Industry and the Environment
A brief background

- Industry and Commerce are driven by the access to energy and fuel

- The use of conventional energy sources generate greenhouse gas emissions and is a primary driver of global warming

- Presently there is no large scale restriction / prevention on the use of this energy, thus there is no requirement on companies to restrict or regulate this use ( unlike release of hazardous waste or de-forestation )

- This presentation focuses on GHG emissions, their impact and
Climate – Carbon – Confusion
Indicators of climate change
Global Surface Temperature

GLOBAL LAND-OCEAN TEMPERATURE INDEX

Data source: NASA's Goddard Institute for Space Studies (GISS) This trend agrees with other global temperature records provided by the U.S. National Climatic Data Center, the Japanese Meteorological Agency and the Met Office Hadley Centre / Climatic Research Unit in the U.K. Credit: NASA/GISS

http://climate.nasa.gov/key_indicators
Arctic Sea Ice

AVERAGE SEPTEMBER EXTENT

Data source: Satellite observations.
Credit: NSIDC

http://climate.nasa.gov/key_indicators
Sea Level

**GROUND DATA: 1870-2000**

Data source: Coastal tide gauge records.
Credit: CSIRO

*estimated for 20th century

**RATE OF CHANGE**

↑ 1.70 mm per year*

**SATellite DATA: 1993-PRESENT**

Data source: Satellite sea level observations.
Credit: NASA Goddard Space Flight Center

↑ 3.16 mm / year

Inverse barometer applied and seasonal signals removed.

http://climate.nasa.gov/key_indicators
Industry “fuels” climate change
A simple truth
The impact interrelationship

- Energy & Resource Consumption
- Water Related Stress
- Environment & Climate Stress
- Carbon Pollution
The Emerging Market Solutions

- Energy & Resource Consumption
  - Energy Auditing
  - Resource Efficient Cleaner Production
  - Green Energy Technologies

- Water Related Stress
  - Water Auditing & Mitigation
    - Water Footprinting
    - Water Neutralization

- Environment & Climate Stress
  - Carbon Pollution
    - Carbon Footprinting & Mitigation
    - Carbon Neutralization
  - Reforestation
    - Bio diversity impact measurement
    - Bio diversity offset
Can companies make a difference ?
# 100 Biggest Global Entities (GDP or Turnover)

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<th>Rank</th>
<th>Entity</th>
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Frederic De Meyer, July 2011; Sources: IMF, Forbes
Companies are growing greener

BEST GLOBAL GREEN BRANDS 2014

Perception  Performance

www.bestglobalgreenbrands.com
Performance Score
The perception score is calculated by Deloitte composed of 83 metrics across six pillars

- Product efficiency
- Sustainable materials
- Sustainable packaging
- Innovation
- Description of environmental management structure
- Disclosure of environmental impacts and targets

- Transportation and logistics
- Business travel
- Employee commuting
- Identification of stakeholders and issues
- Engagement with the relevant stakeholder groups on environmental issues

- Supply chain engagement
- Supply chain environmental impacts
- Supply chain impact reduction initiatives and targets
- Energy use
- GHG emissions
- Water use
- Waste management
- Toxic emissions

Best Global Green Brands | The Power of Participation | June 24, 2014
The search giant announced that it is completely carbon neutral and has been since 2007.

“We started the process of getting to zero by making sure our operations use as little energy as possible. For the last decade, energy use has been an obsession. We’ve designed and built some of the most efficient servers and data centers in the world—using half the electricity of a typical data center,” said Urs Hoelzle, Senior Vice President, Technical Infrastructure.
Apple's massive North Carolina data center will be powered by the nation's largest end-user-owned solar array.

The facility, which is being constructed in Maiden, N.C., has been awarded LEED Platinum certification from the U.S. Green Building Council.

Spent $1 billion to build a 500,000-square-foot behemoth of a data center. Apple uses it as part of the back-end behind iCloud, its storage and sync services.
Consumers are getting greener
Typical Worker & Consumer

- 67% prefer to work for socially responsible companies
- 55% will pay extra for products and services from companies committed to positive social and environmental impact
- 52% made at least one purchase in the past six months from one or more socially responsible companies
- 52% check product packaging to ensure sustainable impact
- 49% volunteer and/or donate to organizations engaged in social and environmental programs

In 2014 Nielsen polled 30,000 consumers in 60 countries in a Global Survey on Corporate Social Responsibility

Demand for Green Products is increasing

Source: Nielsen Global Survey of Corporate Social Responsibility, Q1 2014:
“It’s no longer a question if consumers care about social impact. Consumers do care and show they do through their actions. The question is ‘how is your brand effectively creating shared value by marrying the appropriate social cause and consumer segments?’”

Carbon Emissions
A Carbon Footprint

- The amount of Greenhouse Gases (Carbon Dioxide, Methane, Nitrous Oxide, etc) emitted directly or indirectly from a business, product or service’s activities

- Measured in tonnes of Carbon Dioxide Equivalence (CO2e), after conducting a “GHG Assessment”
Corporate Emission Sources

- Fuel for employee commute
- Foreign Business Meetings
- Daily Business Travel
- Daily Electricity Consumption
Carbon offsetting
Carbon Offset

Emissions during the production process can be measured in Tons of CO2e. They can be attributed to an individual product - "The Product Carbon Footprint."

Trees can be used to remove the entire emission from the environment - Carbon Sequestering.

6 kg CO2 + (-6 kg) = 0 = Carbon Neutral
Carbon Reduction / Sequestration Projects

- Hydro Generation
- Coal Mine Methane
- Livestock Methane
- Solar Power
- Forestry
- Wind Power

Logos: VCS, UNFCCC, The Gold Standard
The Voluntary Carbon Market Mechanism
A carbon credit

A carbon credit (often called a carbon offset) is an instrument that represents a tonne of CO2e (carbon dioxide equivalent gases) removed or reduced from the atmosphere from an emission reduction project, which can be used, by governments, industry or private individuals to offset...

1 ton of Co2e saved / prevented = 1 carbon credit
Investing in Green Projects

- The analogy is that of a stock market..... company’s register on Stock Markets across the globe in order to obtain funding for its operation

- Carbon Sequestration projects are required to register themselves with established carbon mechanisms to qualify to sell their credits.
Companies, governments, and individuals voluntarily spent just under $4.5 billion on conservation and clean energy over the past decade by purchasing nearly 1 billion carbon offsets, finds a new report released on the sidelines of this week’s international climate talks in Bonn, Germany. (Forest Trends Ecosystem Marketplace report, Ahead of the Curve: State of the Voluntary Carbon Markets 2015,)

What a Carbon Credit is NOT!

- NOT a fine or penalty …. Nor does it fall under **POLLUTER PAYS** principle
- NOT a license to pollute
- NOT a tradable commodity
- NOT a financially instrument that can be leveraged
- NOT a means to directly make more money
What a Carbon Credit IS!

- A **subsidy** for a clean energy project that needs financial support
- A **compensatory mechanism** for the environmental pollution created by a company’s business operations
- A method of bringing a company’s GHG pollution to ‘net zero’
- It can be a mechanism to implement **payment for ecosystems services**
Greening the supply chain

A quick look at the Apparel Sector in Sri Lanka
Apparel Supply chain

The Sri Lankan market place
Sri Lanka Design Festival 2010 to make history as first carbon neutral event

Published: 6:26 am November 2, 2010 | 844 views | No comments so far

The much anticipated Sri Lanka Design Festival 2010 apart from being visually appealing, was also slated to become the first carbon neutral event.
World’s FIRST Carbon Neutral Bra

- Produced by Marks & Spencer and manufactured in SRI LANKA

- Carbon credits sourced from Sri Lanka’s HINIDUMA BIO LINK PROJECT, and innovative community based reforestation project registered under the Plan Vivo standard.
CarbonNetural Factories

Eco Factories

Designing

Manufacturing

Distribution

Retail

CarbonNetural
Factories

Eco Factories

US Green Building Council LEED-Gold Award

The first custom built green apparel factory certified LEED Platinum and Asia’s First to be certified CarbonNeutral®

Recognised as Garment Maker of the Year at the World Textile Awards in 2015
Green on the go!
A leader in Asia’s carbon neutral freight & logistics

Carbon Neutral Freight & Logistics
Marks & Spencer - CarbonNeutral

Levi’s Waterless
Marks & Spencer

- From 1st January 2012, M&S operated stores, offices, warehouses and delivery fleets in the UK and Republic of Ireland have been carbon neutral.

- They believe that they are the first major retailer anywhere in the world to have carbon neutral operations.
The World’s FIRST CarbonNeutral® Tea Company

- The World’s FIRST CarbonNeutral® Tea Company

- A complete Product Carbon Footprint of the Tea product through its entire lifecycle from “cradle to grave” Compensating for the carbon emissions through the purchase of carbon credits to becoming a Carbonneutral Tea product.

- Becoming the World’s FIRST Carbon Negative Tea by additional offsetting of 20 kg of Co2e to each pack as partial offsetting of the consumer’s own carbon footprint
Corporate Mitigation of Climate Change

ARE COMPANIES DOING ANYTHING SIGNIFICANT?
Apple

The worlds most valuable company

Apple has been monitoring and declaring it’s carbon footprint for some time.

The story behind Apple’s environmental footprint.

Apple reports environmental impact comprehensively. We do this by focusing on our products: what happens when we design them, what happens when we make them, and what happens when you take them home and use them.

- Total Footprint: 45%
- Manufacturing: 5%
- Transportation: 1%
- Product Use: 46%
- Recycling: 3%
- Facilities
CEO - Tim Cook takes a firm stand on sustainability

Tell stockholders: "If you want me to do things only for ROI reasons, you should get out of this stock."

Statement was made in response to a challenge on the company's focus on green energy and a request to only adopt sustainability that would yield more profits.

Global Sustainability Reporting is on the rise

- More and more companies worldwide are choosing to report their sustainability performance.
- This reporting is being seen to be ever more increasing among stakeholders, shareholders and customers.

Figure 1. Growth in reporting since 1993 (percentage of companies with CR reports)

Base: N100/G250 companies
Reporting growth is fastest in South Asia

Data Source: KPMG Survey of Corporate Responsibility Reporting, 2011 and 2013
Numbers represent the top 100 companies in select regional countries, by revenue
http://kpmg.com/sustainability
Carbon Markets & Sustainable Development
Sustainable Impacts

- Health and well-being
- Biodiversity protection
- Energy access
- Education and skills
- Infrastructure development
- Job creation
- Financial security
- Climate adaptation
- Food security
- Empowering women
- Water stewardship
- Economic growth
Global biomass use for cooking

- 39% of global population rely on traditional biomass
- 800 million live without clean cooking facilities in India
- Traditional use of biomass refers to the use of 4 fuel types
- India uses the greatest amount of fuel wood of any country
Traditional use of biomass is inefficient and dirty

Into pot
18% energy

Waste heat
74% energy

Products of incomplete combustion
8% energy
- Carbon monoxide (CO)
- Particulate matter (e.g. $<\text{PM}_{10}$) and black carbon
- Nitrous oxides ($\text{N}_2\text{O}$)
- Hydrocarbons (e.g. benzene)
- Oxygenated organics (e.g. formaldehyde)
- Chlorinated organics (e.g. dioxin)
- Sulphur oxides - mainly in coal

Indoor smoke kills more people than malaria

- Globally, 4.3 million deaths were attributable to household air pollution in 2012
- Indoor smoke from biomass use ranks as the fourth worst risk factor for disease in developing countries
- The number of premature deaths from household air pollution is greater than the number of premature deaths from malaria or tuberculosis

India Improved Cookstoves

This Gold Standard project is enabling households throughout India to reduce health risks and fuel costs through the distribution of more efficient biomass cookstoves.

The project subsidises the sale of efficient cookstoves and offers microcredit to help rural and peri-urban households unable to afford the upfront cost of the products.
The improved cookstoves facilitate an **80% reduction in smoke within the household**, significantly reducing the family exposure to harmful indoor air pollution. **Cooking time is also reduced by up to 50%**, which allows women to allocate time to other non-cooking activities.

Reduced fuel use equates to **a monthly saving of approximately US $7 (INR 450)** which represents around 7% of the average household monthly income. Additional microcredit programmes make initial stove purchase possible for families who typically lack collateral, steady employment or a verifiable credit history.

The project has **created 120 jobs** through the sales, distribution and after sales servicing of the stoves, as well as in project partner organisations.
The Danjiang River Solar Cooker Project aims to improve the indoor hygiene and living conditions of 100,000 rural households in one of the poorest regions in China.

The project displaces the use of traditional coal-fired cooking stoves in the poorer rural households by installing clean solar cookers, reducing greenhouse gas emissions by approximately 180,000 tonnes per year and providing significant fuel-cost savings for the user households.
Danjiang River Solar Cooker Project

Methodology: Thermal energy production with or without electricity  Location: China  Standard: Gold Standard

The design is well suited to the local climate and diet, with ample sun light throughout the year to prepare the rural population’s staple food. By using the solar cookers, the poor households reduce their dependence on coal, with savings that can represent more than 10% of their annual income.

The distribution of the solar cookers is targeted towards the poorest households in this rural region, providing them free-of-charge cookers, allowing them to save a significant portion of their annual expenditure.

The reduction in indoor air pollution provides significant health benefits, particularly for women and children, who are most frequently exposed. As the solar cookers completely displace all fuel use, rather than just improving the efficiency, the incidences of respiratory-related diseases are reduced.
But are companies changing?
Volkswagen: The scandal explained

By Russell Hotten
Business reporter, BBC News

4 November 2015  Business

What is Volkswagen accused of?

It’s been dubbed the "diesel dupe". In September, the Environmental Protection Agency (EPA) found that many VW cars being sold in America had a "defeat device" - or software - in diesel engines that could detect when they were being tested, changing the performance accordingly to improve results. The German car giant has since admitted cheating emissions tests in the US.
Companies are growing greener
Indonesia becomes worlds biggest emitter of GHG - Oil Palm industry under fire

Indonesia's peat fires make it the 4th-largest carbon emitter in the world

Mongabay Series: Indonesian Forests
Carbon emissions from Indonesia’s peat fires exceed emissions from entire U.S. economy

15th October 2015 / Rhett A. Butler

Indonesia's carbon bomb goes off, with emissions from peat fires reaching their highest levels in 1997-1998.
In Summary

- Climate change is impacting us on a daily basis
- Corporates are a significant part of the problem, but they are in a position to make a measurable impact in preserving the environment
- But this will only occur should the everyday consumer demand it...
- So it's really up to everyone of us now....
Thank you.