Selected Business Superbrand INDIA 2008 Industry Validated

TATA

TATA CHEMICALS LIMITED

WELCOME TO THE 69th ANNUAL GENERAL MEETING

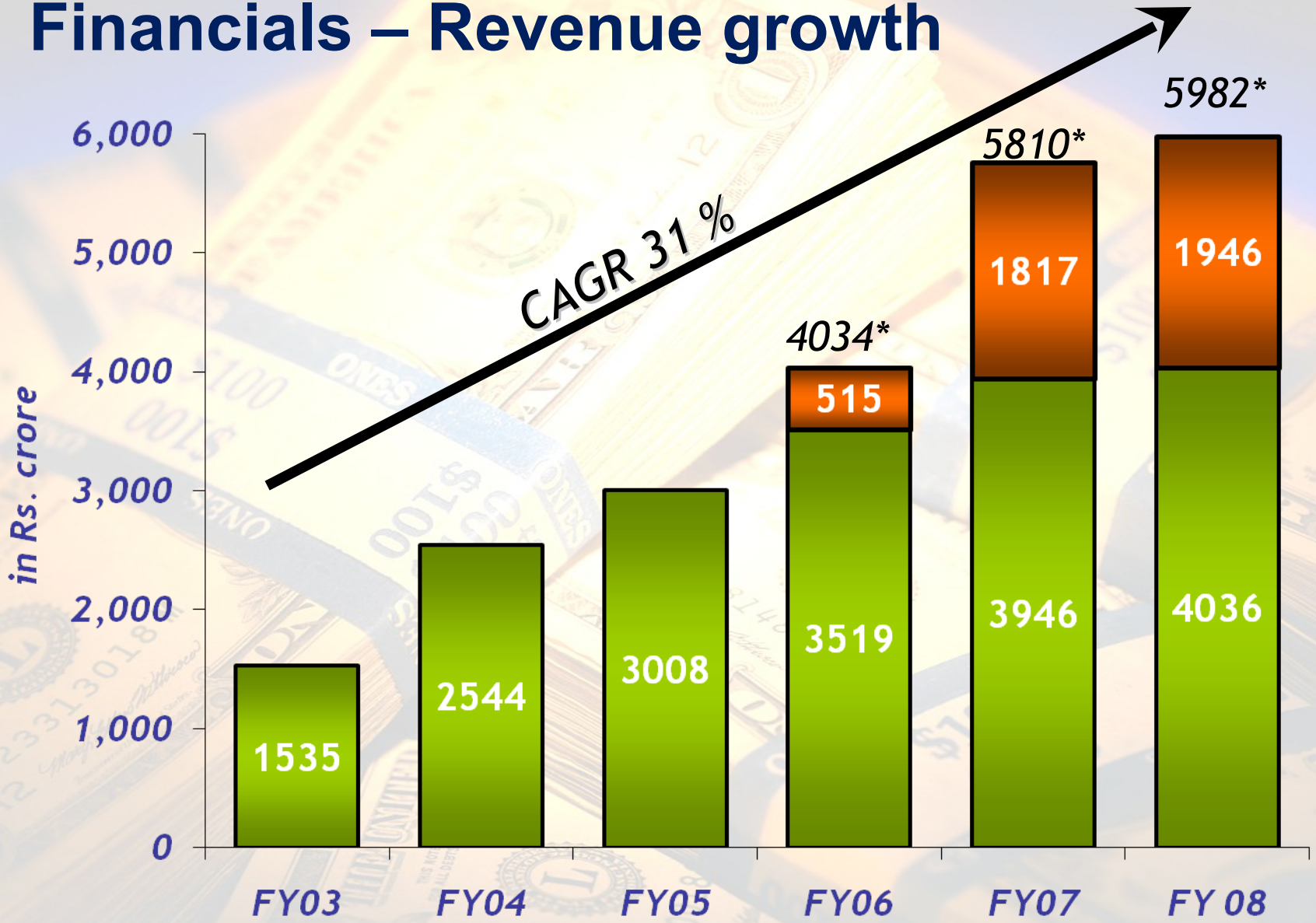
4th August, 2008

III. Financial Overview

V. 'The Human Touch of Chemistry'

I. FINANCIAL OVERVIEW

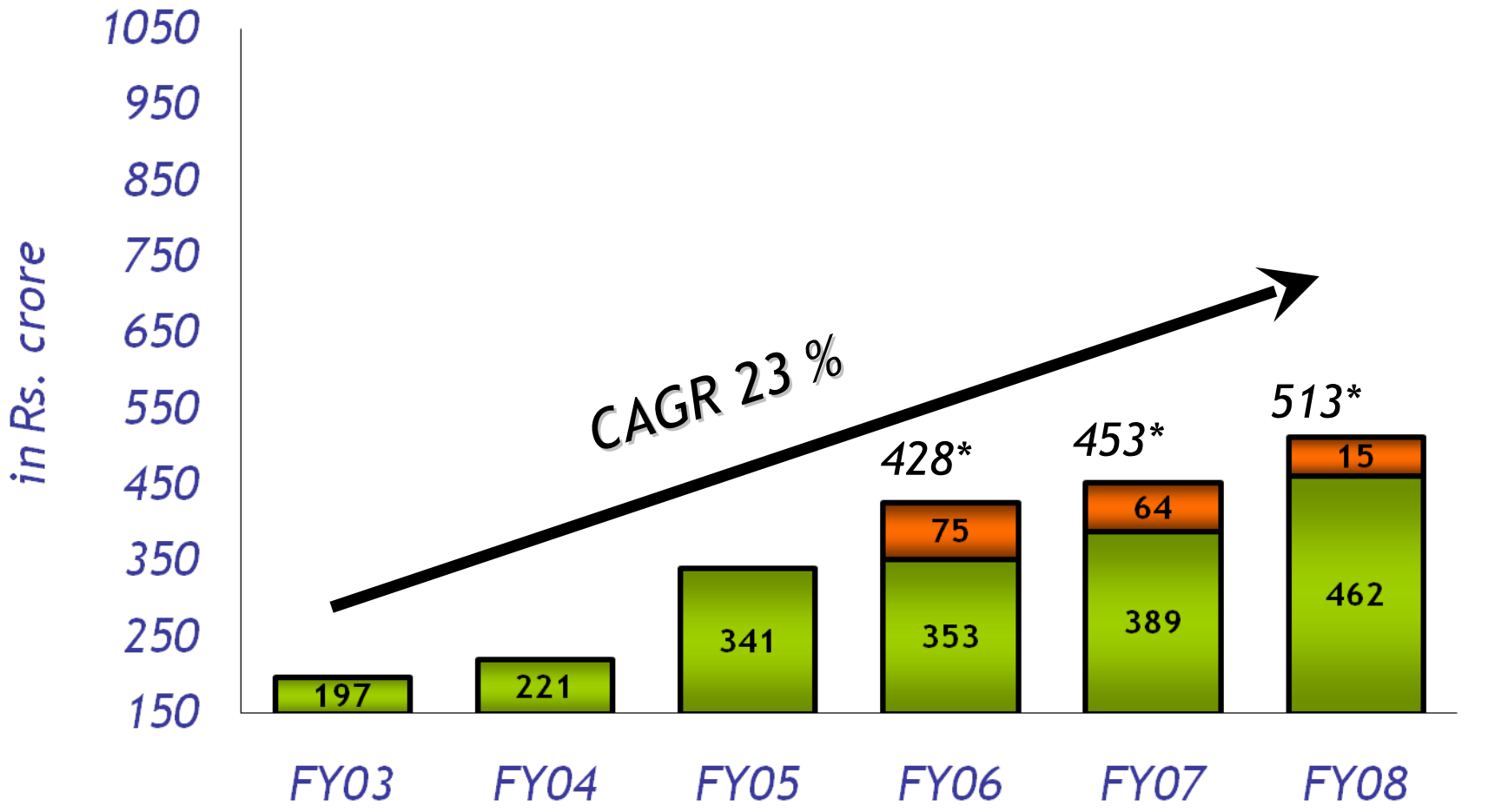
Financials – Revenue growth



Note: FY2006 Consolidated financials include BMGL's Q4 results and IMACID's performance over 11 months

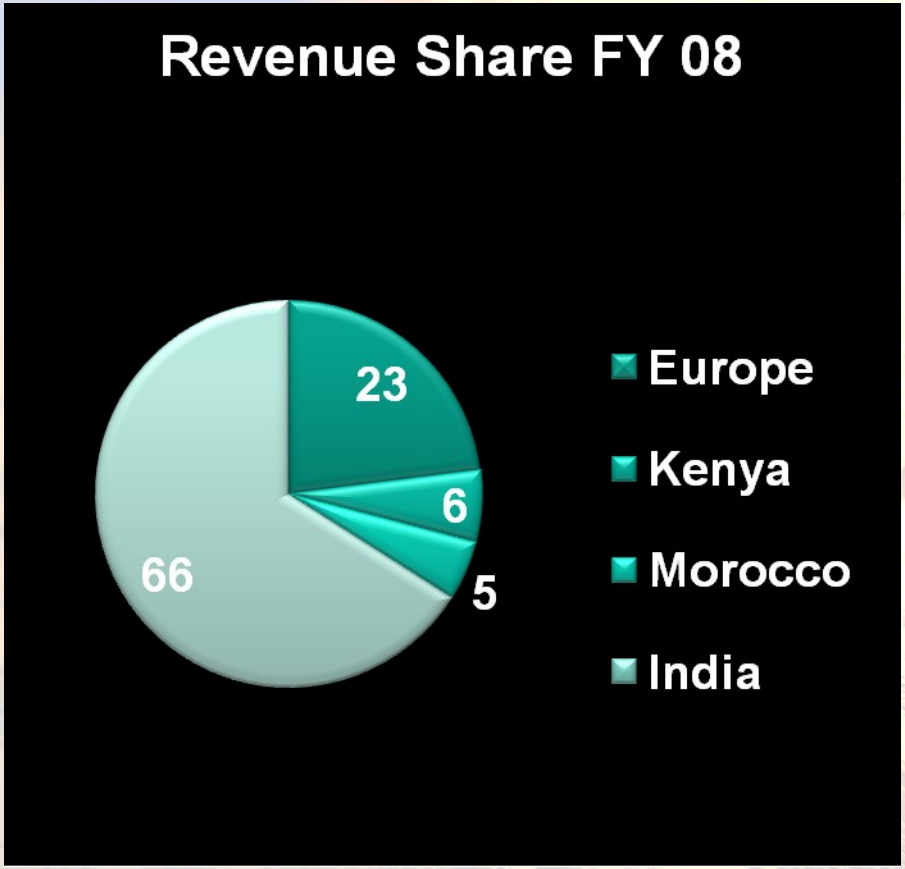
** Post consolidation*

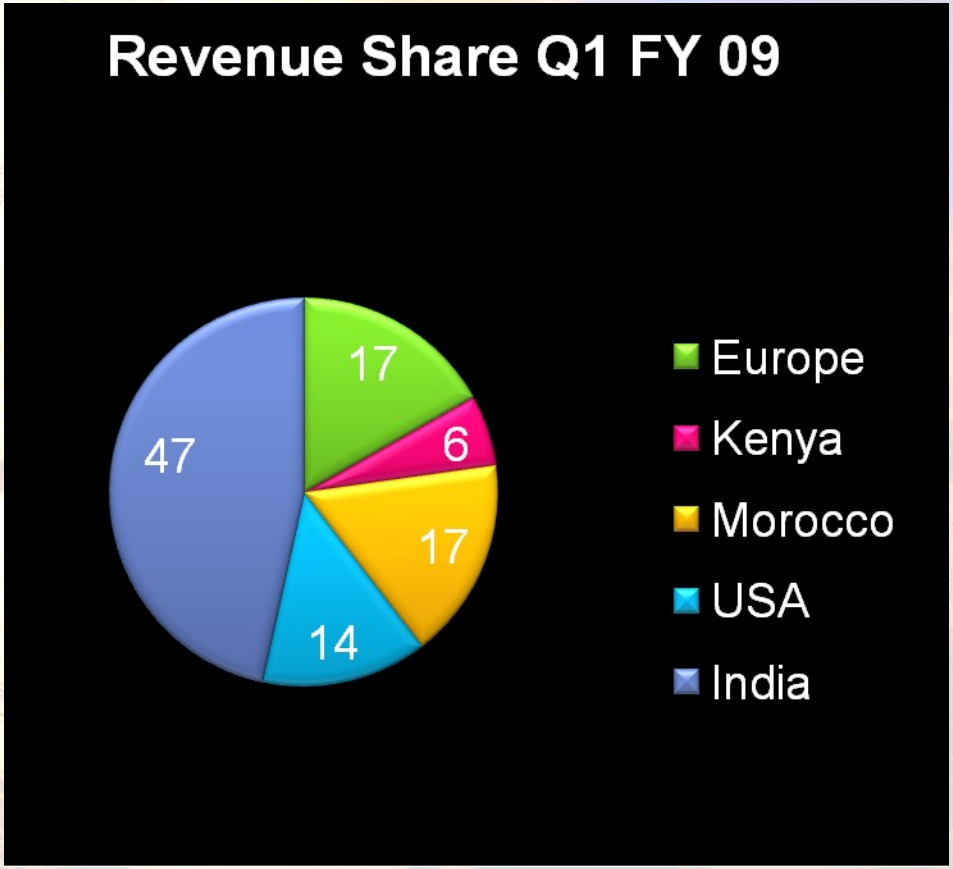
Profit After Tax – Excl. Exceptional Items



*** Post consolidation**

Revenue Share – By Country

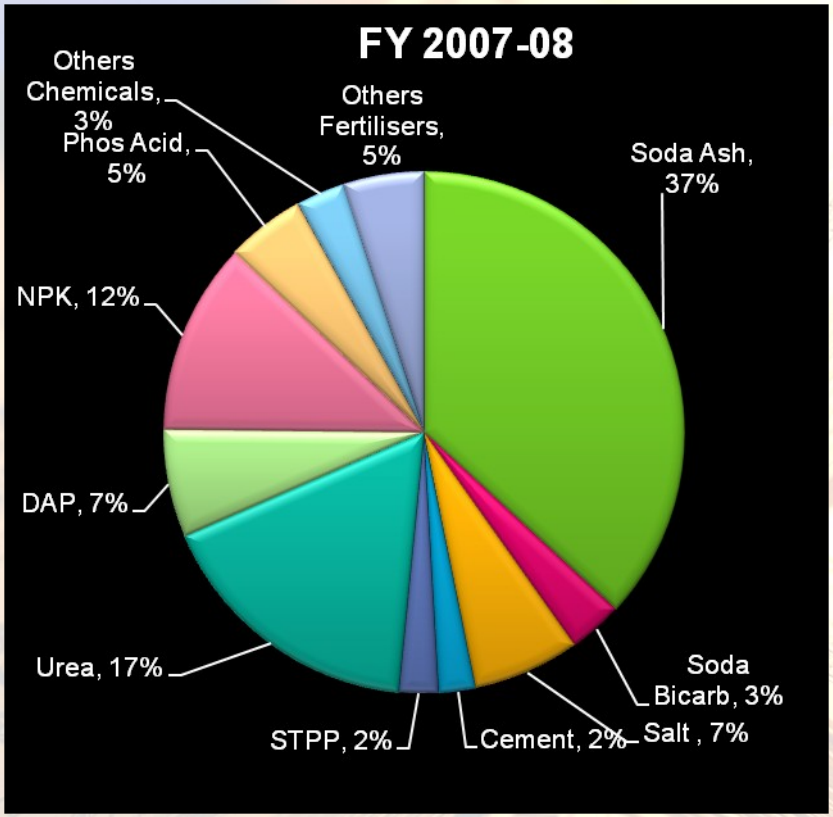


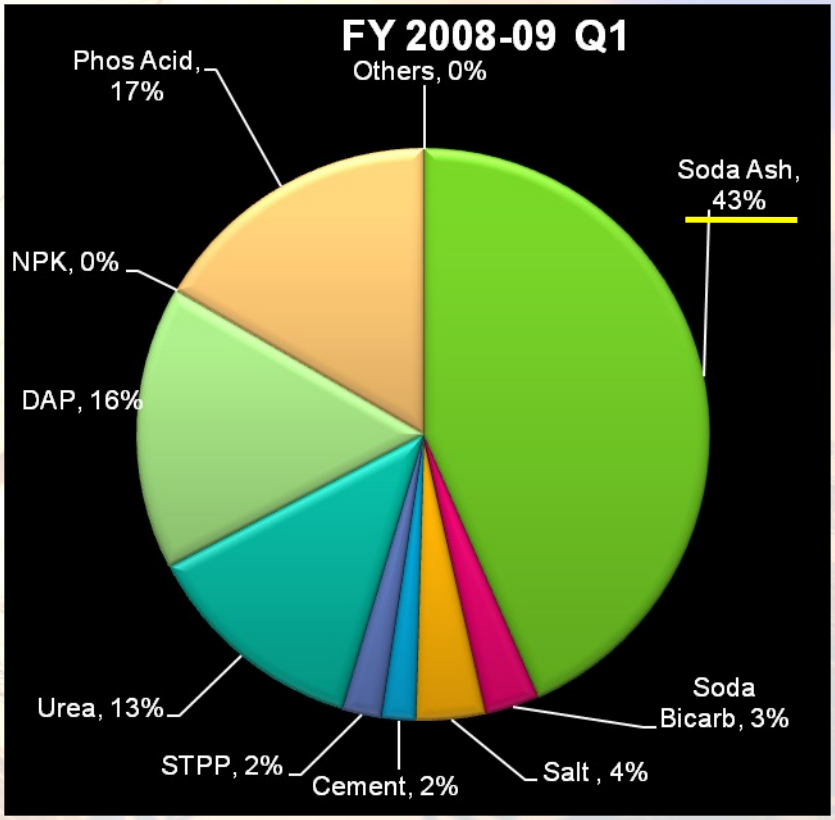


Domestic: 66
International : 34

Domestic: 47
International : 53

Product wise Revenue Mix- Consolidated

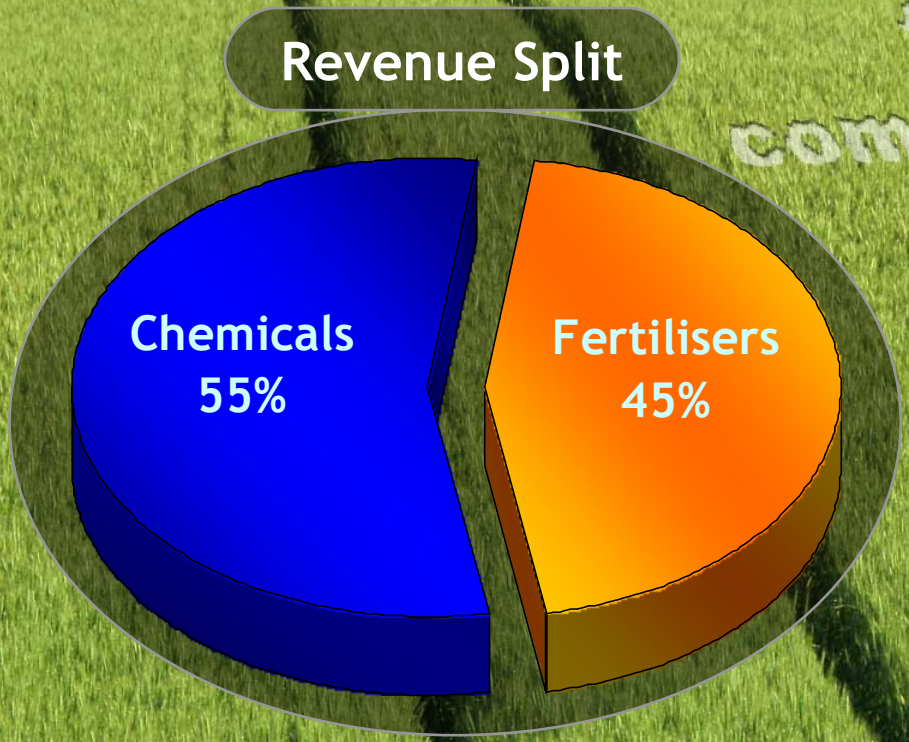




Chemicals: 54
Fertilizers : 46

Chemicals: 54
Fertilizers : 46

TATA CHEMICALS LIMITED



soda ash
urea
food additives
complex fertilisers
bicarbonate
stpp
cement
biofuels
fresh fruit
herbicides

FY 2008 Financial Results

Highlights of FY08 Performance

- ✓Acquisition of General Chemicals Industrial Products was completed in March ’08
- ✓This acquisition makes TCL the 2nd largest Soda Ash Company in the world

Facility Overview – Surface Operations

Facility Overview - Mining Operations

Shaft

Conveyor Belt

1500 m below the earth's surface

2,400 Miles of tunnels

Miner

Trona

Benefits of the GCIP Acquisition

STRATEGIC

- Gives the Company a presence in 4 Continents
- 60% of Company's Soda Ash Capacity is now "Natural"
- Access to the world's largest reserves of economically recoverable trona
- Access to Global Customers
- Ability to service customer requirements from optimal locations
- Access to Latin American Markets
- Mining of natural Soda Ash is "greener" than synthetic manufacture

OPERATIONAL

- Current Mine has 35 years of effective life
- Highly efficient operations
- High quality of Trona
- Earnings Accretive for TCL in 1st year

Highlights of FY08 Performance

- ✓Acquisition of General Chemicals Industrial Products was completed in March '08
- ✓This acquisition makes TCL the 2nd largest Soda Ash Company in the world
- ✓Healthy demand & favourable markets in both Chemicals & Fertilizers
- ✓Babrala recorded the highest ever urea production – over 1 m tonnes
- ✓Debottlenecking of the Babrala plant is absolutely on schedule
- ✓Fresh Produce business opened its first distribution centre at Ludhiana
- ✓Construction of our 1st Bioethanol plant in Nanded is also absolutely on schedule

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- Production at Mithapur was affected by adverse monsoon conditions in Gujarat
- Political problems & commissioning delays in the Magadi Pure Ash Plant in Kenya
- Unprecedented rises in the costs of inputs and a global shortage of Sulphur

Other Highlights - Chemicals

- Total market share of Packaged Salt improved to 51% from 47% thanks to our 2nd brand, I-Shakti (Market Shares: 44% Tata Salt + 7% I-Shakti).
- A Low Sodium Salt – Tata Salt Lite has also been launched
- Tata Salt was adjudged the No.1 "Most Trusted Food Brand" by the Economic Times [& No. 3 among all Brands]
- New 50,000 TPA Pharmaceutical & Food Grade Sodium Bicarbonate plant was commissioned in the Netherlands at a cost of Euro 15 m.
- Construction of the new 50,000 TPA Sodium Bicarbonate Plant in the UK for manufacture of 'Briskarb' - for treatment of Flue Gas, is on schedule and will be completed in early'09

FERTILIZERS

urea | dap | npk

- Unprecedented Prices for fertilizers and fertilizer raw materials and the prices are continuing to rise.

	12-18 months ago ($ / MT)	Today ($ / MT)	% Increase
DAP	180	1200	570%
Phosphoric Acid	566	2200	390%
Urea	250	800	320%
MOP	160	1000	525%
Sulphur	100	750	750%

- Fertilizer Subsidy burden is now ~Rs. 120,000 Cr. (and rising)
- Strain on Working Capital & Cash Management

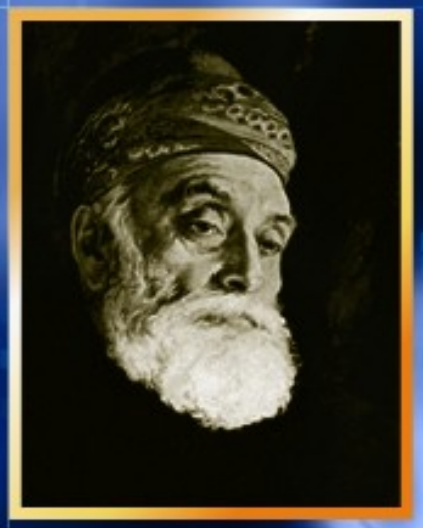
Recent Policy Changes in Fertilizers

- Recognition of International Prices for Phosphate and Potash Fertilizers, for the first time (IPP) and a shift away from the manufacturer's price based on "cost + permissible return"
- This will encourage efficient manufacturers to compete at international prices
- Similar policy expected for Urea - but only for additional capacity creation
- Subsidies continue to be a major concern

II. The Human Touch of Chemistry

Chemistry that puts a Smile on Your Face!

The Beginnings



"In free enterprise,
the community is not just another stakeholder in business
but in fact the very purpose of its existence."

Jamshetji Tata
Founder, Tata Group, 1868

‘Sustainability’ has always been a deeply engrained philosophy within the Group

The “Human Touch” of Tata Chemicals manifests itself through

B. Initiatives that make a difference

- **to the communities we engage with**
- **to the environments we operate in**

C. The use of modern chemistry to address some of World’s most worrysome problems


The Company that Cares

Mithapur

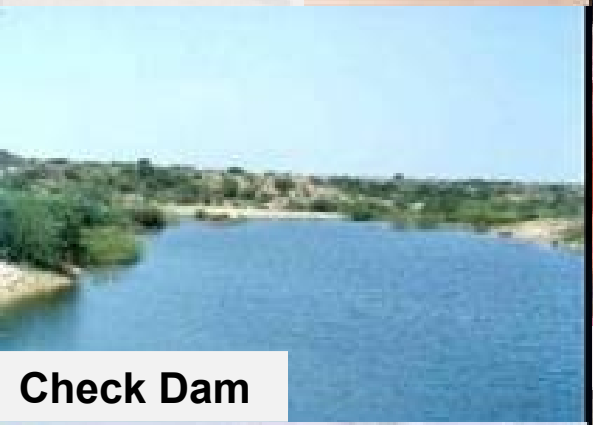
- Water Management – 3000 Ha, 1000 households, 733 Farm Ponds and 68 Community Ponds, 58 Community wells and 4 Bore Wells
- Afforestation – 20 Ha.
- Self Help Groups – 203 Group, 3382 Members
- Rural Entrepreneurship – 817 Enterprises
- Handicrafts – OKHAI – Showroom in Ahmedabad
- Rural BPO – UDAY – employment for 186 youth
- Health Education & Sanitation – 175 Bed Hospital, 42 Mobile Clinics
- Whale Shark – Saving an endangered species
- Infrastructure – Roads, Houses, Toilets, Community Halls
- Projects just starting: Mangroves, Coral Reefs, Marine Turtles

Mithapur

Farm Ponds

Rural Entrepreneur at his Shop

Okhai Women with Press



Check Dam

Handicrafts Training

Displaying their craft

Self-Help Group Training

Rural BPO

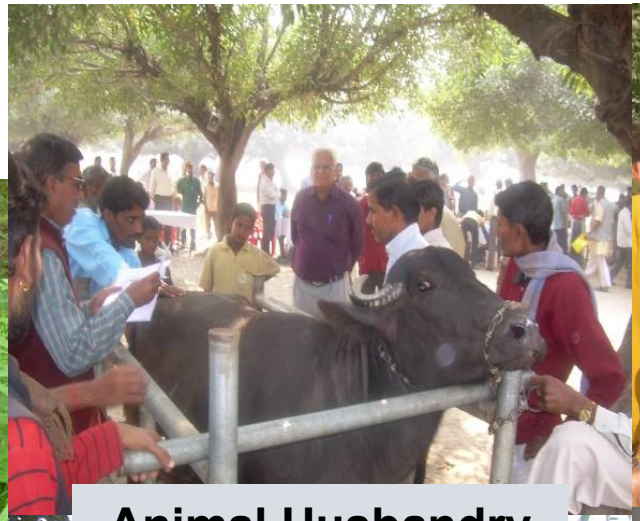
Saving the Whale-Shark

Babrala

- Crop Diversification – High Yield Wheat & Vegetables, 466 Farmers
- Land Reclamation - 350 Ha., 855 Farmers in 10 villages
- Animal Husbandry – Murrah Buffalo, Vaccination Camps & Cattle Shows
- Bio Gas – in homes
- Self-Help Groups - 88 Groups from 24 villages
- Income Generation - 13 artisans, Karobi Project (will merge with Okhai)
- Training in Vocations – Tailoring, Typing, Beauty Parlor, Mobile Repair, Computer Skils (1,109 boys & girls trained)
- Health, Education & Infrastructure – Mobile camps in 54 villages, AIDS Awareness Programmes, 3500 vaccinations, 2100 Pre and Ante Natal Checks
- Infrastructure – Roads, Culverts, Toilets
- Rural BPO starting soon

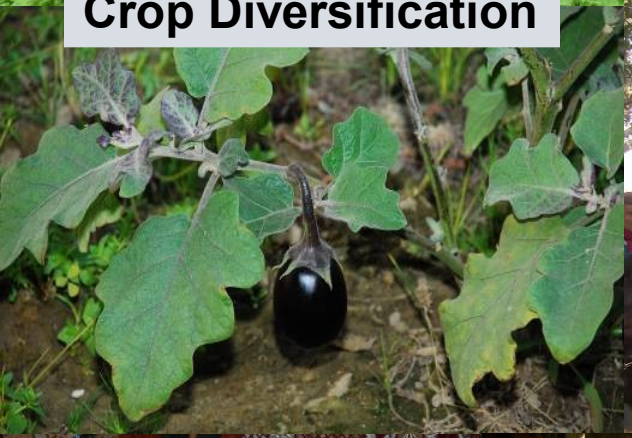
Babrala

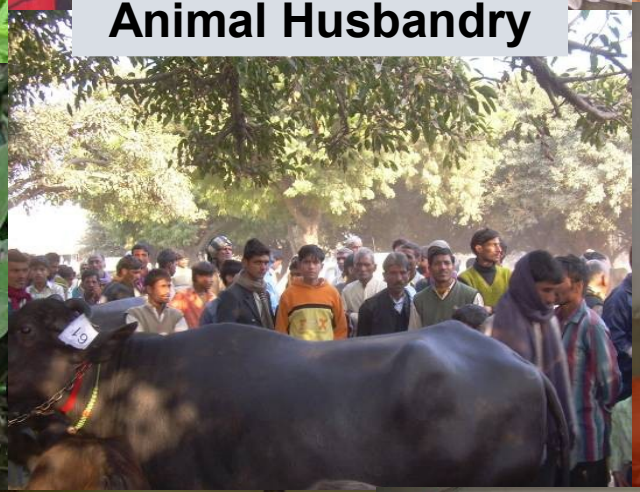
Crop Diversification



Animal Husbandry

Income Generation





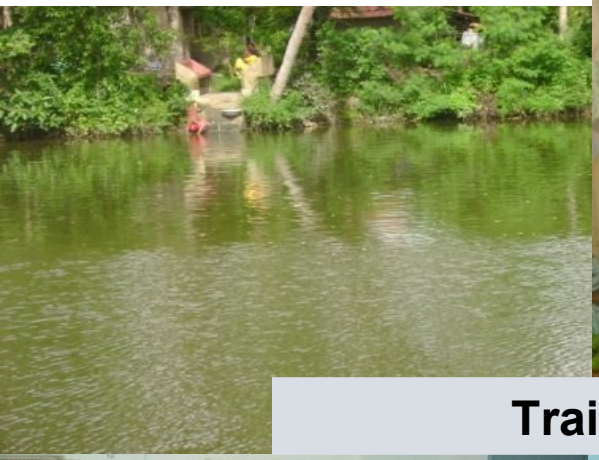
Self-Help Groups

Medicals Camps & Vaccination

Haldia

- **Pond Management – Cleanliness, Pisci-culture & Skin Disease Prevention**
- **Book Bank – 110 Students covered, in 4 schools**
- **Vision 20/20 – 3500 Students in 25 schools**
- **Innovative teaching methods – Training for teachers**
- **Pulse Polio & Blood Banks – Immunization programmes in 5 villages**

Haldia

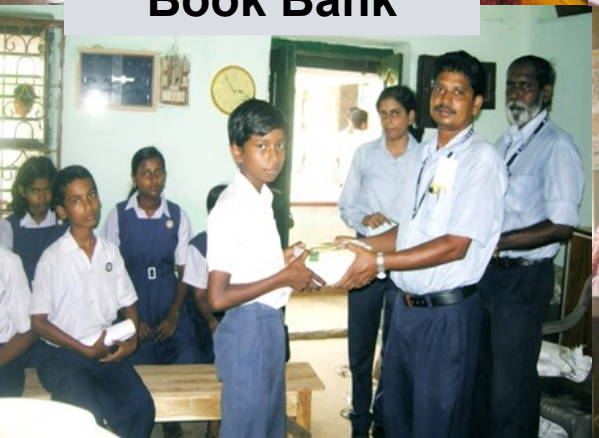


Training in better Pond Management

Book Bank

Eye Camp

Immunization & Blood Donation



Teacher Training

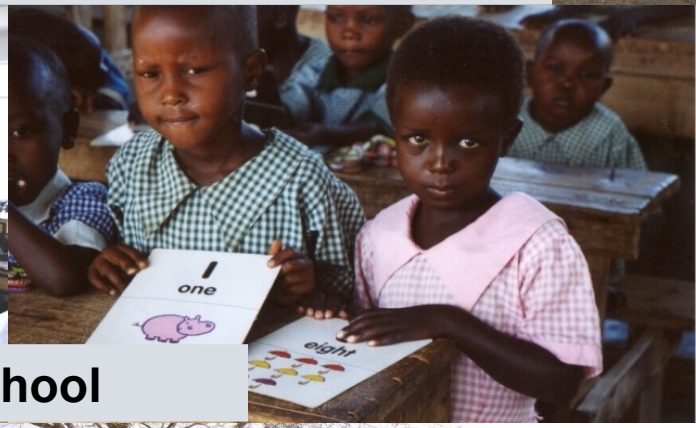
Magadi

- Provision of Potable Water (by Magadi Rail)
- Patterson Memorial School & Higher Education Scholarships
- Adult education programmes
- Health – 60 bed Hospital
- HIV awareness programmes
- Drought preparedness programmes
- Local Community (Masai) Programmes
  - Employment
  - Micro Business
  - Cattle Trade
- Recipient of Good Citizenship Award for last 7 Years

Magadi

Train Carrying Water

A Typical Masai Family



Students at the Patterson High School

AIDS Awareness Programmes

Helping with Cattle Trade

MITHAPUR

1. Solid Wastes from Soda Ash
2. Nano Filtration of Sea Water

1. Solid Wastes from Soda Ash

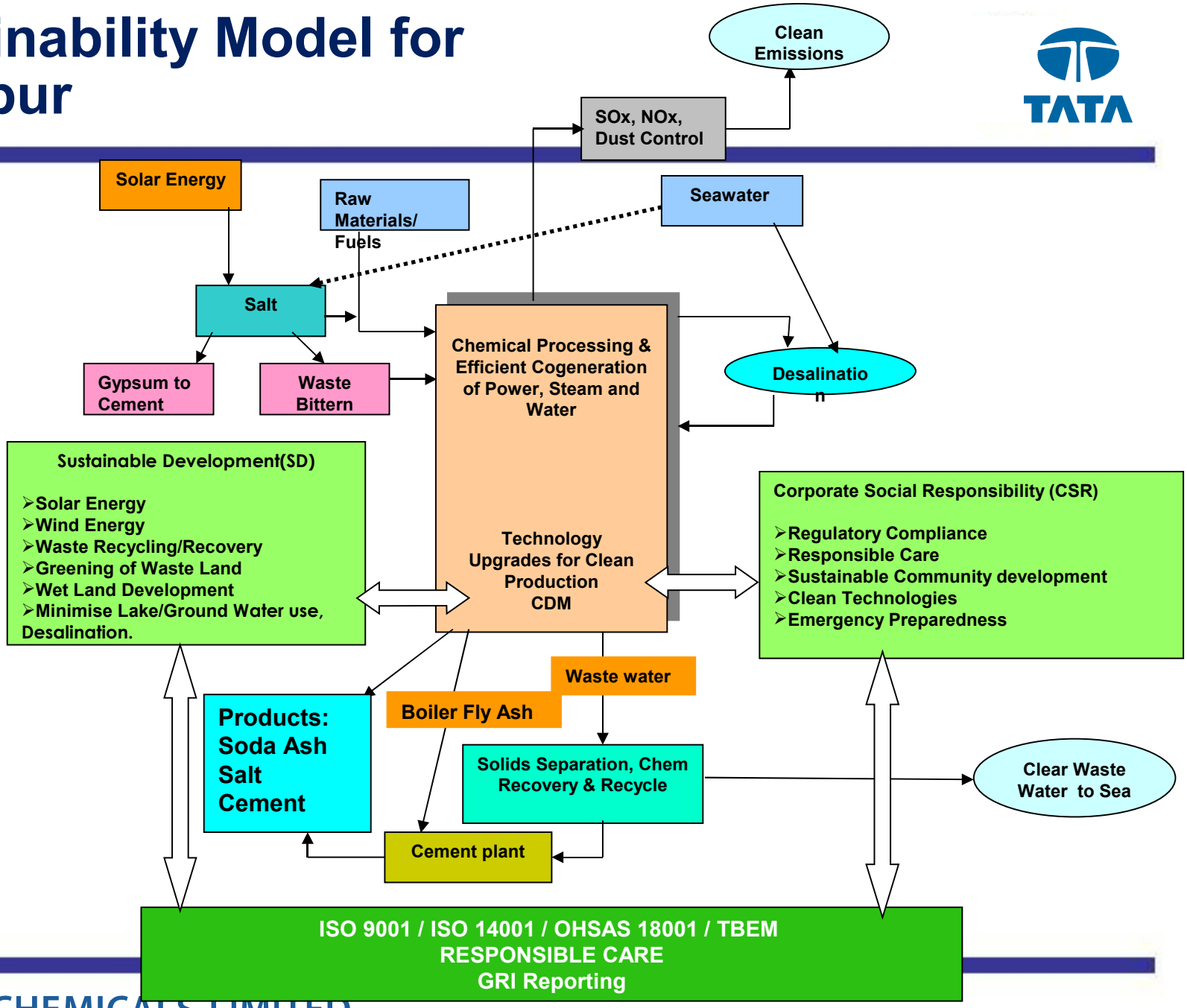
- For every tonne of Soda Ash, the Solvay Process produces 10 m3 of waste liquor and 0.4 Tonnes of solid wastes
- Most Manufacturers, even in advanced countries, discharge these wastes into the sea or rivers or stored in settling ponds
- At Mithapur all solid wastes are filtered out of the waste water using a battery of 6 Larox filters (each costing >Rs. 6 Cr.) and the solid wastes are Mixed with fly ash to make Cement
- This is done on a small scale in Japan and was once attempted in Poland

MITHAPUR

1. Nano Filtration of Sea Water

- The removal of Calcium, Magnesium and SO4 from seal water using Nano Filtration Membranes from process water
- This reduces the effluent load by around 200 MT per day
- Additionally it reduces the use of fresh water (which is very scarce in Mithapur District
- This is a novel nano filtration technology and being used in a Soda Ash facility for the first time
- It involves an investment of Rs. 10 Cr. and adds ~Rs. 6 Cr. to annual operating costs

Sustainability Model for Mithapur



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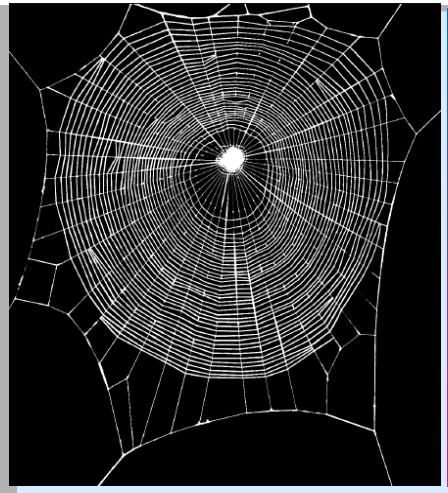
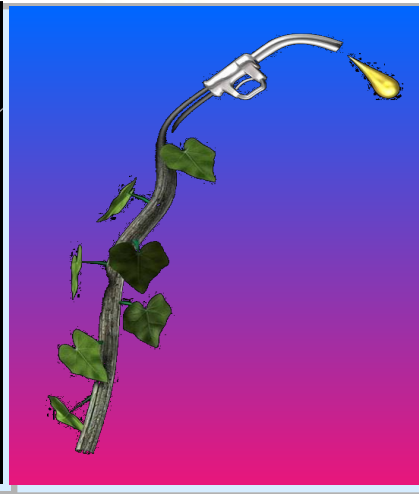
TATA

Tomorrow's Chemistry

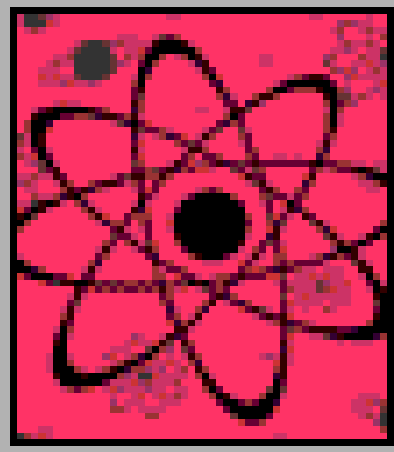


Bio-Mimicry



Bio Fuels

TCL's Innovation Centre



Nano-Tech

Process for Identification of New Opportunities

Preliminary List of Opportunities
- .....
- .....
- .....
- .....

3

Attractive Technologies 4
- Bio-technology
- Nano-technology

Screening Criteria 5
- Market attractiveness
- TCL's ability to deliver value
- Shift from high capital / unit profit to high knowledge / unit profit

GREEN CHEMISTRY 6

Industry challenges
- Energy
- Water
- Land
- Climate Change

2

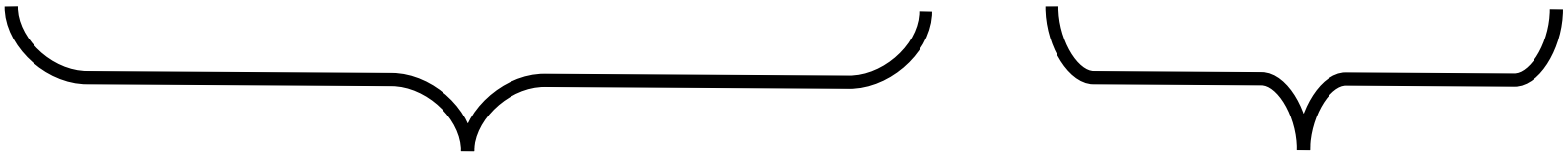
The Interface of Bio & Nano-Technology

Short-listed Opportunities
- .....
- .....
- .....

7

The Ultimate Energy Solution will come from either Biology & Nano-technology

Liquid	Gas	Devices
Biodiesel	Bio - H2	Fuel Cells
Bioethanol	Bio – CH4	Solar Cells



Biotechnology

Nanotechnology

+

Biological processes can be used for the manufacture of Nano-materials

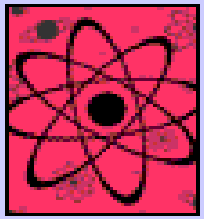
What is Nanotechnology?

Nanotechnology is the art of manipulating matter at the nanometer* scale to create novel structures, devices, and systems

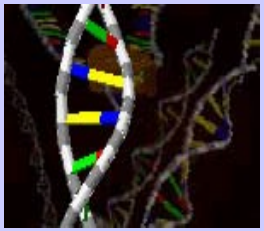
- Structures (e.g. materials)
- Devices (e.g. sensors)
- Systems (e.g. NEMS**)

→ Novel Uses

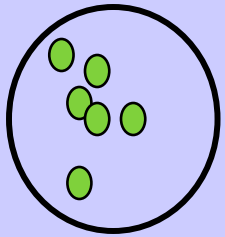
Visualizing the Size



Atoms
<1 nm



DNA
~2.5 nm



Cells
thousands
of nm

* 1 Nanometer = 1 Billionth of a Metre

**NEMS – Nano Electro Mechanical Systems

The attractiveness of Nano-technology

Properties of Nano materials

- High chemical reactivity (surface modification, bio-compatibilization, catalysis…..)
- Extremely high surface/volume ratios (catalysis, drug delivery, enhancing properties of composites)
- Can be coaxed into environments not accessible to larger objects (drug delivery, gene therapy….)
- Exotic electronic and optical properties (molecular electronics, non-linear optics, biodiagnostics….)

The attractiveness of Nano-technology (2)

Some potential applications

- **Drug delivery** - through the skin and eyes, inhalation, to avoid stomach enzymes , delayed release and targeted drug delivery
- **Solar energy** - more efficient and cost effective solar cells
- **Fuel cells** – employing nano-metal oxides
- **Hydrogen Storage** – to reduce the volume and temperature
- **Display technologies** - Nanotube-based field-emission displays may replace liquid-crystal displays
- **Storage technologies** – in IT. Miniaturized Drives / RAM's
- **Nanotubes -** Multiwalled nanotubes, for making composites. Give greater conductivity at much lower filler loads
- **Catalysis** – putting to use the enhanced surface area of the catalyst.

Potential applications (contd.)

- **Nanocomposites - clay-based composites for structural applications (increased strength) or with novel properties like better insulation (for automotive and aerospace industries)**
- **Coatings - extra hard / special properties – hydrophobic, electro chromic, self-cleaning – for cars and buildings**
- **Sensors - bio and chemical sensors from nanowires and nanotubes**
- **Textiles - stain-resistant clothing, electrospun nanofibres & nanotube-enhanced fibre**

The Human Touch of Chemistry – Innovation Centre

1. **Adapting cutting-edge technology to the meet the needs of the economically under-privileged**
   - Low cost water filter with nano technology
2. **Addressing wellness of the communities we serve**
   - Iron fortified salt
   - A Food Additive that can reduce intake of cholesterol & Improve intake of calcium
   - Low cost sweetener from green process
3. **Developing technologies that would be sustainable and green**

- Microbial / green process for the production of inorganic nano particles
- Production of fuels from biomass (cellulosic ethanol)
- Use of CO_2 in new polymeric materials

Examples of Chemistry that has made or will make a difference in future

- Recovery and recycle of wastes at Mithapur – cement
- Water conservation projects at Mithapur
- Energy Efficiency at Babrala
- Customised Fertilizers
- Biofuels from conventional routes + Energy from waste (Cellulosic Conversion of Biomass)
- Nano Metals for Fuel Cells (made from biological processes)
- Nano-silica for PV Cells
- Energy Efficient Coatings for Glass
- Biotransformation of glycerol to other uses
- Use of CO2

Thank You