South African Chemicals Industry
Taking advantage of African economic growth – The Chemicals innovation opportunity

Agenda:

07h00 - 07h30  Arrival
07h30 - 08h00  Breakfast & Registration
08h00 - 08h05  Welcome Address
Speaker: Jolanta Ksieziak – Senior Project Director, Global Business Reports
08h05 - 08h10  Address by Deloitte: Patrick Earlam – Deloitte Southern Africa Chemicals Leader
08h10 - 08h20  Address by CAIA: Joaquin Schoch – Chairman of the Chemical and Allied Industries’ Association
08h20 - 08h30  Address by IDC: Deon Cloete – Senior Account Manager, Chemical & Allied Industries SBU
08h30 - 08h40  Address by Evonik Degussa: Dr. Iordanis Savvopoulos – President & Managing Director Sub Saharan Africa
08h40 - 08h50  Address by AECI: Gary Cundill – Group Technical & SHE Manager
08h50 - 09h15  Panel Discussion
Facilitator: Mike Vincent – Director: Strategy & Innovation, Deloitte
09h15  Closing statement: Patrick Earlam
Reigniting growth: Advanced Materials Systems

An African Opportunity

31 July 2013
Change in the inertia of new materials innovation has been apparent over two decades

- Increasingly impatient capital and intense goal focus by investors
- Structural re-sorting of basic and applied research capabilities
- Beginning of a new age of materials engineering
- Consolidation of value to those closest to solutions
- Power shift to systems integrators
- Syndication of technical, market, and financial risk

Source: DTTL Global Manufacturing Industry group, October 2012.
Meanwhile, Megatrends drive an explosion of global market opportunities to meet seemingly limitless demands

- New sources of fuel and feedstock to replace petroleum
- New energy storage and transport technologies
- Solutions to improve farming productivity, food preservation, and transport
- Decentralized solutions for diagnostics, therapeutics, disease prevention, and care
- Info/media solutions to enable more targeted and localized connectivity
- New technologies/solutions for recovery and recycling
- New technologies to promote efficient commercial and residential use of water
- Cost effective solutions for building small buildings or larger “mega” cities
- New technologies to scale up and scale out renewable energy solutions
- Weight reduction and downsizing of vehicles for emissions and efficiency
- Alternative vehicle propulsion systems
- Example unmet needs and wants
An AMS example: A collaborative effort amongst large manufacturing and consumer business companies for the development of bio-based plastics

1. **Unmet need**
   - Development of non-petroleum based supply chains for large volume plastics used in packaging, apparel, food, and other consumer packaging

2. **Material innovation**
   - Polyethylene terephthalate (PET) is a versatile, inexpensive plastic used in synthetic fabrics, packaging for food and beverages, and for other liquids.

3. **Process technology**
   - New biorefining technologies enable the production of the constituent monomers of PET, ethylene glycol and terephthalic acid, from biomass

4. **Business models and ecosystem**
   - These companies have formed the Plant PET Technology Collaborative (PTC) to support the development and use of plant-based PET

5. **Open innovation**
   - PTC members are pooling their resources, knowledge and experience in an effort to find a sustainable alternative to using fossil fuels for PET manufacturing

Source: DTTL Global Manufacturing Industry group, October 2012.
www.Deloitte.com
Global Business Report launch
Chemical Industry
31.7.13
Introduction

• Thank you’s: ... Deloitte, GBR, all present
  – Great overview, informative, candidly challenging
  – Africa’s decade? Renaissance (again)? Window of opportunity? BRICS?

• Fascinating industry ... gives so much ... Enabling industry: grows with the market? or grows markets?

• Chemicals are all over:
  – pharmaceuticals, shampoos,
  – buckets, carpeting,
  – fertilizers, mining explosives
  – ... etc.
CAIA – where can we help?

• **CAIA: for the good of our industry**
  – 150+ members
  – A powerful committed resource platform
  – Already a member ..?

• **A must: do more, do better; ... why? how?**
  – what hasn’t worked? What needs changing?

• **Crystal ball into the future ...**
  – It’s our duty; no choice ...
CAIA - STRATEGIC REVIEW

- Review of activities and priorities in consideration of foreseeable future opportunities and challenges (July 2011)

  - Promotion of Chemical Industry: 27 %
  - Advocacy (increasing): 18 %
  - Exploitation of opportunities in Africa (new): 18 %
  - ResponsibleCare®: 13 %
  - Education / Skills development: 12 %
  - PR activities: 12 %

- Reaffirmed: advocacy efforts, implementation of Responsible Care, education and training – demands/issues increasing

- Opportunity to promote (SA) Chemical Industry in Africa

- Critical lack of INSUFFICIENT HUMAN RESOURCES for our needs
Needs to succeed

• Basic ingredients for success of chemical industry

• Outside – in “reactive: sell-it”
  – Markets, consumers, demand

• Intermediates “entrepreneurial”
  – Functional - formulated products - distribution

• Inside – out “proactive: make-it”
  – Manufacturing base for Africa?
  – Resources, technology, capital ...
Work the markets >>> sell!

- 3? ... now 2?
  - Egypt ...; West Africa/Nigeria ...; SADC
  - SADC:
    - Made in SA vs. sold in SA: a question of value creation!
    - Imported snacks, toiletries, plastic articles ...?
    - Just be better than the alternative
    - BRICS or bricks ...
All kind of examples

• Inside – out
  – West: EU, USA ... established but always renewing
  – Middle East ... well on the way
  – India ... a billion challenges
  – Brazil ..!? (LA : 6 – 10x for 0.5 of region!)
  – China ... the last decade’s engine
  – Oil and gas ...
  – Technology ... have it or buy it
  – Money ... build it: they will come!
Need to improve: target high

• Be better ... in a level play field
  – What has been achieved in the last 20 years?
  – What are we needing / trying now?
  – Better, smarter ...
    • Relocation of industry
    • Imports from countries where we would pay duties to get into?
    • Energy cost for industry vs. private consumers
    • Fixed assets last – sustain wealth creation
Change coming

• In the next 10 years ... looking around ...
  – Moz; Angola; Shale gas; but ... mega-plants only?

• Totally new landscape; needs action now

• What have we done wrong, right? But mainly what can we do better? Investing – exiting?

• Africa ... “Fortune favours the bold”

  ... “Fortune favours the prepared mind”
  – white? black? brown? yellow?
S, S, S ... S!

• E, CH, ZA

• Vision without action is but a dream

• S’pore ... Harry Lee
Industrial Development Corporation

Driving Industrial Capacity Development

The South African Chemicals Industry Event

1 August 2013
Contents: Chemicals and Allied Industries SBU

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- SBU Strategic Initiatives ........................................................................................................ 6
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Introducing the IDC

- 100% State Owned Development Finance Institution

  To be “the primary driving force of commercially sustainable industrial development and innovation to the benefit of South Africa and the rest of the African continent”

  **Align IDC with the sector objectives of NGP and IPAP**

- Industry development through the provision of funding resulting in job creation

- **Geographic activities:** South Africa and the rest of Africa

- **Products:** Custom financial products to suit a project’s needs (flexibility). Many funds with low interest rate components

- **Stage of investment:** Project identification and development, feasibility, commercialisation, expansion, modernisation

History (1940’s – current)

Over its history, IDC has adapted to South Africa’s changing priorities and expanded into new industries as the economy developed and policies evolved.
Broad focus areas

The green economy
- Green and energy saving industries
- Biofuels

Agricultural value chain
- Agro-processing
- Forestry, paper & pulp, furniture

Manufacturing activities
- Metals fabrication, capital and transport equipment
- Clothing, textiles, footwear, leather
- Advanced manufacturing
- Pharmaceuticals
- Plastics and chemicals
- Green industry components

Logistics, infrastructure and cross-sector projects
- Logistics
- Industrial infrastructure

Tourism, creative industries and high-level services
- Craft and film
- Biotechnology
- Business process services
- Tourism
- Mining related technologies
- Healthcare
- ICT

The mining value chain
- Mining
- Downstream mineral beneficiation

R 100 billion to invest 2011/12 – 2015/16

- R22.4 billion
- R11.1 billion
- R14.8 billion
- R22.1 billion
- R20.8 billion
- R7.7 billion
IDC Sectoral exposure

As at 30 June 2012 (@ market value)

- **Finance and insurance, 3%**
- **Other services, 6%**
- **Agriculture and food, 5%**
- **Mining, 31%**
- **Trade, catering and accommodation, 3%**
- **Other manufacturing, 3%**
- **Metals and machinery, 18%**
- **Transport, communication and utilities, 8%**

**Examples**

- **Agriculture, forestry and food** – Nuts, forestry, sugar, citrus, fruit juice.
- **Mining** – Platinum, copper, ferrochrome, uranium, iron ore.
- **Chemicals and petroleum** – Synfuels, fertiliser, pharmaceuticals, cleaning chemicals, building materials.
- **Metals and machinery** – Aluminium, steel, aerospace, motor vehicles and accessories, boat building.
- **Other manufacturing** – Sawmilling, textiles and clothing, diamond cutting and polishing, biomass fuel.
- **Trade, catering and accommodation** – Hotels, lodges, food franchises, food retail franchises.
- **Transport, communication and utilities** – Independent power producers, broadband communications, nuclear power, bus transport, trucking.
- **Finance and insurance** – Credit lines to other DFIs, wholesale funding to micro-enterprises.
- **Other** – Construction, television services, motion pictures, hospitals.

**IDC’s portfolio is concentrated in resource intensive sectors**
Sectors covered by the Chemicals and Allied Industries SBU

R 3.7 billion portfolio (ex listed investments)

- Basic Chemicals incl. oil & gas: 24% by number, 55% by value, 44% single large
- Plastics and Rubber: 28% by number, 7% by value
- Recycling: 8% by number, 11% by value
- Household Chemicals and Cosmetics: 2% by number, 4% by value
- Cement and Building Products: 28% by number, 18% by value, 11% non-SA
- Glass and Ceramics: 2% by number, 4% by value
- Specialty and Fine Chemicals: 2% by number, 3% by value
SBU Drivers

- Alignment with NDP, IPAP, New Growth Path and other Government initiatives
- Market imbalances and market failures – import substitution opportunities abound (especially across the continent)
- Broad economic growth (capacity expansions)
- Security of supply for key inputs into infrastructure, food and energy
- Economic empowerment of HDI’s (grow black entrepreneurs) through new capacity and expansionary acquisitions
- Job creation
- Social upliftment
Strategic Initiatives

- **Mineral Beneficiation**
  - Projects from FS stage through to implementation
  - Titanium, Zirconium, Hydrogen fluoride (from fluorapatite)

- **Agricultural Inputs**
  - Exploring Potash opportunities
  - Opportunities for establishing / investment in fertilizer manufacturing producers on Africa continent
  - On-going improvements in own SA based manufacturing plant (Foskor)

- **Infrastructure Inputs**
  - Explore opportunities for investment in SA and rest of continent for projects supporting infrastructure programmes
  - Cement, building materials, alternate building materials
Strategic Initiatives

• Energy
  • Continued involvement and co-operation with Government on liquid fuels solutions for South Africa
  • Evaluating LNG and LPG participation opportunities

• Plastics
  • Marketing and collaborating with industry bodies to identify new projects (import substitution, new products, bio-plastics)
  • Assist DTI in completing a feasibility study for syringe manufacturing
Challenges and Opportunity

Key Challenges observed

- Global slowdown (demand, low transport costs, R/$ etc)
- Input costs (& associated efficiencies):
  - energy,
  - labour,
  - raw materials (especially plastics)
- Size of demand economies (in and surrounding SA - economies of scale). Sectors often dominated by one or two big players
- Distance from potential export markets (especially wrt consumer and bulk products)
- Cheap "imports" / dumping (often illegal and substandard)
- Ageing skill set (ageing median age for tradesmen, toolmakers etc)

Key Opportunity

- Growing consumption (population plus disposable income) in Sub Saharan Africa
Projects in the rest of the continent
Thank you
Innovate today, harvest tomorrow

Dr. Iordanis Savvopoulos
July 31st, 2013
Evonik – a global leader in specialty chemicals

<table>
<thead>
<tr>
<th>Key financial data 2012</th>
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<tr>
<td><strong>Sales</strong></td>
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<tr>
<td><strong>Adjusted EBITDA</strong></td>
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<tr>
<td><strong>Profitability</strong></td>
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<td><strong>R&amp;D Spending</strong></td>
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<tr>
<td><strong>Employees</strong></td>
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</table>

- A worldwide presence
- Production sites in 24 countries, active in over 100 countries
- A high proportion of sales are generated in fields where Evonik ranks among the market leaders
Evonik continues to build its presence in growth regions

- AVENEER® (planned)
- Organic specialty surfactants
- Lysine
- Alkoxide
- Polyvest HT
- C4
- SAP Joint Venture
- Lysine Joint Venture
- H$_2$O$_2$
- Organic specialty surfactants
- Isophorone
- DL-Methionine
- Polyamide 12 (planned)
- H$_2$O$_2$ / C4 Joint Venture (planned)
Four myths about Sub-Saharan Africa (SSA)

SSA is a poor continent. The Per-capita income is extremely low, and there is no demand for our products!

It is too risky to do business in SSA!

All SSA authorities and business partners are corrupt!

There is only desert, and jungle, but no industry worth mentioning!

Many SSA countries are able to compete with emerging markets in other regions, in terms of:

- Per-Capita Income
- Human Development Index
- Standard & Poor’s Rating
- HERMES Credit Rating
- Corruption Perception Index
- „Ease of Doing Business“ Index
- Annual GDP growth rates
Investment in strategic countries, to be closer to the customer

ECOWAS
Population: 275 m
Total GDP: 304 bn US$

Southern Africa
Population: 95 m
Total GDP: 417 bn US$

East Africa
Population: 127 m
Total GDP: 102 bn US$

Sources: African Statistical Yearbook 2009
Growth in SSA by macroeconomic trends

<table>
<thead>
<tr>
<th>Consumer, Health &amp; Nutrition</th>
<th>Resource Efficiency</th>
<th>Specialty Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Feed</td>
<td>Diapers</td>
<td>Energy</td>
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</table>

- Growing population
- Increasing living standards
- Urbanization
Products and technologies matched to benefit a developing region

Macro economic trend:
Increasing..
- population
- middle class
- need for transportation
- industrialization

Consequence
- Existing food sources will become strained
- Higher need for baby care products
- Improved energy management
- Increased demand on infrastructure
- Increased demand on infrastructure

Evonik solution
- Consumer, Health & Nutrition
  MetAMINO®
- Consumer, Health & Nutrition
  STOCKOSORB®
- Resource Efficiency
  AEROSIL®
- Speciality Materials
  DEGAROUT®
- Speciality Materials
  PLEXIGLAS®

Result
- Environmentally efficient form of livestock production
- More efficient and economical agriculture, reduced irrigation frequency
- Improved hygiene
- Improved and safer batteries for energy storage
- Improved safety for road marking
- Improved noise level of roads for road barrier

Over 25 additional SSA growth opportunities identified, which are being systematically reviewed and pursued
Multiple potentials for Evonik in a value chain in Sub-Saharan Africa

- **Stokosorb**
- **Farming**
- **Food / Feed**
- **Biodiesel catalyst / additives**
- **RohMax additives** hydraulic fluids (for heavy duty machinery)
- **Mining**
- **Mining**
- **Cyplus / H₂O₂**
- **Farming**
- **Electricity**
- **De-centralized power generation**
- **Biofuels**
- **Mobility**
  - Transportation fuel
The Evonik value proposition for SSA

**SSA opportunities for growth:**
- Increasing population
- Growing middle class
- Rising awareness of health and nutrition
- Necessity for improved transportation, construction and infrastructure
- Megacities will accelerate growth, e.g. construction, food and personal care
- Higher level of international investment to accelerate growth, e.g. Chinese investment in Ethiopia

**Evonik value proposition:**
- Investment in new facilities (regional sales offices and labs)
  - Local employment opportunities
- Professional applied technology staff, backed up by global competence teams
  - Expert knowledge
- High quality products making life better
- Focus on innovation and openness to new ideas
The Workplace in Midrand: Future Hub for Evonik in Sub-Sharan Africa

Applied Technology Laboratories
„If the German industry does not hurry, it will miss the boat in Africa – with fatal consequences ...“

Dirk Niebel (FDP),
German Federal Minister for Economic Cooperation and Development

Source:
ARD documentary „The African Patient“, April 2010
### Evonik focus countries

#### Population and cities

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Urbanization</th>
<th>Cities populations</th>
</tr>
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<tbody>
<tr>
<td><strong>Angola</strong></td>
<td>18,056,072</td>
<td>4%</td>
<td>Luanda: 4.511 million, Huambo: 979,000</td>
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<tr>
<td><strong>DRC</strong></td>
<td>73,599,190</td>
<td>4.5%</td>
<td>Kinshasa: 8.401 million, Lubumbashi: 1.543 million, Mbuji-Mayi: 1.488 million, Kananga: 878,000</td>
</tr>
<tr>
<td><strong>Ethiopia</strong></td>
<td>93,815,992</td>
<td>3.8%</td>
<td>Addis Ababa: 2.863 million</td>
</tr>
<tr>
<td><strong>Ghana</strong></td>
<td>25,241,998</td>
<td>3.4%</td>
<td>Accra: 2.269 million, Kumasi: 1.773 million</td>
</tr>
<tr>
<td><strong>Ivory Coast</strong></td>
<td>21,952,093</td>
<td>3.7%</td>
<td>Abidjan: 4.009 million, Yamoussoukro: 808,000</td>
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<tr>
<td><strong>Kenya</strong></td>
<td>43,013,341</td>
<td>4.2%</td>
<td>Nairobi: 3.375 million, Mombasa: 966,000</td>
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<td><strong>Malawi</strong></td>
<td>16,323,044</td>
<td>5.3%</td>
<td>Blantyre: 856,000, Lilongwe: 821,000</td>
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<td><strong>Mozambique</strong></td>
<td>23,515,934</td>
<td>4%</td>
<td>Maputo: 1.589 million, Matola: 761,000</td>
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<tr>
<td><strong>Nigeria</strong></td>
<td>170,123,740</td>
<td>3.5%</td>
<td>Lagos: 10.203 million, Kano: 3.304 million, Ibadan: 2.762 million, Abuja: 1.857 million</td>
</tr>
<tr>
<td><strong>South Africa</strong></td>
<td>48,810,427</td>
<td>1.2%</td>
<td>Johannesburg: 8.155, Durban: 2.837 million, Cape Town: 3.353 million</td>
</tr>
<tr>
<td><strong>Tanzania</strong></td>
<td>43,601,796</td>
<td>4.7%</td>
<td>Dar Es Salaam: 3.207 million</td>
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<tr>
<td><strong>Uganda</strong></td>
<td>35,873,253</td>
<td>4.8%</td>
<td>Kampala: 1.535 million</td>
</tr>
<tr>
<td><strong>Zambia</strong></td>
<td>14,309,466</td>
<td>4%</td>
<td>Lusaka: 1.413 million</td>
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<tr>
<td><strong>Zimbabwe</strong></td>
<td>12,619,600</td>
<td>3.4%</td>
<td>Harare: 1.864 million, Bulawayo: 927,600</td>
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</table>
Who drives 5,000 kilometers without a drop of gasoline?
We do.
Megatrends drive growth in all segments

Evonik has aligned its worldwide business activities to the global megatrends of health & nutrition, resource efficiency and globalization.

**GDP +**

- Integrated technology platforms ensure added value products and leading market positions
- Around 80% of sales revenues from leading market positions
Corruption Perceptions Index 2009

Sources: Transparency International
AECI LTD

Stepping out

July 2013
GROUP AFRICAN FOOTPRINT

Explosives
Specialty chemicals