

THE BUSINESS CASE FOR **SUSTAINABILITY**

What is it?

Why is it an issue?

Why should a business person care?

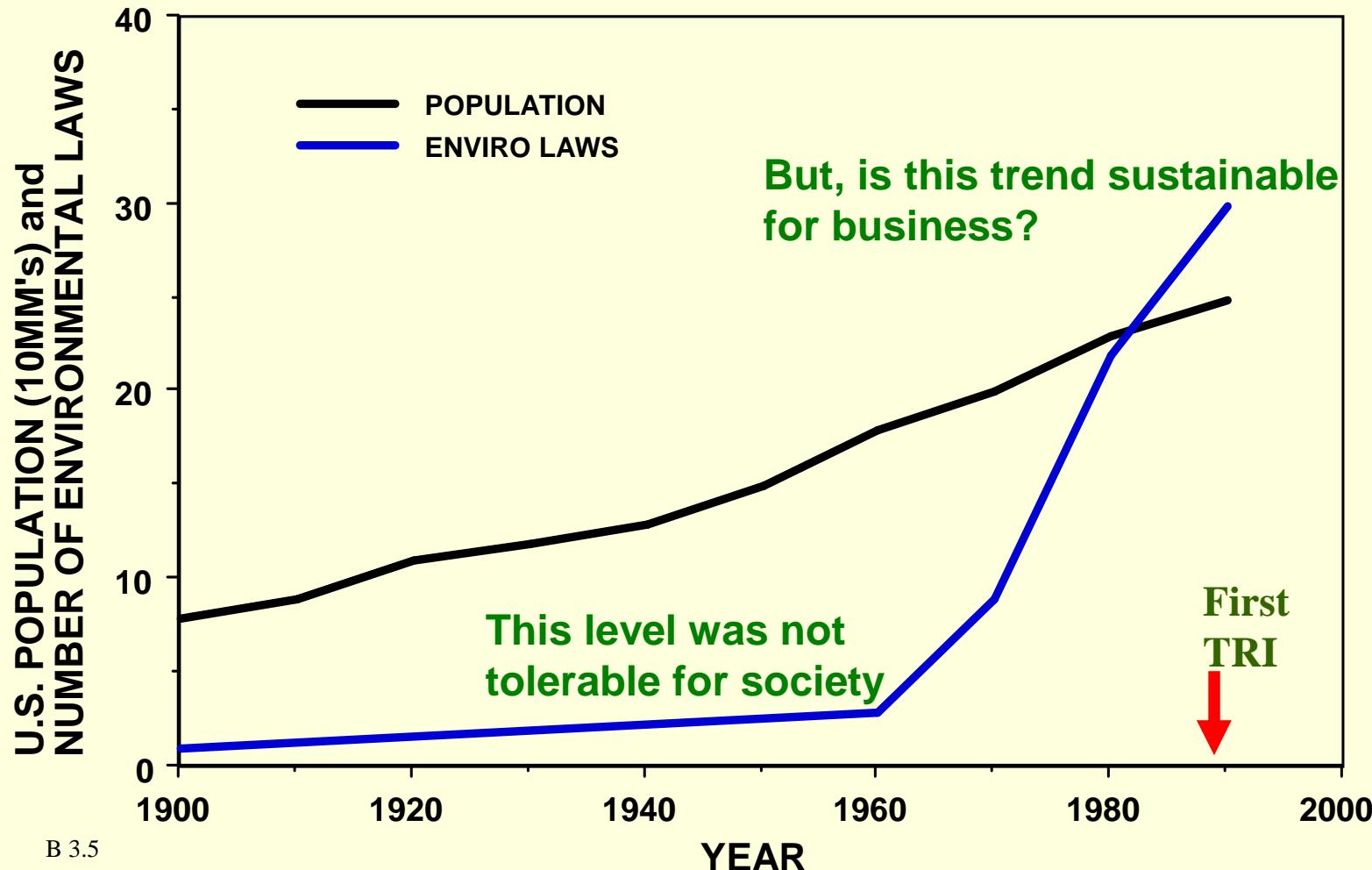
Presented to:

**The National Academies Roundtable on
Science and Technology for Sustainability**

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Carberry EnviroTech
Newark, DE
April 2, 2009**



COMPARISON BETWEEN INCREASES IN POPULATION vs. ENVIRONMENTAL LAWS

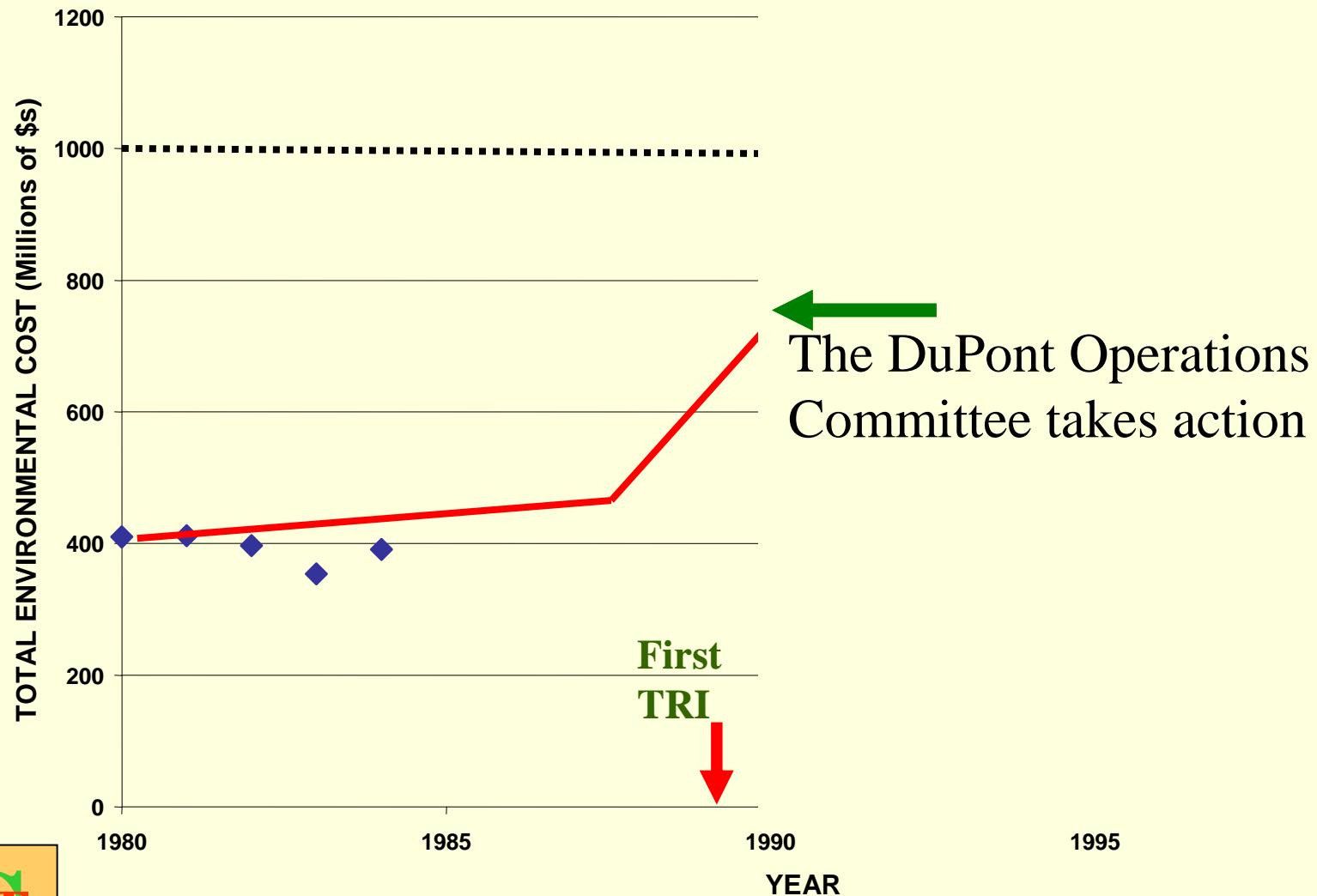


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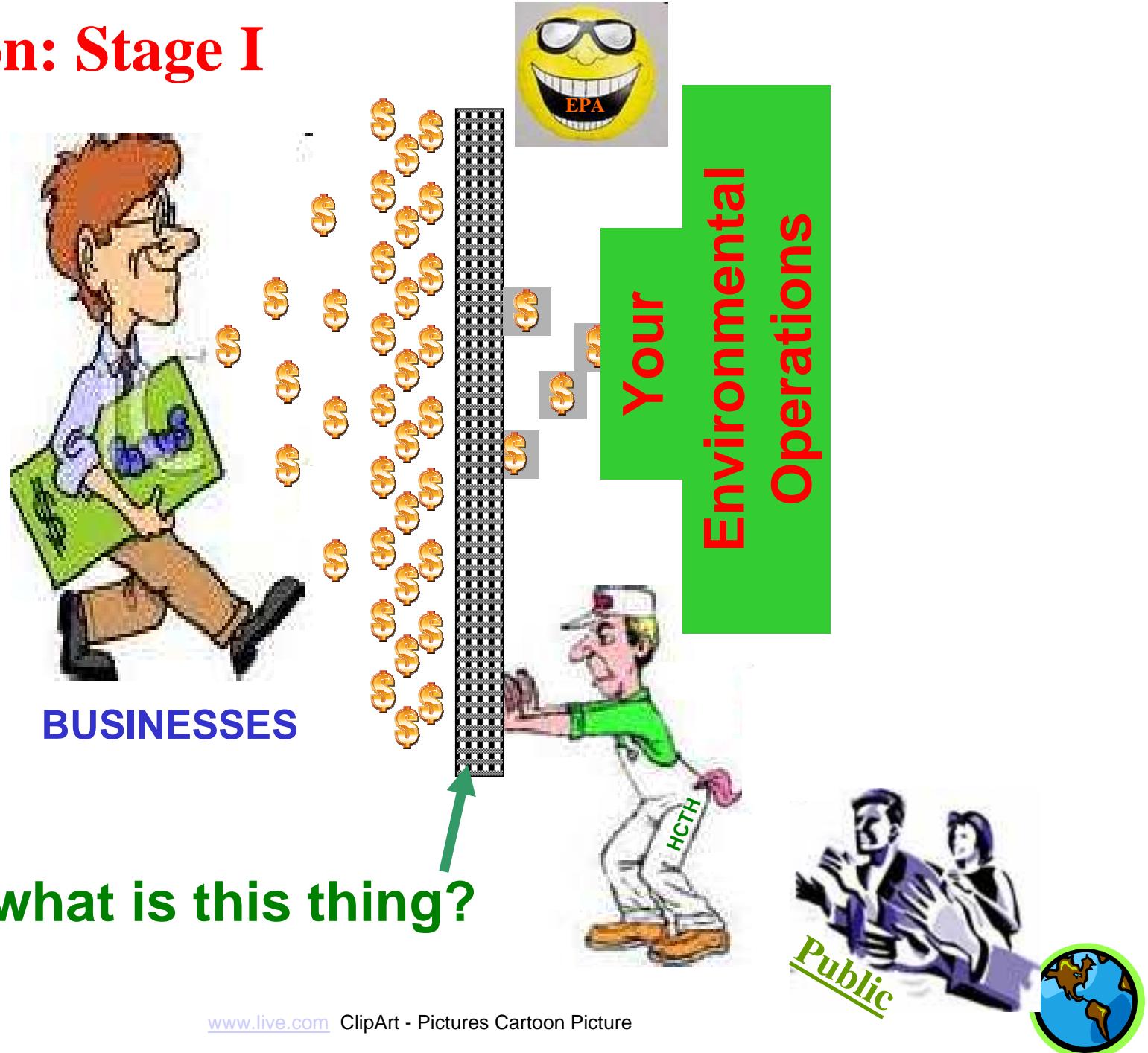


DuPONT

TOTAL ENVIRONMENTAL COST



The Vision: Stage I



GOING “GREEN”

The are some “Golden Rules”

#1 “Green” Survival



RULE #1 **“GREEN” SURVIVAL**

**Thou shalt not bring
the howling mob to the gate**

**Understand, and continually reduce,
your regional and global “footprint”
and your consumption of resources**



#1 - “GREEN” SURVIVAL:

Continually reduce your own footprint (Based on the AIChE/CWRT focus issues)

Resource Demand

- Energy, Material, Water and Land

Critical World-wide Environmental Burden

- Persistent Bioaccumulative Toxins (PBTs)
- Priority Heavy Metals
- Green House Gases (GHG)
- Ozone Depleting Substances (ODS)

While continually reducing your local environmental burden. (acid gasses, VOC's, BOD/COD, toxins, particulate, solid waste etc.)



DuPont's Reduced Environmental Footprint

Safety & Health Major Incidents

Air Toxics

Air Carcinogens

Hazardous Waste (Dry)

U.S. TRI “Releases”

Energy

GHG Emissions

In the early '00s,
since about 1990

World Leader

>100 to few

⬇ 75%

⬇ 92%

⬇ 44%

⬇ 77%

9% Below 1990

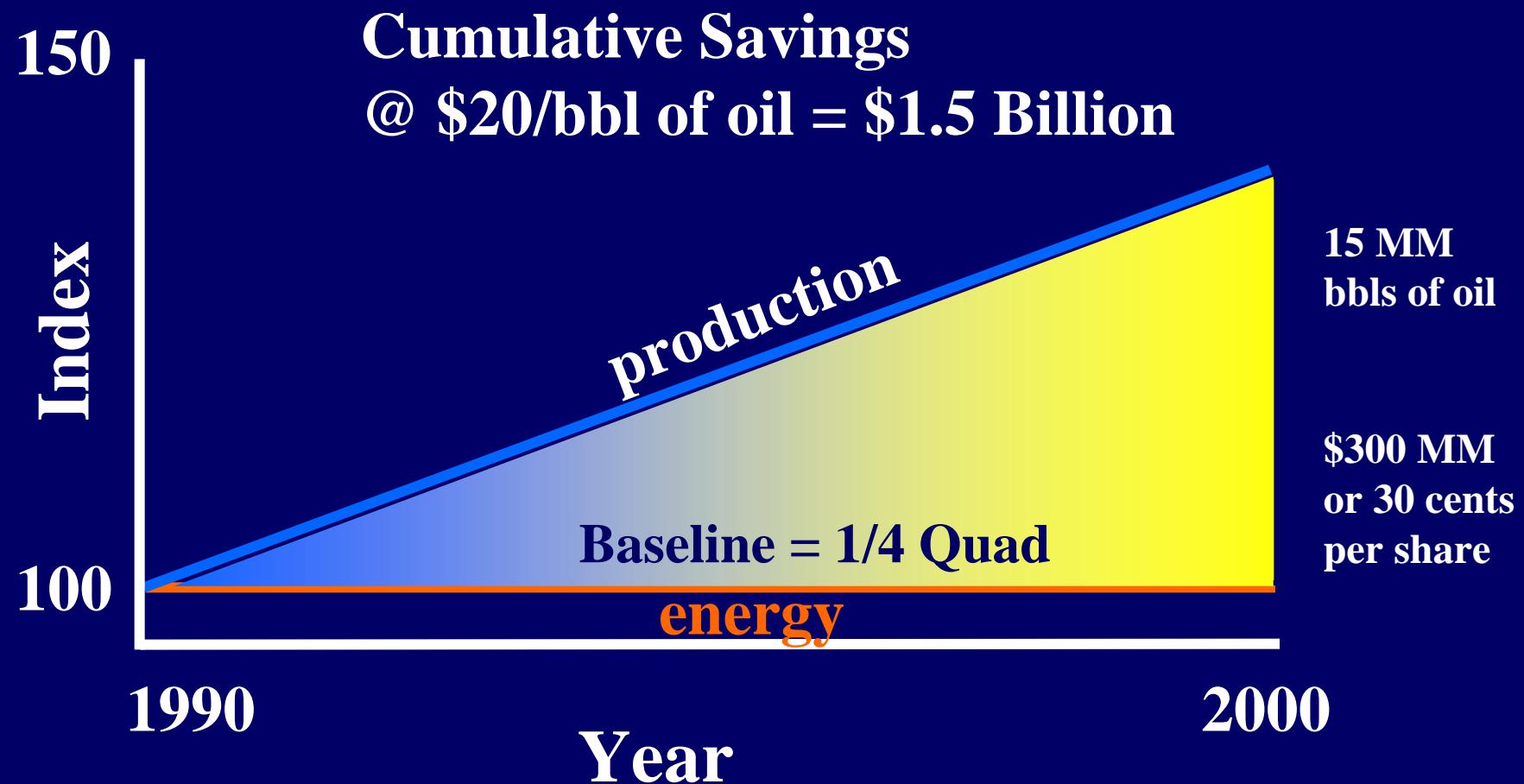
⬇ >70%



But, was that converted into a business value?

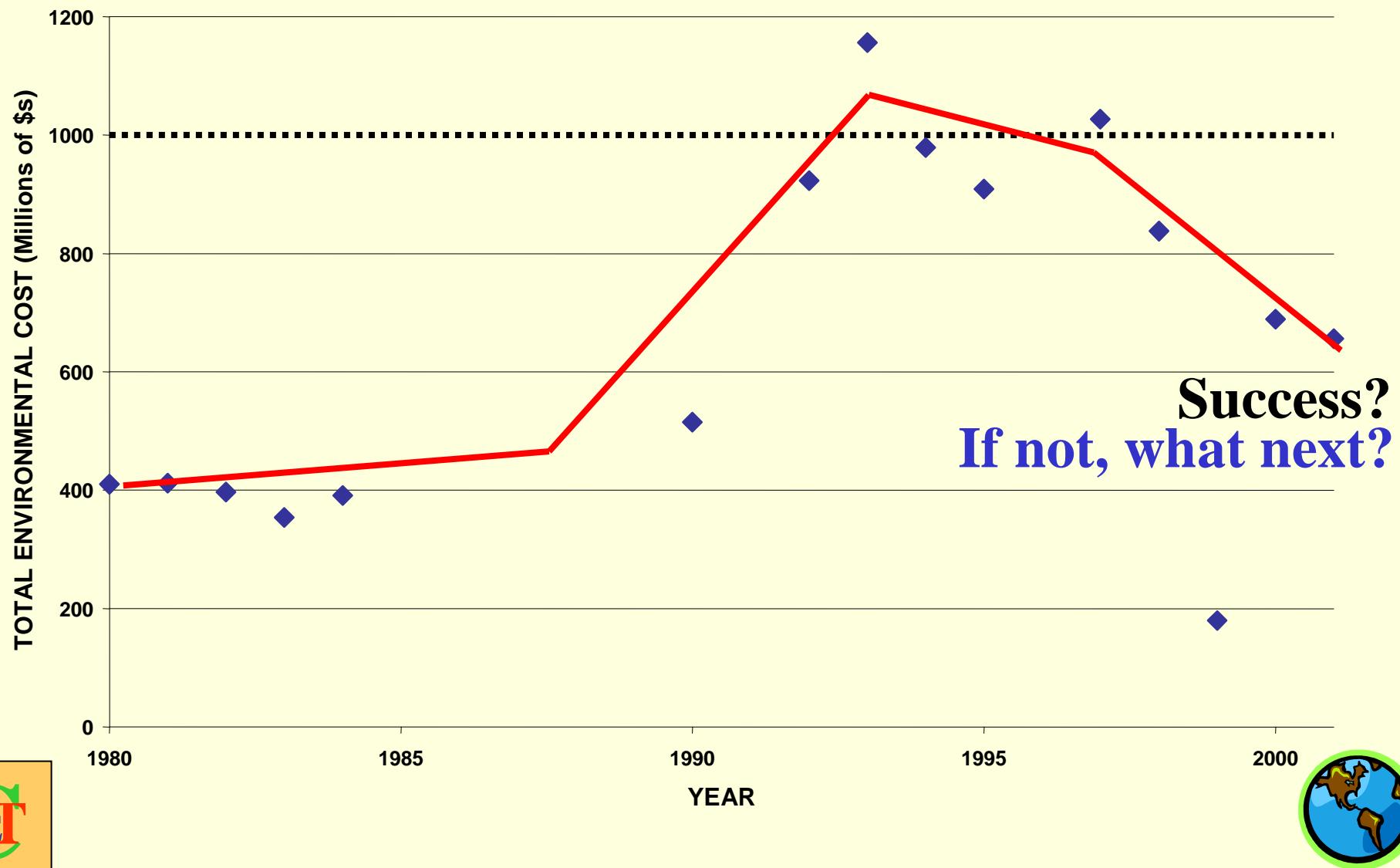


DuPont's Energy Efficiency Programs

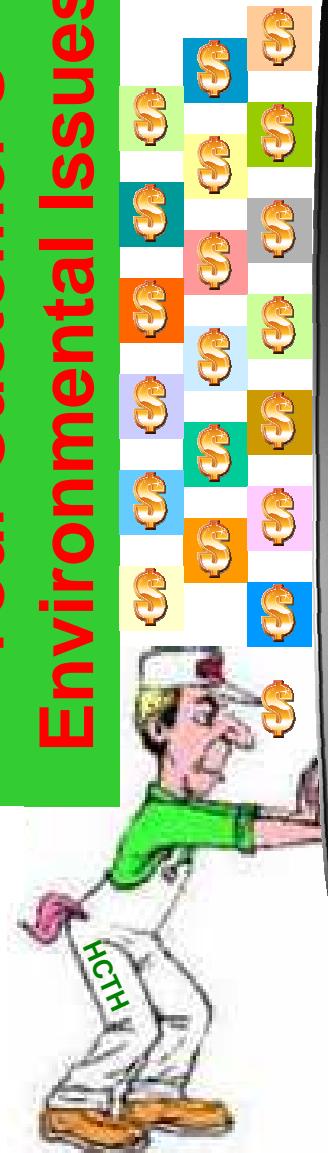


DuPONT

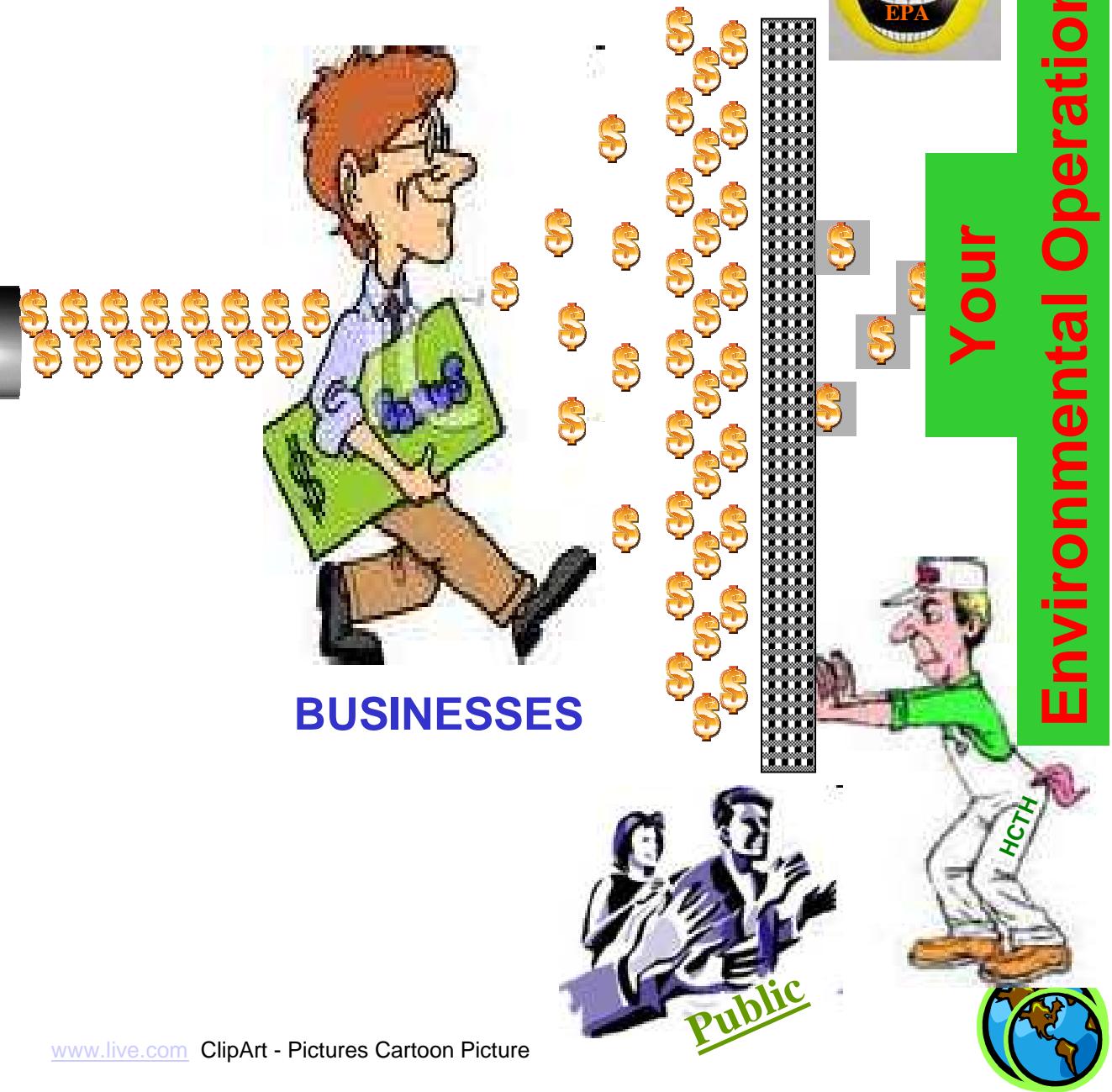
TOTAL ENVIRONMENTAL COST



**Your Customer's
Environmental Issues**



The Vision: Stage II



GOING “GREEN”

The are some “Golden Rules”

#1 “Green” Survival

#2 “Green” Prosperity



RULE #2 **“GREEN” PROSPERITY**

Honor thy customer,
even more so than thyself

Provide products and/or services based
on your understanding of how specific
potential environmental issues will
impact your (potential) customers.

**As before, what are the specific,
individual sustainability issues of
your customer?**



**Provide a means for your customers to continually reduce their footprint
(Again, the AIChE/CWRT focus issues)**

Resource Demand

- Energy, Material, Water and Land

Critical World-wide Environmental Burden

- Persistent Bioaccumulative Toxins (PBTs)
- Priority Heavy Metals
- Green House Gases (GHG)
- Ozone Depleting Substances (ODS)

While continually reducing your local environmental burden. (Acid gasses, VOC's, BOD/COD, etc.)



“GREEN” BUSINESS ISSUES^(a)

MINIMUM “TOXIC” DISPERSION

MINIMUM MATERIAL INTENSITY

MINIMUM ENERGY INTENSITY

MAXIMUM USE OF RECYCLING

RENEWABLE RESOURCES

EXTENDED DURABILITY OF PRODUCT

INCREASED SERVICE INTENSITY



a = From “Sustainability Criteria” by (WBCSD)



#2 - “GREEN” PROSPERITY

The most profitable practice is to focus on your customer’s “Green” needs based on your understanding of their business and the issues.

- Improve the environmental quality of your customers' products
- Solve (preferably prevent) your customers' environmental problems  **Ducare®
Developer**
- Take on their environmental tasks



**The successful company develops
a vision of going “Green”**

**And, whenever an opportunity
arises, they move it forward.**

**One issue at a time,
one business at a time**

**That might be profitable over
quite some time, but is it
sustainable?**



WHAT IS SUSTAINABILITY?

"..development that meets the needs of the present without compromising the ability of future generations to meet their own needs"**

(*) World Commission on the Environment and Development (Brundtland Commission)

While this is nice, it is difficult to use daily to make business decisions about products, or facility decisions about “footprint”.



SUSTAINABILITY **REQUIRES A SUCCESSFUL** **“TRIPLE BOTTOM LINE”**

- An ongoing profitable enterprise
- Attention to the requirements for a healthy environment
- Serving the continuing needs of a sustainable society



FUNDAMENTAL PREMISE

- Sustainability is not a work product like a television or an engineering report
- Sustainability is a quality of one's work like integrity, accuracy and punctuality
- Businesses do not undertake projects because they are “green” or “sustainable” but because they make financial sense
- There are some lessons learned along the way, thus far



“GREEN” → SUSTAINABILITY

The are (perhaps)
three “Golden Rules”

- #1 “Green” Survival
- #2 “Green” Prosperity
- #3 “Green” Futures





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Who is
responsible
for these?



aa021045 www.fotosearch.com



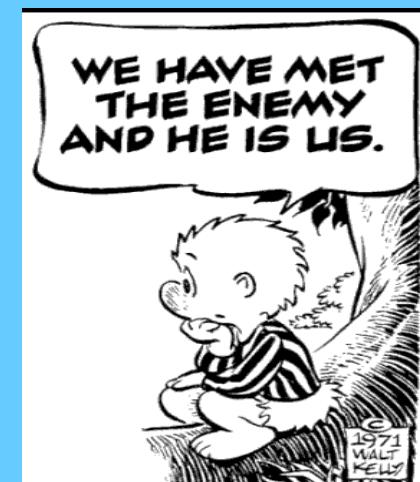
#3 - “GREEN” FUTURES Really?

Many of us could lose some weight, eat a better diet, exercise more, vote more often or on a better basis, use our time better, etc.

Most of us could use less materials, reduce our energy use, reduce transportation impacts, posses less space, and buy “greener” products.



Pogo strikes again!



RULE #3 **“GREEN” FUTURES**

**We get the sustainability we choose*.
At least for the developed societies.**

**Businesses will move toward positions where
public demand for a sustainable society
creates durable markets with an opportunity
for improved share and/or margin.**



*** With apologies to Thomas Jefferson**



Questions for Industry #1

Courtesy of Tom Graedel

With considerable speaker's license

- Could business move from "a little bit greener" to leadership for major shifts that address directly the issues of limits for sustainability?
- **NO!** (The *opinion* below is not thoroughly researched, but, I'm unaware of any major, long term exception.)
- Unless a sustainable advantage can be established in manufacturing, market preference, government relations, or (sometimes) employee preference, "green" for the sake of "green", by a company, or an industry acting alone, is economic suicide.
- There are some seeming exceptions but they are niche opportunities that fulfill one of the preceding criteria.



Questions for Industry #2

Courtesy of Tom Graedel
With considerable speaker's license

- How could sustainability goals and targets be addressed?
- Suggestion: Analyze the notable “Big Green” successes and failures against the triple bottom line of good for the economy (individual industry or the overall economy), the environment and society. (For the most part, we already know this)
- Then comes the really tough part – applying the lessons.



Notable “Big Green” Programs

(A *ranked* subjective list in the view of this author)



- The Montreal Protocol
- European and Asian public transportation programs
- US air pollution control, particularly SOx and NOx
- Most of the US endangered species programs
- The German packaging waste minimization program
- The Toxic Release Inventory (TRI)
- The US PBT, and the European POPs programs
- US Automotive safety standards



- IC/Elec hybrid cars > Plug ins > Fuel cells
- Leading US (and European?) industrial safety programs
- The Kyoto Protocol
- Reduced washing of hotel towels and linens (insuff. data)
- The US renewable energy program



- The US Biofuels program
- Most (all?) post consumer recycling except metals
- Most (all?) marine species programs
- All(?) US infrastructure maintenance (Katrina syndrome)



Thank you for your time !!!

