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 Ksiezniak – *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

Many manufacturing companies are struggling to grow

Fundamental limitations in what can be done at the molecular level

Research without market direction is unsustainable

Cost of and duration of “science projects” is prohibitive

Resulting in:

- 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

Example unmet needs and wants

New sources of fuel and feedstock to replace petroleum

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

New energy storage and transport technologies

Decentralized solutions for diagnostics, therapeutics, disease prevention, and care

New technologies/solutions for recovery and recycling

New technologies to promote efficient commercial and residential use of water

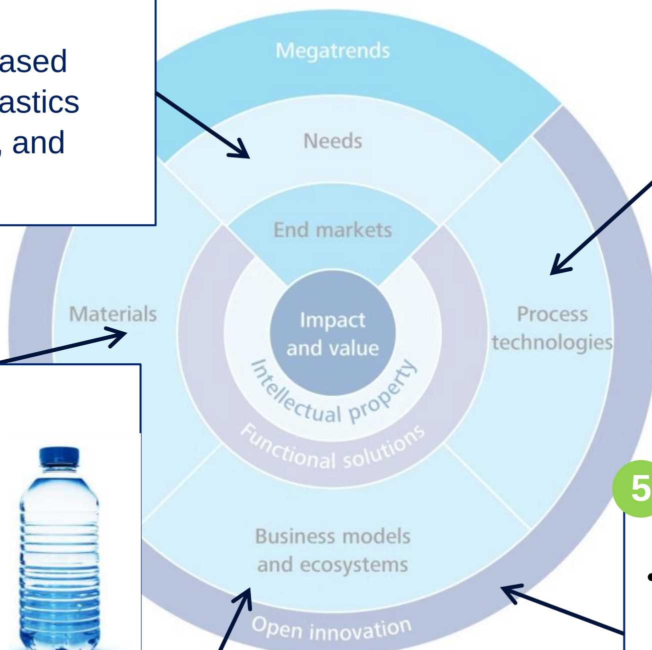
Solutions to improve farming productivity, food preservation, and transport

Info/media solutions to enable more targeted and localized connectivity

Cost effective solutions for building small buildings or larger "mega" cities

Source: DTTL Global Manufacturing Industry group, October 2012.

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

Deloitte.

CAIA
Chemical & Allied Industries' Association

Responsible Care
OUR COMMITMENT TO SUSTAINABILITY

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 Chemical & Allied Industries' Association

Responsible Care

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 …

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Responsible Care OUR COMMITMENT TO SUSTAINABILITY

CAIA - STRATEGIC REVIEW

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

	votes
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
- <u>Critical lack of INSUFFICIENT HUMAN RESOURCES for our needs</u>

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Responsible Care OUR COMMITMENT TO SUSTAINABILITY

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 …

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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!

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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?
  – English? French? Portuguese? Arabic?

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Responsible Care

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

1 August 2013

The South African Chemicals Industry Event

Contents: Chemicals and Allied Industries SBU

Introducing the IDC

IDC
Industrial Development Corporation

- 100% State Owned Development Finance Institution

To be "<u>the primary driving force of commercially sustainable industrial development and innovation to the benefit of South Africa and the rest of the African continent</u>"

Align IDC with the sector objectives of NGP and IPAP

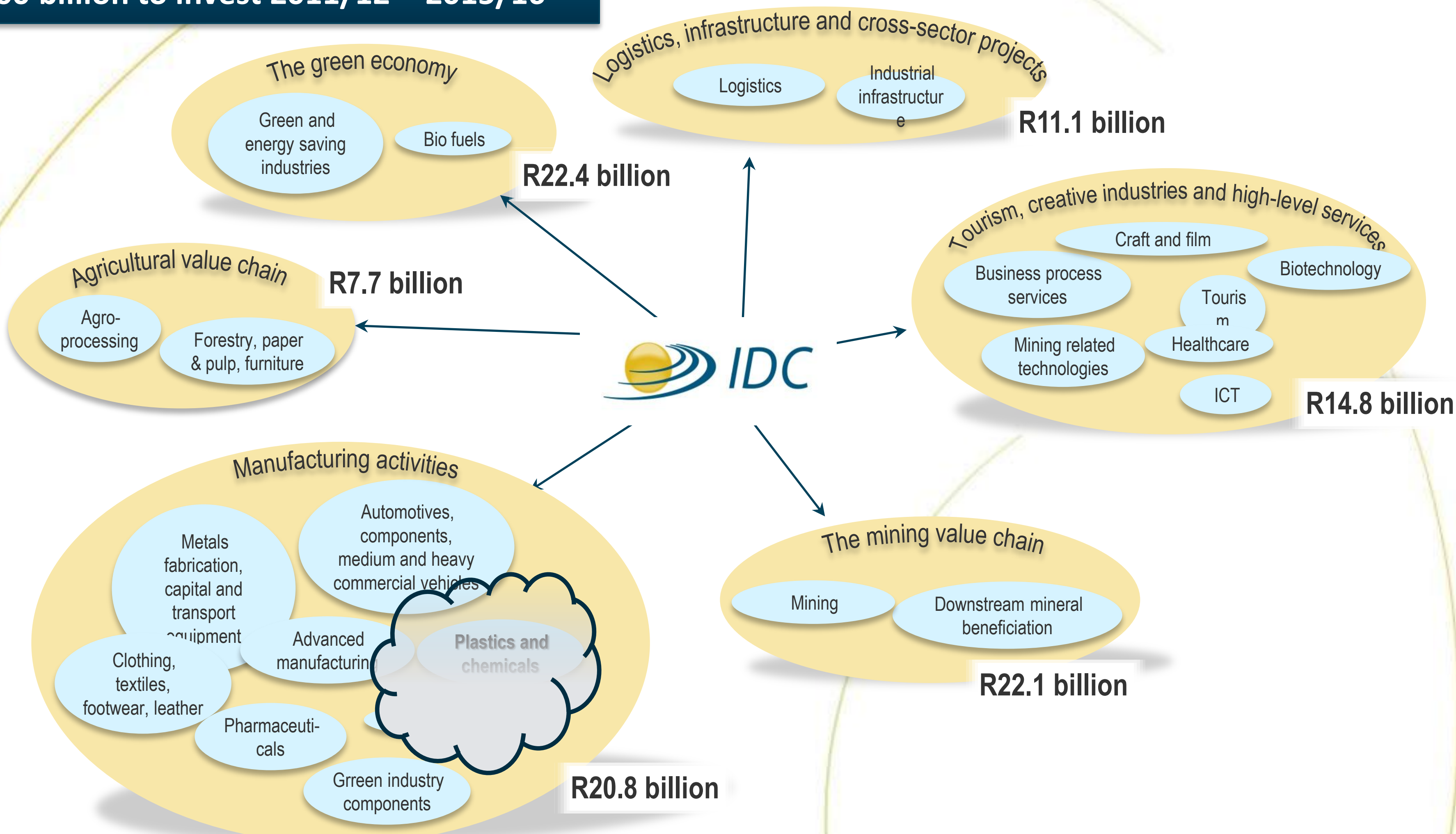
- Industry development through the provision of funding resulting in job creation
- **Geographic activities:** South Africa and the rest of Africa
- **Products:** Custom financial products to suit a project's needs (<u>flexibility</u>). <u>Many funds with low interest rate components</u>
- **Stage of 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

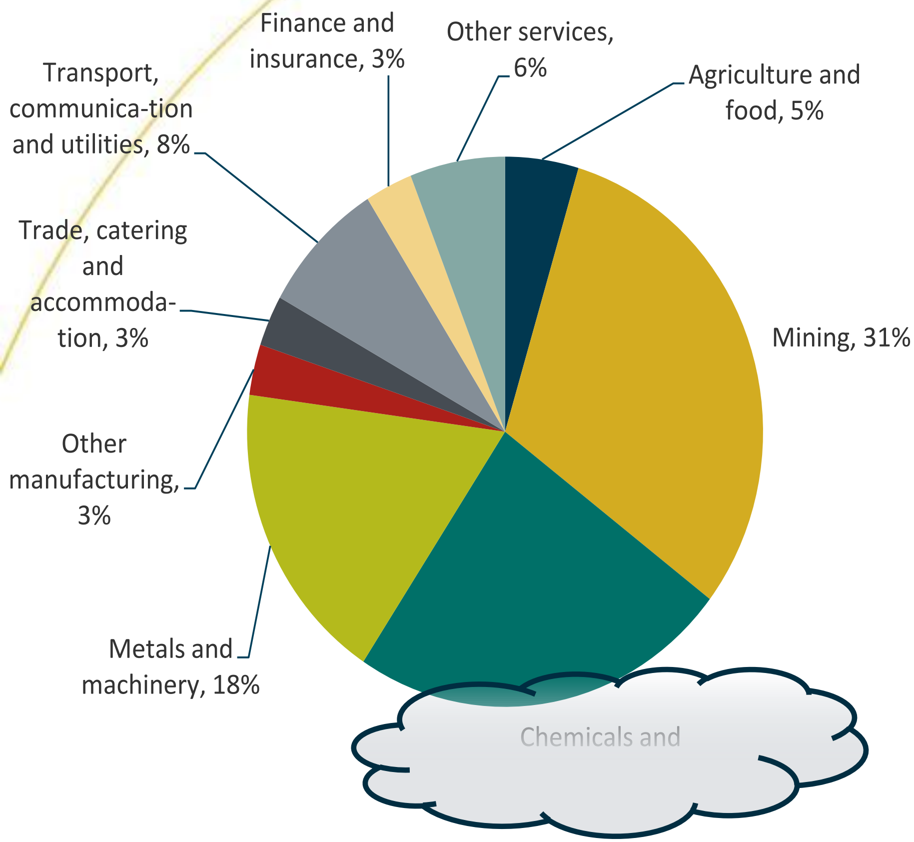
R 100 billion to invest 2011/12 – 2015/16



IDC Sectoral exposure

IDC Industrial Development Corporation

As at 30 June 2012 (@ market value)



IDC's portfolio is concentrated in resource intensive sectors

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.

Sectors covered by the Chemicals and Allied Industries SBU

IDC Industrial Development Corporation

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
6% by number
1% by value

Household Chemicals and Cosmetics
8% by number
11% 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

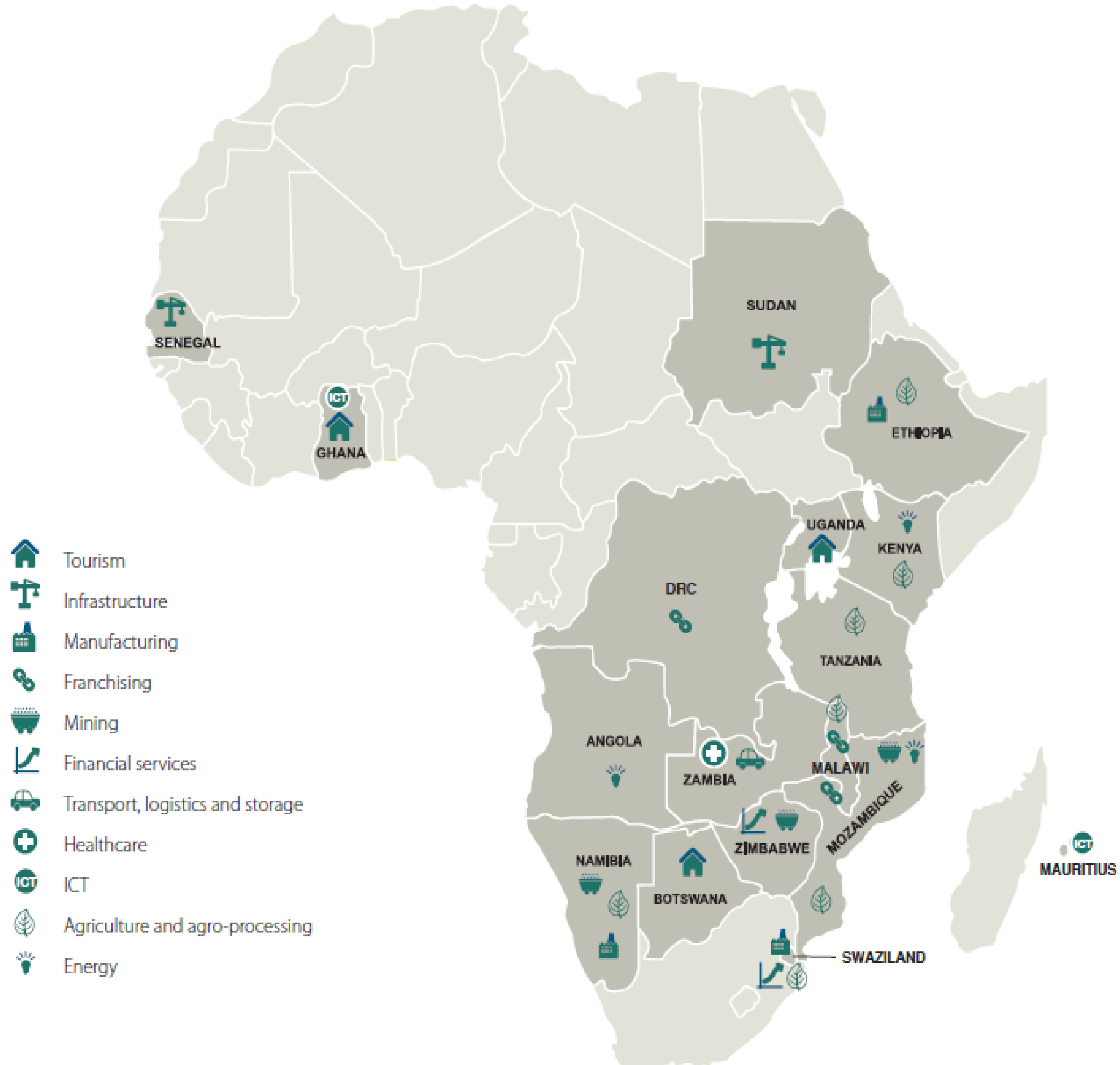
Key Challenges observed

- 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

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Innovate today, harvest tomorrow

Dr. Iordanis Savvopoulos
July 31st, 2013

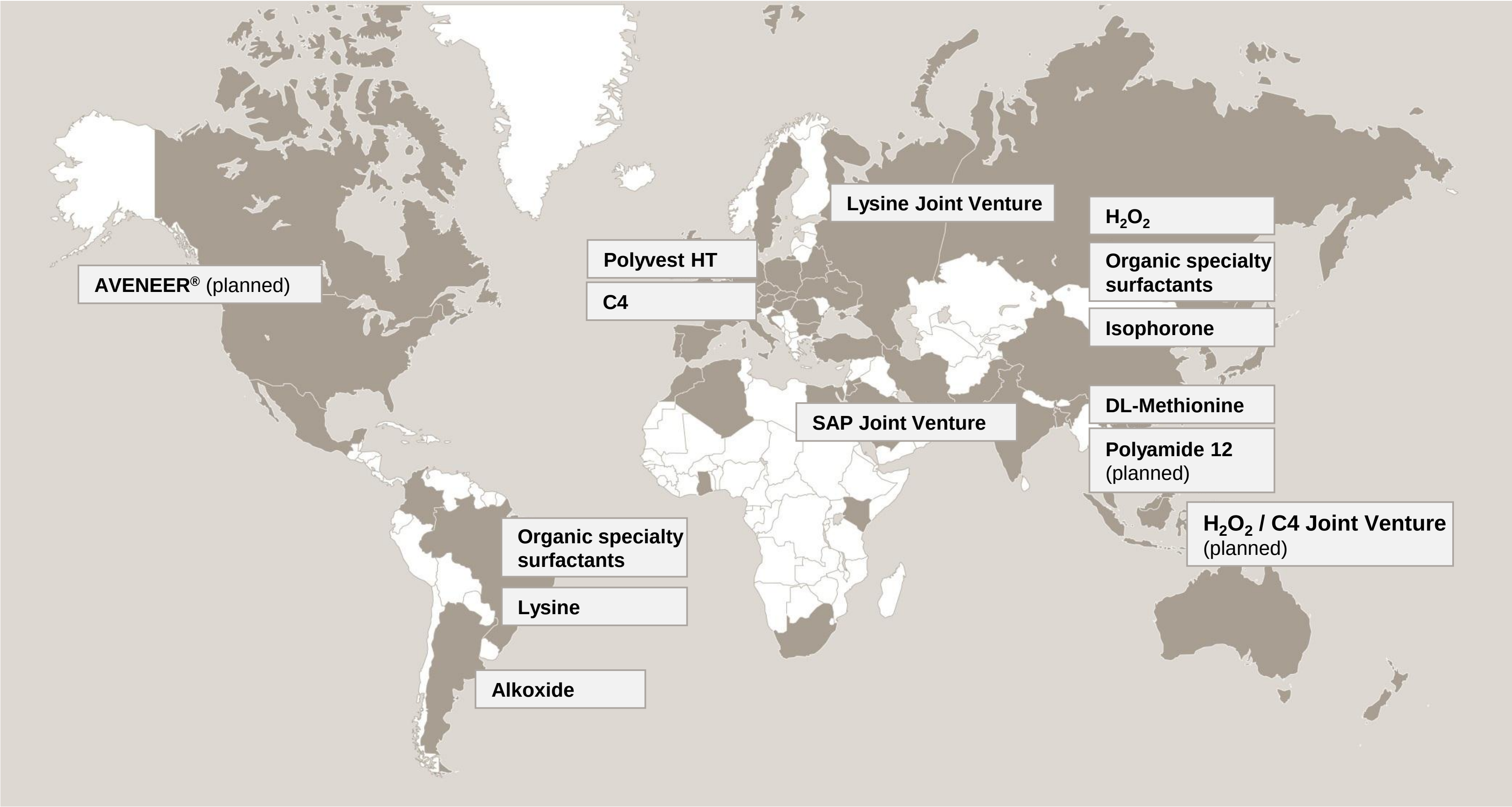
Evonik – a global leader in specialty chemicals

Key financial data 2012

Sales	€13.6 billion
Adjusted EBITDA	€2.6 billion
Profitability (Adj. EBITDA margin)	19.0 %
R&D Spending	€393 million
Employees (Dec. 31, 2012)	33,298

- 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



Four myths about Sub-Sarahan Africa (SSA)

SSA is a p
Per-capita
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Many SSA countries are able to compete with emerging markets in other regions, in terms of

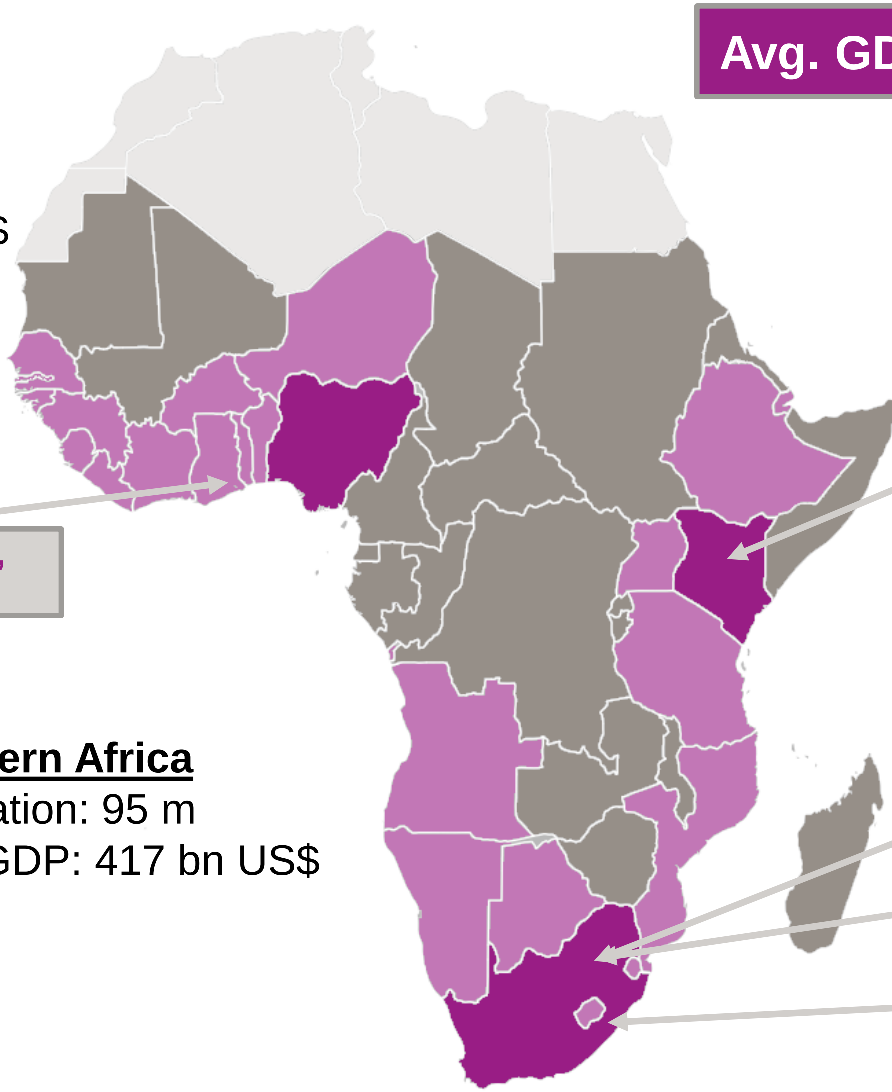
- Per-Capita Income
- Human Development Index
- Standard & Poor´s Rating
- HERMES Credit Rating
- Corruption Perception Index
- „Ease of Doing Business“ Index
- Annual GDP growth rates

Investment in strategic countries, to be closer to the customer

Avg. GDP growth rate: + 5.5 %

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

Evonik West Africa, Ghana



Evonik East Africa, Kenya

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

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

Evonik Africa, Johannesburg

Evonik Acrylics Africa, Johannesburg

Evonik Peroxide Africa, Durban

Sources: African Statistical Yearbook 2009

Growth in SSA by macroeconomic trends

Consumer, Health & Nutrition

Resource Efficiency

Specialty Materials

Animal Feed

Diapers

Energy

Farming

Construction

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	Evonik solution	Result
Existing food sources will become strained	Consumer, Health & Nutrition MetAMINO®	Environmentally efficient form of livestock production
	Consumer, Health & Nutrition. STOCKOSORB®	More efficient and economical agriculture, reduced irrigation frequency
Higher need for baby care products	Consumer, Health & Nutrition FAVOR®	Improved hygiene
Improved energy management	Resource Efficiency AEROSIL®	Improved and safer batteries for energy storage
Increased demand on infrastructure	Speciality Materials DEGAROUT®	Improved safety for road marking
Increased demand on infrastructure	Speciality Materials PLEXIGLAS®	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 Afirca

Food / Feed

Biodiesel catalyst / additives

Mobility
Transportation fuel

De-centralized
power generation

Electricity

RohMax additives hydraulic fluids
(for heavy duty machinery)

Cyplus / H_2O_2
Mining

The Evonik value proposition for SSA

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

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

The Workplace in Midrand: Future Hub for Evonik in Sub-Sharan Africa

Applied Technology Laboratories

There‘s more to be discovered!

„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
INDUSTRIES

Evonik focus countries population and cities

EVONIK INDUSTRIES

Evonik 14 focused countries

Angola
- Population: 18,056,072
- Urbanization: 4%

Cities populations
- Luanda: 4.511 million
- Huambo: 979,000

DRC
- Population: 73,599,190
- Urbanization: 4.5%

Cities populations
- Kinshasa: 8.401 million
- Lubumbashi:1.543 million
- Mbuji-Mayi: 1.488 million
- Kananga: 878,000

Ethiopia
- Population: 93,815,992
- Urbanization: 3.8%

Cities population
- Addis Ababa: 2.863 million

Ghana
- Population: 25,241,998
- Urbanization: 3.4%

Cities populations
- Accra: 2.269 million
- Kumasi: 1.773 million

Ivory Coast
- Population: 21,952,093
- Urbanization: 3.7%

Cities populations
- Abidjan: 4.009 million
- Yamoussoukro: 808,000

Kenya
- Population: 43,013,341
- Urbanization: 4.2%

Cities population
- Nairobi: 3.375 million
- Mombasa: 966,000

Malawi
- Population: 16,323,044
- Urbanisation: 5.3%

Cities populations
- Blantyre: 856,000
- Lilongwe: 821,000

Mozambique
- Population: 23,515,934
- Urbanization: 4%

Cities populations
- Maputo: 1.589 million
- Matola: 761,000

Nigeria
- Population: 170,123,740
- Urbanization: 3.5%

Cities populations
- Lagos: 10.203 million
- Kano: 3.304 million
- Ibadan: 2.762 million
- Abuja 1.857 million

South Africa
- Population: 48,810,427
- Urbanization: 1.2%

Cities populations
- Johannesburg: 8.155
- Durban: 2.837 million
- Cape Town: 3.353 million

Tanzania
- Population: 43,601,796
- Urbanization: 4.7%

Cities population
- Dar Es Salaam: 3.207 million

Uganda
- Population: 35,873,253
- Urbanization: 4.8%

Cities population
- Kampala: 1.535 million

Zambia
- Population: 14,309,466
- Urbanization: 3.2%

Cities population
- Lusaka: 1.413 million

Zimbabwe
- Population: 12,619,600
- Urbanization: 3.4%

Cities population
- Harare: 1.864 million
- Bulawayo: 927,600

Who drives 5,000 kilometers without a drop of gasoline?

We do.

Megatrends drive growth in all segments

Segments	Consumer, Health & Nutrition		Resource Efficiency		Specialty Materials	
Selected examples						
Evonik application	**Animal nutrition**	**Baby care**	**Green tires**	**Isophorone**	**Biodiesel**	**Lightweight construction**
Evonik Position (2012)	#1 in DL-methionine / #3 in threonine/ tryptophan	#1-2 in superabsorbents	#1 in precipitated silicas	#1 in isophorone chemicals	#1 in biodiesel catalysts	#1-2 in MMA

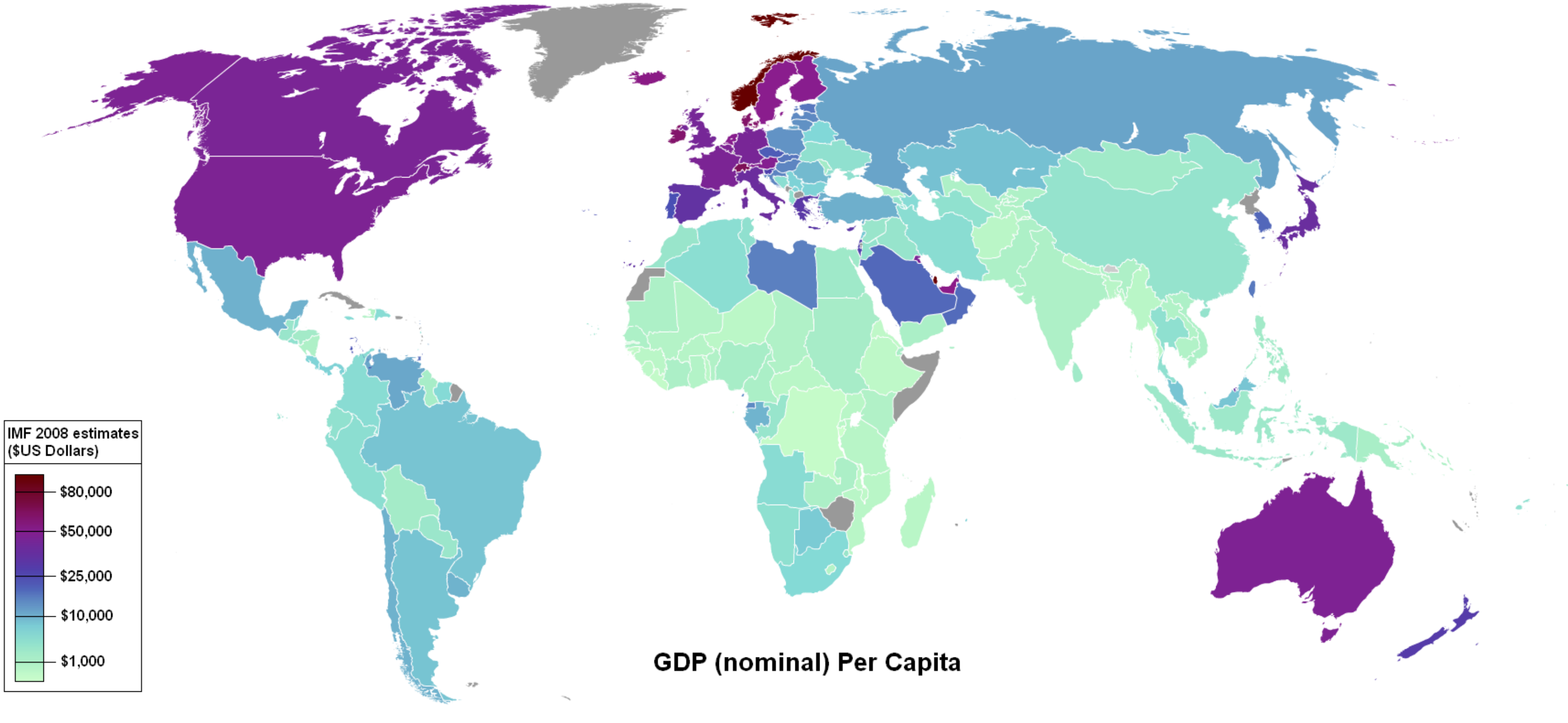
Evonik has aligned its worldwide business activities to the global megatrends of health & nutrition, resource efficiency and globalization.

Market growth

GDP +

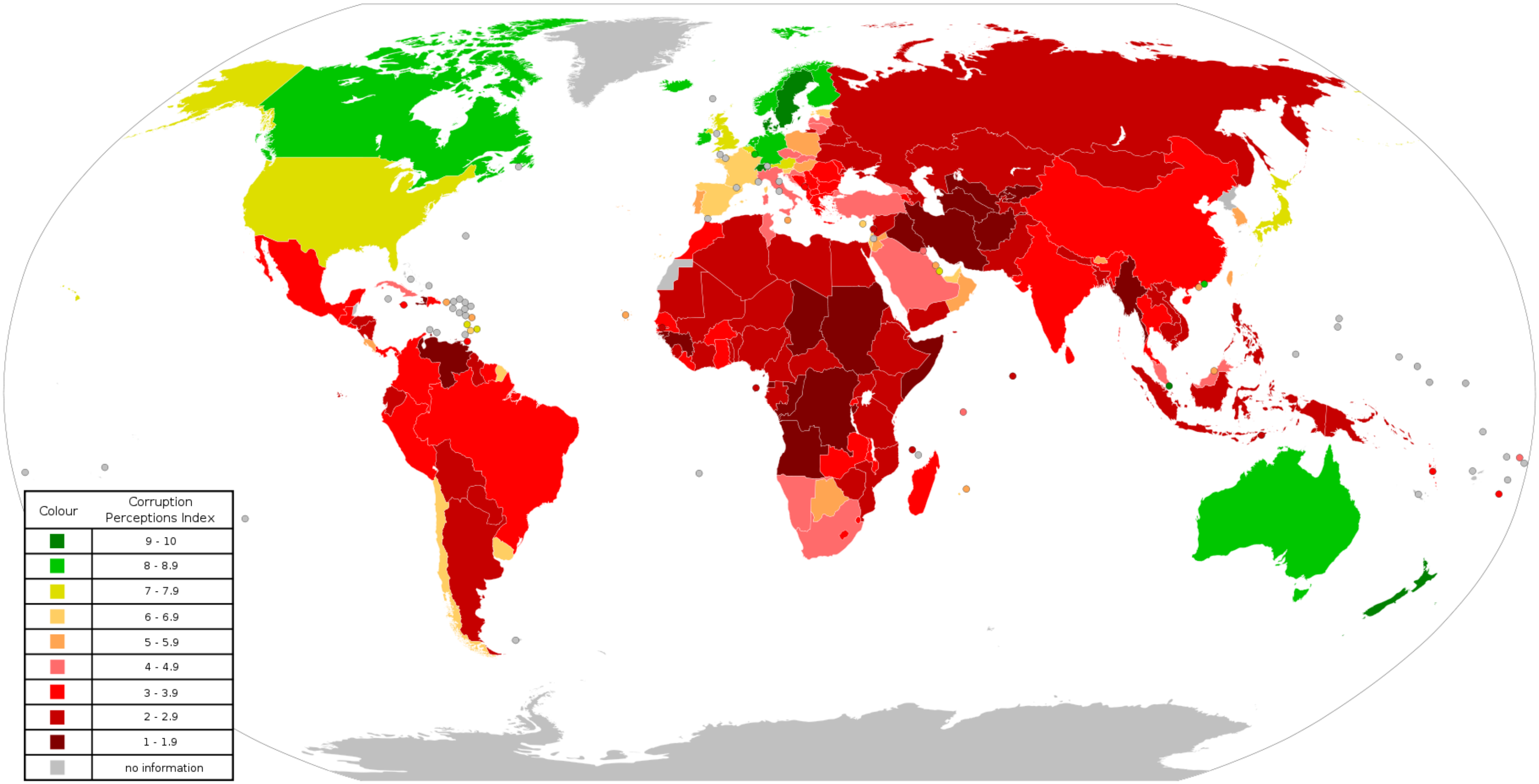
- **Integrated technology platforms ensure added value products and leading market positions**
- **Around 80% of sales revenues from leading market positions**

GDP per Capita (2008)



Sources: International Monetary Fund

Corruption Perceptions Index 2009



Colour	Corruption Perceptions Index
	9 - 10
	8 - 8.9
	7 - 7.9
	6 - 6.9
	5 - 5.9
	4 - 4.9
	3 - 3.9
	2 - 2.9
	1 - 1.9
	no information

Sources: Transparency International

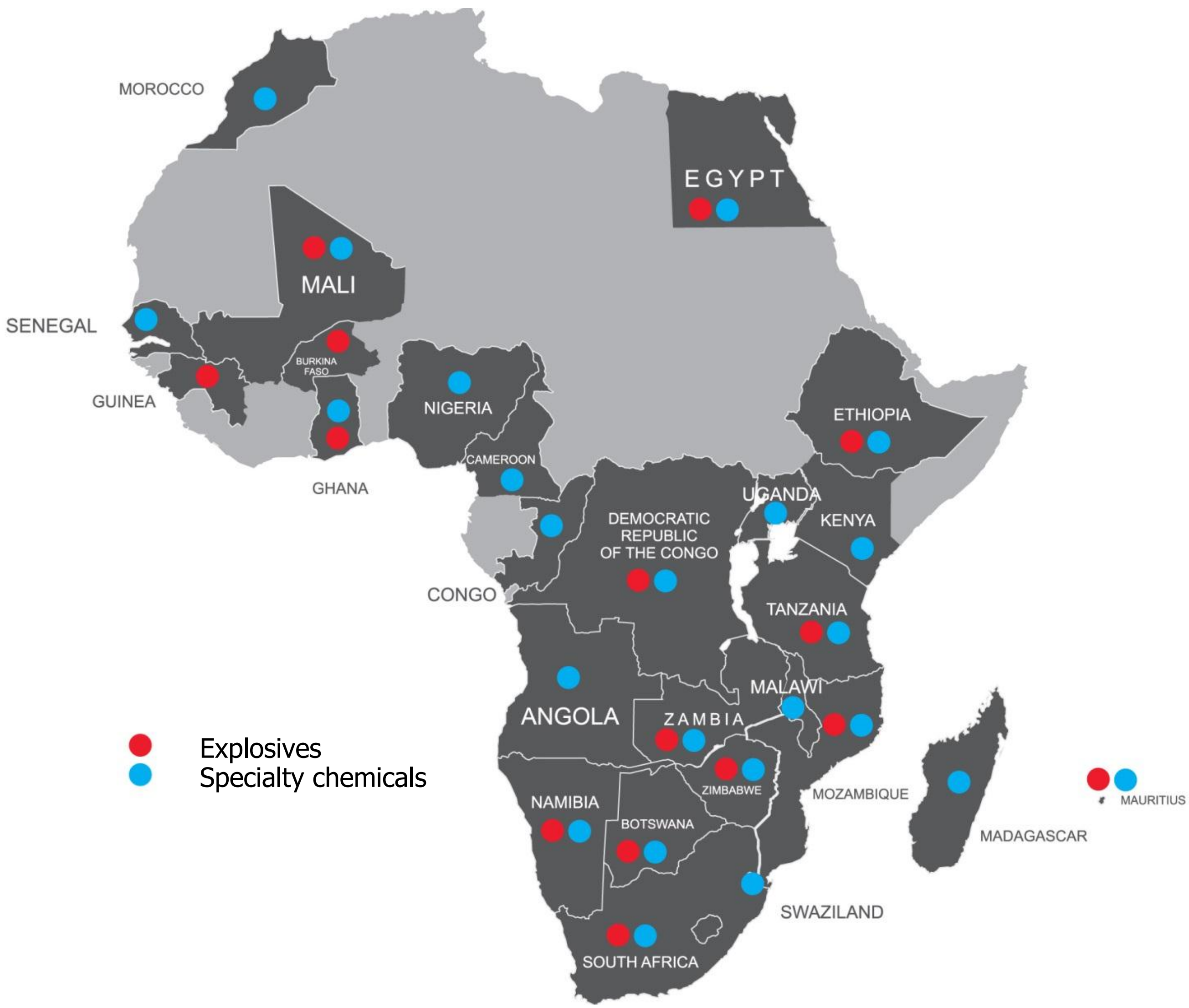
AECI LTD

Stepping out

July 2013

good chemistry

GROUP AFRICAN FOOTPRINT



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