The Building Rocks of Africa's New O&G Industry

IVAN SANDREA explores key themes for Africa's energy outlook over the coming decade

During the last decade, new ideas, rising prices, political risk bets, technological developments, and rising capital expenditure supported a significant expansion of global exploration efforts and of the resource base. In the period 2000 to 2012 year to date, over 800 billion (bn) boe of new resources (conventional and unconventional), have been discovered globally. Of this, conventional resources account for approximately 380 bn boe (2P) while the rest is attributable to unconventional resources, both of which are just starting to change the long-term outlook of the global O&G industry.

The most important conventional resource exploration themes of the last few years include new discoveries in the FSU (Caspian), China onshore, Australian offshore, Brazil pre-salt, US GoM deepwater, Kurdistan, and notably Africa with discoveries in both petroleum rich countries as well as in half a dozen new countries.

Africa has without doubt been a major beneficiary of global exploration success efforts. Cumulative discoveries totalled 60–70 bn boe (2P) or 20 percent of the total global additions during the period 2000 to 2012 year to date. And more than half of this was added since 2007 and with a large part of it being gas. Discoveries have been made in all settings – onshore, below a lake, shallow water, deepwater, in new countries and/or basins with little or no exploration history. No unconventional reserves have been added (yet) to the inventory despite the fact that the continent has substantial heavy oil/bitumen and potentially shale gas.

Importantly, the big four heavyweights taken together – Algeria, Egypt, Nigeria, and Libya, which have traditionally accounted for the bulk of the region's production and reserves additions – for the first time in history added fewer new reserves than the other African countries combined. In other words, the club of the big four ceased to be an exclusive club. From the perspective of exploration results, the new clubs are:

- Emerging West Africa – Angola deepwater (new pre-salt province), Ghana deepwater (new province), Mauritania deepwater (new province), Ivory Coast deepwater (new province), Gabon deepwater (pre-salt)
- East Africa – Mozambique deepwater (new province), Tanzania deepwater (new province), Kenya onshore and deepwater (new provinces)
- Onshore Central Africa – Uganda (new province), Niger (new province), Sudan, South Sudan, Chad

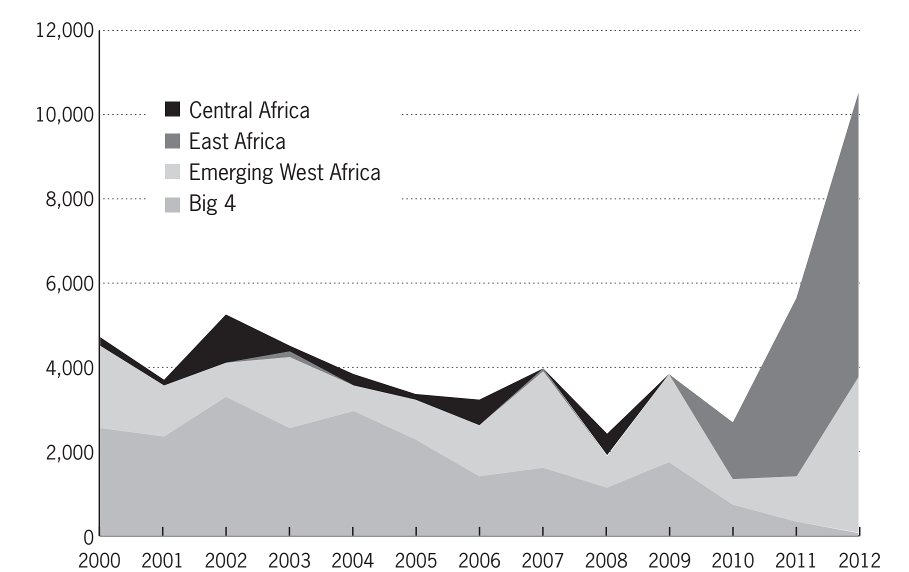
Since 2000 to 2012 year to date cumulative new discoveries in Emerging West Africa are estimated at 19.2–22 bn boe, in East Africa 12.5–20 bn boe, totalling 35–46 bn boe, and in Onshore Central Africa 3.2–4 bn boe. In the big four, a total of 23 bn boe has been discovered but it is worth noting that annual discoveries in the big four peaked in 2002 and since 2009 the annual discovery trend has been on a rapid decline. It appears that there are both below and above ground reasons for this deterioration. (Figure 1)

There are many other countries in Africa that are not part of any club (yet) such as Liberia, Sierra Leone, Somalia, South Africa, and Morocco. These have seen new basin tests and/or discoveries, but all have been of insufficient scale and geologically insignificanct. Cumulative discoveries in the rest of Africa totalled 600 mboe or just 1 percent of the total Africa.

Africa stands out as one of the most active continents when it comes to licensing activity, exploratory activity, new discoveries, and new development projects. In terms of E&P M&A, the continent accounted for just 6 percent or approximately $8 bn of the annual value of global deals in the last few years. Having said this, the competitive landscape in Africa has become crowded with players ranging from domestic NOCs, Asian NOCs, international majors, international independents, regional and local players, to name a few. However, it is interesting to note that the Chinese NOCs, despite their decade long presence and success relative to other Asian NOCs, have been absent in new E&P games such as Angola's pre-salt licensing round and gas discoveries in East Africa.

Given the recent successes and in particular the type of new reserves, likely development needs (i.e. long distance pipelines, gas, LNG, FLNG), and type of

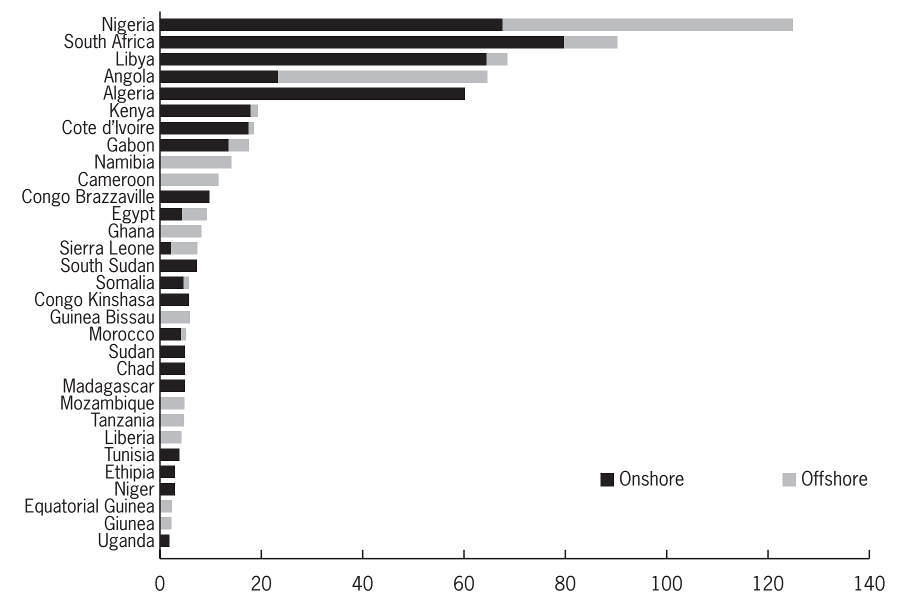
Figure 1: Chart of New Discoveries, Africa (bn boe)



Source: Sandrea & Enfield (2012), Company announcements, Bernstein players, competition in exploration and in M&A will continue to increase as the regionally successful companies such as Tullow and smaller look to cash out, seek capital to develop the resources or simply become targets of bigger players.

Looking to the future, global Yet to Find (YTF) stands today at close to 4 Tn boe. Of this, the African continent accounts for 1 Tn boe or 25 percent of the total. In Africa, the majority of the YTF is expected to be found in conventional reservoirs. New discoveries will take place in deepwater pre-salt reservoirs (i.e. significant presence in Angola and Gabon), traditional deepwater turbidites and new cretaceous plays, rifts basins (central Africa), in old intra cratonic sedimentary basins (i.e. Chad, Sudan), to name a few. It is possible that we will see more gas than oil, but oil still dominates. (Figure 2)

Figure 2: Africa Yet To Find (bn boe)



Source: EIG, modified by author

Longer-term efforts are also being made to understand unconventional resources, which if proven commercially will be added to the inventory. Large quantities of heavy oil/bitumen are known in several countries but particularly in Congo (Brazzaville), Nigeria, and Madagascar whilst shale gas deposits are thought to exist in South Africa, Algeria, Libya, and Tunisia.

Beyond the big four, the new clubs of countries underpinned by new discoveries in the last decade, another half dozen countries are seeing rising exploration efforts such as Malawi, Zambia, Ethiopia, Burundi, Zimbawe, South Africa, and Namibia for which we have little or no data. And whilst conventional wisdom and present day geological understanding tell us that there are unlikely to be large-scale petroleum basins in most of these countries, as we have seen, new finds such as those in Kenya and Uganda are sufficient to change a company, a country and in aggregate, a continent.

From a resource perspective, Africa's O&G industry has undoubtedly changed and will continue to change, particularly as new discoveries are brought on stream and exploration efforts diversify. Now as someone once said to me 'since the easy part of discovering the hydrocarbons has been done, the resources must now be commercialised' and that is Africa's next challenge.