



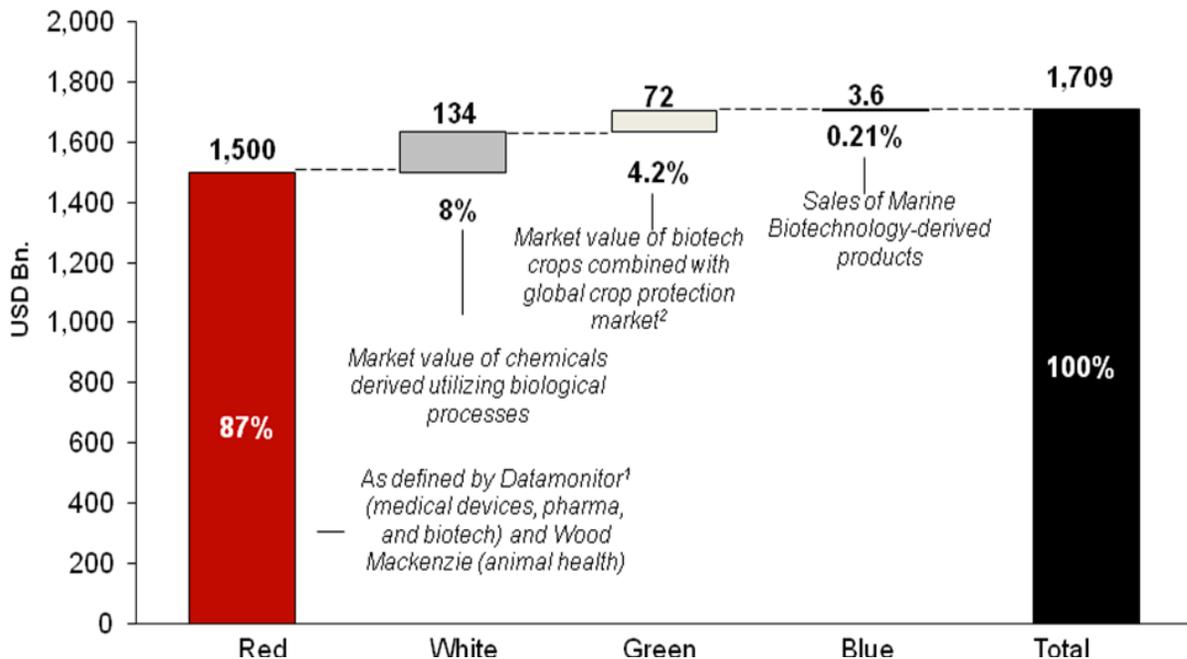
الهيئة العامة للاستثمار
Saudi Arabian General Investment Authority
(SAGIA)

Life Science Investment Opportunities

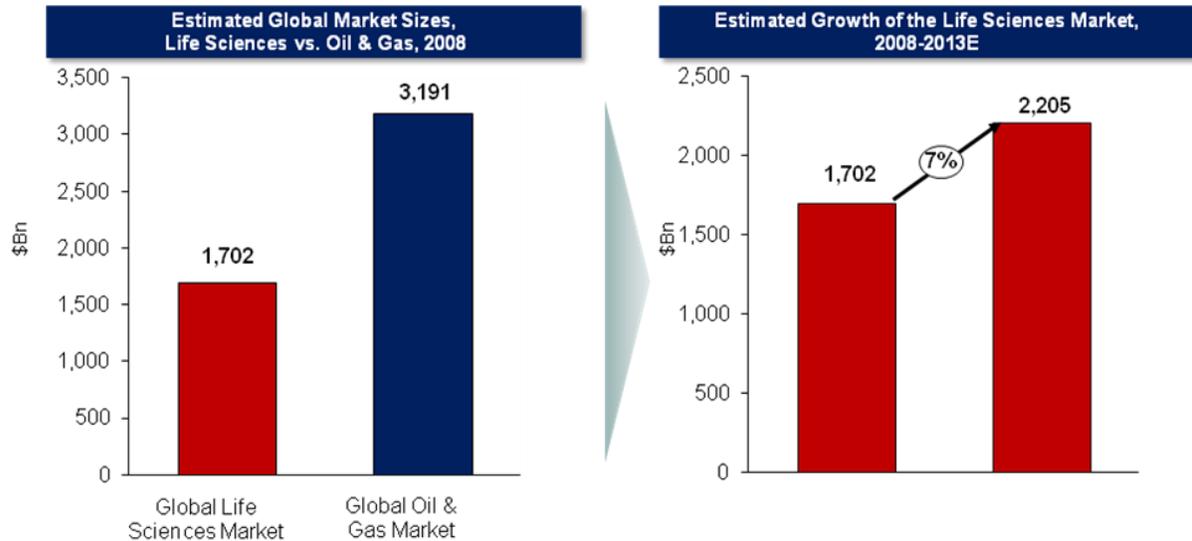
Overview

With the ultimate goal of creating an advanced society in the Kingdom, proficient in science & technology, the Life Sciences will pave the way for the nation's development and future progress. The Life Science industry, encompassing all commercial applications of branches of science that study living organisms, is one of the most technology-intensive industries in the world, driven by major and continuous investments in research and development (R&D). We at SAGIA believe that Life Sciences have the potential to be a leading industry and economic driver serving as a catalyst for stimulating the modernization of the Saudi economy and social system, while addressing the most pressing economic and social challenges currently facing the Kingdom. The Life Sciences have the potential to shape the lives of mankind from countless facets, with biotechnology one of the greatest intellectual investments of today's world. This already huge global industry worth over \$1.7 trillion annually is dramatically on the rise as we are drawing on its capabilities to tackle the mounting challenges humanity is facing today. Several initiatives are underway, posing Saudi Arabia poised to have a leading role in this major global industry.

Estimated Size of the Life Science Industry By Category, 2008



Life sciences is a trillion dollar global industry and is expected to exhibit further strong growth in the future



Current Activities

The Government of Saudi Arabia has committed to establishing a knowledge-based economy in the Kingdom by 2020 with focus on strategic sectors selected as economic drivers. Its Eighth Development Plan has placed new levels of emphasis on diversifying the oil-based economy of the Kingdom by developing science and technology capabilities. Saudi Arabia has set plans to become the premier Life Sciences center in the Middle East, above all establishing a strong R&D culture. The following are currently underway in order to make this a successful initiative:

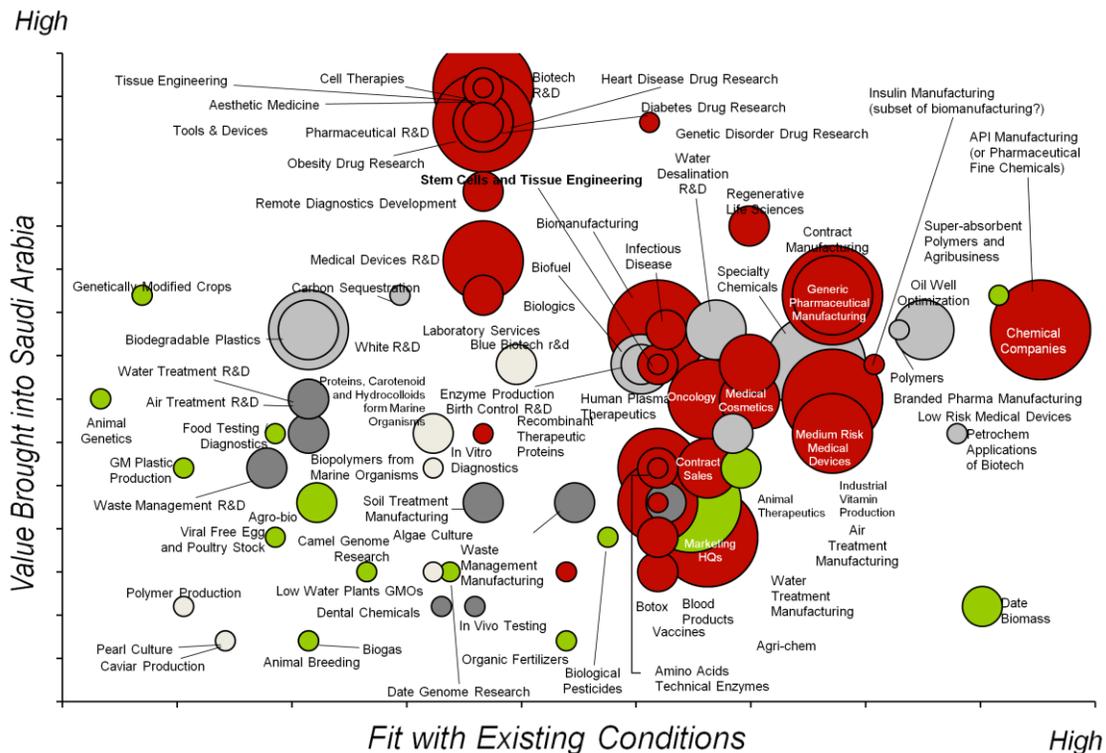
- The Saudi government has committed to Life Sciences Sector as a key economic driver through Public-Private Partnerships and vast R&D funding.
- King Abdulaziz City for Science and Technology (KACST) which coordinates science and technology in the Kingdom Endowed with SR8 billion for research.
- The brand new King Abdullah University for Science and Technology (KAUST), opening its doors in the fall of 2009, is set to be one of the most attractive and outstanding scientific centres in the world, with a \$14 billion investment - \$4 billion on infrastructure and \$10 billion allocated for Science & Technology endowments.

Strategy

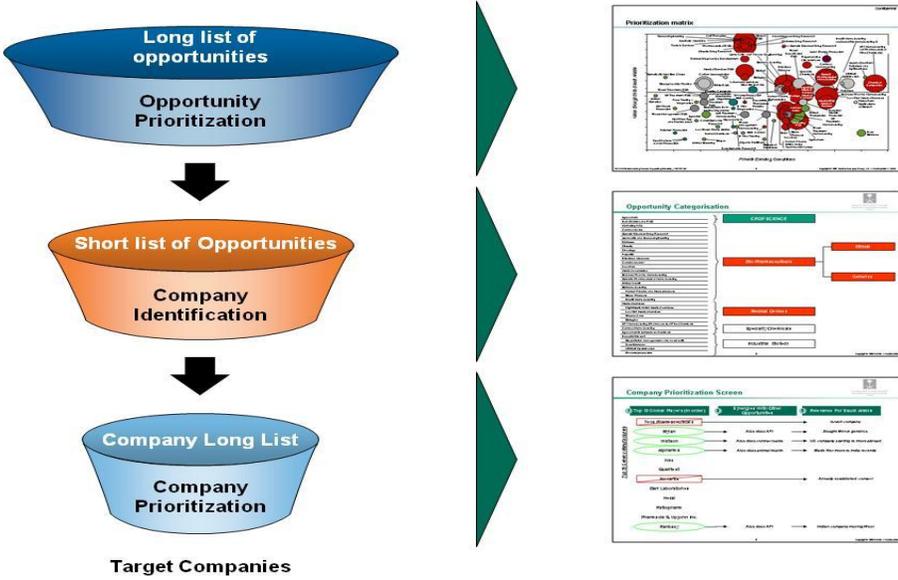
SAGIA is embarking on a major initiative to promote and nurture Life Science industry in the Kingdom. After a deep assessment of Saudi Arabia's competitive advantages in the Life Sciences, the creation of a supportive regulatory framework benchmarked to international best practice and the development of unique value propositions for each segment, the sector is ripe for investment and growth. Ultimately, SAGIA's vision is to create centers of excellence in biotechnology, research and development that will ensure knowledge transfer and allow Saudi Arabia to lead the region in biotechnology applications. The Economic Cities will be at the forefront of the Life Science strategy, with the establishment of world-class life science and biotech parks planned for each city, in line with the city's offering.

Opportunities for Investors

Not only does Saudi Arabia boast a clear global energy advantage and strategic position as a hub between the East and West, the demand and opportunity of the biggest market in the GCC for a thriving Life Science industry are outstanding. We have identified specific investment opportunities in the Life Sciences Sector in Saudi Arabia, based on the suitability with existing conditions in the Kingdom, such as demand and competition, as well as the value brought to Saudi Arabia, such as level of innovation, growth, value creation and employment.



Process to identify investors



As is well established, the Life Science industry is segmented into five color-coded business categories – Red, White, Green, Blue and Grey – the major opportunities of which in the Kingdom have been identified as follows:

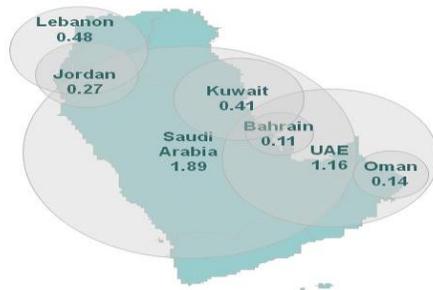


Red Life Sciences, consisting of commercialization and manufacturing of pharmaceutical, biotechnology, medical and diagnostic products designed to improve human health, there lies great opportunity in manufacturing pharmaceuticals and medical devices locally.

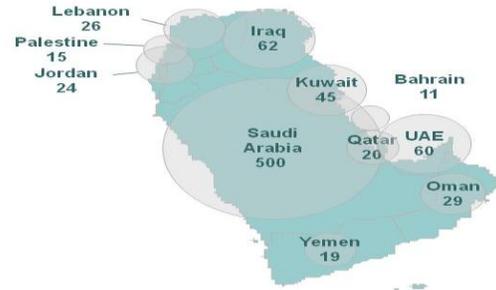
Rationale for Investing in Red Life Sciences:

- Saudi has by far the largest market in the GCC with \$1.89 billion of pharmaceutical sales and \$500 million of medical device sales and can serve as a launch pad to 250 million customers in the MENA region, with a pharmaceutical market valued at over \$16.8 billion and a medical devices market of over \$2.6 billion.

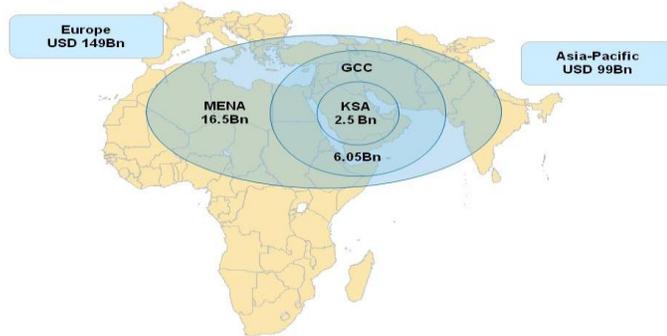
Pharmaceutical Market Size, 2008(USD Bn)



Medical Device Market Sizes, 2008 (USD M)

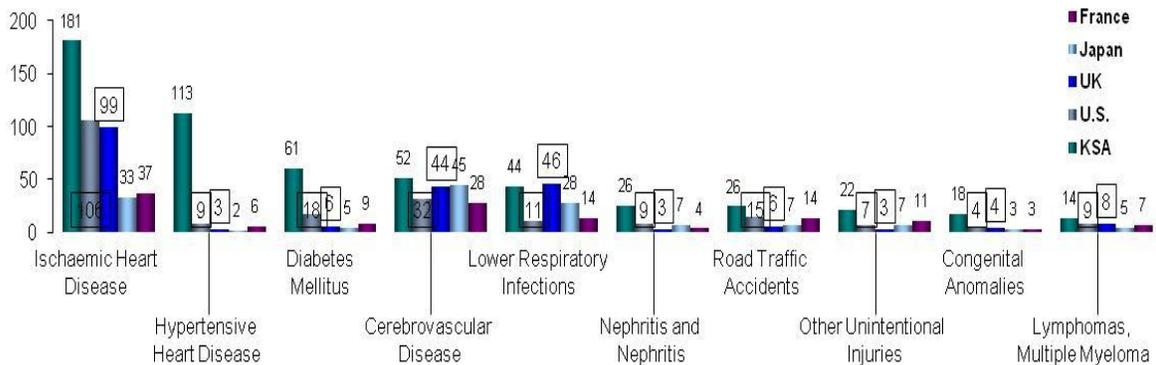


Pharmaceutical and medical Device Market Size, 2008 (USD)

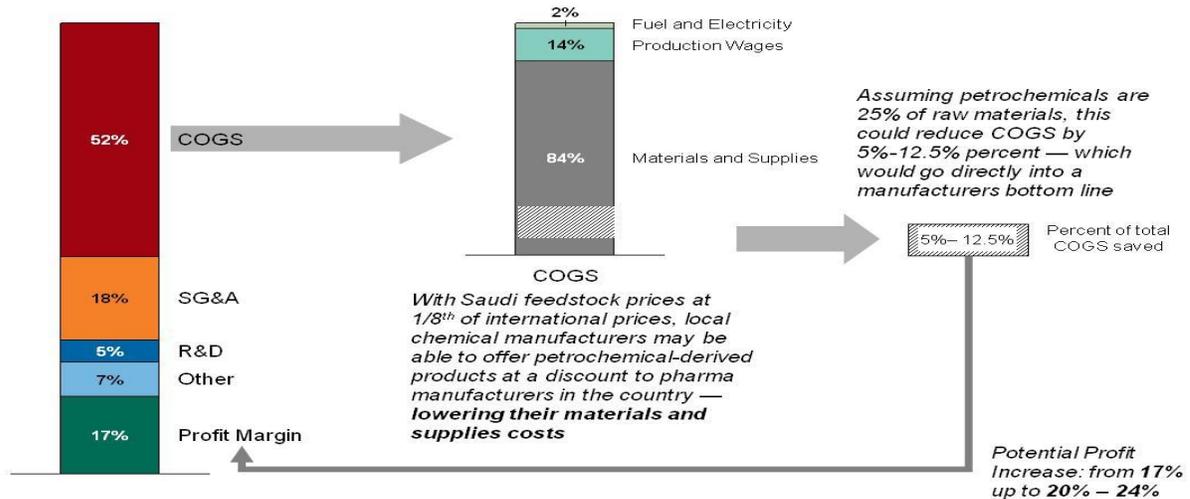


- Imports account for 90% of the Saudi pharmaceuticals market and 98% of the medical devices market. There are only 9 local pharmaceutical manufacturers currently in the Kingdom.
- There is an alarmingly high prevalence of diabetes, hepatitis, breast cancer, obesity and genetic disorders.
- Over 30% of the Saudi population suffers from diabetes, making demand for drugs and services extremely high (i.e. insulin).
- Unusually high rate of congenital disorders due to inter-marriages makes the Saudi population valuable for genetic research.

Mortality Rate (Age Standardized) per 100,000 of Population, 2002



- Upstream petrochemicals to pharmaceutical manufacturing available at 1/8th of international prices in the Kingdom- lowering materials and supplies costs will translate into significantly better profits margins.



- In terms of Intellectual Property Rights (IPR), Saudi’s recent adoption of the WTO Trade-Related Aspects of Intellectual Property Rights Agreement (TRIPS) and its imminent plans to upgrade to TRIPS-Plus assures stringent IPR as a means to diminish investor risk and increase real financial returns for pharmaceutical companies.

Potential location for Red life sciences:

The crown jewel in Saudi Arabia’s Economic Cities King Abdullah Economic City (KAEC) is the first of the Economic Cities to be developed and the single largest private sector project in the region. Located off the brilliant Red Sea in Rabigh, with a total development area of 168 sq km, comparable to the size of Washington D.C., KAEC epitomizes a true city of the future by incorporating the most successful and desirable of today’s advanced societies into a single Greenfield project. Expected to create 1 million jobs and house 2 million residents, KAEC will focus on knowledge-based areas, hosting both light and highly technical industries and services. The Life Sciences City in KAEC will represent a competitive red Life Sciences cluster of research, education and industry. The Life Sciences City in KAEC will revolutionize scientific advancement in the Kingdom.

Targeted Investors:

Targeted Investors:		Targeted Investors:	
Target Investor	Annual Revenue (\$MM)	Target Investor	Annual Revenue (\$MM)
 AMGEN	14,268	 MYLAN	1,257
 Bayer	28,956 ¹	 ALPHARMA	654
 CSL	2,427	 RANBAXY	1,378
 Lilly	15,691	 Watson	1,979
 Johnson & Johnson	53,324	 Baxter	10,378
 MERCK	22,636	 3M	22,923
 novo nordisk	6,136	 smith&nephew	2,779
 Roche	31,995		

Projected investment in red life Sciences:

Short term 2016: \$4.070 billion

Jobs: 15000

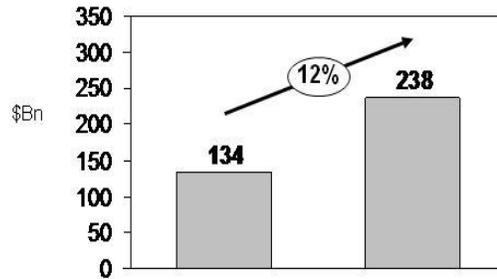
Long term 2025: \$14.00 billion

Jobs: 48000



White Life Sciences, a segment of the chemical industry for those chemicals produced through biotechnological processes, there lies great opportunity in expanding the already strong Saudi petrochemical industry into fine chemical production and new biotech materials.

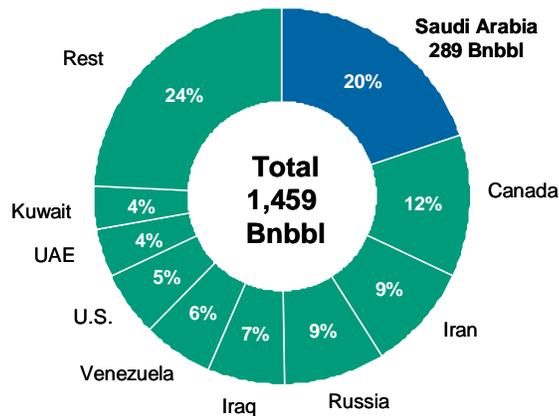
Global White Life Sciences Market, 2008-2013E



Rationale for Investing in White Life Sciences:

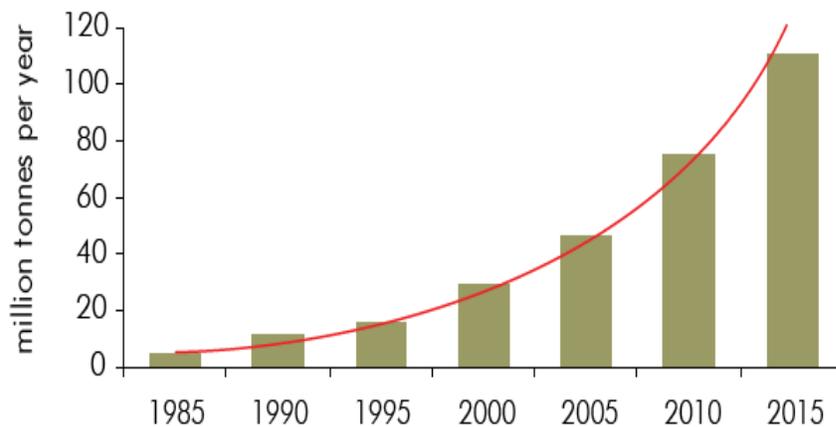
- Having the largest oil reserves in the world, the main competitive advantage of the Kingdom rests on the fact that petrochemicals being abundant are available at low cost and with a secure feedstock leveraged in a highly competitive petrochemical infrastructure.

Total Proven World Oil Reserves, 2006



- The country currently contributes 8% of global petrochemical production, ranked 10th in the world.
- Saudi Arabia's current strengths are in the production of basic petrochemical building blocks with the Kingdom ranking 2nd in world methanol and ethylene glycol production, and 5th in ethylene production.
- By 2015, with an annual growth rate of 12%, Saudi is expected to become the 3rd largest petrochemical producer.

Saudi Arabia's Petrochemical Capacity, 1985-2015



- Of total Saudi petrochemical exports, estimation that 52% are basic products, 26% intermediates and only 22% are fine chemicals currently.
- Opportunity to expand on Saudi's wealth of petrochemical resources and skilled engineers to become a leader in the manufacturing and R&D of refined petrochemical products with a move towards more advanced biotech manufacturing of fine chemicals of much higher value.

Potential location for White life sciences:

As the Kingdom's most sophisticated heavy industrial zone, Jazan Economic City (JEC) offers an unparalleled environment for energy-intensive industries within the context of a fully metropolitan design. Located close to the city of Jizan, JEC covers 100 sq km with 12 km of lush coastline on the southern Red Sea and along the main trade routes between Europe, Asia and Africa. JEC will have excellent access to export markets around the world and its strategic location will give it low-cost access to energy and raw materials, making JEC an important hub for logistics and commerce. The primary sectors of power, water, oil, aluminum, steel and copper will support robust downstream opportunities in industries as diverse as pharmaceutical, agrochemical, food processing, plastics, textiles and construction materials. JEC will be active in White Life Science industries, taking full advantage of the petrochemical and natural gas feedstock available within its planned industrial park.

Targeted Investors:

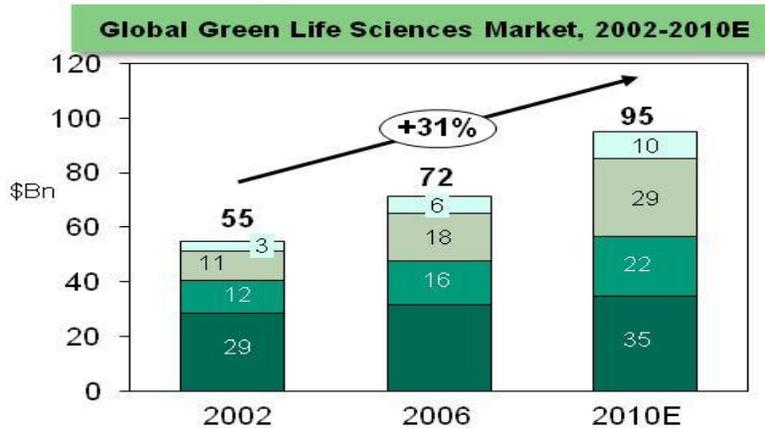
	Target Investor	Annual Revenue (\$MM)
Specialty Chemicals		62,165
		49,124
		28,982
		16,232
		9,902

Projected investment in white life Sciences:

Short term 2016: \$2.5 billion **Jobs: 1800**
 Long term 2025: \$10.00 billion **Jobs: 20000**

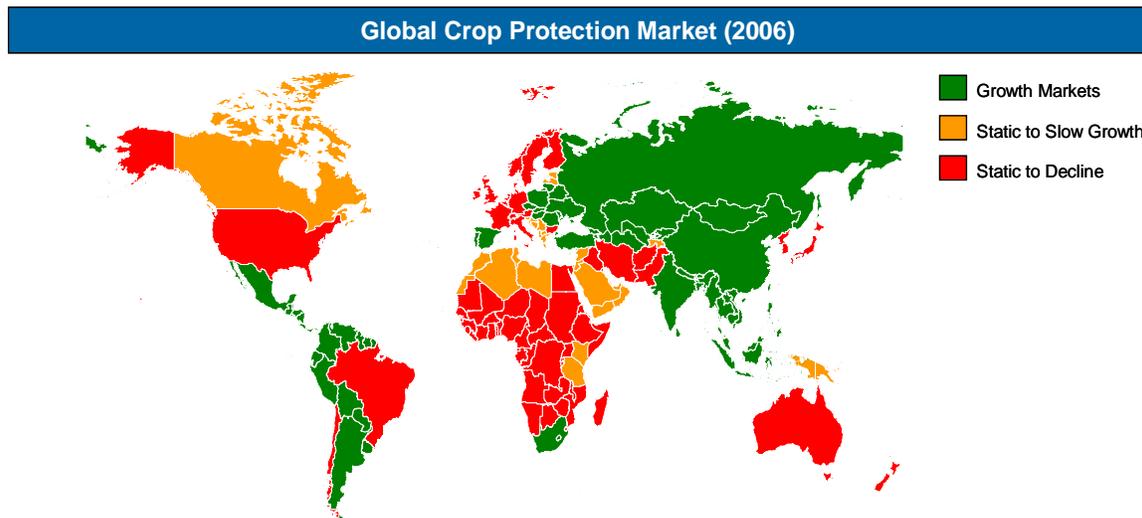


Green Life Sciences, a key player in the agriculture production cycle, consists of all biological and chemical businesses related to plant and animal life and there lies great opportunity in expanding on Saudi's existing strength in this industry, bringing it to the forefront globally.



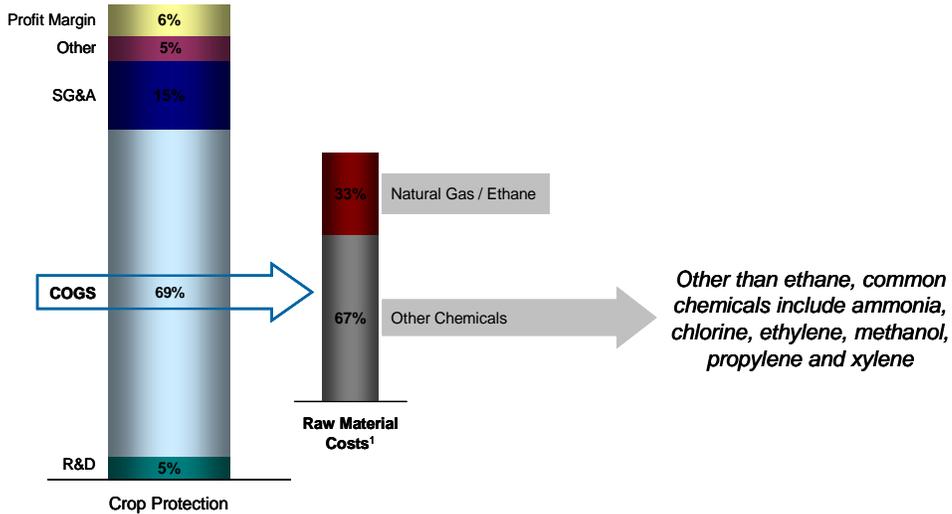
Rationale for Investing in Green Life Sciences:

- Global shortage of food and rising costs are driving the need for cost-effective crop protection business.
- With the combination of its natural gas, the indigenous phosphate rock and the voluminous supply of elemental sulphur available at very low costs, Saudi has the clear opportunity to play a significant role in the supply of nitrogen and phosphorous agrochemicals to the world's agriculture growers.
- Saudi's agrochemical industry is currently focused on nitrogen based fertilizers, which make up 90% of the Kingdom's agrochemical production.
- Saudi is set to become a world leader in agrochemicals with a move towards more advanced technological manufacturing and specialized chemicals.
- Saudi Arabia is in close proximity to a number of growth markets (Eastern Europe and Asia) for crop protection, with its logistics infrastructure well developed and cost comparatively low.
- Specific Green Life Science R&D opportunities exist in Saudi, for example the development of arid-resistant crops.



- Saudi Arabia boasts the world's largest integrated dairy farms (Al Safi Danone and Almarai), making animal health and nutrition a thriving local industry.
- Manufacturing investors stand to gain much profit from the wealth of natural resources at their disposal in the Kingdom and substantial cost savings will be made in raw materials inputs by relocating to Saudi Arabia.

Crop Protection Cost Structure



Potential location for Green life sciences:

Prince Abdulaziz Bin Mousaed Economic City (PABMEC) is set to become the largest and most modern transportation and logistics hub in the Middle East. Located in the northern-central region of Hael, PABMEC will leverage the region’s strengths in agriculture, minerals and climate to create 55,000 new jobs.

The industrial advantages of PABMEC will be supported by a robust and focused Life Science cluster. A leading Green Life Science industry will support the agribusiness zone planned for the city.

Targeted Investors:

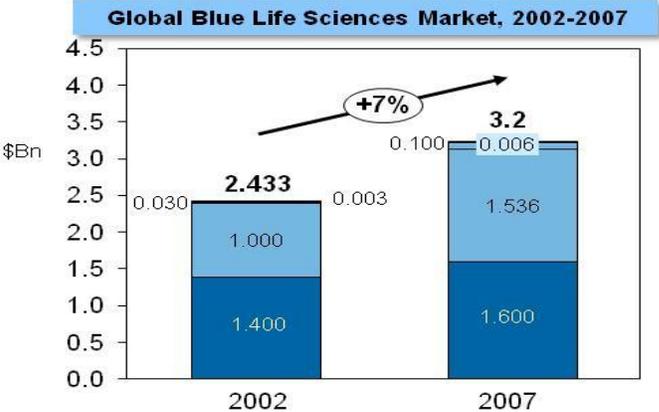
Target Investor	Annual Revenue (\$MM)
	8,046
	8,563

Projected investment in green life Sciences:

Short term 2016: \$0.5 billion	Jobs: 1200
Long term 2025: \$2 billion	Jobs: 2000

Blue

Blue Life Sciences, the result of the exploitation of marine life, there lies great opportunity in aquaculture, as well as marine biotechnology.



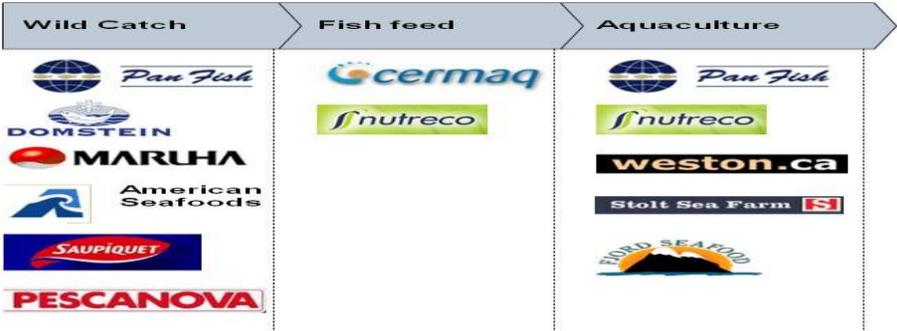
Rationale for Investing in Blue Life Sciences:

- The Kingdom’s long coastline of 2,640 km along the Red Sea and the Arabian Gulf can serve as a lucrative site for commercial fish and seafood farming, as well as artificial pearl production.
- The Red Sea’s unique biological diversity offers abounding untapped opportunities for marine biotech R&D with applications including agriculture, mining, industrial processes, consumer products and healthcare.

Potential location for Blue life sciences:

Jazan Economic City (JEC) offers Blue Life Sciences investors a prime location to capitalize on the rich marine ecosystem of the surrounding waters.

Targeted Investors:



Projected investment in Blue life Sciences:

Short term 2016: \$0.3 billion	Jobs: 900
Long term 2025: \$1.5 billion	Jobs: 1500



Grey Life Sciences, the environmental application of biotechnology, the Kingdom is poised to tap into the ever-growing global market for environmental goods and services.

Rationale for Investing in Grey Life Sciences:

- Biotech applications will optimize Saudi's extensive heavy industries:
 - Industrial enzymes to improve heavy industry efficiency
 - Biotech applications for enhanced oil recovery in the petrochemical industry
 - Biotech pollution management for heavy industry
 - Biotech applications for water desalination and power industries
- In line with world trends, Saudi Arabia will profit from its unique renewable energy sources, offering a competitive edge in the budding global market for renewable energy with:
 - Date bio-ethanol production
 - Algae bio-diesel production
 - Solar energy production

In order to support these investments opportunities, Saudi Arabia has put together a world-class package of incentives for investors, benchmarked to the leading international standards, the features of which are summarized in the following table:

Advantages of Economic Cities

In addition to the above incentives, the advantages of being located in the ECs and the additional opportunities that arise for the Life Science investors are as follows:

Greenfield projects

- At the cost of more than \$60 billion, the Kingdom has planned the construction of four ECs to house over 2.5 million inhabitants - with another two in the pipeline - financed wholly by the private sector,

uniquely designed with state-of-the-art, SMART infrastructure throughout offering top-notch business services, highest quality of life and a world-class healthcare.

- Within the ECs, SAGIA is planning integrated Life Science parks to house either one or all Life Science categories, for the creation of thriving Life Science clusters.

SAGIA as the regulator of the ECs

- SAGIA will be the supervising authority in the ECs, spurring business formation with its on-site SMART-services centers for investor services, facilitating entry and setup into the Kingdom with minimal bureaucracy.
- Investors will benefit from on-site patent and drug registration services available within the ECs SMART-service centers to ease these processes.

Technology Development Centers

- Each EC will house a Technology Development Center (TDC), founded by the King Abdulaziz City for Science and Technology (KACST), the independent scientific organization of the Saudi government responsible for promoting science & technology in the Kingdom, with a strategy to promote Life Science innovative R&D through policy-making, funding and R&D incubators.
- The TDC's Environmental Research Center will lead the way to pioneering R&D for the Grey Life Sciences.

R&D funding

- Endowed with \$8 billion for research grants by the Saudi Arabian Government, KACST is pledging to enter into partnership with applicants seeking to undertake R&D within the ECs, funding 50% of their R&D work (i.e. matching the amount of the R&D investment).

Human Resources

- Cadre is the human resources company for the ECs with the mission to educate, train and place Saudi nationals for employment in the ECs to bridge the gap between supply and demand.
- Cadre will assure all employee recruitment based on specific needs and handle employee Visas, assuring accurate staffing with minimal bureaucracy for employers.

Logistics

- First-class transportation infrastructure will enable distribution efficiently and cost-effectively from the ECs throughout the MENA region and beyond.

IT infrastructure

- The ECs will boast state-of-the-art IT networks, with internet speeds ten times faster than that of the highest in the world.

Conclusion

With the wealth of opportunities and resources at hand, SAGIA is resolute in establishing R&D and industry in all five categories of the Life Sciences, poising the Kingdom to become the Life Science hub in the region. The rewards of such a realization will be unsurpassed in value for the Kingdom. The Life Sciences present a cutting-edge industry, a vehicle ensuring knowledge transfer to the society as a whole, creating high value jobs for Saudi nationals and ultimately taking this country forward in its ambitions.

Life Science Team

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