

Production & Construction

Project investments in sustaining production have raised crude oil output by thousands of barrels per day compared with last year's levels. Daily production has increased by nearly 5% over the 2009 average with the daily average reaching 125,000 barrels for the first six months of 2010.

Production Support Investments

The project has invested nearly \$2 billion (over 990 billion FCFA) in production support measures since January 2007.

For the first half of 2010, spending on production support totaled \$325 million (more than 161 billion FCFA), including \$275 million in capital investments and \$50 million in day-to-day operations directly related to sustaining production.

The production support measures include additional wells, a water injection program and well stimulations — actions made necessary by the challenging characteristics of the Doba Basin oil formation.

- A third phase of the high pressure water injection program was more than 40% completed at mid-year. The expansion project is running ahead of schedule, in part due to a milder than normal early rainy season as well as successful efforts to expedite delivery of construction materials to southern Chad. A total of 54 water injection wells were on line at the end of June.

The high pressure water injection program addresses the sharp drop in pressure that has taken place in the Doba Basin oilfields as oil is extracted. Pressure must be maintained in order to sustain production levels.

- The project plans to add more than 100 new oil wells this year, with 56 drilled so far at mid-year. A total of 569 production wells were on line at the end of June.

Additional wells help the project overcome the low mobility of the Doba Basin oil. Low mobility limits the effective radius of each well, requiring that wells be positioned closer together for optimum extraction.

- The project's well work team plans to conduct more than 950 renovation and enhancement procedures on oil wells this year, and 546 had been accomplished by mid-year.

The Doba Basin oil resides in unconsolidated sands, producing fine particles that migrate to the wells and clog the producing zones. Techniques to counter this

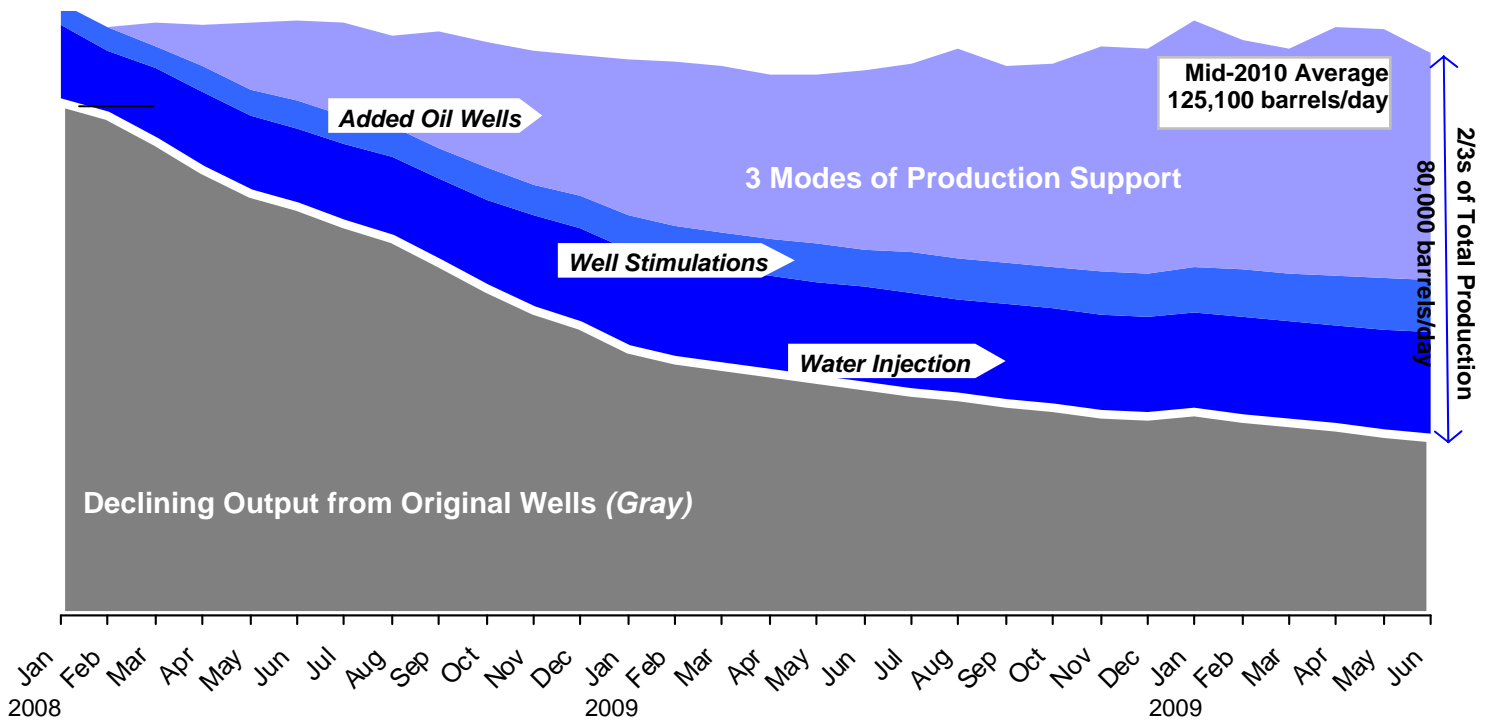
problem include well stimulations to backwash the pores in the oil bearing formation in addition to upgrades and repairs of subsurface well pumps that suffer from the clogging problem.

Production Statistics The project has sent to world markets a total of 354 million barrels of crude oil in 390 tanker shipments. The project’s average daily production in 2010 has been 125,100 barrels per day, nearly 5% above the level achieved in 2009.

◀ **Production Statistics for Last Four Quarters**
(net volume of shipments from marine terminal)

	3rd Qtr 2009	4th Qtr 2009	1st Qtr 2010	2nd Qtr 2010	12 Month Total	Project to Date
Millions of Barrels	10.6	11.3	11.3	11.6	44.8	354.0
Export Tankers	12	13	12	12	49	390

◀ **Results from Production Support Investments** (in thousands of barrels)



Production support investments are contributing about 80,000 barrels per day to the project’s crude oil production. Without the Consortium’s investments, production would have fallen to about 40,000 barrels — only one-third of the current yield of 125,100 barrels per day from the oilfields.

The project’s efforts to maintain production levels, coupled with world market prices for crude oil, significantly affect Chad’s oil revenue. For updated information on project payments to Chad, see the chapter *Host Country Oil Revenue*.

Marine Terminal: The Floating Storage and Offloading Vessel



Every one of the millions of barrels of crude oil exported by the project has passed through this vessel (top), the marine terminal permanently moored off the shore of Cameroon.



An independent agency, Bureau Veritas (middle center), conducts inspections and audits on board to ensure that international standards for safety and operational integrity are being met. The crew and contractors have just completed a major upgrade project for the ships power and control systems (middle right, bottom right). The more efficient systems have reduced the amount of crude oil utilized for fuel, increasing the amount of crude delivered to world markets. The new systems have also reduced air emissions.



For more information on operations at the Marine Terminal, see the chapters on *Safety, EMP Monitoring & Management Program* and *Local Employment*.

High Pressure Water Injection: Phase Three



A third phase expansion of the high pressure water injection program moved ahead of schedule in the first half of 2010. Workers were stringing electrical cables (top) and connecting pipes (bottom right) to the massive pump (bottom left) that will inject hundreds of thousands of additional barrels of water per day back into the oil bearing formations a mile under the surface of the earth. The water, which is initially removed from crude oil at the central treatment facility to prepare the oil for pipeline shipment to the coast of Cameroon, helps maintain subterranean pressure in the fields and thus supports ongoing oil production.

Timbre Oilfield: Oil + Gas

This well in the new Timbre oilfield has been producing a combination of high quality liquid plus a quantity of natural gas. That gas will be important going forward because, as the number of oil wells has increased, the need for electrical power has grown. The natural gas from this and three additional planned wells will provide clean burning fuel for the power generating turbines at the Komé central facility. The pipes from the well have been code painted orange to indicate the presence of natural gas. As a bonus, the fluid from the well has been of significantly greater quality than most other oil from the Doba Basin. Even though the well does not produce a major percentage of the total output of the oilfields, its high quality makes a small difference in the overall quality of the export stream.

