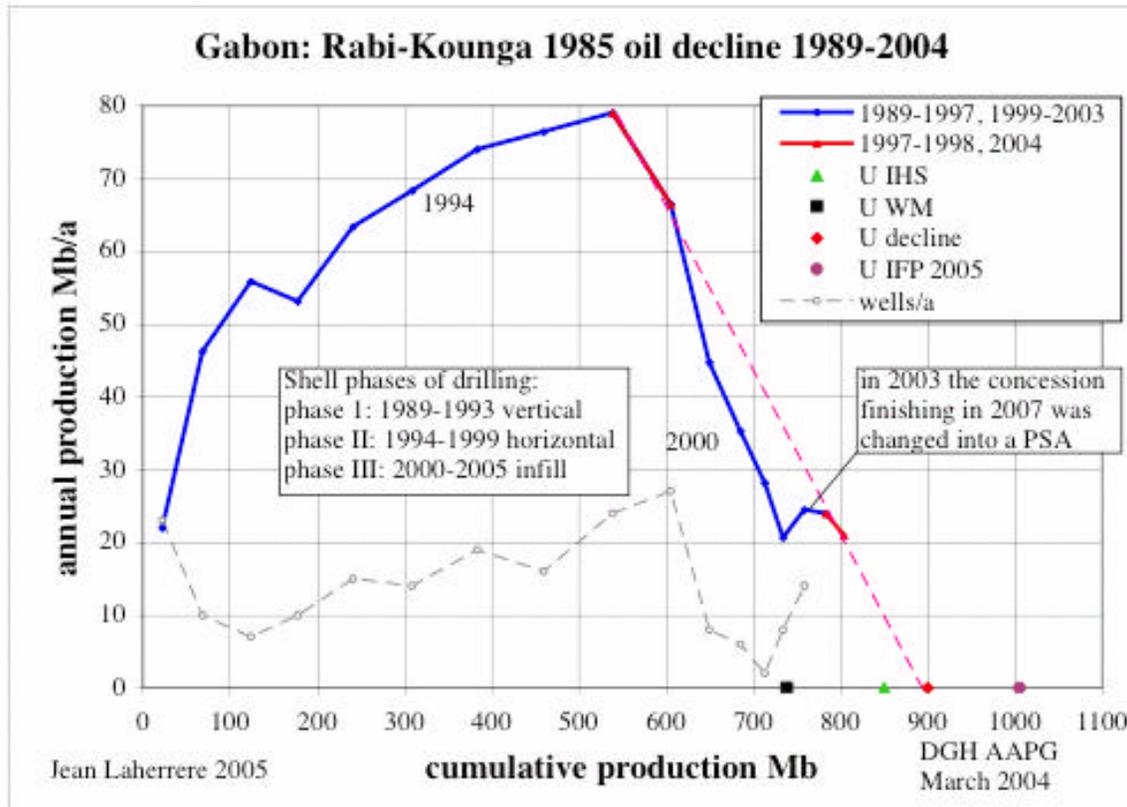


Jean Laherrere November 2005

### Rabi-Kounga oilfield in Gabon

Rabi-Kounga produced by Shell looks like Yibal in Oman also produced by Shell  
Both were overproduced with horizontal wells and the decline was drastic



Shell's Rabi-Kounga Oil Field 1996 ?

Rabi-Kounga field Presentation

#### -INTRODUCTION

Located onshore Gabon, the Rabi Field was discovered in 1985 and comprises a reservoir with aerial coverage of some 60 km<sup>2</sup>, with a 46 m thick oil rim overlain by a substantial gas cap and underlain by a charged aquifer. The exploitation permit for the field was granted in 1987 for a period of 20 years ( up to 1.7.2007).

Group Budget approval was gained in July 1987 for development of 319 MMbbl reserves comprising 58 production wells, 4 gathering stations and a central station, plus the 18" line south to Gamba. Facilities were sized for a plateau production of 80 Mbblsld.

One year later, as the project was underway, ongoing appraisal and development drilling resulted in an increase in the expectation STOIP and the recovery factor resulting in an increase in an expectation reserves from 319 to 439 Mmbbl. A second Group Budget Proposal for "Rabi Phase I" was approved in October 1987 for the drilling of an additional 23 production wells and an increase of surface facilities capacity for a 120 Mbblld plateau, comprising an increase in capacity of central station and an additional gathering station.

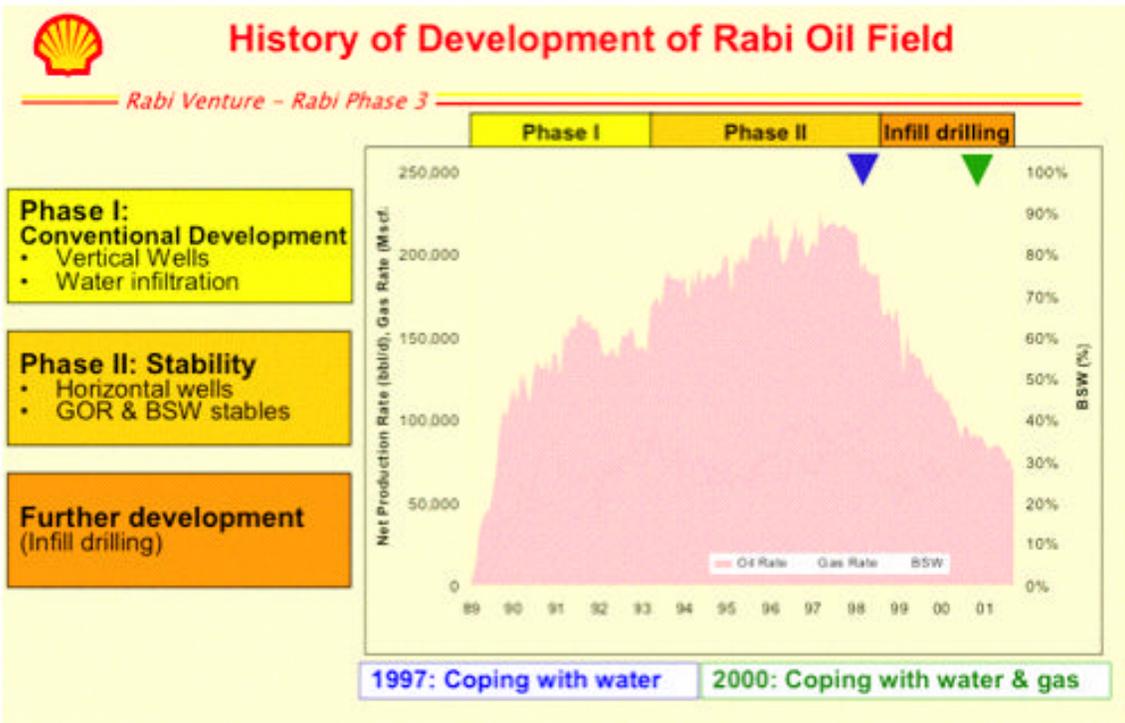
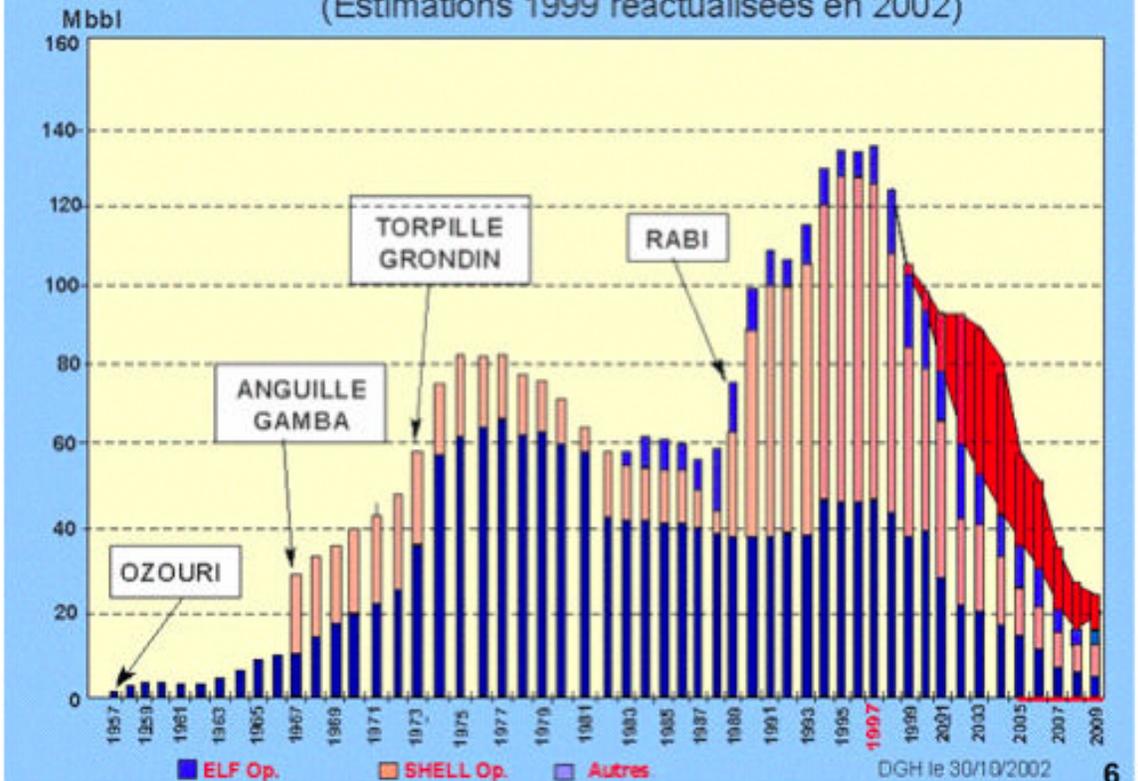
Rabi was brought into production in 1989 and encouraging reservoir performance, coupled with further appraisal activities in 1991, led to a significant increase in technical ultimate recovery (TUR). After studies ( surface and subsurface) a Revised Field Development Plan was submitted to the Group in May 1993, to support a Group Budget Proposal for “Rabi Phase II ”. This involved an increase in expectation reserve to 879 Mmbbl. The project to develop these additional reserves comprised an additional 76 production wells, additional surface facilities to restore the sparing philosophy ( which had been eroded to take advantage of the better than expected reservoir performance) and additional facilities to increase capacity. Group Budget approval for this project was gained on October 1993.

Additional reservoir information collected since that date, and the results from the recently developed Rabi Multi-sector Simulation Model **has resulted in a downward revision of the reserves estimated for “Phase II” from 879 to 801 MMbbl.** These studies however, also identified potential for raising recovery back to 854 with drilling of a further 35 wells. It was planned that a revised Field Development Plan for this “Increment A” drilling was submitted to Group and Partners in June 1995, to support a Group Budget Proposal for this additional activity by year en 1995.

In summery, the development of Rabi Field has been fragmented into a discreet set of increments, and activities related to the provision of surface facilities.

The Rabi field produces into five unmanned gathering stations where heating, gas liquid separation and well testing take place. Gas and liquid are transferred by separate pipelines to Central Station where dehydrated, reheating and evacuating of crude as well as gas and produced water reinjection take place. Evacuation crude is via two pipelines, one to Elf Gabon Cap Lopez Terminal, the other to the Gamba Terminal.

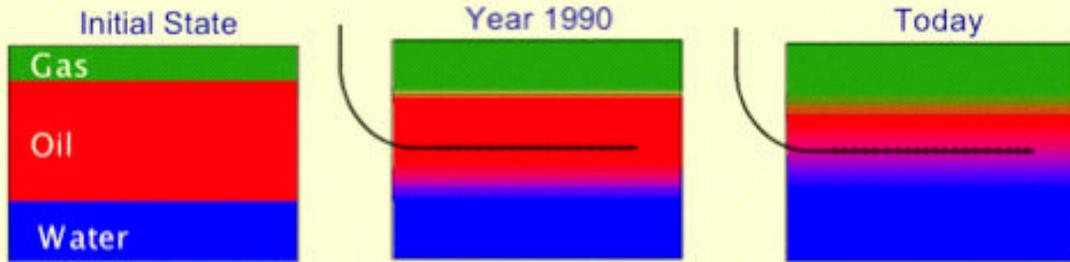
**GABON:** EVOLUTION DES PRODUCTIONS PAR OPERATEUR (100%)  
(Estimations 1999 réactualisées en 2002)



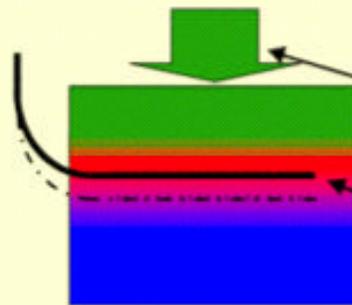


# Rabi – Diagnosis

Rabi Venture - Rabi Phase 3



- Today, the oil column is:
  - thinner
  - distant from wells
  - inclined



- Rabi phase 3
  - Compression and injection of additional gas
  - Additional wells