effective PPDs for this situation began in October and are ongoing.

- **HEATING**: A long-term solution could be to install heaters at several points along the 1070 kilometer ETS to ensure the blended crude temperature remains above its pour point. While this can be the most efficient solution, implementing it depends on volumes being shipped and prevailing economic conditions. TOTCO and COTCO believe that when oil prices and production levels rise to a certain point in the future, the heaters will become a more attractive investment option.

For TOTCO, COTCO and their shippers the stakes are high. If crude congeals in any section of the pipeline, the flow of oil through the ETS could be disrupted, interrupting oil production and curtailing revenues to the producers and host countries. Additionally, that section of the pipeline would likely need to be replaced at significant cost.

The subsea project effectively removes a key bottleneck to transporting increased volumes of higher pour point crude produced by new shippers.

An early phase of the system was successfully tested and started up in June 2016, making it possible to transport one millionbarrels of commingled oil that were held back during periods of low sea temperatures in 2015 and mid-2016, while also transporting all other volumes of crude available from the shippers in 2016. Installation of additional equipment that will make the system permanent should be completed in the second quarter of 2017.

SUBSEA MITIGATION PROJECT PROTECTS PIPELINE INTEGRITY

When the ETS underground pipeline reaches the Cameroon coast, the oil travels the final 12 kilometers to the Floating Storage and Offloading (FSO) vessel via a subsea segment of the pipeline. This section of the ETS presents a particular challenge in terms of maintaining an acceptable temperature of the oil since the seawater in the area fluctuates, sometimes becoming cooler than the pour point of the crude inside. During normal operations the temperature drop in that section of the pipeline is not significant. However, in the case of a planned or unplanned shutdown that causes crude to sit in the pipeline for an extended time, the oil could solidify.

With increasing amounts of higher pour point crude from shippers, it became necessary to protect against this possibility, and in 2016 COTCO initiated the Subsea Mitigation project by installing equipment near the coastline. If flow is stopped for any reason, COTCO can flush the submerged section of pipeline with stored water (above photo) to displace the crude until the ETS is running again, ensuring the pipeline remains protected from solidifying crude regardless of the ocean temperature or length of shutdown. The subsea project effectively removes a key

STUDIES SHOW PROMISE OF ADDITIONAL PRODUCTION

In 2016, TOTCO met with existing producer CNPCIC and a prospective shipper Taiwanese producer Overseas Petroleum and Investment Corporation (OPIC) to sign agreements authorizing feasibility studies of their proposed development projects, which would increase the volume of crude in the pipeline. The feasibility studies results are expected in 2017.

“"All the initiatives that we have engaged for adapting the ETS to different qualities of crude are key steps in unlocking the untapped crude oil potential of Chad." - JEAN-PIERRE CASTAN, Export Transportation System Project Manager, TOTCO
CONFIRMING THE QUALITY AND QUANTITY OF SHIPPED CRUDE

As the operator of the ETS in Chad, TOTCO faced pipeline integrity and accounting challenges when two new producers joined EEPCI in shipping their crude in 2013 and 2014. With three different blends of oil now flowing into the pipeline at different rates, TOTCO instituted a sophisticated system for confirming the quantity and quality of each shipper’s oil, both of which can impact pipeline operations and revenues.

To ensure the accuracy of each producer’s flow meters and that their crude meets the technical specifications for acceptance into the pipeline, measurements are recorded every 10 days. During this process, representatives from TOTCO, the shipper and the Chadian government are present to verify that the correct procedure is followed and to certify the results as accurate.

To create the sample for the assessment, a small amount of crude is automatically collected from each shipper’s export flow approximately once per minute over the 10 days and deposited in a sealed container. This container is handled only by the shipper until the assessment sample is drawn from the container at the end of the period in front of witnesses from the three parties. The assessment is conducted over two days:

- First, a sample of the crude is heated and its water content, API gravity and sediment are all measured and recorded.

- After 24 hours the pour point of the sample is checked by observing its behavior as it slowly cools and recording the temperature when it begins to solidify.

In addition to sample testing, the TOTCO team does a series of checks to “prove” the equipment is functioning correctly with each shipper confirming the accuracy of measurements. One of these, called a spot check, confirms the pressure and temperature of each incoming stream, which can then be compared to the shipper’s reading. Once this is complete, the quantities of crude accepted can be compared to quantities of crude produced by the shippers to ensure they match. Each shipper has identical apparatus that all crude entering the pipeline must pass through to measure and analyze.

“Per the agreement between the shipper, the transportation company and the Chadian government, we are here together to witness the analysis. To ensure consistency and transparency, we all must agree on the results before sending it officially.” – ROUZOUMKA MADAYANG BOUBA, Inspector, Ministry of Petroleum, Chad

SUCCESSFUL PILOT SHOWS PROMISE OF INCREASING OIL RECOVERY FROM DOBA BASIN

A recent pilot project has shown promise in enhancing crude recovery from the project’s asset base and potentially extending the project’s life. Mixing specially designed polymers with the reinjected water can improve the recovery of oil. The process, called polymer waterflooding, increases the viscosity of the water to push oil like a plunger towards the producing wells, thousands of feet below the ground.

Because polymer waterflooding can significantly increase the amount of oil that is recoverable from a reservoir, it is used around the world. However, the process requires certain well conditions to be effective. The project’s reservoirs in the Doba Basin have the right combination of factors, including reservoir pressure and temperature, to make this a promising technique for extending the life and profitability of the project. ExxonMobil is closely following this project to see if there are learnings which can be applied in its fields around the world.

The polymers are neutralized once used, and they pose no environmental impact. After an initial pilot test on one well showed excellent results, the project has expanded the pilot to include nine additional wells with different characteristics. The results of this expanded pilot will provide a more clear picture of how to implement polymer waterflooding cost-effectively at scale. Given market conditions and EEPCI’s commitment to minimizing operating and capital expenditure costs, the approach will likely involve a long-term, phased implementation that strategically targets subsets of the field.
Project activities are guided by one of the most rigorous Environmental Management Plans (EMP) in the history of sub-Saharan Africa. It contains precise specifications on a wide range of environmental and socioeconomic measures that the project must undertake. Significant events related to EMP requirements in 2016 included project donations to the Foundation for Environment and Development (FEDEC) benefiting indigenous people in Cameroon and the resolution of three lengthy, complex community disputes with the project.
COTCO FUNDS UPGRADE OF FOYER NGOYANG

Since 2000 COTCO has contributed almost $7 million to FEDEC to help the organization carry out its mission to protect the indigenous people and the environment in Cameroon. Foyer Ngoyang, one of FEDEC’s most important projects, took a significant step forward in 2016 when its four buildings were substantially upgraded.

The indigenous Bakola/Bagyeli people, sometimes referred to as pygmies, are traditional hunter-gatherers living in the rainforest between Kribi and Lolodorf, an area traversed by the Chad/Cameroon pipeline. They face a number of challenges such as food insecurity, poor access to education and health care and a history of marginalization. In 2001, with funding from COTCO and support from Ngoyang municipality, FEDEC began providing financial support to Foyer Ngoyang, which is a home for Bakola/Bagyeli children when their parents are away, thus enabling them to attend the village school more easily. Some Bantu children from the town also stay at the Foyer as part of a program to promote friendship and integration between the two groups.

When FEDEC reported in 2016 that the deteriorating condition of the building complex was detracting from the project’s success, COTCO decided to donate $35,000 (18.5 FCFA) for the refurbishment and upgrade of the buildings. In addition to interior and exterior paint and roofing materials, the roofs were raised to increase cooling and create more space. An unused building that was falling into disrepair was converted into a large, comfortable dining and study hall for the children.

As a result of these improvements, an intensified outreach effort and other changes in the program, the Foyer attracted and retained 120 children in 2016, almost double the number in 2015. To help children who run away to the forest to see their parents during the schoolyear, the Foyer staff organizes field trips to Bakola/Bagyeli camps in the forest for visits.

RESOLUTION REACHED WITH KRIBI FISHERMEN ASSOCIATION

For years CDDM + 10, an association that represents fishermen along the southern Cameroon port of Kribi, claimed that the 12-kilometer underwater pipeline from Kribi to the FSO caused a decline in fish populations and disrupted their fishing activities. Although COTCO did not agree, the project prioritizes listening to community concerns near its operations and providing assistance where it can. As a result, the company participated in the CAO process to find an acceptable solution. The mediation concluded in 2016, and COTCO agreed to help the fishermen through several activities, including installing facilities at the main fishery in Kribi. These included building a fuel station, a cool room to store fish, a supply shop fully-stocked with equipment like nets and providing paint to maintain the fishing fleet. While the settlement has been agreed to by all parties, the company and the Fisherman are waiting for authorization from Cameroon’s Ministry of Livestock, Fisheries and Animal Industries to begin construction of the fuel station.

"Now that the refurbishment has been finished, we are looking at future components of our strategy, like expanding the existing banana farm into a larger working and teaching farm. This will not only generate revenue to help sustain the Foyer, but it will also help teach the children how to farm, something that is new to their culture." – MEBERE YEMEFAA SERGE ROSTAND, Program Coordinator, FEDEC

CAO MEDIATION RESULTS IN THREE AGREEMENTS

The project’s Environmental Management Plan (EMP) recognizes that some disputes with communities and other stakeholders may defy settlement through the regular grievance resolution process. Starting in 2011, the project voluntarily began participating in a mediation process administered by the World Bank’s Compliance Advisor/Ombudsman (CAO) to resolve a few particularly contentious disputes. The process involves a thorough exploration of the issues at hand, including a series of mediated discussions aimed at finding common ground and ultimately resulting in a solution acceptable to both parties. In 2016, among the last three outstanding cases in Cameroon two were resolved through this process, and EEPCI reached an agreement in its one outstanding case.

"I am very happy with the farm even though it is not producing yet. It will help us eat and pay our school fees. First we have to finish this farm and then my son must follow my example and become a farmer because everybody (all the Bagyeli) is beginning to farm. We will embrace this new way, but we can never forget our old practices. We have to give a big thanks for what has been done here." – NKOUGA PAUL, Bagyeli, Bidou I

RESOLUTION REACHED WITH KRIBI FISHERMEN ASSOCIATION

"The process took a long time, but at the end we are satisfied. Now, it is next for COTCO to deliver what was promised, but we have a good perception of the company. Even if the company had not agreed to the settlement, we are satisfied that they took our concerns seriously and took a lot of time to listen and discuss." – DJANGA JEAN LÉONARD, Member, CDDM + 10 (Fishermen’s Association)
The project’s intensive efforts to safeguard the land, water and air that might be affected by its operations resulted in an exemplary environmental protection record in 2016. These efforts focus on a wide range of non-stop operations that start in the Chadian oilfields, include all 1,070 kilometers of the pipeline and end at the Floating Storage and Offloading vessel 12 kilometers off the Cameroon coast.

Spills: The EMP requires the reporting of all spills equal to or greater than one barrel of oil, 10 barrels of produced water or 100 kilograms of a chemical. In 2016, EEPCI had three minor spills totaling 8.2 barrels of oil. One involved a rupture of a small flowline; the other two were the result of transformer oil thefts. All oil and contaminated soil was thoroughly cleaned up, and EEPCI intensified community outreach efforts to discourage thefts.

ENVIRONMENTAL MANAGEMENT PLAN

The EMP includes reporting standards for non-compliance situations (NCS). The three-level ranking system is designed to provide an early warning mechanism to detect issues and help correct non-compliant behaviors and practices well before they become serious enough to cause damage. The project recorded 0 Level II or Level III NCS in 2016.

“NKULI MAKELI, THE DRUMBEAT OF THE BAKOLA/BAGYELI VOICE”

By broadcasting cultural and health related programming in four languages deep into the forests in southern Cameroon, a new community radio station now provides the indigenous Bakola/Bagyeli people with access to important information. The station’s first funding came from the Canadian Consulate with additional support from FEDEC’s Indigenous Peoples Program, which is designed to address some of the cultural, health and economic challenges faced by this population.

Founded in 2016, the station is called “Nkuli Makeli,” which translates into “The Drumbeat of the Bakola/Bagyeli Voice.” It has an effective radius of 70 km – enough to reach its intended audience of the 4,000 Bakola/Bagyeli estimated to be living in the forest between Kribi and Lolodorf in southern Cameroon, as well as their Bantu neighbors. ADEPA, the Bakola/Bagyeli community organization that helped found the station, hopes the programming will bring the two groups closer together; strengthen their connection with the Cameroonian community at large; and create a forum to discuss important issues such as health, education and culture. For many people, the station is the only way they can access such information - an important cultural lifeline.

Nkuli Makeli is led by a Bakola/Bagyeli president and employs four people. Programming is primarily educational and delivered in Bakola/Bagyeli, Bantu, French and some English. It airs during the early mornings and evenings when the target audience is mostly likely to be at home.

General Manager Ngoun Nzié Nestor is an expert in the field of community radio. His job has been to establish the station; teach the Bakola/Bagyeli how to manage fundraising, marketing, production and technical operations; and then transition out, leaving a sustainable structure in place.

“Between Mali, Nigeria and Cameroon there are at least 1000 languages spoken, so it’s very important to be able to communicate to people in their own languages since national programming is often not relevant or understandable to many within these populations.”

– NGOUN NZIÉ NESTOR, General Manager, Nkuli Makeli
Successfully managing the increasing number of interactions between major construction projects in Cameroon and the pipeline is a constant challenge for COTCO, which must protect the integrity of the pipeline and its adjacent environment without constraining additional economic development in the country.

With the Lom Pangar Hydroelectric Dam Project and the first phase of the Port of Kribi construction nearing completion, 2016 saw construction move forward on another massive project, a 195-kilometer highway linking Cameroon’s national capital Yaoundé and its commercial capital Douala. The route chosen for the highway crosses the pipeline several kilometers outside of Yaoundé.

Well before breaking ground, the Cameroonian government and COTCO worked with the Chinese construction company to develop a solution that would allow the highway to safely cross the pipeline. Elevating the highway above the level of the pipeline and over a steel-reinforced concrete housing (pictured) will give COTCO access to the section of the pipeline that crosses under the highway.

Since 2015, COTCO has installed thousands of brightly painted concrete pillars at key points along the pipeline route in Cameroon to demarcate the boundary between the right of way (ROW) and privately owned properties or land used by villages. The markers are installed to help manage the increased number of interactions between the pipeline ROW and third-parties. While these interactions are an indicator of the growth and development happening throughout the country, they can also pose risks to the integrity of the pipeline unless managed properly.

COTCO accelerated this program in 2016, contracting with Locally Formed Organizations (LFOs) representing 31 villages to provide 300 workers to fabricate and place the markers along the pipeline. By the end of 2016 the project had installed 5,800 markers over 65 kilometers of pipeline. Generally the markers are installed near major cities and towns and other third-party construction projects, as these attract people who want to be near a potential business opportunity.

Working directly with the LFOs ensures that local communities benefit as much as possible from their proximity to the pipeline. Under this arrangement, COTCO provides the specifications and training to ensure safe and effective fabrication and installation, and the work is then managed by the local LFO.

The objectives of the marker program are to:

- Ensure the boundaries of the ROW are clearly visible to third-parties
- Prevent any unauthorized activity in the ROW
- Enhance economic growth of local suppliers
- Strengthen capacity building in local communities
- Increase earnings flowing to these communities

This is one of several steps the project takes to mitigate the risk of interactions with third parties that threaten the integrity of the pipeline. For more information on how COTCO is working with local communities and their LFOs, see p. 37 & 38 in the Economic Development chapter.

In addition to grass cutting and other maintenance and monitoring activities that ensure the pipeline integrity, a local organization in Yebi (near Pump Station 3), like groups in many other villages along the ROW, is manufacturing and placing ROW boundary indicators.

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SAFETY & HEALTH

The project’s multi-layered approach to safety led in 2016 to the best record in the history of the project. COTCO and TOTCO have not had a reportable injury in over two and a half years, and EEPCI experienced only one recordable incident – a dog bite. The Cameroon Ministry of Health credited a new addition to COTCO’s public health programs with saving the lives of 59 snakebite victims.

EEPCI SIGNIFICANTLY REDUCES ACCUMULATED WASTE

EEPCI significantly reduced the amount of waste generated and accumulated in Chad in 2016. This was partially due to the suspension of drilling activities, which generated waste that was processed or stored at project facilities in the OFDA. However, EEPCI’s support of Chad’s first industrial waste treatment company, SOTRADA, led to a significant reduction of hazardous waste in 2016 that had accumulated over a number of years. With support from its first customer EEPCI, SOTRADA was able to meet internationally recognized standards to manage waste, whether through recycling, incineration or landfill. SOTRADA’s success has created a new industry in Chad, an example of EEPCI’s contribution to the local business environment.

The chart below shows the significant reduction in waste generated by the project and also the reduction in accumulated waste at the project’s Komé Waste Management Facility.

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<tbody>
<tr>
<td>Domestic garbage incinerated on site</td>
<td>2,171</td>
<td>2,674</td>
<td>1,766</td>
<td>1,127</td>
<td>642</td>
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<tr>
<td>Innocuous solid waste buried (landfill)</td>
<td>935</td>
<td>853</td>
<td>517</td>
<td>1,778</td>
<td>173</td>
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<tr>
<td>Non-hazardous waste recycled to local communities</td>
<td>1,548</td>
<td>1,300</td>
<td>778</td>
<td>1,058</td>
<td>297</td>
</tr>
<tr>
<td>Non-hazardous waste sent to approved third-party facilities for re-use, recycling or disposal</td>
<td>2,005</td>
<td>2,000</td>
<td>1,390</td>
<td>1,191</td>
<td>5,342</td>
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<tr>
<td>Accumulated hazardous waste</td>
<td>1,107</td>
<td>1,958</td>
<td>3,744</td>
<td>4,350</td>
<td>305</td>
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<tr>
<td>Contaminated soil incinerated</td>
<td>NA</td>
<td>NA</td>
<td>630</td>
<td>350</td>
<td>1772</td>
</tr>
</tbody>
</table>

The chart below shows the significant reduction in waste generated by the project and also the reduction in accumulated waste at the project’s Komé Waste Management Facility.

Since 2015, EEPCI has been working with the Chadian waste management company SOTRADA to treat its industrial waste. EEPCI has worked extensively with the company to support the growth of this local business and ensure the company developed the requisite expertise and capability to meet international standards for responsible management of industrial waste. Resulting from this successful partnership, EEPCI has been able to significantly reduce its backlog of waste.
2016: BEST SAFETY RECORD IN PROJECT HISTORY

For years, the project’s Recordable Incident Rate has been well below the average rate of the U.S. petroleum industry as a whole, and in 2016 it outperformed this benchmark by a factor of almost 10. The industry benchmark for the U.S. petroleum industry is derived from reports to the American Petroleum Institute by participating companies. The project achieves these results through setting long-term goals, strict adherence to operational integrity protocol and maintaining an employee culture that is highly focused on safety at work and at home.

The project’s excellent safety record can be attributed to work management practices that, taken together, ensure that every task is carried out safely. One of these practices, the Komé Integrated Leadership Team, or KILT, was started in 2014 to subject higher risk activities to a “cold-eyes” review by project leadership. As a result of KILT’s success, another team, the Komé Integrated Supervisor Safety Team, or KISST was created in 2016.

The two multidisciplinary teams, comprised of high-level EEPCI leaders, alternate every two weeks reducing unsafe behavior by increasing the visibility of supervisors at work sites; ensuring compliance with safety standards; providing positive reinforcement for work safety behaviors; and building employee self-confidence. In addition to regular visits to work sites to conduct observations and provide feedback, the teams review all findings together and communicates them to the Operations Superintendent (above).

WELL WORK SAFETY

Team building and a talented workforce were important factors in the project’s excellent safety record in 2016. This included creating a more inclusive environment in which leaders reach across cultural and language differences, getting to know each individual as a part of the team. In addition, EEPCI’s well work team, which operates the Toumar rig, is subject to multiple levels of safety observations and daily reporting. In 2017, the team is planning to build on its success by simplifying the procedures they are required to follow during any activity.

“People make the difference here. By far, this is the most excellent team of guys to work with. Our guys always want to get the job done safely and are always looking to learn and are willing to step into the next role. This kind of attitude brings volumes to the efficiency of our operation. They say that respect is earned, not given, and every one of these guys has earned my respect.”

– WAYLON CAPNER, Toumar Rig Manager

EEPCI SAFETY PERSON OF THE YEAR

The project is always looking for ways to remind its employees and contractors to keep safety front-of-mind at all times. In 2015, EEPCI inaugurated a program to recognize safety leaders throughout the organization. The Safety Department nominate candidates based on the safety-related behavior they demonstrate over the year not only to keep themselves safe but also to keep others safe. Once the nominating process is complete, the winner is chosen based on a vote by the nominees’ peers. Bourma Irimde, currently a Procurement Associate, was named EEPCI’s 2015 Safety Person of the Year.

In 2015 Bourma was a General Services supervisor at the Komé 5 production facility in the OFDA. He had a solid record of being personally safe, but the activity that voters said made him the Safety Person of the Year was his practice of making hazard reports that very likely prevented injuries. The most memorable occurred when he saw a team mixing a liquid pesticide for mosquito fogging, a routine activity. One man was wearing the Personal Protective Equipment (PPE) required for proximity to concentrated chemicals, but two members of the team did not. Bourma identified this as a hazardous situation and, as encouraged by the Actively Caring Program, he stopped the work. He met with the team at a safe distance from the work site and, having learned the men had not been adequately trained, explained the hazards associated with the chemicals they were using. Bourma discussed the situation with their supervisor and recorded the incident and outcomes for analysis per normal guidelines. Bourma also arranged for the men to attend a series of safety training sessions.

“Safety has really changed me. I now am constantly alert to different hazards, and I make sure that something is safe before doing it. You can never be 100% safe; we always need our peers to look out for us, whether it’s family or our colleagues.”

BOURMA IRIMDE, 2015 EEPCI Safety Person of the Year

MALARIA INFECTION RATE (NON-IMMUNE PERSONNEL)

Free health care consultations for workers at project clinics are a valued job benefit in Chad and Cameroon, where health care can be difficult to obtain, especially in rural areas. The majority of this care involves illness or other health conditions unrelated to the workplace. For full time direct employees of the company, this benefit extends to immediate family as well.

2016 CONTRACTOR SAFETY CONFERENCE

With the Export Transportation System (ETS) now shipping crude produced by three companies and the possibility of additional shippers in the future, TOTCO has grown both its activities and interfaces with external stakeholders. In 2016, the company conducted its own Annual Contractor Safety Conference after a joint annual conference with EEPCI to focus specifically on its key activities with contractors.

“‘We decided to have separate workshops with our own contractors so we can focus more on our activities and how we can work better with them to ensure nobody gets hurt. Last year we had zero incidents, and this year we had one (a dog bite), so this was a good opportunity to reinforce our commitment to safety.’

ALLADOUM NANDOGONGAR, ETS Operations Superintendent, TOTCO
COMMUNITY ENGAGEMENT

In recent years the project has had little need for more land in or around the OFDA and the pipeline corridor, resulting in a significant reduction in compensation being paid to individuals and communities. Because EEPCI, TOTCO and COTCO want to continue their close, positive long-term relationships with these communities, all three companies have continued to reach out to local municipalities and to provide support, with an emphasis on schools and other forms of sustainable development.

COTCO’S COLLABORATION WITH CAMEROON MINISTRY OF HEALTH SAVES 59 LIVES

The latest example of COTCO’s collaboration with the Cameroonian Ministry of Health produced immediate dramatic results in 2016. According to the Ministry, a pilot project established in April to reduce deaths from poisonous snakebites saved 59 lives by year-end using antivenom donated by COTCO.

The catalyst for the pilot project was a Ministry study which showed up to ten snakebite fatalities a month in villages near the pipeline right of way in northern Cameroon. Dr. Marie Madeline Ekani, director of COTCO’s Medicine and Occupational Health Department, advised company management that local health districts did not have access to antivenoms, which are often expensive and time consuming to produce and store.

Recognizing that lives were at stake, COTCO authorized funding for the purchase and donation of doses of antivenom and training of local medical staff in managing snakebite cases. The training was held at COTCO’s Pump Station 2 near the village of Dompta and involved 15 physicians and nurses from eight health centers in the Touboro Health District. A total of 182 doses of antivenom were donated to the Health District medical chief who distributed them to targeted health centers. The pilot project also developed an epidemiologic and clinical guideline for monitoring the results, as well as a follow-up plan.

The Ministry reported in December that within eight months of the project’s start it had saved 59 lives from the communities along the pipeline in the northern part of the country and had significantly reduced mortality related to snakebites in the Toubouro Health District from 40% in 2015 to almost 4%.

“We are very grateful for the thoughtful leadership and support provided by Dr. Ekani, and hope that through this collaboration, we can continue to influence the private sector to see the benefit in terms of best practices that can be conferred from private sector to public sector in these key areas. This program is a great and concrete example of what USAID would like to continue to support. The leadership of COTCO is excellent.” – SERGE NZETCHEUNG – Senior Technical Advisor, East/Central Africa Region for Preparedness & Response Project and Emerging Pandemic Threat 2 Program, USAID

THE CONSORTIUM SPONSORS A CAMPAIGN TO FIGHT CHILDHOOD MALNUTRITION

As in many countries, childhood malnutrition remains a problem in Chad, causing many deaths. In November 2016, the Consortium (Esso, Petronas and SHT) launched a campaign in cooperation with the Guinebor II Hospital to fight malnutrition in children in the NDjamena area. The Consortium’s sponsorship included donating funding to the hospital for the construction of two waiting areas for patients.

Parents brought more than 200 children to the launch event, where they were examined by the hospital staff. In fitting with the hospital’s mission, those suffering from malnutrition were provided with free medical care.

Also in attendance were local officials and a delegation from the Consortium led by Christian Lenoble, General Manager of Esso Chad, who presented the hospital with the Consortium’s donation and urged parents to contact health professionals before a child’s malnutrition can worsen.

“The problem of snakebites is an old problem, but now we have better analytic data to show the scale of the problem and the need to address it. We have been working since the middle of 2016 to reduce snakebite morbidity. We had a significant reduction and will be extending this program to other districts that are also a priority. COTCO was a big help with this, and we are grateful for their leadership and support in addressing some of the public health concerns that we face. We’ve since worked with other private sector partners as COTCO’s collaboration helped to influence them to participate as well.” – DR. ALAIN ETOUNDI, Minister of Health, Cameroon

Dr. MM Ekani donating antivenoms to the Head of Touboro Health District

The black mamba is one of Cameroon’s deadliest snakes.

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COMMUNITY ENGAGEMENT

COTCO’S FOCUS ON SUSTAINABLE DEVELOPMENT IS GETTING POSITIVE RESULTS

COTCO’s assistance to three villages located near the pipeline in Cameroon in 2016 illustrates the company’s increased focus on building a sustainability component into its responses to community needs. As was the case in these three situations, sustainability can include helping the communities learn how to build and maintain critical infrastructure like schools.

“In addition to the impact mitigation work that we do, we are taking a voluntary approach to improve the lives of the communities along the pipeline corridor. We expect to apply the same rigor to implementing our social investment program as we would with any other program while making sure all our stakeholders understand what we are doing. Our objective is to improve living conditions by addressing community needs as effectively as we can.” — JULES WACK MBALLA, CSR Manager, COTCO

HELPING BEMBOYO BUILD A SCHOOL

Bemboyo is a locality of 2000 people located 15 kilometers from Pump Station 2 in northern Cameroon. It has a site designated for a secondary school, but for years nothing was built there. Children admitted to secondary schools have had to travel to the larger town of Toubou, almost 80 kilometers away, to attend school. This often has required parents to have the money or relatives in that town to board their kids, which makes it nearly impossible for children from poorer families to receive a secondary education.

Since Bemboyo has a close relationship with COTCO, with as many as 50 people employed by the pipeline project, it turned to the pipeline company for help. COTCO responded by agreeing to fund construction of a newly created secondary school if community members participated in building and maintaining it. Completion of the new school took six months, with a construction team of up to 22 local workers for the duration. The building project was managed by a qualified designee from the community. COTCO’s Community Relations Officer for the area performed regular checks to make sure steady progress continued and resources were efficiently used. When the school doors opened in September, COTCO facilitated the use of an old building from a construction camp to accommodate secondary school students until the completion of the new building which now contains three classrooms and enough desks for 50 students.

“We are very proud because this school allows children who live near here to have a school close to home. To have a school in a place like this is important because when children go to school, they learn to take care of the environment and with education they can get a job more easily.” — AMADOU SAIDOU, Community Project Manager, Bemboyo

HOUSING BUILT FOR TEACHERS IN BIOMBE

Biombe is a small village in Eastern Cameroon. It has a school located about 500 meters from the pipeline near Pump Station 3 and, as a result, it has a long relationship with the project, involving consultation meetings, compensation payments and jobs. The school, which has three teachers, serves over 80 children from Biombe and three surrounding villages; however, there were no provisions for housing the teachers assigned to the communities.

The community in this case began to build housing adjacent to the school with materials given to them as compensation by a logging company. Unfortunately, the materials ran out before the building was finished. The village contacted COTCO and asked for help completing the housing. Because the community had already been proactive in addressing the challenge - indicating a high degree of ownership - the company supplied the villagers with the needed materials and training to complete the building (bottom photo). While working with the community on the housing, COTCO staff noticed a nearby classroom the company had provided years earlier as compensation for pipeline construction impacts had fallen into disrepair. So, as part of its social responsibility program, the company also provided the materials necessary to refurbish the classroom (top photo).

It took 15 workers from the local villages about five months to complete the new housing and classroom refurbishment. Now Biombe has a new classroom and residence for the teachers serving the community.

“We are very happy because we now have a school close to home. It is a strong concrete building. In the past, we had to walk a long distance to go to school and we had no proper facilities. Now we have everything we need. We can study and learn.” — KINDA ALBERT, President, Parents Association and Project Manager, Biombe

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COMMUNITY ENGAGEMENT

COTCO HELPS VILLAGE BUILD A CASSAVA DRYING FACILITY

The Platform is a tripartite relationship between COTCO, NGOs and the Cameroonian government that ensures the project's development, COTCO responded by supplying enough materials and training for the community to refurbish not only the COTCO donated classroom but also two of the government built classrooms.

As part of its sustainability program with local communities, COTCO visited the primary school in Nkometou, a village near the pipeline north of Yaoundé, to check on the condition of a classroom it had built years earlier as compensation during construction of the pipeline. The school serves about 350 children from Nkometou and the surrounding villages.

During one of several visits by a Platform team to Ndoumba Kanga in 2016, representatives of the village expressed concern about the unsanitary nature of the traditional method of drying cassava, one of their staple foods. Traditionally cassava is left on the ground to dry for several days after harvesting, but this practice leaves it open to multiple forms of contamination and being eaten by animals. COTCO responded to this concern by designing a custom-built cassava drying facility and providing the village with tools and training for the community to build it.

"Before, our school was not nearly so beautiful. The school was looking dirty. Now it is much nicer. I've been a teacher for 30 years, and it makes me proud to see my children succeed – some of them have gone on to great careers." – BITOME ALEXANDRE, Teacher, Nkometou III Public Primary School

"The former environment was not good for kids to study. The parents are very satisfied with the changes because the conditions now are more suitable for children to study. We appreciate the ongoing partnership with COTCO. We can talk directly with them and they listen." – ONDOUA NOMO NORBERT, President of the Nkometou Parents Association

CONSULTATION MEETINGS

In 2016, the project held hundreds of consultations in communities near operations areas across Chad and Cameroon. The sessions, part of the project's commitment to ensure regular contact and open communication with its neighbors, covered a wide range of topics, from updating villagers about the latest developments to providing education sessions about public health and safety issues.

2016 CONSULTATION MEETINGS

CHAD

SESSIONS 214

ATTENDEES 11,635

CAMEROON

SESSIONS 1,025

ATTENDEES 7,724

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In addition to stories covered in various chapters of this report, EEPCI's ongoing commitment to invest in local communities took multiple forms in 2016, including:

- A donation of 400 electricity poles to Doba that will benefit large numbers of people in the area by helping expand the city's electric network.
- Support for World Malaria Day in April by organizing malaria awareness sessions in two villages and donating anti-malaria drugs to their health centers. This was in addition to the ExxonMobil Foundation's ongoing malaria prevention and treatment programs that are carried out by NGOs World Vision and Jhpiego.
- Activities to support efforts to reduce maternal and child mortality in NDjamen.
- Organizing the seventh annual competition for secondary school students. The competition has proved to be very effective in encouraging excellence in school.

WOMEN’S ASSOCIATION PROMOTES ARTISTS IN DOUALA

For nearly 10 years COTCO’s female employees have volunteered to make positive contributions to disadvantaged communities in Cameroon. In April 2016, the women’s organization – the Association des Femmes de COTCO (ASFEC) – held a gala that raised 50 million FCFA, funds that will support the Association’s activities over the next four years. ASFEC’s members meet once a year to discuss how to allocate its budget in four target areas: education, supporting disadvantaged people, HIV prevention and promoting artists. In 2016, the organization decided to support artists in Cameroon by sponsoring a temporary art gallery called COTART in the COTCO parking lot. In addition to inviting artists to participate, ASFEC promotes the event to attract potential buyers. Artists receive 80% of the revenue from the sale of their works with the association keeping 20% to help cover its costs as sponsor.

"It’s important that we do what we can to help provide artists with opportunities. Many artists tell us that because of COTART they have become better known and successful in selling their work." – BRIGITTE MBONGO, Process and Controls Specialist, COTCO

CREATING NEEDED MATERIALS FOR VILLAGES IN SOUTHERN CHAD

Every year, EEPCI organizes multiple donations of materials to communities near project areas or its headquarters in NDjamen. In 2016, the team fabricated 400 desks and 57 blackboards to be donated to villages around the OFDA in the beginning of 2017. In addition, 50 beds and mattresses with customized hygienic waterproof covers were donated to nine rural health centers in the OFDA. Left, employees of EEPCI contractor SENEV Tchad, a Chadian owned company that is contracted to support operations at Komé 5, put the finishing touches on a set of desks.

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With no need for new land in 2016, EEPCI continued its policy of returning land to communities. Borrow pits no longer required by the project contributed to most of the nearly 100 hectares of land that were returned to communities in 2016. At the same time it followed up on compensation programs that provide sustainable benefits to farmers whose land was used in the past.
SKILLS TRAINING PROGRAM HAVING LASTING POSITIVE IMPACT ON LOCAL FARMERS

With no new wells drilled in 2016, the project did not require any additional land during the year. In fact, the project returned 97.2 hectares of temporary use land, bringing the total temporary land used by the project down to just under 100 hectares. This meant compensation to local communities was greatly diminished compared to previous years. For the same reason, there were no additional farmers eligible for the project’s Resettlement Program, which aims to ensure that residents who are significantly impacted by the project are able to maintain or improve their livelihoods. However, EEPCI has continued to track 54 recent Resettlement Program participants and provide them with sustainable benefits and services if needed.

Once a farmer becomes eligible for the program, they have access to potentially life-changing education, agricultural training and equipment that will have a lasting positive impact on their lives.

All eligible program participants begin by attending Basic Business Skills (BBS) classes that teach literacy, basic mathematics, calculation, money management and economics. Training is delivered in nine locations throughout the OFDA and, given its popularity, it is open to other interested community members. In 2016, 19 eligible participants and 457 non-eligible members attended these classes. “Eligibles” who complete the BBS class then receive Improved Agriculture Training; at the same time they are given farm equipment and animals. The classroom learning and practical field lessons are focused on teaching modern farming and animal husbandry techniques that can significantly increase farmers’ productivity.

Following the classroom training, the project team works with the Eligibles to plant equal parts of their fields with staple crops such as rice, sorghum and peanuts, using traditional and modern methods. This allows the farmers to directly compare the results and decide for themselves which methods are more useful.

The next year, the farmers plant their entire field using modern methods and the results and decide for themselves which methods are more useful. In many cases are adopting the new techniques.

The table to the left shows the results in kilos per hectare for the 2016 class. Impressive results like these have been achieved by hundreds of project participants over the years and are expected to have a lasting impact on productivity and contribute to improving the standard of living for many farmers and their families. In addition, farmers who did not take the training have witnessed the results and in many cases are adopting the new techniques.

The sustainability of this knowledge is the most important part, because the participants will have this independent of what EEPCI does – they will continue to have increased production and all the benefits that go along with that.” – BARRY ALSENY, Skills Training Project Manager, EEPCI Resettlement Program

“With my compensation I rented new farmland. The training is very helpful because we did not know then how to cultivate as productively as we do now. Esso pushed hard to teach us these methods, and we appreciate it now. All of this – composting, equipment and training - is important for us. In the future, I will produce more and more, and it means that over the years I can continue to improve. If people in the village ask how we got our production rate to be so high, we will explain it. And if they don’t use the techniques, they won’t get this level of production.” – FATIMÉ ADOUM, farmer, Komé Village

“The equipment and training were very helpful. The equipment helped me cultivate my two lands, and after receiving all my training, I used my new knowledge of cultivation, composting and agriculture management to support my family. Every year Esso followed me and kept checking on me to see how I was doing.” – NDOLASSEM BRUNO, an Eligible Farmer living in Mainari

“When someone needs your land, it is not comfortable, but after the compensation, resettlement and reinforcement programs, the future became clearer. With the compensation I received I built a home and rented land for farming. And with this training we will continue to improve. We can never go back to traditional techniques again! It’s a really good partnership between Esso and the community because if something happens, they do not leave us on our own. In this way we are like brother and sister.” – SOLKEM PELAGIE, farmer, Komé Village

INDIVIDUAL COMPENSATION

The EMP delineates how all compensation programs should be conducted. The plan describes how rates should be set and outlines payment procedures, which were carefully designed with the input of NGOs and the World Bank to be fair and transparent. The project compensates individual farmers for land use in several ways, including cash, in-kind goods and training.

These compensation programs are usually sufficient to maintain or enhance the livelihoods of most farmers impacted by the project, but in rare cases additional reinforcement, through more equipment or training, may be necessary. In these instances, the socioeconomic team works with the individual to develop a successful solution. Eligible recipients are required to participate actively in the process. This has been shown to be a significant factor in an individual’s success. For example, in order to receive additional equipment, livestock or goods, a farmer may be required to build a shelter to ensure the materials or animals remain in good condition so that they provide value over the long run.
Even in the current low oil price environment, the project has continued to make significant contributions to the economies of Chad and Cameroon. These contributions include government revenues; employment training and jobs, almost all of which are held by nationals of the two countries; the purchase of local goods and services; and the transfer of business and technical knowledge to a growing number of entrepreneurs.
ECONOMIC DEVELOPMENT

MORE LOCAL VILLAGERS HIRED TO PROTECT THE PIPELINE

For many years TOTCO and COTCO have trained and employed local villagers on a rotating basis to conduct foot patrols along the right of way (ROW) to identify any issues with the pipeline, its 1,070 kilometer ROW or the fiber optic communications cable that is buried next to the pipeline. In 2016, the workers were increased to two a month because of the discontinuation of aerial patrols in Chad with the authorization of the Ministry of Petroleum and as a cost saving measure. The foot patrols have proven to be just as effective as aerial surveillance, if not more. The increase in patrols has resulted in 48 jobs for local communities along the 178 kilometer Chadian section of the ROW.

Foot patrollers work for six months at a time before new patrolers are chosen using a lottery system, which ensures fair distribution of jobs. Although temporary, the jobs provide a much needed source of cash in otherwise remote areas that are often far from markets, and they connect the villages to the pipeline in a positive way. TOTCO believes the program is likely to continue for the lifetime of the pipeline.

“I’ve been a foot patroller for six months and am very happy to have this job and would like to continue it for a long time, as there are not very many jobs available to us around here.” – NANBELNGAR REGISTRE, Foot Patroller (On the right in the photo)

Larry said the project’s commitment to safety made a deep impression on him.

“When I started here, they said safety is our number one priority. This company really walks the walk, and clearly understands that its employees at all levels are assets that are important and must be protected. I remember my managers telling us that no equipment or activity is worth the risk of injury. It really changed my perspective; everywhere I go, safety is in my mind.”

PROJECT WORKFORCE BY YEAR-END 2016

Chadian and Cameroonian nationals employed by EEPIC, COTCO, TOTCO and their contractors: 3,355
Percentage of total workforce that is Cameroonian and Chadian: 94.5%
Wage payments to Chadian workers in 2016: 30 billion FCFA ($51 million)
Wage payments to Cameroonian workers in 2016: 10.5 billion FCFA ($18 million)

DEEPENING RELATIONSHIPS WITH LOCAL COMMUNITIES TO MAINTAIN THE PIPELINE

While historically COTCO retained contractors to maintain the pipeline right-of-way (ROW), in 2016 the company began engaging Locally Formed Organizations (LFOs) set up by communities located near the pipeline to do this work. LFOs are officially recognized groups of villagers who have organized themselves into a collective that combines their skills and knowledge in pursuit of greater efficiency and productivity.

Previously the workers were local, but the work was managed by Cameroonian companies from outside the area. This new arrangement has saved the company money and increases the amount of COTCO’s ROW maintenance budget that is injected directly into the communities, while also increasing villager self-reliance.

COTCO made this change after determining that over the years the local communities had become very familiar with the requirements of this work and with the project’s safety standards and procedures, since so many had worked for the project. The company also concluded that these villages and towns had the capability to manage these projects without the need for contractors. The main activities involved are grass cutting, foot patrols and in some areas, boundary marker fabrications and installation. LFOs must follow COTCO’s safety practices, and their work is overseen by a project representative to ensure that it is conducted safely and completed satisfactorily.

In addition to grass cutting and other ROW maintenance and monitoring activities, Yebi (near Pump Station 3), like many other villages along the ROW has been contracted to manufacture and place ROW boundary indicators. The photographs in this story show workers from the village of Yebi fabricating boundary markers on behalf of the local LFO.

“Just like us, the locals are thrilled to have the work. The pipes are as much a part of the community as it is to us.” – BIYELI PIERRE, Chief, Yebi

TRACKING LOCAL EMPLOYMENT

The Project Update Report provides statistics on local employment on the basis of Full Time Equivalents or FTEs. Reporting by FTEs makes it possible to account for the wide diversity of work shifts and rotations of the workforce, as well as the seasonal variations in the types of jobs available with the project.

• Many of the project’s workers are on rotator schedules, which often include working in tandem with another “back to back” worker. Rotators typically work 28 days on and 28 days off, or a similar pattern, but when on duty they work seven days a week, 12 hours per day.
• Other workers have day-to-day jobs where they work Monday through Friday for shorter days but are on duty for most of the year with no rotation breaks.
• Another category of workers, often hired from villages near project facilities, have temporary contracts and work only a few weeks at a time in order to complete special projects such as maintenance of the pipeline right of way.

Converting all these employee work patterns into standard Full Time Equivalents based on actual hours worked yields a consistent and more accurate picture of the project’s local employment.

NATIONAL WORKERS EMPLOYMENT SKILL LEVELS

Skilled jobs include positions such as control room operators, oilfield technicians, construction workers, machinery, and instrumentation operators, EMP monitors and welders. Examples of semi-skilled jobs include food service assistants, security guards and welder helpers.

Wage payments to Chadian workers in 2016: 30 billion FCFA ($51 million)
Wage payments to Cameroonian workers in 2016: 10.5 billion FCFA ($18 million)

2016 saw TOTCO achieve 100% nationalization of its operational workforce when Larry Liring, was named Supervisor of Maintenance Area 1. In this position Larry and his team are responsible for maintaining pipeline operations from Pump Station 1 at Komé 5 to the border with Cameroon near the town of Mbere. Larry’s personal history illustrates some of the ways the project has attracted Chadian and Cameroonian employees and supported their continued growth.

After earning a Masters Degree in Electromechanics from the University of N’Djamena, Larry was hired by EEPIC in 2002 and joined TOTCO in October 2015. He recounted his experiences:

“This project has really shaped my life and given me opportunities.”

The training I received was really helpful. Once I was on the job, I learned more. As soon as I became expert in one competency, I was given the opportunity to learn something different. Many positions then were held by expats, and they were open to sharing knowledge and experience. Now I have the necessary skills, and I understand how the entire system works, both from a technical perspective, and also how the company operates.”

Larry provided an example of the positive impact that the program has had on his family.

“Being a foot patroller has helped me gain experience and knowledge, and the salary helps me take care of my family. We have gained a lot of knowledge and when we come home we teach our families what we have learned. In this way people can learn about things, like safety.” – NDODEJINGAR DESIRE, Foot Patrol Coordinator (2nd from the left)

“Being a foot patroller has made me gain experience and knowledge, and the salary helps me take care of my family. We have gained a lot of knowledge and when we come home we teach our families what we have learned. In this way people can learn about things, like safety.” – NDODEJINGAR DESIRE, Foot Patrol Coordinator (2nd from the left)

ECONOMIC DEVELOPMENT
To identify suitable candidates for the position, COTCO issued an RFP, monitoring the project and handling the financial transactions. The role of program facilitator requires Mbiandoum and his team to work closely with the villagers to ensure that the work being done is in line with the community’s needs and aspirations. By creating a Locally Formed Organization (LFO), the villages of Biombe and Ndoumba Kanga, both located near Pump Station 3, were able to provide work to their communities in maintaining the pipeline’s ROW rather than have the pipeline pass through their lands. Leaders from both villages have reported multiple benefits for their communities, such as job creation and economic growth.

After COTCO decided in 2015 to work directly with local communities, CAMERSEES, a Cameroonian business, CAMUSERS, to grow. CAMUSERS has developed a lot. Initially it was a consulting company, but it has since grown to become a full-service company that provides a wide range of services to its clients. CAMUSERS now employs over 100 people and has won contracts worth over $2 billion in the past five years. CAMUSERS’s success is attributed to its commitment to honesty and integrity in all its dealings, ensuring that its clients receive the best possible service. CAMUSERS also focuses on continuously improving its services and maintaining a safe working environment.

CAMERSEES also helps local communities to work with COTCO. COTCO contracted with them to cut grass and fabricate and place boundary indicators along the ROW. Leaders from both villages have reported multiple benefits for their communities, such as job creation and economic growth.

CAMEROONIAN ENTREPRENEUR HELPS LOCAL COMMUNITIES WORK WITH COTCO

After COTCO decided in 2015 to work directly with local communities in maintaining the pipeline’s ROW rather than using subcontractors, it needed someone to fill the role of program facilitator, providing the villagers with training, monitoring the project and handling the financial transactions. To identify suitable candidates for the position, COTCO issued an invitation for tenders from potential applicants.

When a former COTCO employee with extensive community outreach experience, Charles Mbiandoum, learned about the tender, he thought his socioeconomic consulting company, CAMUSERS, met all the requirements and submitted a proposal. At the conclusion of the tender review process, COTCO awarded the job to Mbiandoum after concluding he was the most qualified candidate since he had 30 thirty years of experience in relevant fields. In addition, Mr. Mbiandoum knew the village chiefs from his tenure with COTCO, and they expressed trust in him.

Being program facilitator requires Mbiandoum and his team to be in the field supporting communities and training villagers for two major ROW activities: grass cutting and boundary marker installation. CAMUSERS assesses and selects the appropriate LFOs, provides guidance on COTCO policies, such as safety, and ensures the policies are followed. Mbiandoum is also responsible for facilitating payments to the LFOs and making sure COTCO knows immediately whether the workers have been paid on time. In places where there are no LFOs near the pipeline route, COTCO views contracting directly with the communities rather than retaining contractors as a triple win. This approach saves the company money and administrative resources; results in more money flowing into the villages; and enables a small Cameroonian business, CAMUSERS, to grow.

CHADIAN COMPANY GROWS BY HELPING EEPCI

SENEV Tchad SSI is a N’Djamena-based company that has grown significantly in size and capabilities since it began providing services to EEPCI in 2003. The year 2016 was a year of significant growth for SENEV, as it continued to provide maintenance services to EEPCI’s facilities in Chad. At the end of the year SENEV was working on a special project: fabricating 400 desks and 57 blackboards that EEPCI plans to donate to schools throughout the OFDA. Over 50 classrooms will receive the furniture. This work will result in a significant benefit to the students, as it will allow them to have their own desks and blackboards.

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LOCAL BUSINESS SPENDING

CHAD

2016: 48 billion CFA ($80 million)
Project to date: 1189 billion CFA ($2.4 billion)

CAMEROON

2016: 28 billion CFA ($47 million)
Project to date: 687 billion CFA ($1.4 billion)

NUMBER OF CAMEROONIAN COMPANIES CONTRACTED WITH COTCO IN 2016: 53

NUMBER OF CHADIAN COMPANIES CONTRACTED WITH EEPCI IN 2016: 39

NUMBER OF CHADIAN COMPANIES CONTRACTED WITH TOTCO IN 2016: 71
Brent Crude is a major benchmark price for sweet light crude oil worldwide. This chart shows the volatility of oil prices since 2003 when production began in Chad. While Doba oil is priced somewhat lower than Brent Crude, Doba generally tracks the movement of Brent. For many years since 2003 the price of Doba has exceeded expectations, significantly increasing revenue to Chad.

Chad's oil revenues come from royalties on oil sales, corporate taxes, income related to pipeline ownership and other permits, duties and taxes. By the end of 2016, the project had generated nearly $12 billion in revenues for Chad, including 2.7 million barrels of oil generated as royalties-in-kind in 2016 alone. Revenues are affected by many factors, including the price of crude oil, operational costs and capital investment.

**HOST COUNTRY REVENUE**

Chad's oil revenues come from royalties on oil sales, corporate taxes, income related to pipeline ownership and other permits, duties and taxes. By the end of 2016, the project had generated nearly $12 billion in revenues for Chad, including 2.7 million barrels of oil generated as royalties-in-kind in 2016 alone. Revenues are affected by many factors, including the price of crude oil, operational costs and capital investment.

**CHAD OIL REVENUE (millions of dollars)**

<table>
<thead>
<tr>
<th>Source</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties on crude oil sales</td>
<td>N/A</td>
<td>2,747</td>
</tr>
<tr>
<td>Income related to pipeline ownership</td>
<td>0</td>
<td>85</td>
</tr>
<tr>
<td>Corporate income tax</td>
<td>13</td>
<td>8,261</td>
</tr>
<tr>
<td>Fees, permits, duties, etc.</td>
<td>43</td>
<td>670</td>
</tr>
<tr>
<td><strong>PROJECT TOTAL</strong></td>
<td>56</td>
<td>11,762</td>
</tr>
</tbody>
</table>

**CHAD ROYALTY-IN-KIND (millions of barrels)**

<table>
<thead>
<tr>
<th>Source</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties-in-kind</td>
<td>2.7</td>
<td>16.4</td>
</tr>
</tbody>
</table>

Brent Crude is a major benchmark price for sweet light crude oil worldwide. This chart shows the volatility of oil prices since 2003 when production began in Chad. While Doba oil is priced somewhat lower than Brent Crude, Doba generally tracks the movement of Brent. For many years since 2003 the price of Doba has exceeded expectations, significantly increasing revenue to Chad.

**CAMEROON’S OIL REVENUE (millions of dollars)**

<table>
<thead>
<tr>
<th>Source</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit Fees</td>
<td>54</td>
<td>362</td>
</tr>
<tr>
<td>Income Tax</td>
<td>1.9</td>
<td>59</td>
</tr>
<tr>
<td>Customs Duties and Other Taxes</td>
<td>11</td>
<td>82</td>
</tr>
<tr>
<td>Income Related to Pipeline Ownership</td>
<td>1.8</td>
<td>168</td>
</tr>
<tr>
<td><strong>PROJECT TOTAL</strong></td>
<td>69</td>
<td>670</td>
</tr>
</tbody>
</table>

1. Effective May 2012, royalty is being paid in-kind. Other Fees and Duties including the Redevance Statistique are based on the September 2008 Memorandum of Understanding. 2. In 2014, income taxes 2Q through 4Q represent EEPCI and Petronas. Effective 2015, income taxes represent EEPCI only. 3. Project to Date has been restated to exclude amounts previously reported for services provided by government-run entities, such as utilities, hospitals, and telecommunication services.
## PERFORMANCE DATA

### PRODUCTION & OPERATIONS

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Support Spending (Billions of FCFA)</td>
<td>28.5</td>
<td>11.67</td>
</tr>
<tr>
<td>Production Support Spending (Millions of $)</td>
<td>23.7</td>
<td>6.80</td>
</tr>
<tr>
<td>Net Weight of Shipments from Marine Terminal (Millions of Barrels)³</td>
<td>108.8</td>
<td>584</td>
</tr>
<tr>
<td>Number of Export Tankers</td>
<td>20</td>
<td>625</td>
</tr>
<tr>
<td>Average Total Barrels of Oil produced per day (Barrels)</td>
<td>48,800</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of New Oil Wells added in current year</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Oil Wells currently online</td>
<td>552</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Motor Injection wells online</td>
<td>68</td>
<td>N/A</td>
</tr>
<tr>
<td>% of water from extracted fluids</td>
<td>10.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Renovation &amp; Enhancement Procedures</td>
<td>312</td>
<td>N/A</td>
</tr>
</tbody>
</table>

¹ Figures may include both owned and operated wells.
² Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.
³ Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.

### SAFETY

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Recordable Incident Rate (TRIR)</td>
<td>0.06</td>
<td>0.08</td>
</tr>
<tr>
<td>Lost Time Incidents (LTI)</td>
<td>0</td>
<td>0.62</td>
</tr>
<tr>
<td>Fatals (Number of)</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Last Time Incidents (Number of)</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Work Incidents (Number of)</td>
<td>0</td>
<td>158</td>
</tr>
<tr>
<td>Medical Treatment Cases (Number of)</td>
<td>2</td>
<td>332</td>
</tr>
<tr>
<td>First Aid Cases (Number of)</td>
<td>13</td>
<td>2,997</td>
</tr>
<tr>
<td>Worker Hours (Thousands)</td>
<td>7,259</td>
<td>344,118</td>
</tr>
<tr>
<td>Traffic Accidents²</td>
<td>0</td>
<td>978</td>
</tr>
</tbody>
</table>

² Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.

### COMPENSATION

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Compensation - Chad (Millions of FCFA)</td>
<td>2.02</td>
<td>13.7</td>
</tr>
<tr>
<td>Individual Compensation - Chad (Millions of $)</td>
<td>0.04</td>
<td>2.9</td>
</tr>
<tr>
<td>Individual Compensation - Cameroon (Millions of FCFA)</td>
<td>48.4</td>
<td>1,788</td>
</tr>
<tr>
<td>Individual Compensation - Cameroon (Millions of $)</td>
<td>0.04</td>
<td>11.3</td>
</tr>
</tbody>
</table>

### LOCAL BUSINESS DEVELOPMENT

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending on goods and services from local suppliers - Chad (Millions of FCFA)</td>
<td>48</td>
<td>1,189</td>
</tr>
<tr>
<td>Spending on goods and services from local suppliers - Chad (Millions of $)</td>
<td>48</td>
<td>2,305</td>
</tr>
<tr>
<td>Spending on goods and services from local suppliers - Cameroon (Millions of FCFA)</td>
<td>28</td>
<td>907</td>
</tr>
<tr>
<td>Spending on goods and services from local suppliers - Cameroon (Millions of $)</td>
<td>28</td>
<td>907</td>
</tr>
<tr>
<td>Spending on goods and services from local suppliers - Cameroon (Millions of $)</td>
<td>47.8</td>
<td>1,575</td>
</tr>
</tbody>
</table>

² Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.

### HOST COUNTRY REVENUE

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royalties for Crude Oil Sales - Chad (Millions of $)</td>
<td>0.8</td>
<td>2,747</td>
</tr>
<tr>
<td>Income Related to Pipeline Ownership - Chad (Millions of $)</td>
<td>0.0</td>
<td>124</td>
</tr>
<tr>
<td>Corporate Income Tax - Chad (Millions of $)</td>
<td>10.1</td>
<td>2,613</td>
</tr>
<tr>
<td>Fees, Penalties, Taxes, etc. - Chad (Millions of $)</td>
<td>64.4</td>
<td>676</td>
</tr>
<tr>
<td>Chad Total Revenue - Chad (Millions of $)</td>
<td>10.3</td>
<td>11,343</td>
</tr>
<tr>
<td>Royalty in-fct - Chad (Millions of $)</td>
<td>2.7</td>
<td>16.6</td>
</tr>
<tr>
<td>Transfer Taxes - Cameroon (and new shipping payments) (Millions of $)</td>
<td>54</td>
<td>162.2</td>
</tr>
<tr>
<td>Income Tax - Cameroon (Millions of $)</td>
<td>5.9</td>
<td>55</td>
</tr>
<tr>
<td>Customs, Duties and Other Taxes - Cameroon (Millions of $)</td>
<td>1.1</td>
<td>82</td>
</tr>
<tr>
<td>Income Related to Pipeline Ownership - Cameroon (Millions of $)</td>
<td>1.1</td>
<td>168</td>
</tr>
<tr>
<td>Royalty in-fct - Cameroon (Millions of $)</td>
<td>69</td>
<td>670</td>
</tr>
</tbody>
</table>

² Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.

### LAND USE

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Project Land Footprint (Hectares)</td>
<td>2016</td>
<td>1,904</td>
</tr>
<tr>
<td>Total Reflected Land - Project to Date (Hectares)</td>
<td>6,460</td>
<td>117</td>
</tr>
<tr>
<td>Current Temporary Use Land (Hectares)</td>
<td>1,797</td>
<td>3,703</td>
</tr>
<tr>
<td>Permanent Facility Land (Hectares)</td>
<td>3,703</td>
<td>6,460</td>
</tr>
<tr>
<td>Total Individual Land Leases compensated by Project - Project to Date</td>
<td>3,703</td>
<td>6,460</td>
</tr>
<tr>
<td>Total amount of Land Taken by Project (Hectares)</td>
<td>4,608</td>
<td>4,608</td>
</tr>
<tr>
<td>Percentage of the 100,000 Hectares utilized by the project at some time (%)</td>
<td>4.6%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Percentage of the 100,000 Hectares after temporary land return (%)</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

### LOCAL EMPLOYMENT

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage Payments to Chadian Workers (Billions of FCFA)</td>
<td>18.8</td>
<td>58.4</td>
</tr>
<tr>
<td>Wage Payments to Chadian Workers (Millions of $)</td>
<td>18.5</td>
<td>58.4</td>
</tr>
<tr>
<td>Wage Payments to Cameroonians Workers (Billions of $)</td>
<td>11.1</td>
<td>58.4</td>
</tr>
<tr>
<td>Project Workforce - Chad (Nationals)²</td>
<td>2,138</td>
<td>10.4</td>
</tr>
<tr>
<td>Project Workforce - Chad (Expatriates)²</td>
<td>164</td>
<td>58.4</td>
</tr>
<tr>
<td>Project Workforce - Cameroon (Nationals)²</td>
<td>1,957</td>
<td>58.4</td>
</tr>
<tr>
<td>Project Workforce - Cameroon (Expatriates)²</td>
<td>28</td>
<td>58.4</td>
</tr>
<tr>
<td>National Worker Employment Skill Levels in both countries - Unskilled (%)</td>
<td>22.0%</td>
<td>58.4</td>
</tr>
<tr>
<td>National Worker Employment Skill Levels in both countries - Semi-skilled (%)</td>
<td>24.5%</td>
<td>58.4</td>
</tr>
<tr>
<td>National Worker Employment Skill Levels in both countries - Skilled (%)</td>
<td>38.5%</td>
<td>58.4</td>
</tr>
<tr>
<td>National Worker Employment Skill Levels in both countries - Supervisory (%)</td>
<td>15.0%</td>
<td>58.4</td>
</tr>
</tbody>
</table>

² Figures represent the latest available data. Data for previous quarters has been updated to include later reported data.

### ENVIRONMENTAL MONITORING & MANAGEMENT

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Noise Compliance Situations</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Demonic Garbage Internation On Site (Tonnes)</td>
<td>642</td>
<td>58.4</td>
</tr>
<tr>
<td>Incombustible Solid Waste Banded (Tonnes)</td>
<td>153</td>
<td>58.4</td>
</tr>
<tr>
<td>Non-Hazardous Wastes Processed to Local Communities (Tonnes)</td>
<td>297</td>
<td>58.4</td>
</tr>
<tr>
<td>Non-Hazardous Wastes Sent to Approved Third Party Facilities for Use, Recycling or Disposal (Tonnes)</td>
<td>5,342</td>
<td>58.4</td>
</tr>
<tr>
<td>Accumulated Hazardous Waste (Tonnes)</td>
<td>685</td>
<td>58.4</td>
</tr>
</tbody>
</table>

### HEALTH

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaria Infection Rate per 10,000 work hours</td>
<td>0.09</td>
<td>38.4</td>
</tr>
<tr>
<td>Number of Consultations at Project Clinics - Chad</td>
<td>8,145</td>
<td>58.4</td>
</tr>
<tr>
<td>Number of Consultations at Project Clinics - Cameroon</td>
<td>2,099</td>
<td>58.4</td>
</tr>
<tr>
<td>SSS - Chad</td>
<td>18</td>
<td>58.4</td>
</tr>
<tr>
<td>SSS - Cameroon</td>
<td>1</td>
<td>58.4</td>
</tr>
<tr>
<td>SSS Events including Malaria &amp; STDs - Chad</td>
<td>95</td>
<td>58.4</td>
</tr>
<tr>
<td>SSS Events including Malaria &amp; STDs - Cameroon</td>
<td>95</td>
<td>58.4</td>
</tr>
<tr>
<td>Hospital Admissions - Observation - Chad</td>
<td>0</td>
<td>58.4</td>
</tr>
<tr>
<td>Hospital Admissions - Cameroon</td>
<td>0</td>
<td>58.4</td>
</tr>
<tr>
<td>Hospitalizations - Chad</td>
<td>18</td>
<td>58.4</td>
</tr>
<tr>
<td>Hospitalizations - Cameroon</td>
<td>0</td>
<td>58.4</td>
</tr>
</tbody>
</table>

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### CONSULTATION & COMMUNICATION

<table>
<thead>
<tr>
<th>Metric</th>
<th>2016</th>
<th>PROJECT TO DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultation Sessions in Chad</td>
<td>9,788</td>
<td>58.4</td>
</tr>
<tr>
<td>Consultation Sessions in Cameroon</td>
<td>1,189</td>
<td>58.4</td>
</tr>
<tr>
<td>Consultation Attorneys in Chad</td>
<td>11,635</td>
<td>58.4</td>
</tr>
<tr>
<td>Consultation Attorneys in Cameroon</td>
<td>1,035</td>
<td>58.4</td>
</tr>
<tr>
<td>Consultation Attorneys in Cameroon</td>
<td>2,116</td>
<td>58.4</td>
</tr>
</tbody>
</table>
Esso Exploration and Production Chad, Inc.
1206 Rue de Bordeaux, B.P. 694
N'Djamena, Chad

Cameroon Oil Transportation Company
164 Rue Toyota (Bonapriso), B.P. Box 3738
Douala, Cameroon

Tchad Oil Transportation Company
3223 Rue d’Abéché, B.P. 6321
N’Djamena, Chad

ExxonMobil.com