



Terence Jeyaretnam

Principal, URS Corporation Melbourne

Chair, SSEE

Board Member, AISEA

Judge, Banksia, VIC Premier & ACCA

Sustainability Awards

Auditor, EPA Victoria

YOUNG ENGINEERS AUSTRALIA

“NEW MINDS, NEW IDEAS”

GLOBAL
SUSTAINABILITY:

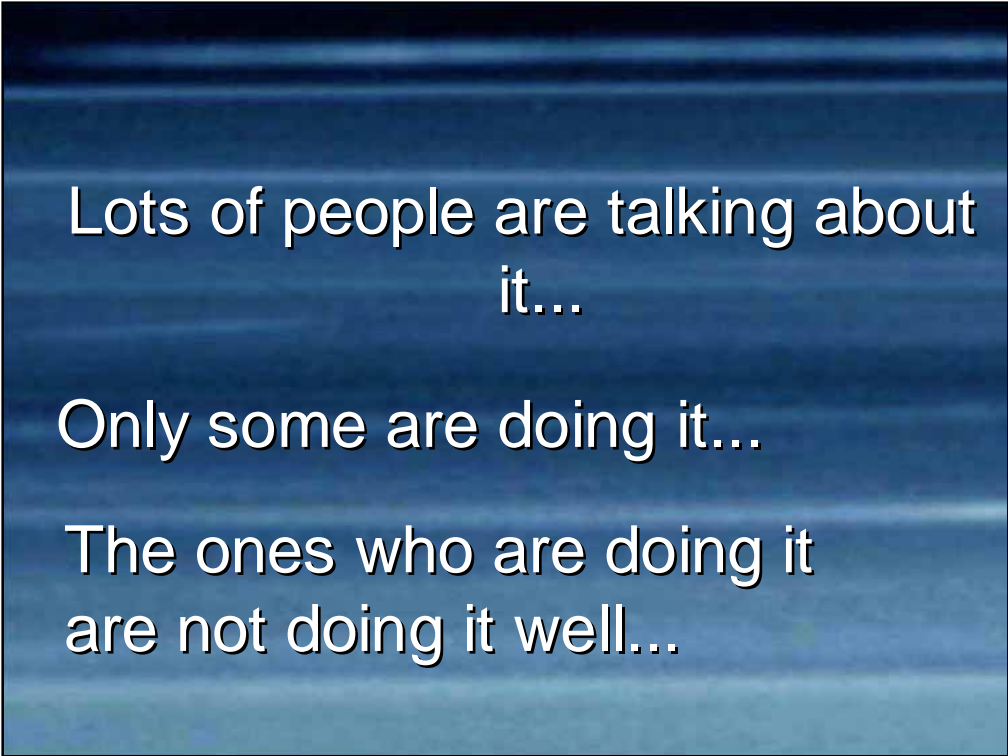
Outcome OR
Out of Time?



WHAT IS SUSTAINABILITY?

Baroness Barbara Young, Head of UK EPA.....

Sustainability is a bit like
Teenage Sex...



Lots of people are talking about
it...

Only some are doing it...

The ones who are doing it
are not doing it well...

If human society continues to operate as we have thus far on the planet, the natural resources and services that the earth provides will cease to sustain us and our children.

Sus·tain·able

Pronunciation: s&s-'stA-n&-b&l

Function: *adjective*

Date: circa 1727

1 : capable of being sustained

2a : of, relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged <*sustainable techniques*> <*sustainable agriculture*> b: of or relating to a lifestyle involving the use of sustainable methods <*sustainable society*>

- sus·tain·abil·i·ty /-'stA-n&-'bi-l&-tE/ *noun*

Source: Merriam-Webster

The ability to



TRIPLE BOTTOM LINE

h

Economically viable

Environmentally sound

Socially responsible

MR. SUSTAINABILITY - CONFUSED?



If we are going to look at where we are on the curve of sustainable development, we need to take the long view.

Civilizations have been struggling with how to live within nature's envelope for thousands of years.

Mesopotamia slid into decline some 4,000 years ago after faulty irrigation methods caused a loss in soil fertility.

Deforestation and soil degradation have been unwanted side effects of unsustainable development around the world for at least as long.



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WHAT HAS KATRINA GOT TO DO WITH MR. SUSTAINABILITY?

The Boston Globe:

Katrina's real name is **GLOBAL WARMING** - as the atmosphere warms, it will generate longer droughts, more-intense downpours, more-frequent heat waves, and more-severe storms.

Los Angeles Times:

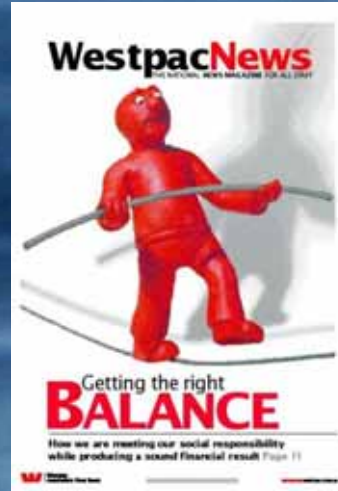
The destructive power of hurricanes has increased 50% over the last half a century, and a rise in surface temperatures linked to global warming is at least partly responsible.

WHAT HAS AN INSURANCE COMPANY GOT TO DO WITH OUR MR. SUSTAINABILITY?



WHAT HAS A **BANK** GOT TO DO WITH
SUSTAINABILITY?

Record profits ...



But growing public resentment

AND WHAT HAS A CAR MANUFACTURER GOT TO DO WITH SUSTAINABILITY?

Ford wrestles with its 'green' conscience

By Todd Nissen
Reuters

ATLANTA — Ford Motor on Thursday conceded for the first time that its popular but gas-guzzling sport-utility vehicles pose problems for a company that wants to be known as an environmental leader.

In a corporate citizenship report, Ford said its market leadership in SUVs, the most profitable vehicles it sells, has created a dilemma for the company as it works to be at the forefront of approving fuel economy and cutting emissions.

"There are very real conflicts between Ford's current business practices, consumer choices and emerging views of sustainability," says the report, released at the annual shareholders meeting here.

Ford Chairman William Clay Ford Jr., an avid environmentalist and great-grandson of founder Henry Ford, has made social and environmental responsibility a key tenet of his company philosophy.

But the popularity of SUVs and other light trucks, which typically are less fuel-efficient than cars and

are allowed to pollute more, has surged in the past 10 years. Some analysts expect trucks to outsell cars this year for the first time.

Ford's truck is North America backbone of its SUV models, up The Ford Escape SUV is in the F-Series. It has been the best-seller in the USA for almost

Ford said its SUVs to consumers, boomers, who said it did not other competitors.

Ford said it short-term the making all of it emissions vehicles.

The Sierra Q stinging critique report, said The said to working on improving it.




AND WHAT HAS COKE GOT TO DO WITH
SUSTAINABILITY?

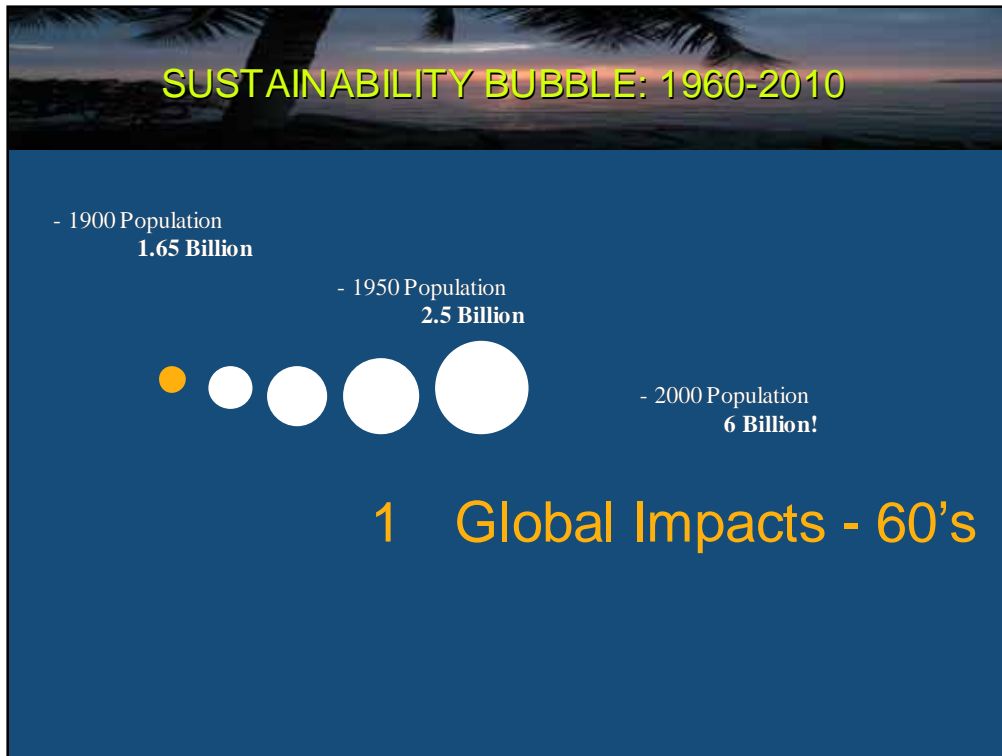
Enjoy
Climate Change

Coca-Cola's use of HFCs to cool its drinks
contributes to climate change. Ban HFCs.

Take the Coke Challenge today,
visit www.cokespotlight.org



Adbusters **GREENPEACE**



1804. The world's population is estimated to have reached 1 billion.

1824. Jean Baptiste Joseph Fourier proposes that the sun's heat is partially trapped in the earth's atmosphere, which acts like a giant glass jar, the first scientific reference to the greenhouse effect.

1852. Chemist Robert Angus Smith writes of acid rain in and around Manchester, noting that sulphuric acid in city air damages fabrics and metals.

1873. First of a series of killer fogs in London. Over 1,150 die in three days from severe air pollution from coal burning.

1896. Svante Arrhenius notes that carbon dioxide permits passage of short wavelength radiant heat from the sun, and traps reflected longer wave radiant heat emitted by Earth. This leads to an understanding of carbon dioxide as a greenhouse gas.

1900. World population is 1.65 billion.

1908. The first continuous chlorination system in North America begins operating in Jersey City, starting a trend in drinking water disinfection to stop the ravages of cholera, typhoid and other diseases caused by water that is polluted by sewage discharges.

PCBs are developed and put into service as liquid insulators and heat-transfer fluids. Decades later, they will found to be hazardous, widely distributed in the environment and building up in the food chain. They will be banned for use in North America. CFCs are synthesized in mid-1920s and put into use in 1930s as refrigerants. They will later be found to destroy the stratospheric ozone layer, and be banned.

SUSTAINABILITY BUBBLE: 1960-2010



2 Giving In - 70's & 80's

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3 Gearing Up - 90's

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4 Global Governance - 2000's

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SUSTAINABILITY BUBBLE: 1960-2010



5 Global Sustainability? The Future outcome

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SUSTAINABILITY BUBBLE: 1960-2010



OR: Are we OUT
OF TIME?

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ARE WE OUT OF TIME FOR CLIMATE CHANGE?

- The ten warmest years in record occurred since 1990 - [The UN](#)
- The first quarter of 2002 was the warmest in 1000 years - [New Scientist](#)
- Global warming is happening. Even under the most optimistic circumstances, atmospheric scientists expect global climate change to result in increased flooding and droughts, more severe storms, and a loss of plant and animal species. These events will occur, even if climate change is gradual - [The Pew Centre](#)

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ARE WE OUT OF TIME FOR BIODIVERSITY?

- Every year, between 17,000 and 100,000 species vanish from our planet - **Dr. Richard Leaky, The Sixth Extinction**
- Around one in 10 of all the world's bird species and a quarter of its mammals are officially listed as threatened with extinction, while up to two-thirds of other animal species are also endangered - **British Royal Society**
- Climate change could drive a million of the world's species to extinction as soon as 2050 - **Nature, 2004**
- One-third of the world's primate species now face a serious risk of extinction - **BBC**

ARE WE OUT OF TIME FOR BIODIVERSITY?





ARE WE OUT OF TIME FOR?

- WATER?
- PEAK OIL?
- MELTING OF THE POLAR ICE CAPS?
- SUSTAINABILITY IN CHINA'S ECONOMIC EXPLOSION?
- THE AMAZON RAINFOREST?
- THE MALDIVES?
- EXPERIENCING THE JAZZ IN NEW ORLEANS?



The need for companies to act...

- Of the 100 largest economies in the world, 51 are corporations; only 49 are countries.
- Wal-Mart - the number 12 corporation-is bigger than 161 countries, including Israel, Poland, and Greece.
- Mitsubishi is larger than the fourth most populous nation on earth: Indonesia.
- General Motors is bigger than Denmark.
- Ford is bigger than South Africa. Toyota is bigger than Norway.

the average American could identify
10 plants



but over 1000 company logos



THE ENGINEER OF THE 21ST CENTURY INQUIRY, UK

'Engineers in the 21st century will have a broader range of expertise to work in partnership with other disciplines and stakeholders to provide holistic, sustainable solutions. Their integrity and commitment to sustainable development will be enshrined in the philosophy of the professional engineering institutions, to a level parallel with the ethical framework for doctors.'



The Engineer's Guide to Sustainable
Development - Bill Wallace, 2004
2004 - 2025

- 2004 - 2009: Educating Industry &
Government
- 2010 - 2015: Transition Towards
Sustainability
- 2016- 2025: Shifting the Focus to the
Developing World



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TRENDS & MARKET DRIVERS 2016 - 2025

- Evidence of ecological overshooting in some areas - Eg. Commercial fishing;
- Development of efficient technologies;
- Improved governance practices esp. developing countries
- WILD CARD: Potential disaster in biotechnology product



An Engineer in 2025...

- I will be 55: well and truly considering retirement
- You will be in your 40s, at the prime of your careers
- All Engineers will be contributing to elements of sustainability - my guess is that, on average it will be 20% of your work!
- I hope I am wrong - I hope it's a larger slice of your work...



QUIZ:

- Where is sustainability headed?
- How do engineers get involved?



Society for Sustainability & Environmental Engineering





END OF PRESENTATION.