

Developing South African-based Industry Supplying the Regional Upstream Oil and Gas Market

A Strategy Discussion Paper

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Disclaimer

*This document is a **draft** intended to stimulate discussion and provide input to conversations around the topic of this paper. It has been prepared by the Executive Director of SAOGA and principally represents a personal perspective rather than an official SAOGA view.*

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1 Introduction

Oil and gas activity in sub-Saharan Africa is still in the relatively early stages of what promises to be a long and sustained course towards greater production and construction of the extensive infrastructure to underpin it. Over the coming decades hundreds of billions of dollars will be spent exploring, developing and producing fields in this most promising of global upstream provinces.

South Africa remains on the sidelines of hydrocarbon discovery in the region as exploration to date has identified only a few minor gas fields. Nevertheless it is the major economy in the region with a well developed business infrastructure and, perhaps uniquely, the capacity to supply from the region much of what is required for the development of the upstream sector.

Much will need to be done to realise an ideal of supplying Africa's sub-Saharan oil & gas developments from the region; indeed preceding decades of upstream activity in the region have yielded very little in terms of indigenous upstream supplier capacity and current developments are still largely dependent on resources supplied from North America, Europe and, increasingly, Asia (China). This paper sets out a vision and strategy to position South Africa as the hub of an African upstream supplier sector that contributes a substantial and growing share of the input to the region's upstream projects.

The document is intended as a starting point to stimulate discussion and further thinking towards at least two objectives. The first is the need for South Africa to fill the policy void around the upstream supply sector and create a national strategy for participating in it. This paper provides an initial set of thoughts to underpin a process that the DTI, with assistance from SAOGA, will prosecute in the first half of 2011 to develop a sector strategy to be incorporated into the next iteration of the national Industrial Policy Action Plan (IPAP). The second objective is to provide the broader strategic context and rationale for SAOGA's upcoming business plan.

The paper is structured as follows: section 2 provides a general overview of the market opportunity and the South African capability to address it, section 3 sets out the broad strategic vision for positioning South Africa as a regional upstream hub while section 4 sketches specific actions and initiatives (i.e. the strategy) that are proposed to realise the vision. Section 5 concludes by summarizing the envisioned way forward in terms of specific next steps.

2 Background

The development of a strategy to capture part of the regional upstream supply business is predicated on the ideas that i) there is a significant opportunity in the region and ii) that the opportunity is accessible to South African-based companies. This section provides some background to support these propositions. It starts with a quick primer on the nature of the upstream industry itself. This is intended for readers unfamiliar with the industry and can be skipped by those who are.

2.1 Upstream – A Quick Primer

The Oil & Gas industry is concerned with finding, extracting, transporting, refining and then marketing and distributing products made from mineral deposits of crude oil and natural gas. These would include liquid fuels for transportation, petrochemical products, lubricants and bitumen in the case of crude oil and piped gas and LPG for natural gas.



Figure 1 Typical Oil & Gas Value Chain

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Figure 1 depicts the typical Oil & Gas industry value chain. Usually the industry operates in two distinct segments called upstream and downstream. While the exact definition of the transition between upstream and downstream activities varies, for our purposes it is convenient and simple to define upstream as all the oil & gas activity prior to the hydrocarbon entering a refinery i.e. upstream activity is concerned with the business of finding and extracting oil and gas from the ground.

The steps in the upstream value chain are:

- License Acquisition.** A company or companies obtain, from a host government, a license that grants rights to explore and develop a designated area usually referred to as a *license block*. License blocks may be either onshore (on land) or offshore (in the sea), a distinction that has implications for the technology that will be used in subsequent activities. The license award process itself may take different forms ranging from a formal bid or auction process to more opaque ways of awarding rights. It is not unusual for licenses to be acquired by a consortium of companies; it is also normal in many jurisdictions for the host government or their national oil company to get an automatic share of new license blocks. License holders then are typically a consortium of 3-5 companies, one of which (usually but not always the largest shareholder) will be designated the *operator* – this is the company that will actually carry out the physical activities on the block with the other partners essentially being financial investors in the

venture. Blocks are granted to licensees on the understanding that the operator will undertake a specific work programme and will pay the host government a share of any resulting revenues – sharing arrangements are typically either based on a *tax and royalty regime* (company pays a revenue based royalty and a profit tax) or a *production sharing contract (PSC)* in which the company gets a share of physical production to cover costs and some profit (there are usually complex formulas underpinning this) with the host government getting the balance of production to sell on their own behalf.

- **Exploration & Appraisal.** Once a license is secured the operator will begin the process of exploring for oil and gas in the ground beneath the block. Typically the oil or gas sits between 200m and 6km below the surface of the earth and is trapped in *reservoirs* within a rock formation. In the case of offshore blocks, it is technically possible for the industry to explore blocks in up to about 3000m of water (a limit being constantly pushed by technology advances). Ultimately, to “discover” hydrocarbon it is necessary to drill a well that will penetrate the reservoir. To determine where to drill, the exploration process begins with generating subsurface images from *seismic* survey data and complex computational models. This seismic data is obtained by generating sound waves and measuring reflections from the subterranean rock formations – a process that is analogous to the sonogram scans used during a pregnancy to image a fetus. Once the geoscientists have identified a promising target(s), a drilling rig will be brought in to drill a well into the formation. On land this will usually be a truck mounted rig whereas for offshore blocks one of the various types of offshore drilling vessels will be contracted for the job. If the exploration well is successful, a number of other wells are normally drilled as part of an appraisal program to understand more about the size and characteristics of the reservoir – this provides the critical information needed for planning a development of the reservoir or *field* (a collection of reservoirs).
- **Development & Construction.** Once sufficient hydrocarbon *reserves* have been proved in the exploration/appraisal process the field may move into the development phase. This is typically where the major quantities of money are spent in the upstream industry with typical projects requiring investments in the billions of dollars. Development will involve a *drilling* programme to drill the production wells, a *completion* programme to line or case the wells and install the necessary wellhead equipment, and construction of pipelines, processing equipment and storage facilities to receive and separate the raw stream (usually a mix of oil, gas, water and sand) coming from the reservoir into component oil and gas streams and store it prior to loading it into a pipeline or ship for transportation to a refinery or market. Development costs are much higher in offshore environments where processing equipment has to be put on floating facilities (platforms or FPSOs) and pipelines and equipment are installed and hooked up on the seabed. Frequently, fields are remotely located and significant effort has to be made to establish operating bases and logistics infrastructure to support development and the subsequent operations. In the case of gas fields that are far from existing pipelines expensive investments in LNG or Gas-to-Liquids (GTL) plants will need to be made to render the gas transportable – one implication of this is that it is usually not feasible to develop remote gas fields unless they

contain large reserves.

- **Production & Operations.** The initial development phase of an oil & gas project usually takes 2-5 years and often continues into subsequent phases of developing nearby reservoirs. The end-point of a development phase is marked by *first oil*, the point at which the infrastructure is completed and oil and gas start to flow from the well – this also marks the transition to the production and operations phase. In general, individual wells will produce hydrocarbon for 7-20 years with the overall life of a field much longer (20-40+ years) as new wells are brought into production in a staggered fashion. Relative to development, the operating costs of an oil field are relatively low. Nevertheless, because they are incurred over a long period of time and involve more routine tasks like inspection and maintenance, replacement of aging equipment, manning control rooms, running a base etc the markets for equipment and services in this phase are considerable and more accessible to companies that don't have the sophistication and scale that dominates the development phase. It is therefore a useful phase of the upstream value chain for companies to enter the overall upstream supply chain.
- **Transportation.** This involves moving oil and gas to refineries and markets either through a pipeline or tanker ships. It is often not considered part of upstream but in some instances (especially where gas is involved or where fields are in remote locations) it is necessary to build long-distance pipelines or custom built LNG ships to move hydrocarbon. In these instances the transportation will usually form part of the upstream project.

The companies that own and operate oil and gas license blocks are generally considered to be the tier 1 companies in a larger upstream supply chain (see Figure 2). In each phase of work they generally contract to large specialized service companies that form the second tier of the supply chain. The tier 2 companies are typically large, multi-national companies that focus on one or more specialized areas of the industry e.g. Transocean for offshore drilling, Fugro for seismic acquisition, Halliburton for facilities development etc.; they are often larger than all but the largest operators. Beneath these tier 2 companies sits a vast pyramid of subcontractors and sub-subcontractors that supply all manner of technical and non-technical products and services to the industry. Most of these companies do not normally contract directly with operators except in the “support & services” subsector. The tier 3+ part of the supply chain contains a lot of small and more regionally focused companies.

Source: Adapted from Oil & Gas UK website

Tier 1: Operators	Integrated Majors	Large/small Independents	National Oil Companies	Non-Operating Companies	Exploration
Supply Chain Categories	Reservoirs	Wells	Facilities	Marine & Subsea	Support & Services
Tier 2: Main Contractors * & Consultants	Reservoir Engineering/ Management Contractors Seismic Data Acquisition & Processing Contractors	Oilfield/Well Services Contractors Drilling Contractors Well Engineering Consultants	Engineering, Operation, Maintenance & Decommissioning Contractors Engineering Consultancies Structure and Topsides Design & Fabrication	Marine/Subsea Contractors Heavy Lift Contractors Pipelay Contractors Floating Production Storage Units	Catering/Facility Management Sea/Air Transport Warehouse/ Logistics Communications Recruitment & Training HSE Services Medical Services Banking & Finance Legal & Insurance Accountancy
	Geoscience Consultancies Data Interpretation Consultancies Seismic Instrumentation Data Storage IT	Cementation Contractors Drilling & Well Equipment Design & Manufacture Drilling Tubulars Laboratory Services	Machinery & Plant Design & Manufacture Engineering Support Contractors Specialist Engineering Services Specialist Steels & Tubulars	Subsea Manifold & Riser Design & Manufacture Marine/Subsea Equipment Subsea Inspection Services	
Tier 3+: Product & Services Suppliers, Components Sub-contractors & Sub-suppliers					

Figure 2 Upstream Supply Chain

2.2 Nature and Size of the Sub-Saharan Upstream Opportunity

In the current context we need to establish i) the general nature of the upstream opportunity in sub-Saharan Africa, and ii) whether the size of the opportunity justifies the investment of further time and effort to pursue it.

Several characteristics of the sub-Saharan upstream opportunity give a sense of the potential industry opportunities that will arise:

- 1. Early stage and high potential.** Although there has been significant production in the Nigerian Delta and in the shallow waters off Angola’s Cabinda region for 50 years, expansion of activity beyond this narrow base has only really occurred over the past 10-15 years. With new licenses, new activity and new discoveries the potential of the region is only just starting to be recognized and developed.
- 2. Widely dispersed geographically.** Current activity is heavily concentrated in Angola and Nigeria which account for about 80% of investment and production in the region. In the past few years major new discoveries in Uganda and offshore Tanzania/Mozambique have made it clear that

sub-Saharan Africa's upstream region encompasses more than just West Africa. At the same time West Africa itself has expanded to encompass new areas and countries (e.g. Ghana). Current interest in further exploration of the African Rift Valley, the Mozambique Channel, deepwater and onshore West Africa and Southern Africa suggests that the opportunity will become even more geographically dispersed around the region.

3. **Offshore and onshore developments.** Historical developments in the region have been in shallow water offshore areas, in part because of inadequate infrastructure and political instability in the onshore regions which impeded activity there. With major discoveries in landlocked Uganda, onshore gas in Mozambique and growing activity in the onshore coastal regions of West Africa it seems clear that onshore developments will play a greater role in the region going forward.
4. **Deepwater activity.** Sub-Saharan offshore activity has followed the global trend of looking for hydrocarbon in deeper waters. West Africa is one of the key drivers for global deepwater growth and major deepwater exploration successes throughout the region confirm that further deepwater exploration and development will be a major part of the regional upstream activity.
5. **Oil and gas.** Upstream activity in the region has historically focused on oil. Going forward we will see a shift towards a mix containing more gas. In West Africa, gas associated with the oil fields has historically been flared in the absence of a ready market for it. Global environmental pressure and the development of a global gas market means that West African countries are now making substantial investments in LNG and GTL (gas-to-liquids e.g. Sasol technology) infrastructure to monetize gas resources. This will undoubtedly stimulate the development of gas resources in the region. Recent major gas discoveries in offshore East Africa (especially Anadarko's Mozambique finds) suggest that gas infrastructure will need to be built there too.
6. **Continuing Exploration Activity.** Despite the enormous exploration successes of the past decade the sub-Saharan region remains under-explored and we would expect the continuation of robust levels of exploration activity across the region for at least the next decade and likely much longer. This will involve onshore, shallow and deepwater offshore licenses.
7. **Huge Development Investment.** With so much recent exploration success across the region there are now many projects at or approaching the development stage. In addition, ongoing high exploration levels will likely result in further significant development opportunities given the relative immaturity of the region. Over the coming decades then we can expect continuous development activity encompassing onshore and offshore field development, supporting infrastructure and the development of gas monetization infrastructure like pipelines, power plants and LNG/GTL facilities.
8. **Long tail of operations.** With current West African production at around 5 million barrels of oil per day (MMBOPD) there is already a substantial operating infrastructure that needs to be supported over the next 30-40 years as these fields are maintained and supported. New developments across the region will further expand and extend this operations opportunity.
9. **Remote from existing supply chain.** Lastly, one of the more salient features of the sub-Saharan upstream opportunity is its remoteness from existing upstream supply chains. Decades of activity on the continent have done little to create an indigenous upstream supplier base and most support for all phases of the upstream value chain comes from North America, Europe and

increasingly Asia. As the scale of exploration/development activity and operations support continues to grow it will become increasingly attractive to locate more supplier activity in the region¹.

The picture we have painted above is one of sustained growth and geographic dispersion, of onshore & offshore, deepwater & shallow water, oil & gas activity at all stages of the upstream value chain.

In quantifying the sub-Saharan upstream supply opportunity we take the view that data gathering should focus on assessments that are material to decisions that need to be taken². For our purposes we need to establish that the regional upstream opportunity is large enough to justify further interest and investment to address it.

In a recent study commissioned by SAOGA, Marintek (Marintek, 2010) supplied a number of figures which speak to the scale of the upstream opportunity in sub-Saharan West Africa. Figure 3 summarizes the key data presented by Marintek for Angola and Nigeria and adds an estimate for the rest of West Africa based on the relative share of total production.

Type of Expenditure	Cumulative 2009-2013				Annual Average	Annual Growth Rate
	Nigeria	Angola	Other W. Africa	Total		
Offshore	80290	75375	38916	194581	38916	13.5%
Seismic	1318	1360	670	3348	670	10.2%
Drilling	16140	15967	8027	40134	8027	12.1%
Subsea Hardware	8280	10173	4613	23066	4613	7.3%
Fixed & Floating Platforms	13484	9729	5803	29016	5803	7.8%
Logistics & Transportation	676	487	291	1454	291	7.7%
HSE	405	312	179	896	179	10.7%
MMO	39704	37295	19250	96249	19250	17.8%
Decommissioning	283	52	84	419	84	N/A
Onshore	17000	N/A	N/A	17000	3400	N/A
Capex (LNG, Refinery etc)	10220	N/A	N/A	10220	2044	N/A
MMO	6780	N/A	N/A	6780	1356	N/A

Sources: Nigeria & Angola data from Marintek, Other West Africa SAOGA calcs

Figure 3 West African Upstream Market

Several observations should be noted about these figures:

- The scale of the opportunity is large. Expenditure related to offshore projects will average USD39 billion per year over the 5 year period to 2013;
- Roughly half of the offshore expenditure relates to the MMO (maintenance, modification and operations) segment. Moreover this is the fastest growing segment at 17.8% per annum reflecting the shift over time from project development to project maintenance and operations;

¹ We believe this will be true purely from the economic perspective of supply chain logistics but we note that it will also be true from a political perspective as host governments demand that upstream activity contributes to broader employment and economic growth.

² One of the key insights to emerge from the field of decision analysis is that information only has value if it changes the decisions that will be made. Consequently where, even highly uncertain, information is sufficient to establish that a particular decision is sound there is no value to further refinement of that information.

- Logistics and transportation, a segment in which South Africa has already established a strong position, is worth USD180m per year over the period;
- It is unfortunate that the figures only cover the period to 2013. Based on our understanding of the project timelines in key markets like Angola it is likely that capital expenditure in the offshore segment will remain strong (near levels in the 2009-13 period) during the 2014-2019 period as well – this will of course lead to continued growth in the MMO segment;
- Onshore numbers for Nigeria hint at the additional potential in this segment. In Angola for example an LNG plant is currently under construction and a refinery is being planned – we are also aware of at least one onshore field development by Roc Oil.

While numbers for other parts of sub-Saharan Africa have not been as readily available a number of anecdotal estimates give some idea of rapidly growing potential. The Marintek (Marintek, 2010) report indicates that recent exploration expenditures in Mozambique amount to about USD800 million. Offshore field developments near the Mozambique/Tanzania border, when they happen, will involve investments at the usual scale of deepwater developments (USD2-10 billion per project). They will also require onshore investments in supporting infrastructure like supply bases (already happening) and LNG plants or gas pipelines to monetize the gas.

In conclusion, there seems to be little doubt that the upstream opportunity in sub-Saharan Africa is a substantial one. In monetary terms the industry's procurement spend is likely to be of the order of USD40 billion annually for at least the next 10 years, operational (MMO) expenditures of USD20 billion annually will be sustained for an even longer period, the industry will develop in many parts of the continent and there is a clear opportunity to establish a local supply chain in the region.

2.3 Possibilities for South African Participation

The yellow shaded area in Figure 2 shows the areas of the upstream value chain in which South African companies are predominantly present. This is not to say that there are not one or two niche companies operating in other segments of the market, simply that it is in the areas of facilities, marine & subsea and support & services that South African industry is most present. More extensive South African participation in the regional upstream segment will then naturally build upon this base; over time it will identify other areas of competence for South African firms based on capabilities that have been developed in other industries – notably in the mining sector and its supporting industry.

Some further comments provide insight into the key areas of South African competitive advantage and how these might be extended to cater to the upstream industry:

- Cape Town harbour is a major service point for the repair and upgrade of offshore drilling rigs and other types of specialized vessels used by the industry (e.g. pipelay vessels, FPSOs, various kinds of service barges etc). A large engineering industry in the Western Cape and the Sturrock Dry Dock are keys to the competitiveness of this repair hub. By our estimates annual revenue

from this business fluctuates between R600 million and R1 billion depending on the number of projects brought in. Rig/ship repair and upgrade projects are also very labour intensive and involve up to 2500 workers per project – these are drawn from a contract labour pool of ~3000 workers who depend on the industry. We believe, along with key industry executives, that there is significant potential to attract more projects into this repair facility increasing revenue at least 3-5 times with commensurate increases in FTE (full time equivalent) employment. Total heads employed is likely to increase less (perhaps double) as some of the extra capacity will be provided by better utilisation of the existing labour pool. Key challenges to growing this business are improving the management of port facilities and services supporting the industry, improving productivity in the industry and better marketing of the Cape Town upstream repair hub.

- Although the large dry docks in Cape Town and Durban provide a source of unique competitive advantage in Africa they are only capable of handling ship-shaped vessels. There are currently no facilities on the African continent for dry-dock repair work on drilling rigs and clients must use facilities in Europe, Dubai, Asia (predominantly Malaysia & Singapore) or elsewhere. There is a clear opportunity to invest in infrastructure that will support dry-dock work on rigs – given the available space Saldanha Bay or Coega would seem to be the most feasible places for such investment.
- There is a growing trend in the upstream industry for marine repair and upgrade work to be done on station at or in the oil fields as the downtime required to move equipment to ports for repair work is costly. Extending South African repair and maintenance capability into this segment is a clear opportunity that a number of companies are already strongly competing in.
- Cape Town (see (Marintek, 2010)) is already a major logistics point for the West African oilfields and is becoming increasingly important as activity also grows on Africa's east coast. There is a clear opportunity for the Western Cape to take advantage of good infrastructure, a good regulatory/business environment and good location by building on this logistics position to make the region THE major logistics point for the upstream industry in sub-Saharan Africa. Some of the actions that could promote this are: establishing a logistic/supply base at Saldanha Bay (preferably within a free-zone), actively working with major oil service companies to situate their bases in the region, increasing flight connections into Africa from Cape Town and reviewing customs and excise procedures that impede movement of oil and gas related materials and equipment. In addition to the logistics activity itself, increased global logistics activity is likely to result in more procurement from South African sources.
- South African companies have extensive experience in the fabrication of machinery, plant and equipment for the mining and resource industry. A significant number of these companies already have found niches for leveraging this capability in the upstream industry e.g. designing and building structures and modules or supplying components and equipment.
- Good infrastructure and supporting services for the oil and gas industry are not well developed on the African continent in general and South African companies offer a wide range of services and capabilities to address such needs – generally in a way that is tailored to the reality of operating on the continent and often at much more competitive prices than those offered from

outside the continent. There is a clear opportunity for South African companies to be involved in the development and support of the general business and infrastructure environment that will be required by the oil field operations.

- Training is another clear opportunity for South Africa. We have well established training institutions (e.g. world class universities) that could provide basic qualifications for the upstream industry. South Africa is also an attractive location for hosting the ongoing specialized training carried out by the industry in 2 day to 2 week courses. Much of the latter training currently involves flying trainees out of Africa to Europe or the US for training – it would be far more cost effective to locate such training to closer locations.
- We noted in section 2.2 that over time the upstream MMO (maintenance, modification and operation) opportunity will become more significant in the sub-Saharan region as projects move from the development phase into the production phase. Such activity is by nature more continuous and more competitively supplied from closer proximity. There would appear to be a substantial opportunity for South Africa to establish itself as the major hub for this activity – supplying a network of more local hubs at the oil fields across the continent.
- Closely related to the previous point, there is an opportunity for South Africa to position itself as the location of choice for regional head offices of global companies operating in the region – the business environment, infrastructure and quality of life for expatriate personnel would all support this proposition.

We have made no attempt in this section to try and value each of these segments of opportunity. Further work could certainly be done on this but it is clear that the overall scale of the upstream opportunity would make each of these niches substantial.

A final comment to consider is that the global upstream supply chain is generally quite difficult to break into. Quality and safety standards are high and track record is crucial as operators and their main contractors seek to manage project risks. We believe that there is a lot of capability in South Africa that could probably match or outperform many of the European and US contractors who are favoured because of their track record in the industry. One strategy then that is likely to be effective in growing South African upstream activity is for local firms to look to partner or JV with foreign suppliers who can bring market credibility and specific upstream expertise to combine with locally available capacity and capability to be deployed in the region.

3 Strategic Vision

Figure 4 summarizes our broad strategic vision for South Africa's role in the sub-Saharan upstream industry. In short, the intention should be for South Africa to assume the role of the regional upstream hub, much as Singapore has assumed the role in Southeast Asia (rather than Indonesia which is the major producer). While South Africa is not a significant upstream producer it is the major economy in the region with about 40% of total economic output. It also has the region's most sophisticated economy with a strong skills base, well-developed banking system, stable legal environment, sound

business and physical infrastructure, extensive logistics and transportation infrastructure, proximity to both East & West African regions as well as conditions that are attractive for locating expatriate personnel of global upstream firms. It is a strong candidate to be the regional hub.

Major centres within the major African oil producing nations constitute the main alternatives for a regional hub but each has weaknesses. Angola is prohibitively expensive and has excessive restrictions on the movement of goods and people in and out of the country; language is also an issue. Nigeria suffers excessive levels of social unrest that impact on the industry in the form of kidnapping of foreign workers and sabotage of infrastructure; the perception of corruption is also intolerably high. Ghana, the newest and perhaps strongest challenger, like Angola and Nigeria lacks the infrastructure and depth of capacity available in South Africa. The greater challenge to the growth of South Africa as the regional upstream hub is that the global industry will continue to service Africa out of the European and US hubs in Aberdeen, Paris and Houston. We need to build the proposition with global companies and African governments that Africa’s oil and gas industry can and should be served from a major hub within the continent; moreover that this hub will be an important part of ensuring the development of an indigenous upstream supplier base in the region as a whole.

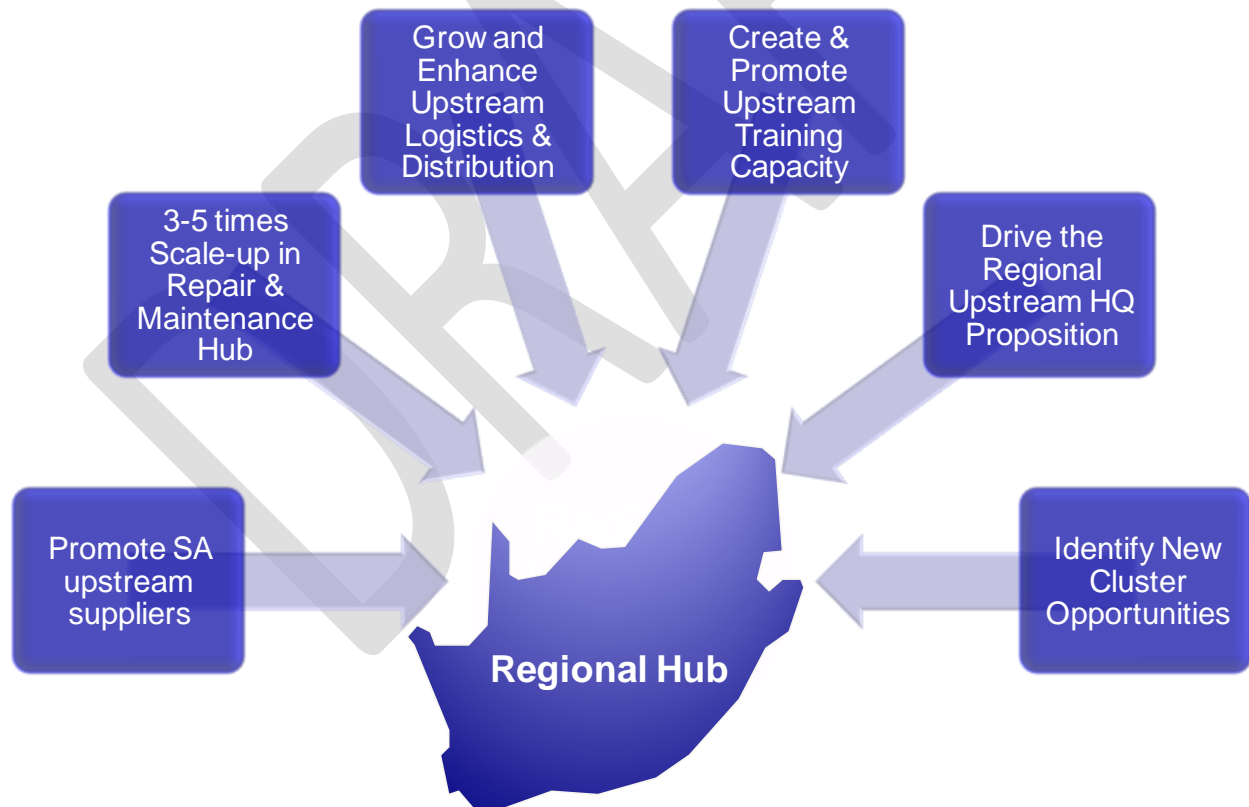


Figure 4 SAOGA Strategic Vision

We have identified 6 individual strategic opportunities that together enhance the proposition of South Africa as the regional hub. By and large these have been selected because we believe they are realistic

and implementable in a timeframe that starts immediately. The vision also incorporates focused effort to identify further opportunities.

1. **Promote SA Upstream Suppliers.** There are currently a significant number³ of South African companies involved in the regional upstream industry. It is a clear strategic priority to promote these firms and look to grow their involvement in the sector through: general marketing of the SA suppliers, provision/facilitation of marketing support and facilitating partnerships with African and global suppliers.
2. **3-5 Times Scale-up in Cape Town Repair & Maintenance Hub.** The ship/rig repair and maintenance hub in Cape Town harbour has the potential to grow at least 3-5 times with a commensurate impact of perhaps doubling employment. A focused strategic initiative to draw industry into a collaborative initiative to address the critical issues that are holding back development of this sector is vital. The initial requirements will be to market the hub, improve productivity and ensure adequate provision of infrastructure and services.
3. **Enhance Logistics & Distribution.** We have previously noted that the Western Cape is already a significant distribution hub for the regional upstream industry. A focused initiative to build this sector could enhance this further. In particular, we need to do all we can to attract the global service companies to locate their regional distribution centres in the Western Cape and we need to ensure that the potential (already being pursued by global logistics companies) for developing Saldanha Bay as a regional supply base is reached. A key spillover benefit of being the physical host of the regional distribution hub is likely increased procurement from within the South African market.
4. **Promote Upstream Training Capacity.** This initiative would aim to exploit cultural, cost and proximity advantages to establish South Africa as the preferred location for sub-Saharan Africans and those operating in sub-Saharan Africa to come for oil and gas education. At one level this will require extension of our tertiary education programmes in commerce, engineering, geology etc to develop a greater focus on oil and gas-related disciplines and specializations (perhaps in conjunction with established global institutions). At the same time there is an opportunity to attract a greater share of the upstream short-course market to South Africa – this would include both continuing professional development and the mandatory HSE courses in the industry. The vision here is to create a “virtual” upstream training centre (provisionally called the Marine Oil & Gas Academy – MOGA) that would offer a catalog of courses (sourced globally and locally and offered in SA) that could be commonly marketed to the key training buyers in the region. The idea could be extended to cover shared training infrastructure (e.g. advanced simulators) that could be established in South Africa. Aside from the direct economic and employment benefits to training providers, this proposition has

³ SAOGA currently has about 160 members and we have had contact with perhaps 300 or 400 more. Not all these companies currently participate in the oil and gas sector and perhaps only 20% of them would be able to supply directly to a global client but it is clear the number of firms is in the hundreds.

potential to generate even higher returns through business tourism – it is not unreasonable to suppose that candidates coming to SA for a 3-5 day training course will spend USD1000-1500 (or more) on labour intensive tourism services with the potential market running to tens of thousands of heads.

5. **Drive the Regional Upstream HQ Proposition.** South Africa is already viewed as the location of choice for global companies to drive their African expansion from – a sort of “gateway to Africa”. This largely a result of the sophistication of our economy and depth of skills which make it a natural base on the continent. The idea would be to promote this idea in the upstream oil and gas industry as well and encourage them to establish regional head offices here – as an increasing number of upstream companies are now doing. South Africa, the Western Cape in particular, is a particularly attractive location for global companies to place expatriate staff working on the continent. Regional HQs will generate direct employment but also have a tendency to create substantial movement of personnel for visits, training etc.
6. **Identify New Cluster Opportunities.** The Marintek (Marintek, 2010) report suggested potential for South African companies to establish competitive positions in a number of new upstream segments. Ongoing effort to study the upstream value chain and identify and strategize new cluster opportunities is an important part of continuing to develop our upstream sector and is explicitly part of our strategy. This is a process that will involve explicit study initiatives as well as industry forums to look at content localization opportunities in domestic upstream projects that could have broader application in the export market.

So far we have avoided the question of which region(s) within South Africa should be positioned for the upstream market. This is a difficult question that deserves further debate but some observations can be made to guide discussion.

- It is well documented that successful clusters have a strong geographic concentration, usually within a city and its hinterland region. It would probably be sensible then for planners to target a single main centre for the upstream industry within South Africa. This does not imply that activity would occur exclusively in this city – indeed to take the UK and its Aberdeen hub as an example we observe that many oil and gas firms have their primary location outside Aberdeen, head offices are in London and elsewhere and other areas like the Northeast have developed strong clusters of upstream firms; Norway too shows a dispersion of oil and gas clusters outside the primary Stavanger hub.
- The Western Cape, Cape Town in particular, is *de facto* the upstream centre in South Africa. Historically this relates to the geographic distribution of domestic oil and gas resources which led to PetroSA, the Petroleum Agency and most of the other operators and service companies involved in the industry establishing in Cape Town. More recently global firms seeking to work in West and East Africa have been locating regional bases in the Western Cape because of its proximity to other firms and its attractiveness to global staff.

- Given that a large part of the regional oil and gas activity is offshore any logistics hub will need to be located near a seaport. In the context of South Africa this would suggest Cape Town-Saldanha Bay, PE-Coega or Durban. Global oilfield logistics providers have already invested in substantial capacity and infrastructure in Cape Town (and are in the process of establishing a supply base at Saldanha Bay). In fact, as we have previously noted, Cape Town is already a major logistics hub for West Africa so it is unlikely that a compelling case could be made to shift this focus. As activity increases on the east coast of Africa it is likely that oilfield logistics activity will naturally grow in Durban and perhaps PE-Coega.
- Gauteng is a compelling location for some aspects of the upstream industry. Good flight connections, the huge base of engineering companies and the fact that it is the commercial centre of South Africa make it a good choice for regional head offices especially where global firms have partnered with Gauteng-based companies. In many instances large oil services firms (e.g. KBR, Amec, Foster Wheeler etc) already have mining-focused offices in Gauteng. Johannesburg's airport is also a major crew change point for oilfield personnel entering and exiting the region from Europe or Asia. As such it is a natural place to conduct short-course training for the industry.
- For tertiary education and training it will be important to create strong links between top-tier academic institutions and industry – this would suggest a focus on Gauteng and the Western Cape.
- Durban and Cape Town are the two main centres for ship repair in South Africa (both have dry-docks and well-established companies) although Cape Town is the port known as an oil and gas-focused repair centre; the recent A-Berth investment has strengthened this proposition further. Coega also has potential for establishing ship repair capability given its abundant space and status as a free zone.

On balance we would take the view that the primary policy focus should be on establishing Cape Town/Saldanha Bay as South Africa's principal upstream region. We would expect substantial upstream capacity to also be present in Gauteng (engineering, training, air logistics, HQs) and possibly some ship repair and logistics activity in Durban.

4 Business Strategy

This section is intended to suggest at a more granular level the specific objectives and activities that will be required to realise the strategic vision set out in section 3. At this stage no efforts have been undertaken to develop detailed plans and resource requirements for these activities; this would be more appropriate once we have achieved a level of agreement from the key stakeholders around the broader upstream strategy. Sections 4.2 to 4.7 have been drafted in bullet-point form which reflects the working document nature of these ideas – it is hoped that they will provide a stimulus for further thinking and refinement rather than a definitive set of activities at this stage.

4.1 Implementation Approach

The scope of the strategic vision that has been outlined is well beyond the capacity of SAOGA to execute alone – even with a substantially increased budget and resource pool. Accordingly, there needs to be a fundamental shift in the framework for setting and executing the agenda for developing the upstream sector. There will need to be greater involvement and contribution from industry and other stakeholders in the process.

We propose that each of the six strategic opportunities be considered a specific programme and actively governed by a steering committee made up of knowledgeable, influential and motivated stakeholders drawn from industry, government and other areas as appropriate. At the working level companies, SAOGA and other stakeholders would all contribute time and resources to carrying out the agreed plans. In this framework SAOGA would then function primarily as a secretariat to facilitate and coordinate activities and not as the ultimate creator and implementer of the industry development agenda. Over time there will be a need to ensure that SAOGA can source funding and support activities in other regions besides the Western Cape.

4.2 Promote SA Upstream Suppliers

4.2.1 Objectives

- Increased business from SA-based suppliers into the regional upstream market for services.
- Increase the number of SA-based companies participating in the global supply chain.

4.2.2 Key Activities

- Improve & maintain SA Upstream supplier directory
- Targeted publicity/media campaigns to promote SA supplier base
- Direct approaches to key regional upstream buyers
- Preparation of SA companies for export readiness
 - Export readiness profiling & preparation
 - Preparation for exhibitions & trade missions
 - General education of companies regarding doing business in the region
- Facilitation of exhibition & trade mission opportunities
- Matchmaking for SA companies
 - Global firms with access to supply chain looking for SA partners
 - African firms with access to local markets looking for partners
- Working with government to increase access to regional markets
 - Providing input to bilateral agreements between African governments
 - Dealing with access issues e.g. visas, customs, logistics etc

4.3 3-5 Times Scale-up in Cape Town Repair & Maintenance Hub

4.3.1 Objectives

- Increase revenue and FTE employment from Cape Town ship/rig repair activities by factor of 3-5.
- Establish Cape Town as the preferred centre for upstream maintenance and upgrade work for rigs, specialized vessels and floating facilities in the region.

4.3.2 Key activities

- Creation of marketing collateral to promote the destination for ship/rig repairs
- Benchmarking and comparative cost/productivity analysis for the industry
- Provision of systematic market intelligence to the industry
 - Need to know who the clients are and what they require
 - Competitive requirements
 - Specific market opportunities – tracking of vessels maintenance schedules etc.
- Continuous liaison with industry at multiple levels
- Sector monitoring and evaluation
 - Track performance in various areas
 - Scope of work and projects
 - Evaluation of performance
- Productivity improvement programme
 - Individual supplier development
 - Supply chain efficiency
- Increasing the degree of industry collaboration (main contractors, subcontractors, TNPA etc)
 - In delivery (networking etc)
 - In marketing
 - Resolution of conflicts
- Development of a BBBEE Trust
 - Industry can receive appropriate credit for contributions
 - Trust will channel funds to skills development, enterprise development and social investment relevant to sector
- Skills development focused on upskilling and expanding the sector's contract labour pool
 - Training needs analysis
 - Up-/multi-skilling in keys areas
 - Basic skilling to ensure competent supply of labour
 - Skills passport system for tracking experience, skills and qualifications
 - Developing/sourcing curricular for industry training
 - Sourcing funds for industry training initiatives
- Develop an effective working relationship with TNPA

- Communication with industry
- Product and service innovation – R&D (with local academic entities, partnering with foreign companies)
 - SAOGA would play a facilitation role to connect people
 - Would also make information available
 - Disseminate standards
- Drive HSE agenda and other key industry performance areas

4.4 Enhance Logistics and Distribution

4.4.1 Objectives

- Increase the importance of the Western Cape in sub-Saharan upstream logistics and distribution
- Establish and grow a regional supply base at Saldanha Bay
- Increase number of global upstream service companies locating regional distribution centres in Western Cape/Gauteng

4.4.2 Key Activities

- Influencing and driving regulation change to reduce barriers to business
 - Would include implementation and maintenance of measures like industry bond if appropriate
- Skills development – logistics skills
- Liaising with TNPA, SARS, Home Affairs etc
- Work with PGWC/DTI on free zone(s) at Saldanha Bay (and CT?)
- Promoting new links – air and sea – into Sub-Saharan Africa
- Marketing and promotion of location(s) – collateral etc
 - Pulling in global companies to SA for distribution hubs
 - Getting local companies to Saldanha Bay

4.5 Promote Upstream Training Capacity

4.5.1 Objectives

- Establish SA as a major destination for hosting upstream industry related short courses
- Increase the higher education opportunities for oil and gas training in South Africa

4.5.2 Key Activities

- Completion of a business plan for the establishment of the proposed Marine Oil and Gas Academy (MOGA)
 - Define funding model

- Define the scope of cooperation (i.e. marketing only, marketing and shared facilities etc)
- Define ownership/governance model
 - Private company(ies) to run
 - SAOGA controlled non-profit etc
- MOGA activities
 - Development of marketing collaterals
 - Signup of training providers and creation of catalogue
 - Development of supporting IT infrastructure
 - Development and management of training infrastructure (?)
 - Manage quality standards
- Higher education opportunities
 - Facilitation of networking between academic institutions, industry (local and foreign) and foreign academic institutions
 - Establishment of oil and gas-related programmes/courses as appropriate – possibly in partnerships with foreign institutions or industry
- Matchmaking between local training providers and international partner who can increase access to the oil and gas training market

4.6 Drive the Regional Upstream HQ Proposition

4.6.1 Objectives

- More international upstream companies operating in the region locate regional headquarters in SA

4.6.2 Key Activities

- SAOGA would envisage the key activities around this opportunity being carried out by the specialist investment promotion agencies (DTI/TISA, Wesgro etc)
- Investment promotion and marketing of the SA HQ proposition
- Provision of support to companies considering establishing regional HQs/bases in SA

4.7 Identify New Cluster Opportunities

4.7.1 Objectives

- Identify potential new segments in the upstream supply chain for SA-based companies to target
- Develop strategies for establishing these new segments and company clusters
- Place a specific focus on how domestic upstream projects and content localization can be used to catalyze new opportunities

4.7.2 Key Activities

- The primary activity in this area is an ongoing programme of study/research to identify and create new SA-based activity
 - Strategic supply/value chain analysis
 - Market and competitor analysis
 - Opportunity identification and prioritisation
 - Creation of cluster development strategies
- Appointing and monitoring contractor resources
- Facilitate industry input into the process

5 Summary and Way Forward

We have outlined what we believe to be the compelling opportunity to establish South Africa/Western Cape as the primary sub-Saharan upstream hub and have suggested a set of concrete actions built around six specific, realistic and attainable opportunities to achieve this.

Going forward there will be two parallel streams of activity around this paper: one around the discussion to create a National Strategy for the upstream supplier sector and, the other to produce SAOGA's 2011-14 Business Plan. While the two activities will be largely independent SAOGA itself is a common thread – one of the matters that needs to be worked out in the National Strategy is the oversight structure(s) and SAOGA's role (or not) in this context. At the same time the SAOGA Board needs to consider SAOGA's role in a wider National Strategy.

5.1 National Upstream Supplier Strategy

Based on conversations between SAOGA and the DTI it appears that the general way forward for developing a National Strategy is as follows:

- Immediate dissemination of this document to a wide range of stakeholders for discussion and thought;
- A DTI national workshop in mid-February 2011 to debate and discuss these ideas and others and agree on the framework of a national strategy. This would be attended by a wide range of key stakeholders from industry (including foreign experts if possible), academia and government;
- Additional work, possibly with help from consultants, led by the DTI to develop a Draft National Strategic Plan for the upstream supplier sector – this would need to be completed in April/May 2011 timeframe;
- National Strategy would be presented at Cabinet Lekgotla in June/July 2011
- National strategy would then be incorporated into IPAP document in the latter part of 2011

5.2 SAOGA Business Plan

This document represents a significant shift away from the approach that SAOGA has been following in recent years and it is important that there be some meaningful discussion of the proposals at the Board level and with key industry stakeholders before committing to a business plan that sets the organisation on this path. Going forward then the following steps need to be taken:

- Immediate dissemination of this document to the SAOGA Board and key industry leaders in the various segments (this will overlap with distribution list for the national strategy discussion) specifically requesting feedback and comment;
- Schedule a Board session (as soon as possible in 2011) with additional invitations to key industry leaders to discuss the vision and proposals outlined in this document;
- In parallel SAOGA staff will develop another level of detail around the proposals to get a better idea of the resourcing and funding commitments that will be required. This will also involve our primary funders at PGWC.
- Will look to have Business Plan ready for approval at March 2011 Board meeting.

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