

# Sustainability: The New Paradigm

**The 18<sup>th</sup> Annual Global Finance  
Conference**

**Bangkok, Thailand, April 5, 2011**

# Nature Exacts Her Revenge

*Bangkok Post*, April 2, 2011

- "We have harmed nature, so nature has taken revenge" Samran Thetkit (Krabi resident)

*Bangkok Post*, April 4, 2011

- "Flooding blamed on illegal logging; Government criticized for promoting planting of rubber and palm trees by boosting their prices" Thawil Suwanwong (former agriculture official)

# Nature Exacts Her Revenge



# “Beware of the Greeks Bearing Bonds”

- Greece's National debt \$1.2 trillion
  - (\$ ¼ million / working adult)
- Greece's National Railroad:
  - Annual Revenues: 100 million euros
  - Annual Wage Bill: 400 million euros,
  - Other Expenses: 300 million euros
    - The average state railroad employee earns 65,000 euros a year.
- “After systematically looting their own treasury, in a breathtaking binge of tax evasion, bribery, and creative accounting spurred on by [Goldman Sachs](#), Greeks are sure of one thing: they can't trust their fellow Greeks.”



# Agenda

- Defining Sustainability
  - Triple Bottom, Integrated Approach, etc.
- Value Creation
  - CFO Hall of Fame
  - Unconstrained Value Maximization
  - Constrained Value Maximization
  - Sustainable Value Creation
- Challenges Ahead: Old Models Won't Work
- A New Paradigm

# Definitions

Still emerging despite broad interest

- **Confusion Remains**




- Environmental  $\neq$  Sustainability
- Profit a critical element

“Meeting the needs of the present without compromising the ability of future generations to meet their own needs.”

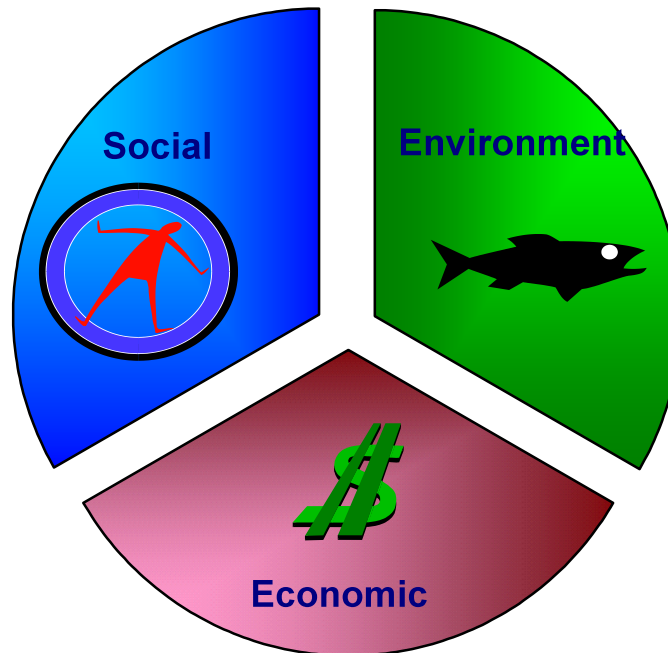
Norwegian Prime Minister Gro Harlem Brundtland



# Definitions: Triple Bottom Line

- **Some definitions focus on protecting the “triple bottom line”**
  - Human impact...  **People**
  - Environmental impact...  **Planet**
  - Financial impact...  **Profits**
- **Sustainability means balancing these interests for long-term success.**

# Triple bottom line



# Definitions: Integrated Bottom Line

- **A more operational approach**

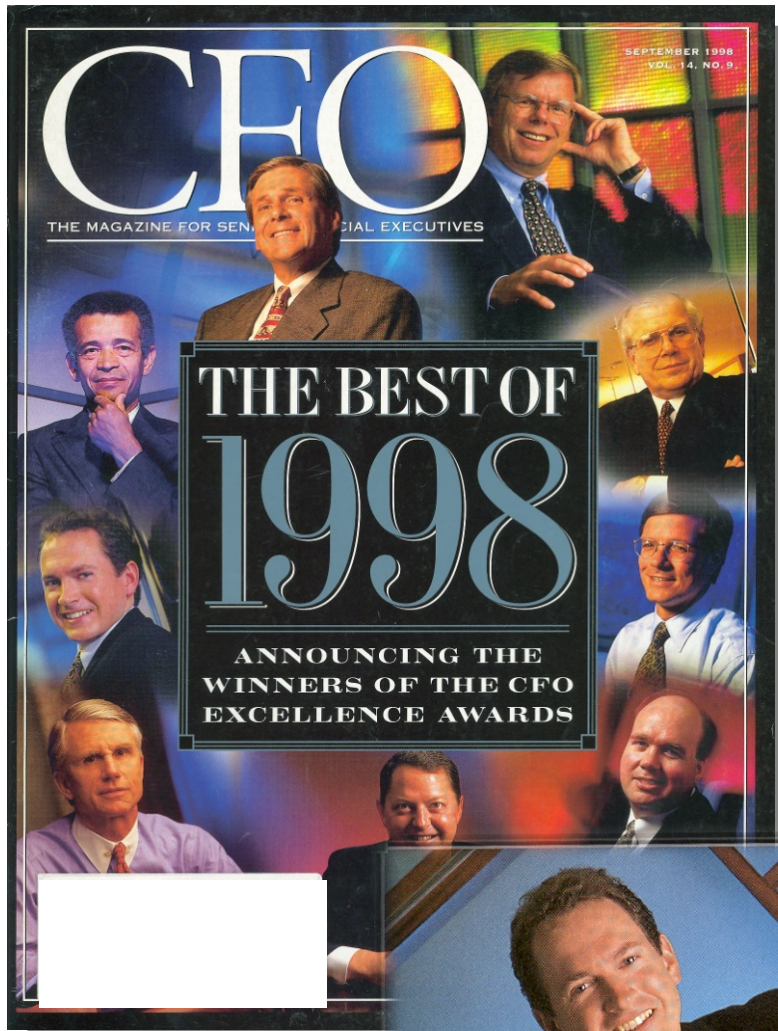
**Enhanced top-line growth** Brand value, customer relationship, talent recruiting/retention

**Reduced Operational Costs** Energy, water, waste, compliance, health, labor, liability

$$\begin{array}{rcl} \longrightarrow & \text{Growth} & \\ & + & \\ \longrightarrow & \text{Cost Savings} & \\ & = & \\ & \text{“Integrated Bottom Line”} & \end{array}$$

# The Issue: Value Creation

- What is NOT Sustainable & Does Lead to Unacceptable Outcomes:  
*Exclusive Emphasis on Owner/Shareholder Welfare*



*Winner of the 1998 CFO  
Excellence Award*

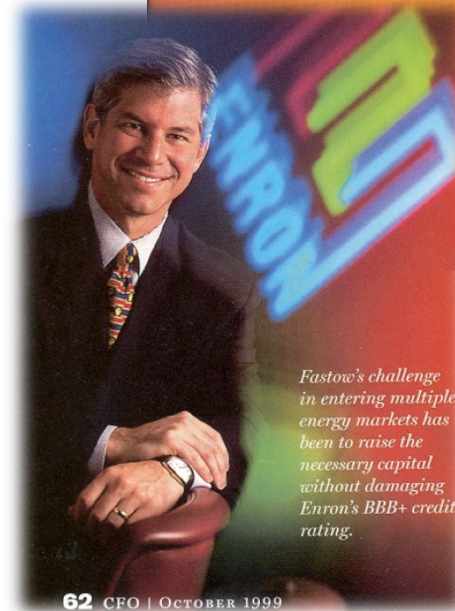
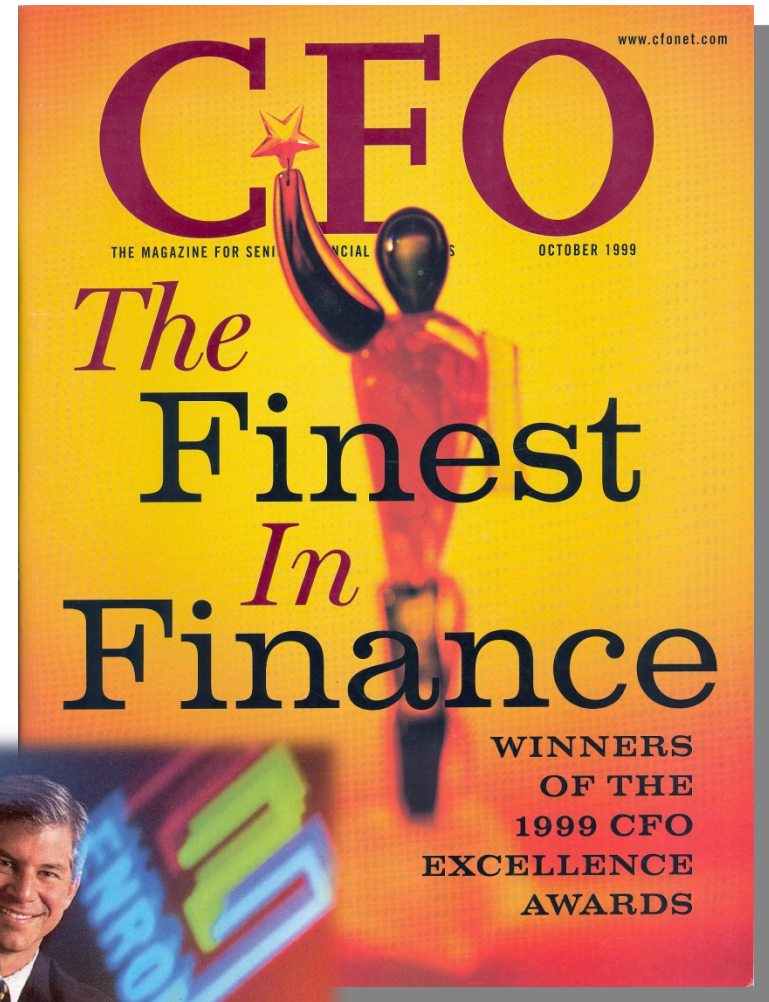
**Scott Sullivan  
WorldCom**





*Winner of the 1999 CFO  
Excellence Award*

**Andrew S. Fastow  
Enron Corp.**



*Fastow's challenge in entering multiple energy markets has been to raise the necessary capital without damaging Enron's BBB+ credit rating.*



*Winner of the 2000  
CFO Excellence Award*

**Mark H. Swartz**  
**TYCO International Ltd.**



# Class of 2008

- Richard S. Fuld

June 2008: Mr. Fuld said he was confident that Lehman was sound even as the bank posted a second-quarter loss of \$2.8 billion, caused by bad mortgage investments.

March 2010: Anton R. Valukas, the bank's examiner, said Lehman used what amounted to financial engineering to shuffle \$50 billion of troubled assets off its books in the months before its collapse in September 2008 to conceal its dependence on leverage.



# Class of 2009

- Bernard Madoff
  - Former Chairman of the NASDAQ stock market (non-executive), admitted to have operated what has been described as the largest Ponzi scheme in history
  - The amount missing from client accounts, including fabricated gains, was almost \$65 billion
  - The court appointed trustee estimated actual losses to investors of \$18 billion





# Class of 2010

- Tony Hayward
  - CEO, BP

May 2009: "...our primary purpose in life is to create value for our shareholders.



In order to do that you have to take care of the world."

April 20, 2010, oil starts flowing into the Gulf of Mexico at a rate of 60,000 barrels per day

May 30, 2010: "I'd like my life back."

More than 200m barrels of oil flowed into the Gulf

**2 NEW JERSEY**

## **Charges: Dentist dumped medical waste**

CAPE MAY COURT HOUSE — A Pennsylvania dentist has been charged with the Jersey Shore's most serious beach-dumping case in two decades, medical waste that sullied the coast in a popular area and forced beach closings at the height of vacation season.

Authorities said Friday that Thomas McFarland took his motorboat to Townsend Inlet near Avalon on Aug. 22 and dumped a bag full of some 300 dental-type needles, along with 180 cotton swabs and other materials from his Wynnewood, Pa., medical office. According to police affidavits, McFarland admitted tossing the material from his boat.

# “Welcome to Our Town. Wish We Weren’t Here”

- *New York Times*, September 14, 2009
  - Treece, Kansas
  - Boom town of the early 20<sup>th</sup> Century, home to 20,000 people, rich in zinc, lead and iron ore (the unofficial capital of the ore-producing zone)
  - The mines closed in early 1970s. Treece (current population of 140) now sitting in a toxic waste dump of lead-tinged dust, contaminated soil and sinkholes; children riding their bikes around enormous mounds of pulverized rock laced with lead and iron.



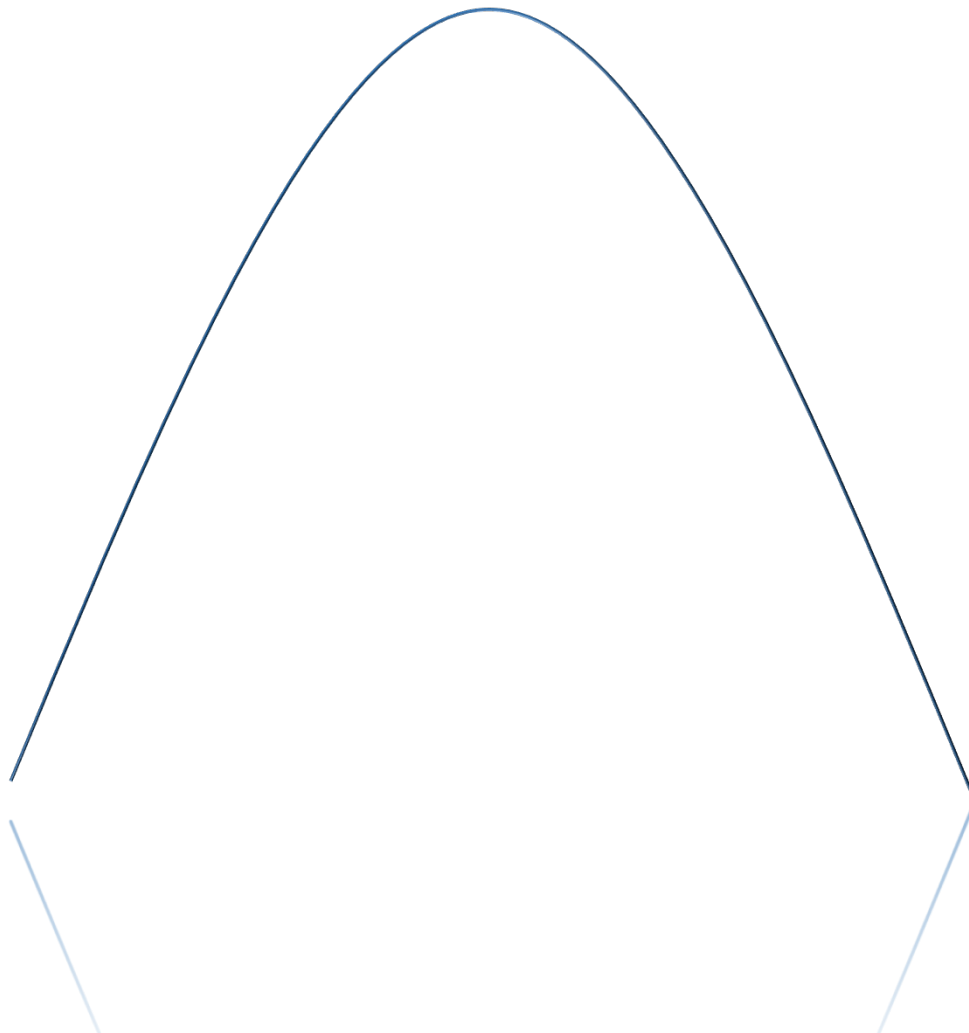
# The Issue: Value Creation

- Sustainable Value Creation avoids Unacceptable Outcomes:

*Integrated Bottom Line: Economic, Social, & Environmental Impacts Considered*

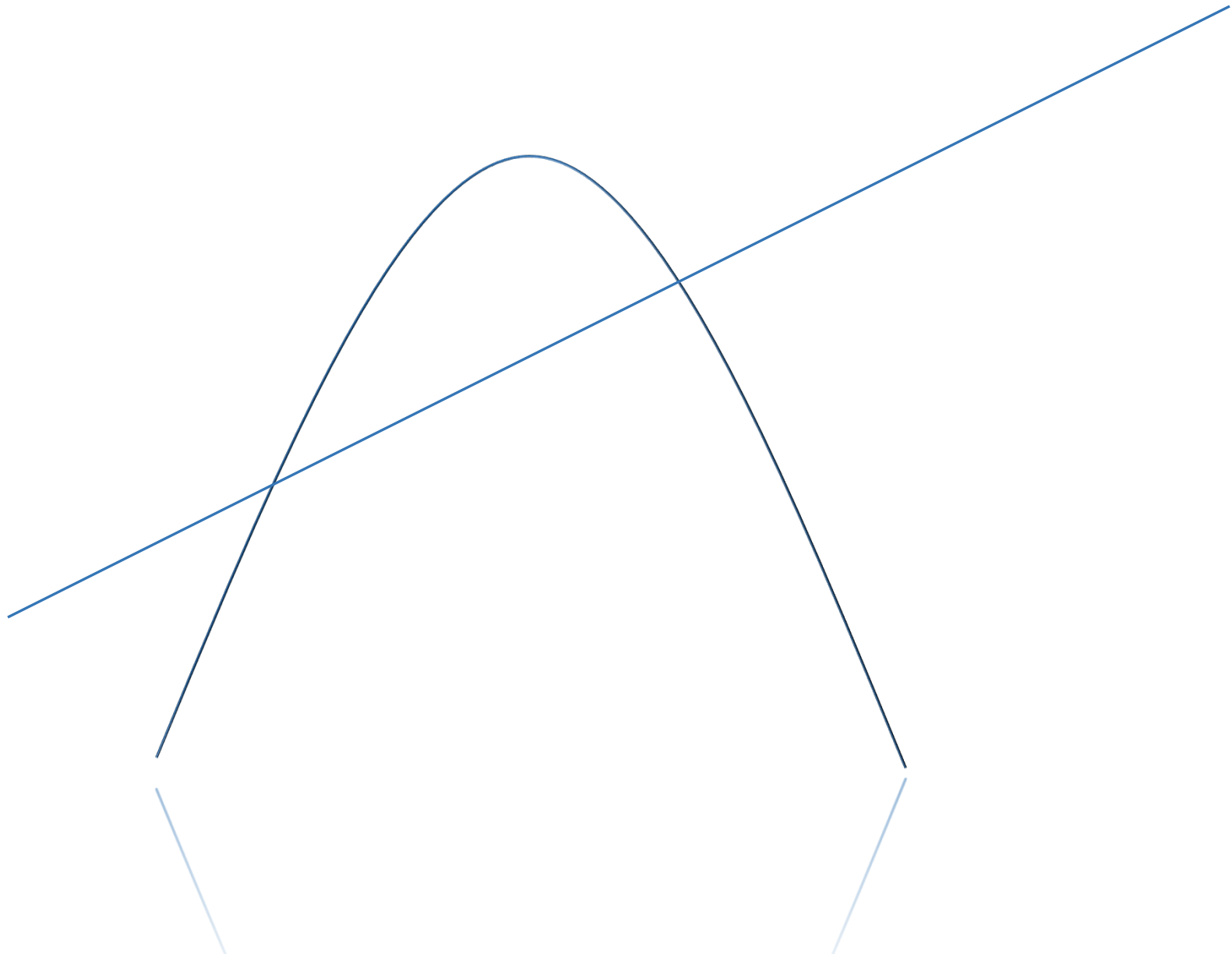
- “At a time when companies are looking to secure long-term growth strategies, we have to develop approaches that are sustainable in both business and societal terms.”
  - Michael Treschow, Chairman of Unilever

# Non-Constrained Profit Maximization

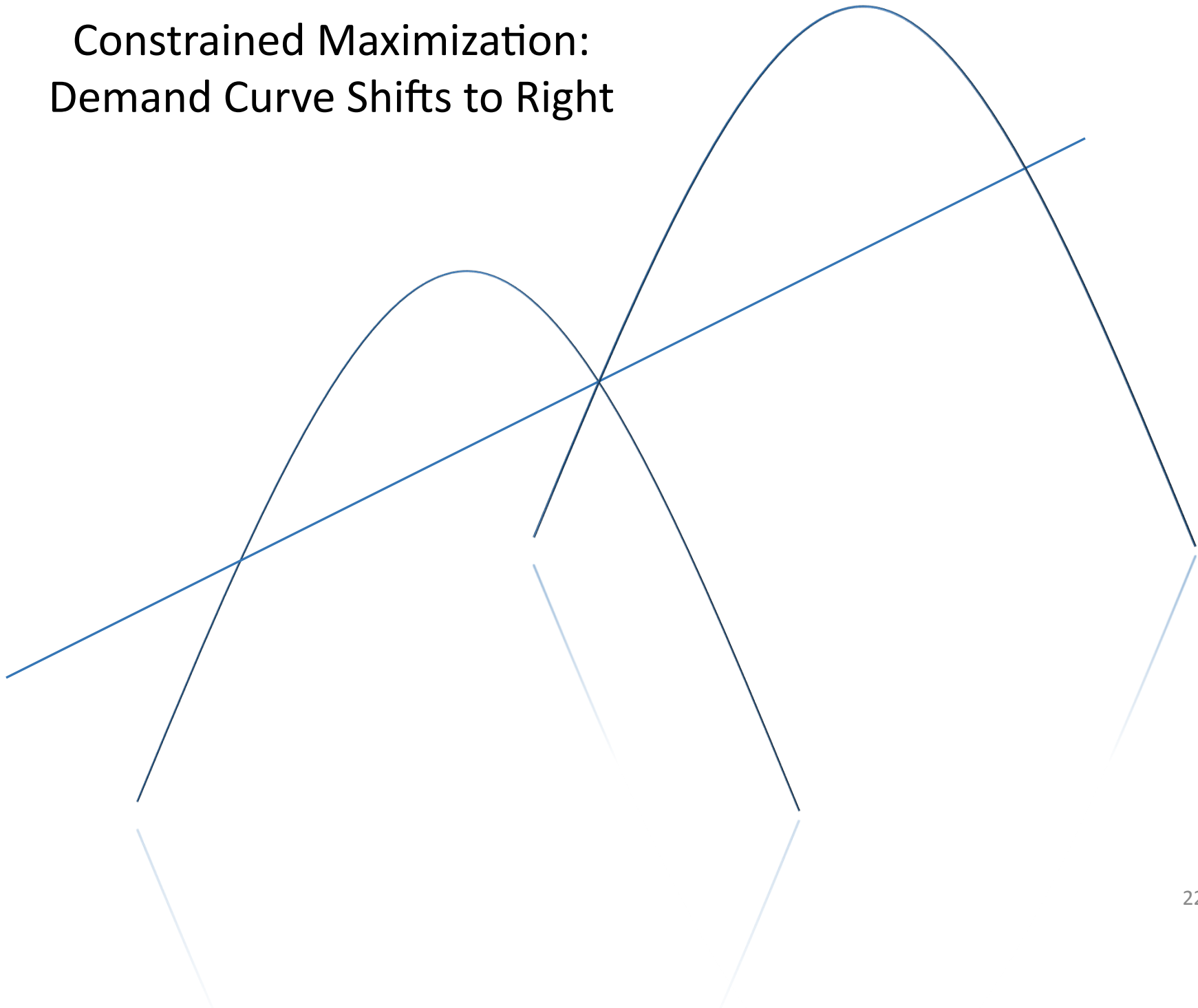


# Constrained Maximization

## No Shift in Demand Curve

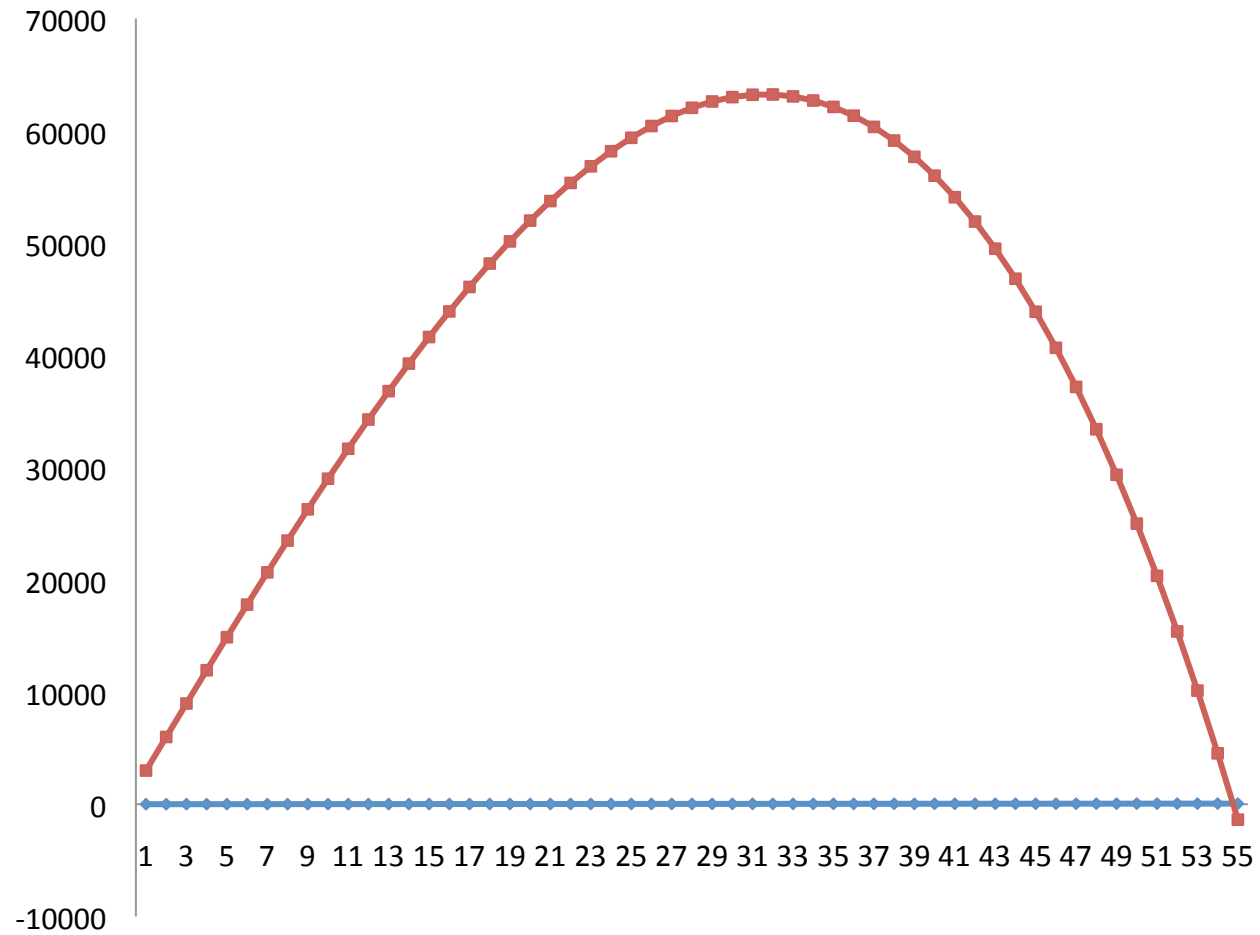


## Constrained Maximization: Demand Curve Shifts to Right



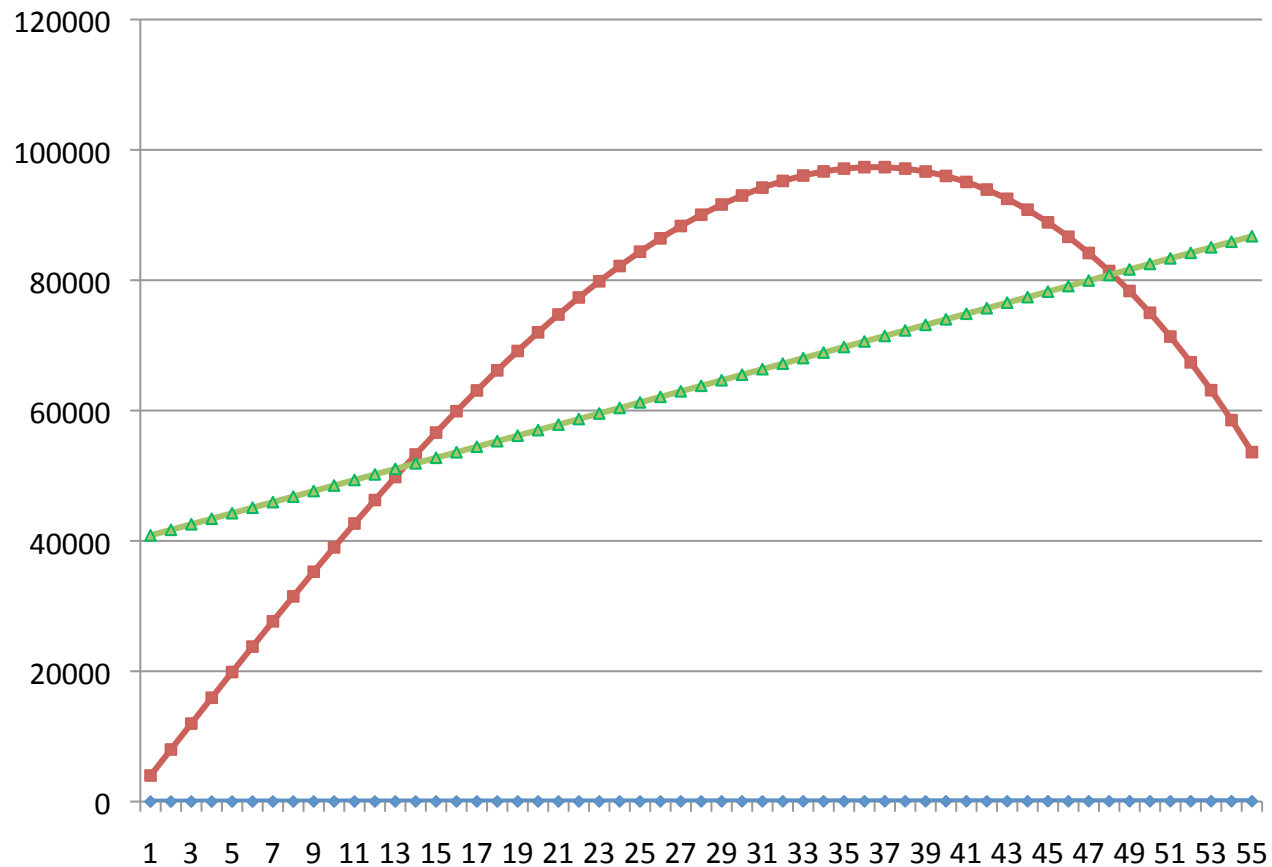
# Function Without a Constraint

$$\text{Max. } Y = 3000X - X^3$$



# Function With a Constraint

$$\text{Max. } Y = 4000X - X^3 \text{ s.t. } Y < 4000 + 850X$$

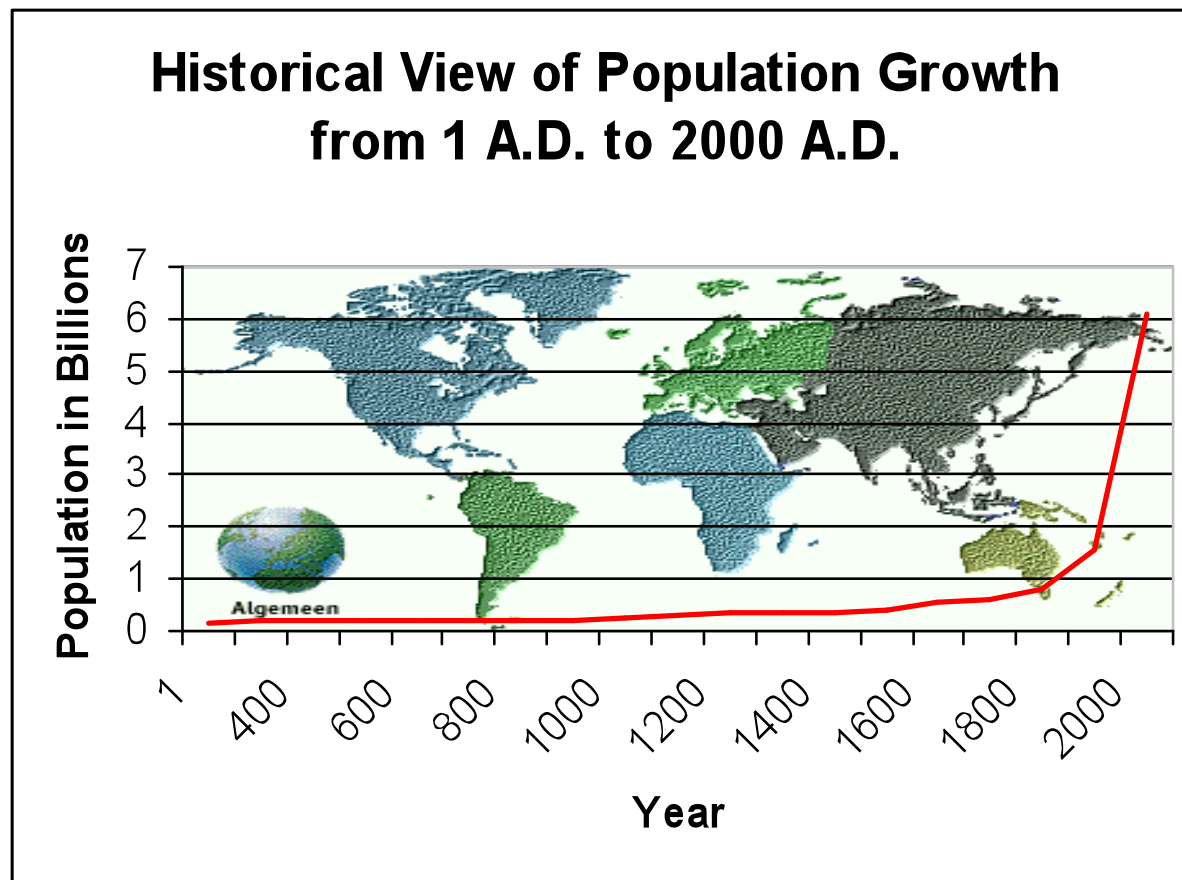


# Challenges Ahead

- Population Growth
- Environmental Upheaval
  - Water
  - Climate
  - Freshwater Species
- Intersection of Climate, Water & Politics
- Health Issues
- Energy
- Consumption
- Social Change
- ...



# Global Population Growth



# Population Growth

- The world's population is 6.8 billion
- It is expected to grow to 9.2 billion by 2050
- Life expectancy could increase one year per year by 2030
  - Global population is changing from high mortality and high fertility to low mortality and low fertility
- One billion people are undernourished and hungry
- To keep up with population and economic growth, food production should double in 30 years and animal protein may increase 50% by 2020, which increases demands on water and land, further increasing prices and competition between rural and urban requirements

# Environmental Upheaval

- Great rivers no longer reach the sea: Indus, Rio Grande, Colorado, Murray-Darling, Yellow <sup>1</sup>
- Emerging market consumption of natural resources exceeding population growth <sup>2</sup>
- 40% of population living in water stress areas <sup>3</sup>
- By 2020, climate warming could cut agriculture production by 17% <sup>4</sup>

**"China is facing a dire situation in its water supply."**

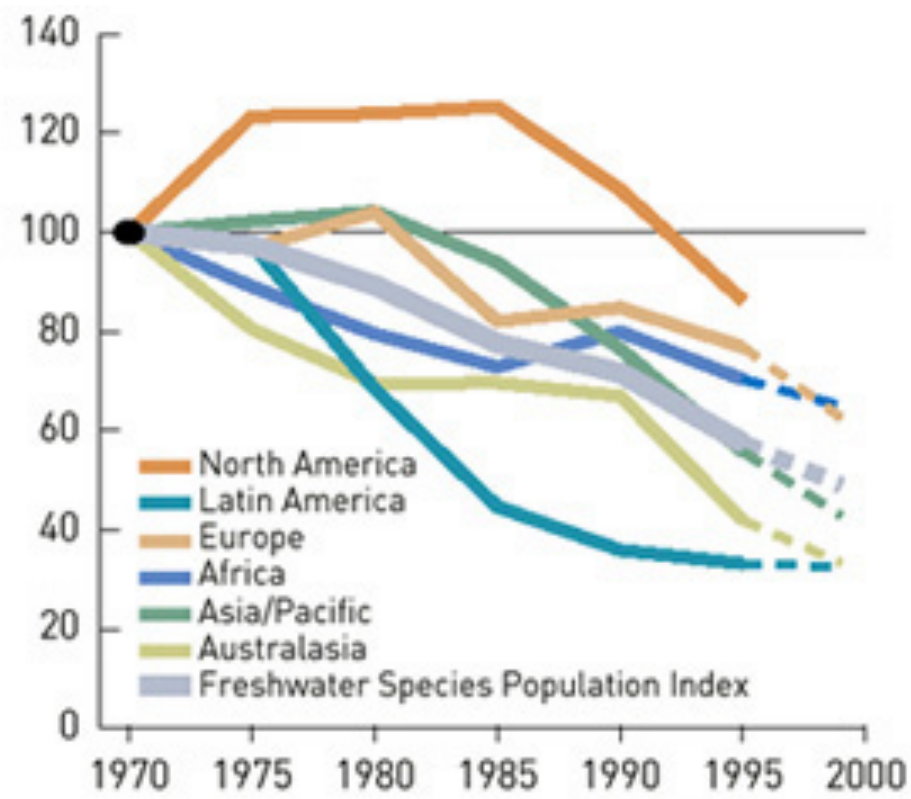
**Ma Jun, China Institute of Public & Environmental Affairs,  
Business Week, 2009**



# Clean Water

- About 700 million people face water scarcity today
  - It could grow to 3 billion by 2025 due to climate change, population growth, and increasing demand for water per capita
- One in ten of the world's major rivers fail to reach the sea for part of each year
- Agriculture already accounts for 70% of human usage of fresh water
- About 80% of diseases in the developing world are water-related
- Some 1.8 million people die every year due to diarrhea, of whom 90% are children under the age of five
- Over a billion people still lack access to clean water and about 2.6 billion people lack adequate sanitation
- Wars of future very likely to have water at their root, e.g., the Nile

# Freshwater Species



# Health & Infectious Diseases

- Tuberculosis, malaria, and AIDS together cause over 300 million illnesses and more than 5 million deaths each year, while Hepatitis B infects up to 2 billion people globally
- Avian Flu, Foot and Mouth Disease have resulted in destruction of millions of farm animals
- E-Coli, Salmonella incidents common, outbreaks cost companies \$ millions
- Average Chinese citizen food poisoned once per week
- Illness, lost productivity cost more than \$120 billion annually in U.S.
- Over the past 40 years, 39 new infectious
- In the last five years, more than 1,100 epidemics



# Climate Change

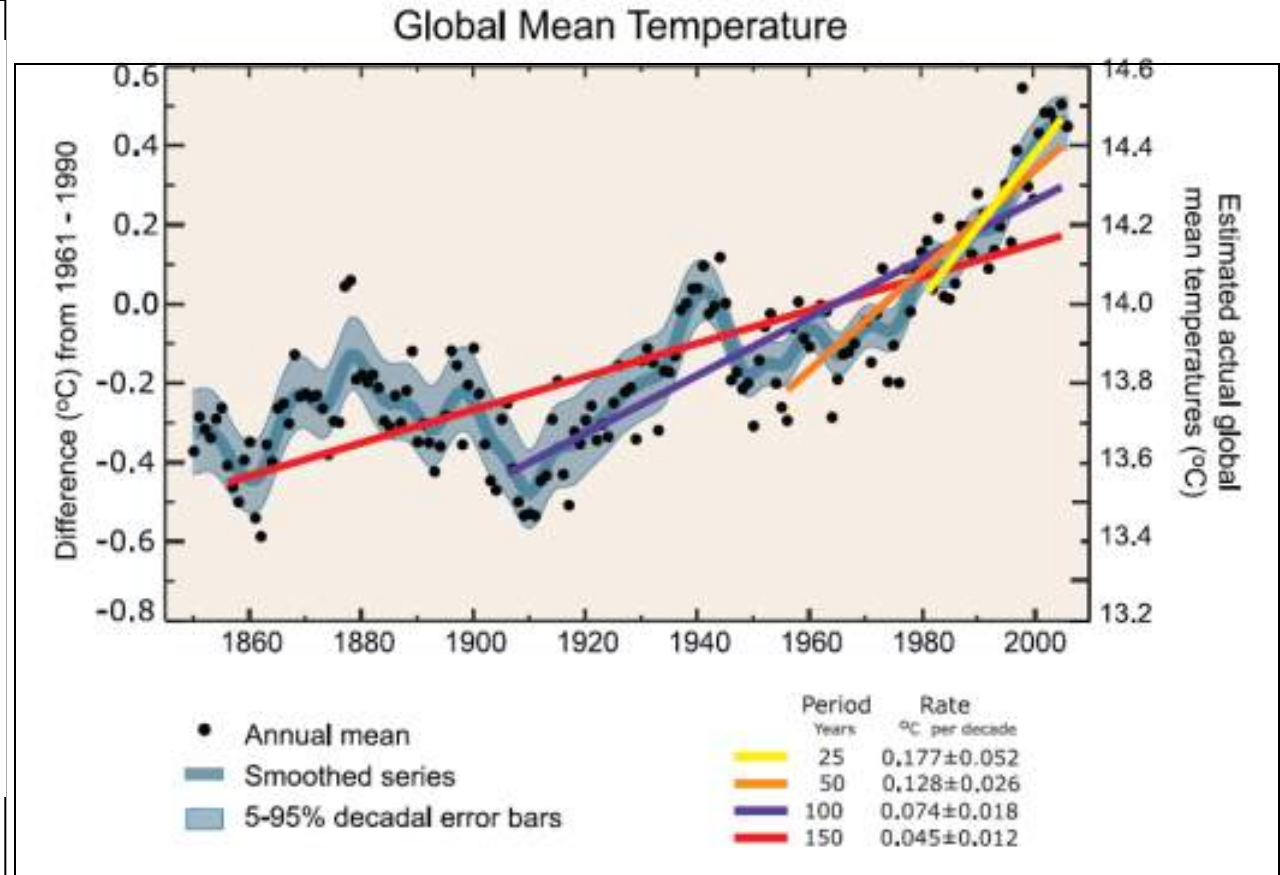
- Costing the world \$125 billion and 300,000 deaths per year
- Over 36 million hectares of primary forest are lost every year
- Each day, the oceans absorb 30 million tons of CO<sub>2</sub>, increasing their acidity
- The number of dead zones—areas with too little oxygen to support life—has doubled every decade since the 1960s
- The UN estimates that developing countries will need \$100 billion annually to finance climate change mitigation and \$28–67 billion for adaptation by 2030



# A Hot Planet

**“The Environmental Protection Agency concluded...that greenhouse gases linked to climate change ‘endanger public health and welfare,’ setting the stage for regulating them under federal clean air laws.”**

Associated Press  
April 17, 2009

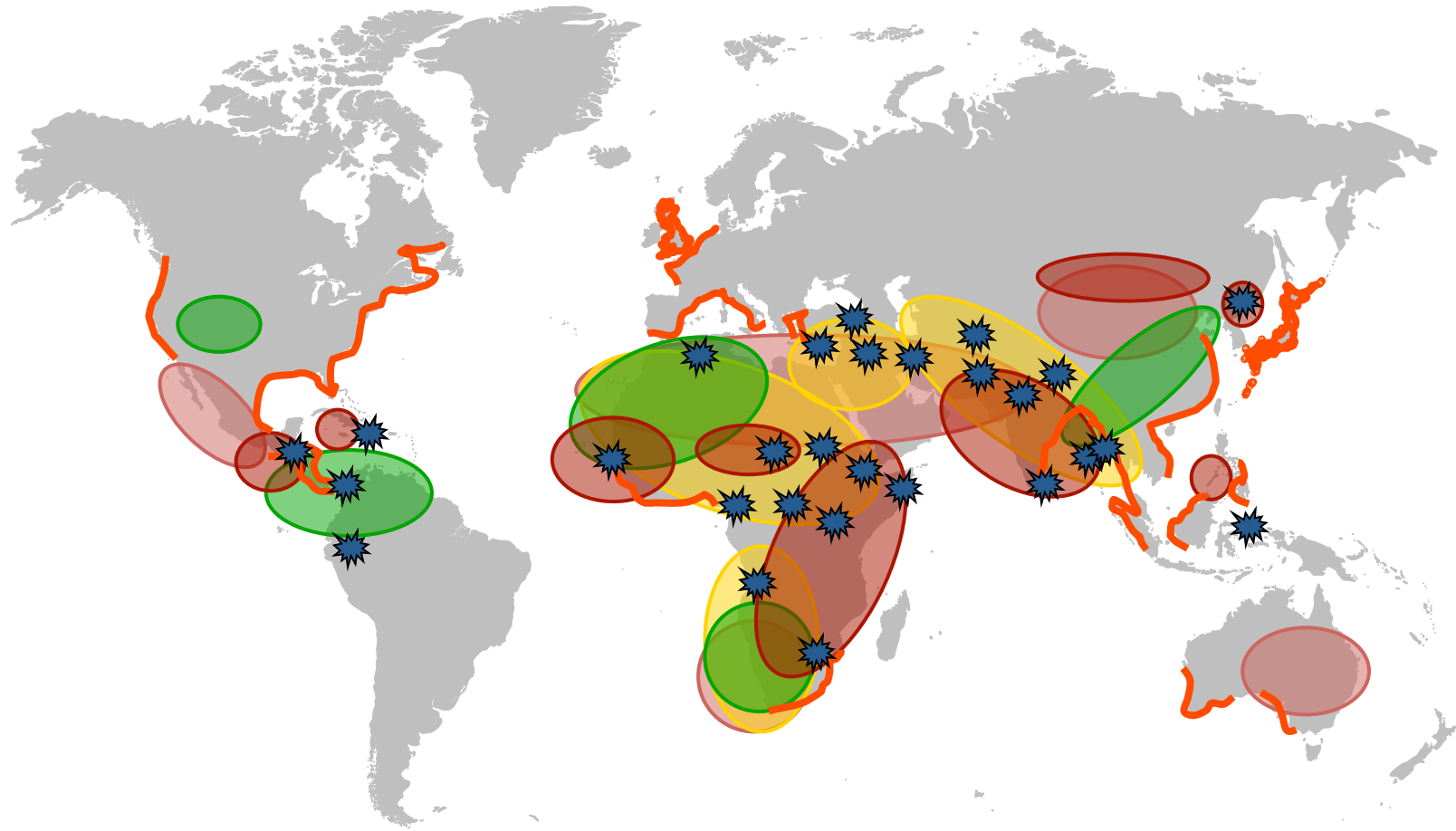


Source: IPCC AR4

# Peace and Conflict

- Half the world is still vulnerable to social instability and violence due to
  - the global economic crisis
  - aging populations
  - decreasing water, food, and energy supplies per person
  - climate change
  - increasing migrations due to political, environmental, and economic conditions
- Currently, there are 18 conflicts with 1,500 or more deaths per year
- Total military expenditures on peacemaking are about \$1.8 trillion per year
- 15m asylum seekers around the world

# Intersection of Climate, Water, Politics



**Water Scarcity**



**Demography**



**Crop Decline**



**Hunger**

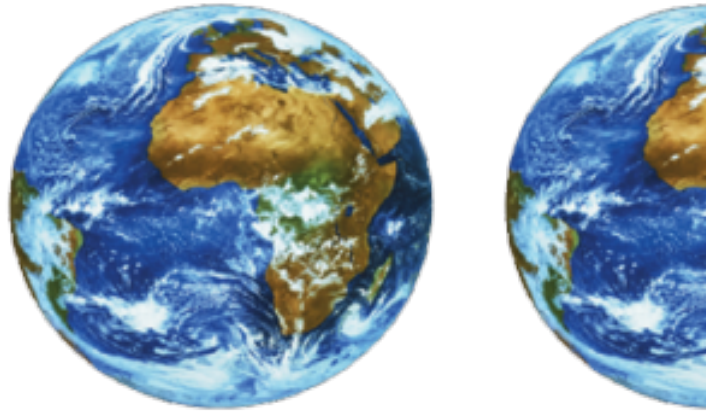


**Coastal Risks**



**Recent Conflicts**

# Unbridled Consumption



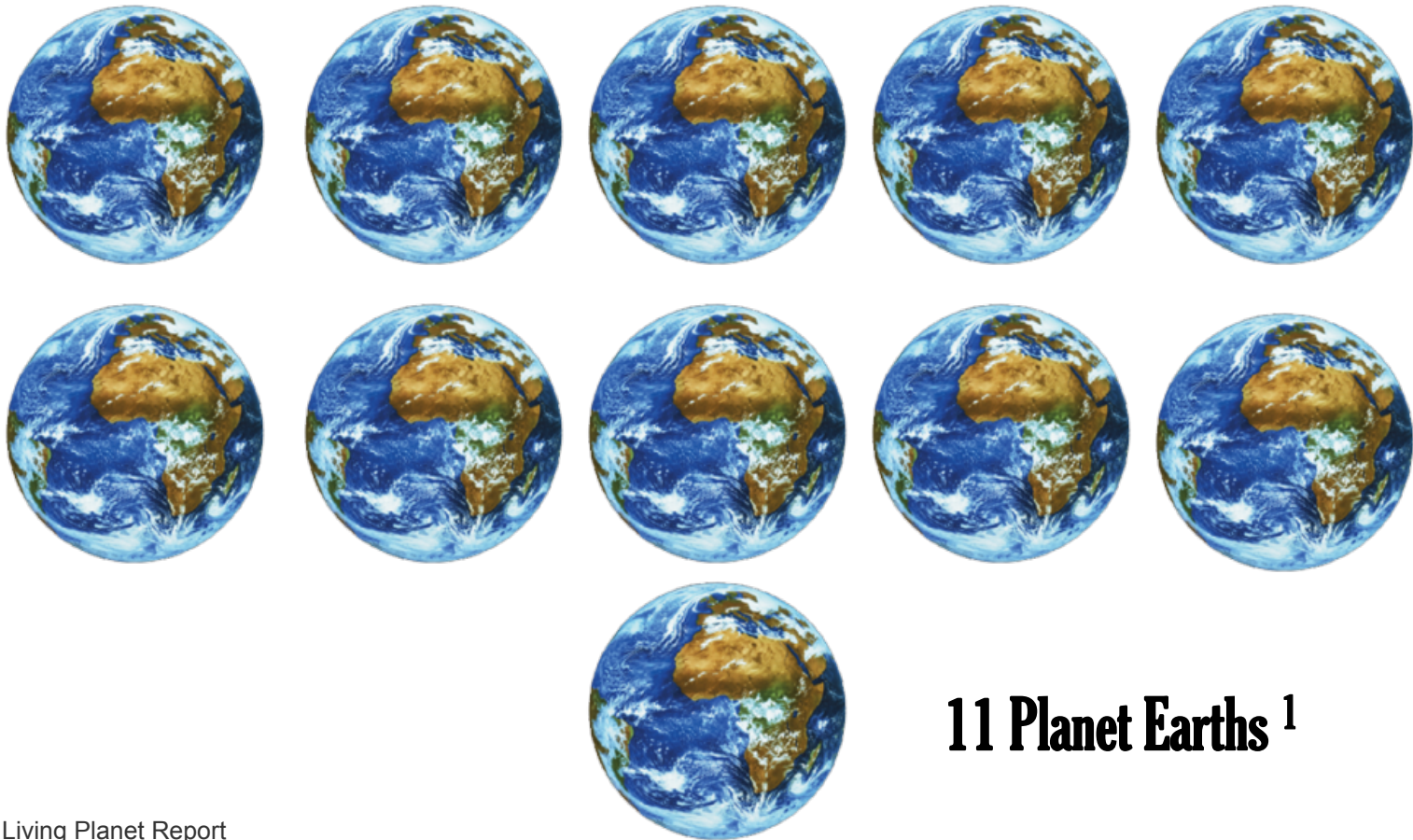
Current Demand = 1.5 X What Earth Can Sustain

**Population x Consumption > Planet**

Source: WWF Living Planet Report

# Consumption Exceeding Supply

- If entire world consumed at rate of U.S. we would need...



**11 Planet Earths <sup>1</sup>**

# Energy

- World energy demand could nearly double by 2030, with China and India accounting for over half of the increase
- Fossil fuels will meet 80% of primary energy demand by 2030
  - Oil exploration & development highly subsidized in most countries
  - US: Oil-field leases & drilling are taxed at 9%;
  - Once subsidies are included after-tax ROI > before tax ROI
- Renewable sources are expected to grow at an average 7.2% per year until 2030
- Approximately 1,000 coal plants are in some stage of planning or construction around the world without CO2 capture
- Solar farms and wind energy continue to increase
- A total of 436 nuclear reactors are operating today; 45 are under construction and more than 300 are either on order or being proposed

# Dramatic Social Movement



Source: Australia Foundation for World Population and International Cooperation

- By 2050...
- 70% of people will live in cities <sup>1</sup>
- Population stress: 3 billion in 1955, 9 billion in 2050 <sup>2</sup>
- Average income will increase 2.8 X
- Consumption will double <sup>3</sup>
- Emerging markets will dominate trade <sup>4</sup>
- Number of cars in China will increase from 26 million in 2003 to 120 million by 2020

1/3/4. WWF; 2. Freidman, 2008

# Old Models Won't Work Anymore

- Exclusive emphasis on shareholder value maximization has brought us close to ruin
- All costs have to be explicitly accounted for
  - Externalization of Costs Will Not Make Them Disappear
- Dramatic Changes Around Us
  - Increased awareness of the challenges
  - Consumer Preferences Shifting
- New Paradigm Needed



# Sustainability: A New Paradigm

- **Integrated bottom Line: An operational integrated approach**

**Enhanced top-line growth** Brand value, customer relationship, talent recruiting/retention

**Reduced Operational Costs** Energy, water, waste, compliance, health, labor, liability



**Growth**

+



**Cost Savings**

=

**“Integrated Bottom Line”**

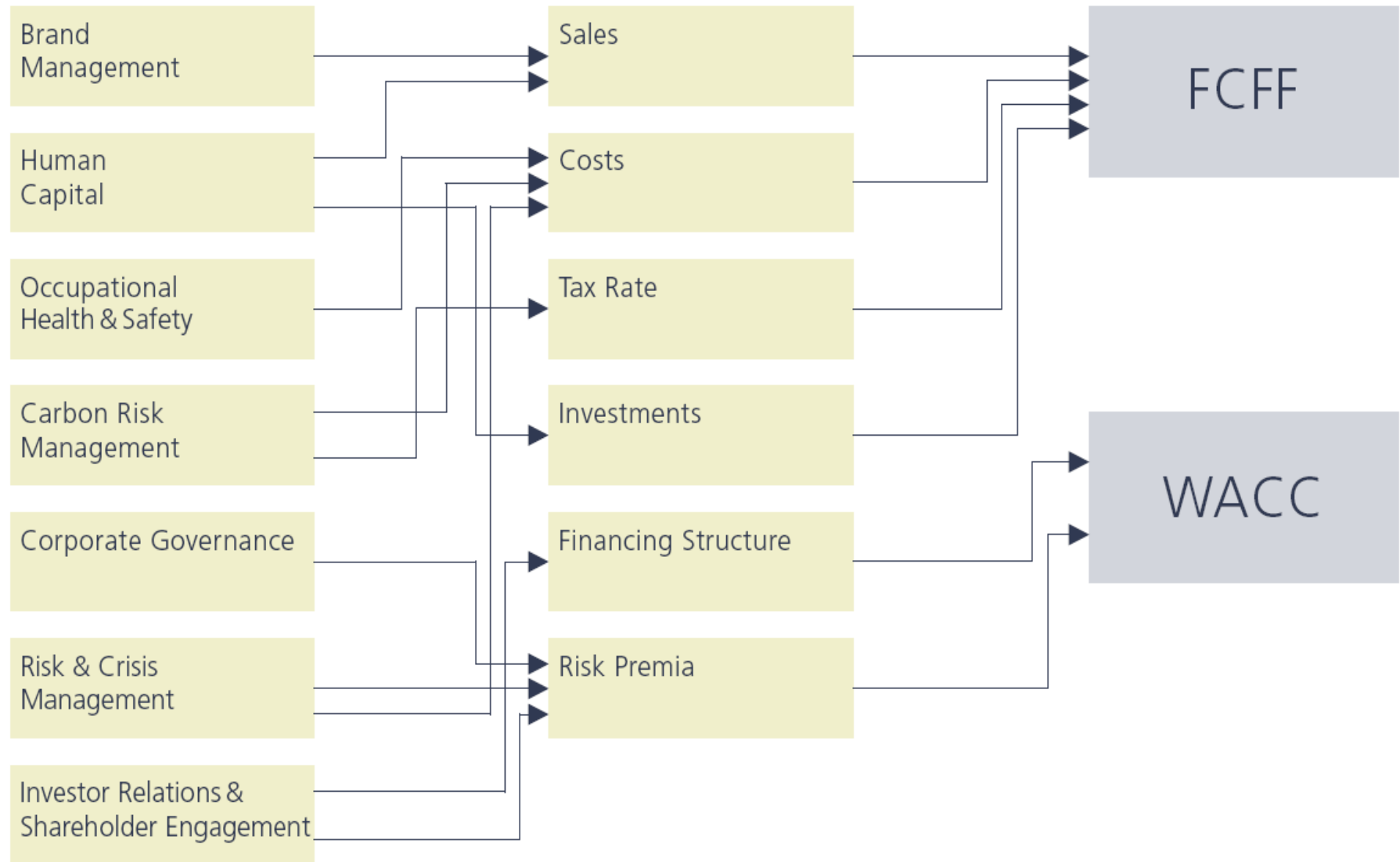
# Shareholder Value

$$Value_0 = \sum_t Cash \text{ Flows}_t / (1 + Cost \text{ of Capital})^t$$

Sustainability efforts affect value in two places:

- Cash flows:
  - Enhanced investment opportunities
  - Higher return on invested capital
- Cost of Capital:
  - Better risk management => Lower risk premium
  - Lower cost of capital

## SUSTAINABILITY AND SHAREHOLDER VALUE



# Sustainability Focus Does Pay Off

(Cumulative Log Outperformance in %)

Source: SAM



— Portfolio 1 – Sustainability Leaders  
(Top 20%)  
— Portfolio 5 – Sustainability Laggards  
(Bottom 20%)

**Benchmark:** Companies rated on the basis of the SAM's Corporate Sustainability Assessments

**Metric:** Total sustainability score (economic, environmental, and social criteria)

*Past performance is no indication of future results.*

*The graph does not represent returns of an actual portfolio. It depicts returns of sustainability investments as rated by SAM. Results are shown gross of fees. Results would be reduced by application of fees and expenses incurred in the management of the account. Securities are chosen based on sustainability assessment questionnaires submitted by the issuers.*

|                             | Portfolio 1<br>Sustainability Leaders | Portfolio 5<br>Sustainability Laggards |
|-----------------------------|---------------------------------------|--|
| Outperformance (p.a. in %): | 1.48                                  | -1.46                                  |
| Tracking Error (in %):      | 3.17                                  | 3.22                                   |
| Information Ratio:          | 0.47                                  | -0.45                                  |
| T-Stat:                     | 1.28                                  | -1.25                                  |

# Investor Interest

- Companies focused on sustainability outperform on average \$650 million in market cap <sup>1</sup>
- 360 signatories to UN “Principles for Responsible Investing” represent \$14.3 trillion in assets
- Dow Jones Sustainability Index = \$9.2 trillion USD
- Total dollars under professional management in “Socially Responsible Investing...” outpaced overall market <sup>2</sup>

1997  
**\$0.64 trillion**



2009  
**\$2.71 trillion**

1. A.T.K., 2009; 2. Socially Responsible Investing, 2009