



Environmental Quality & Market Processes

- **Water Pollution**
- **Air Pollution**
- **Climate Change**
- **Cap and Trade?**
- **Taxes?**

Bruce Yandle

Distinguished Adjunct
Professor of Economics

MERCATUS CENTER

Let's start with some basics

Competing forecasts

The ultimate commons

Turning points: Will it work this time?

What are the options?

Institutions are being built as we speak.

Why waiting may be a good game.

Man has lost the ability to foresee and to forestall

He will end by destroying the earth.

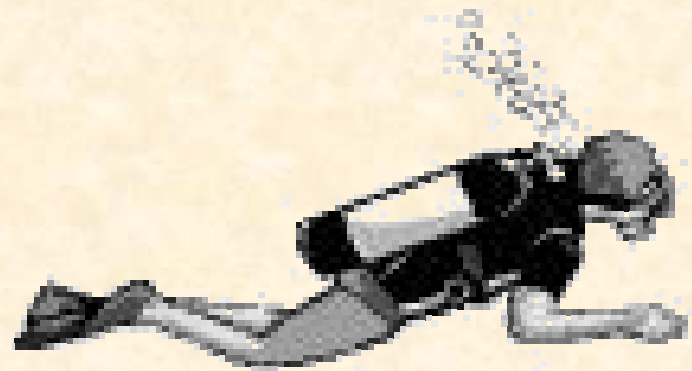
Albert Schweitzer



If from any revolution in nature the atmosphere became too scanty for the consumption...,

Air might acquire a very high marketable value.

John Stuart Mill
Principles of Political Economy
(1862 edition)

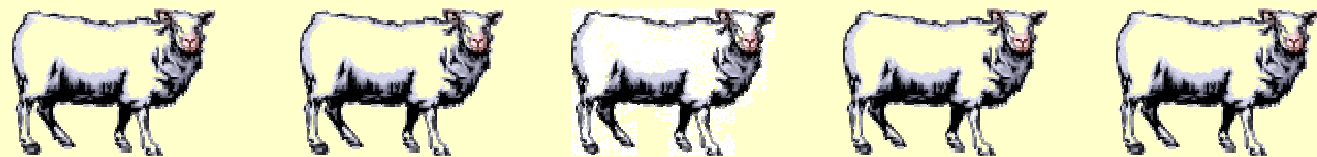


The Tragedy of the Commons.

Garrett Hardin

Science, 1968. 1244.

Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons.



ENVIRONMENTAL ASSETS & CONSERVATION

- The focus is on property rights institutions. Any system that protects the environment is based on some property rights scheme. Whether government controls. Not-for-profits control. Or the free market controls.
- We search for explanation: How and why do environmental rights evolve?
- We seek to explain how crude property rights become 3-D rights.

OBJECTIVE: Develop an system of social and environmental forces that lead human communities to build property rights institutions that convert environmental resources into environmental assets.

3-D rights: Property rights that are *defined*, that will be *defended* by the community, and that can be *divested or devised* by one individual rightholder to another individual.

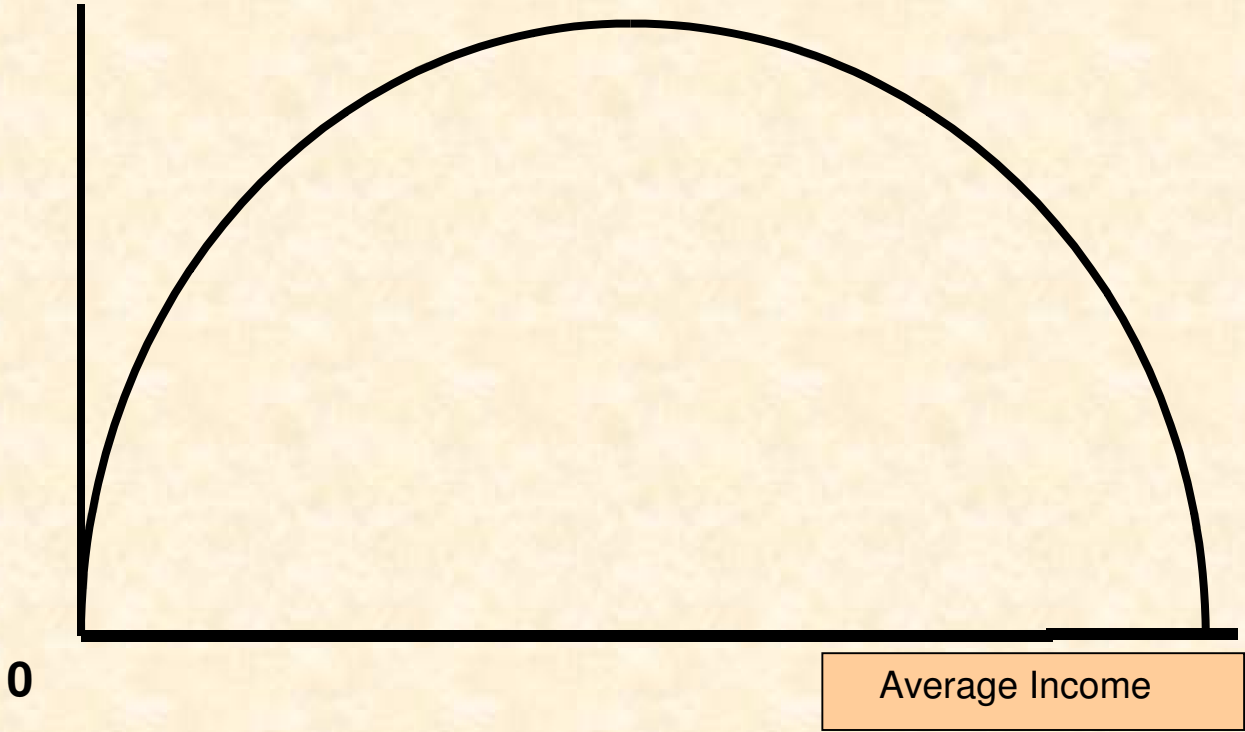


3-D Rights

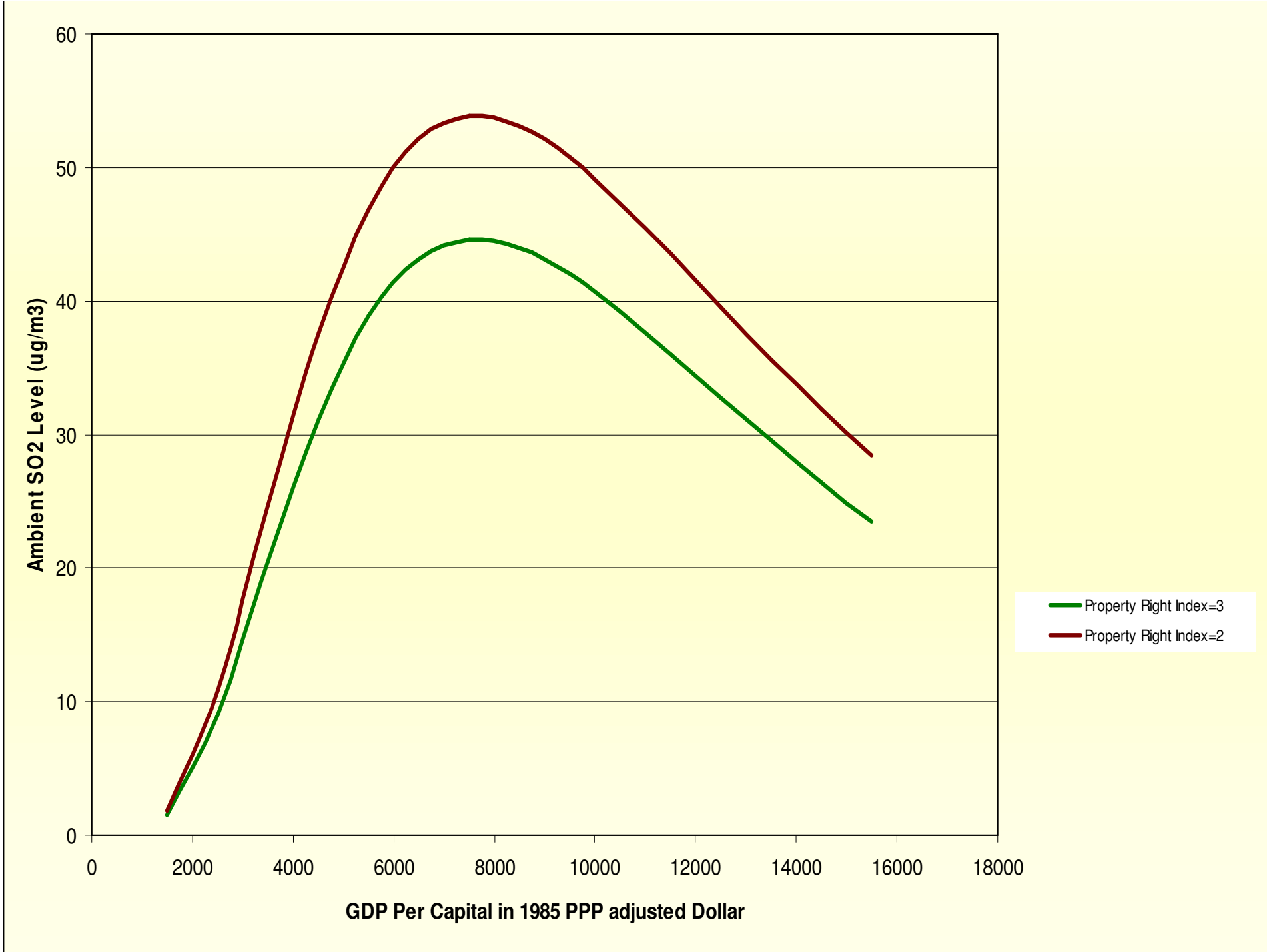
No 3-D Rights

Environmental Turning Points

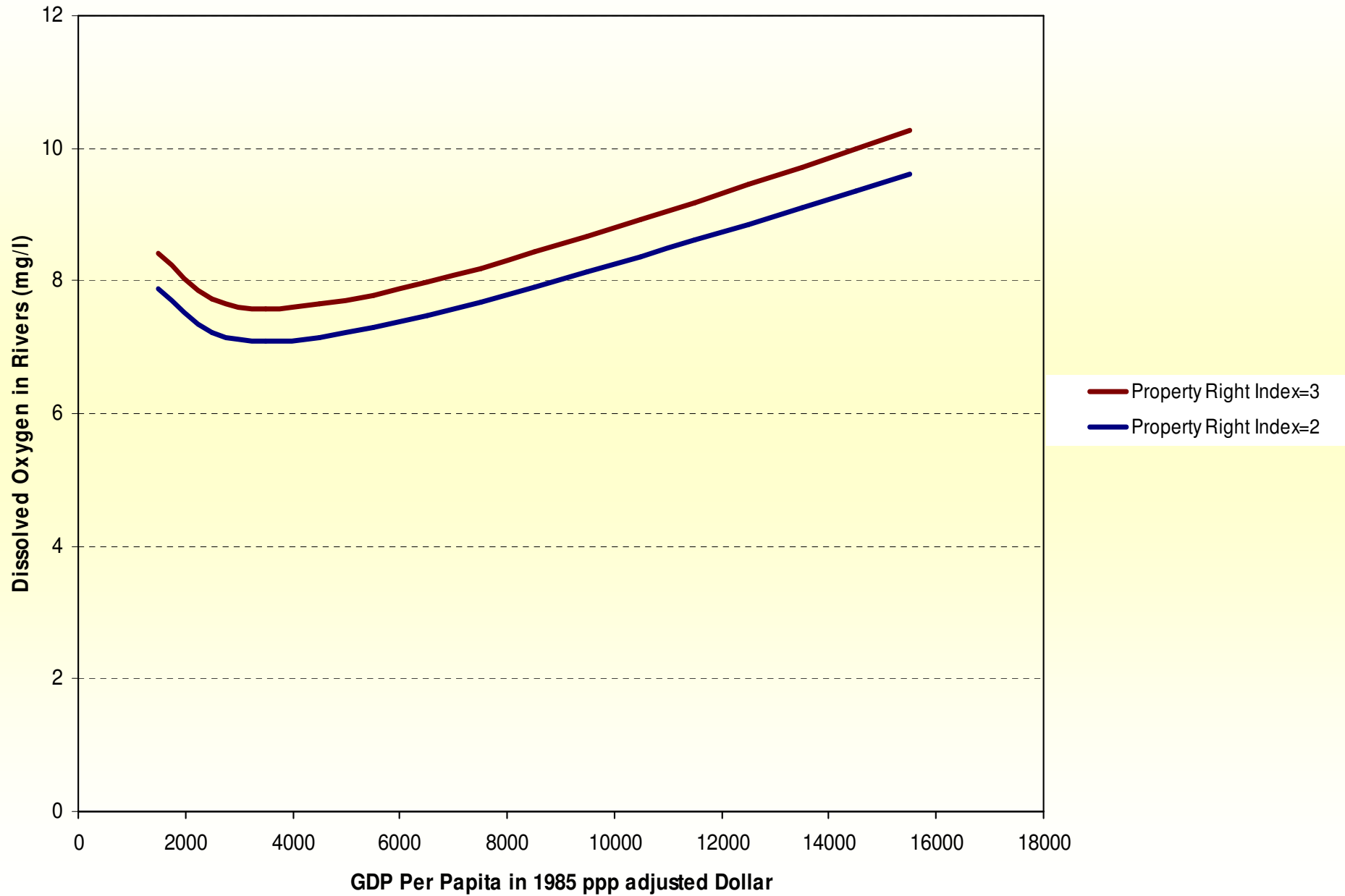
Ambient Pollution
Concentration



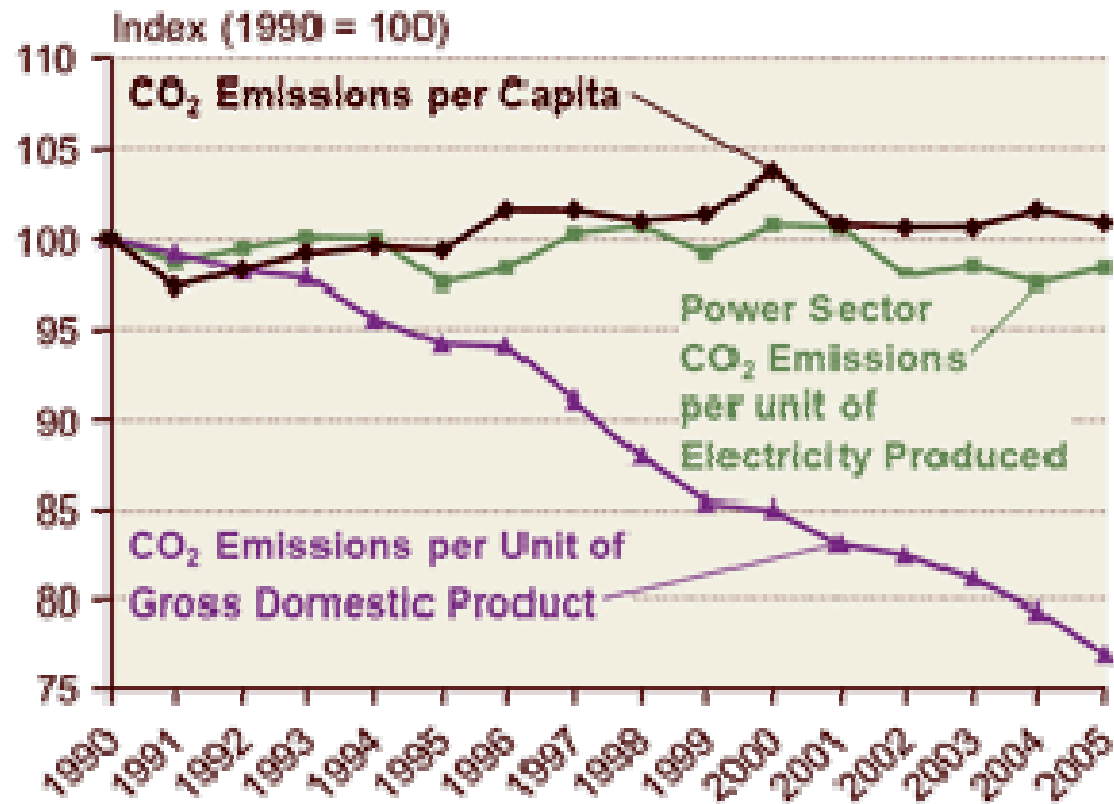
Environmental Kuznets Curve: The General Case



Environmental Kuznets Curve for DSO in Rivers

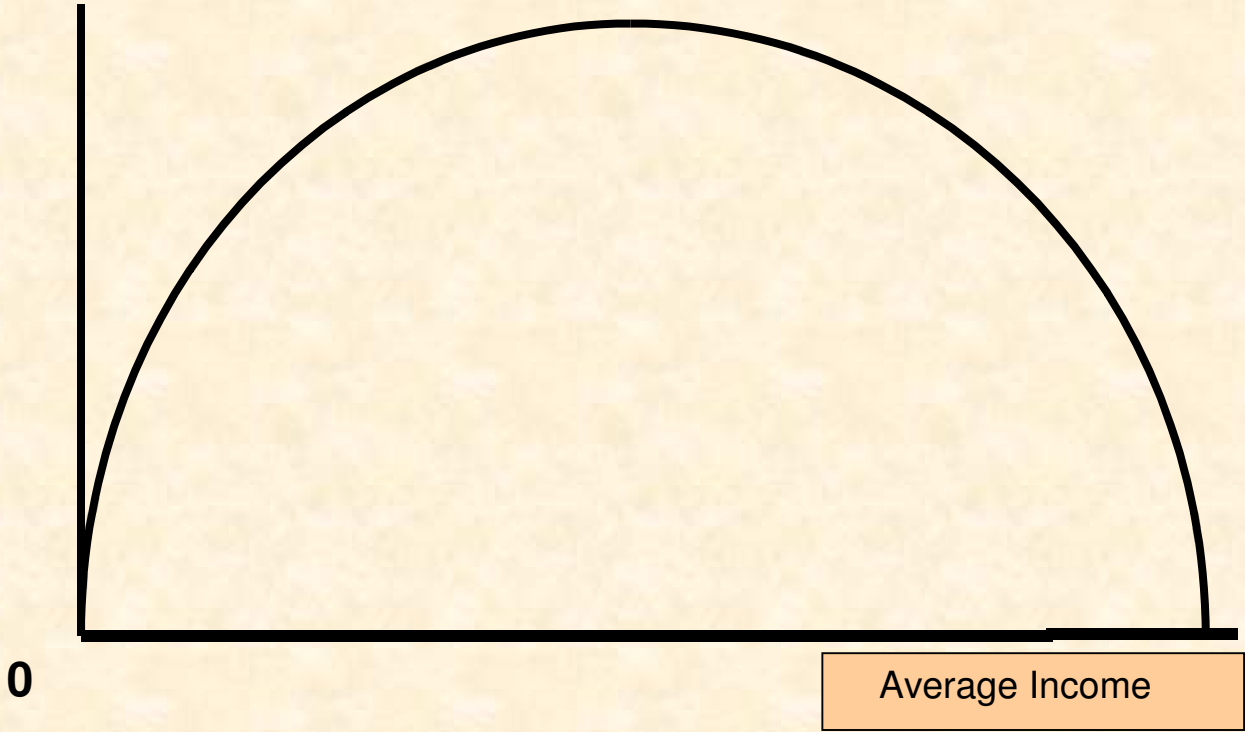


Carbon Dioxide Emission Intensity: 1990-2005

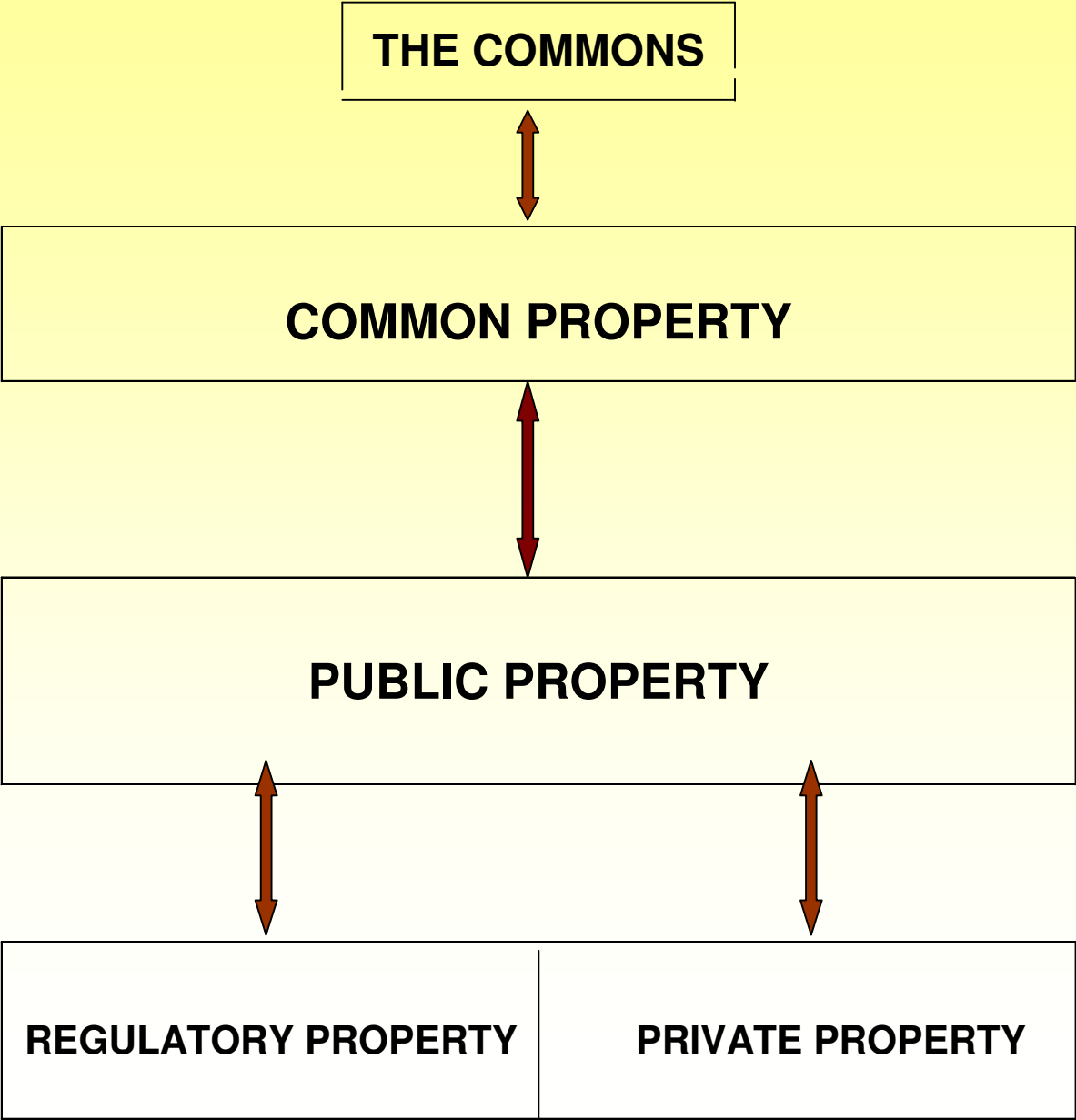


Defining Property Institutions

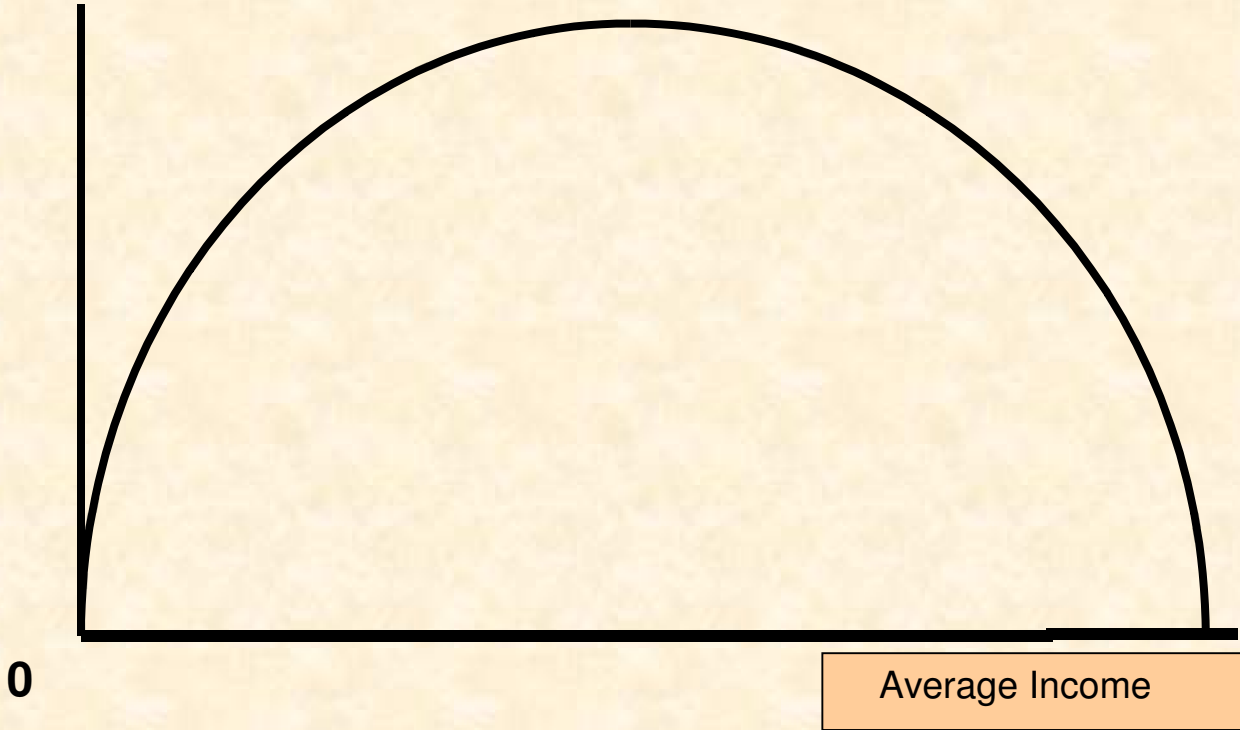
Ambient Pollution
Concentration



Environmental Kuznets Curve: The General Case



Ambient Pollution
Concentration

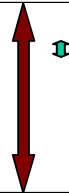


Environmental Kuznets Curve: The General Case

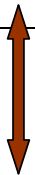
THE COMMONS



COMMON PROPERTY

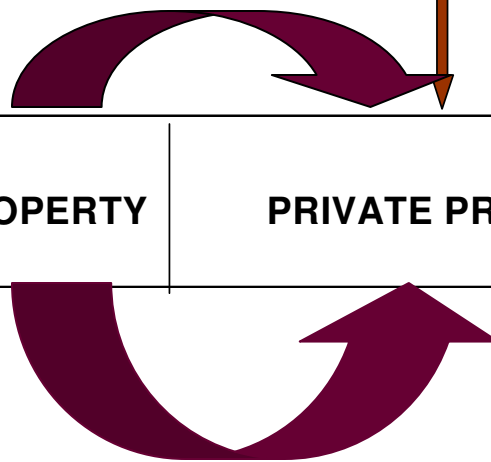


PUBLIC PROPERTY



REGULATORY PROPERTY

PRIVATE PROPERTY

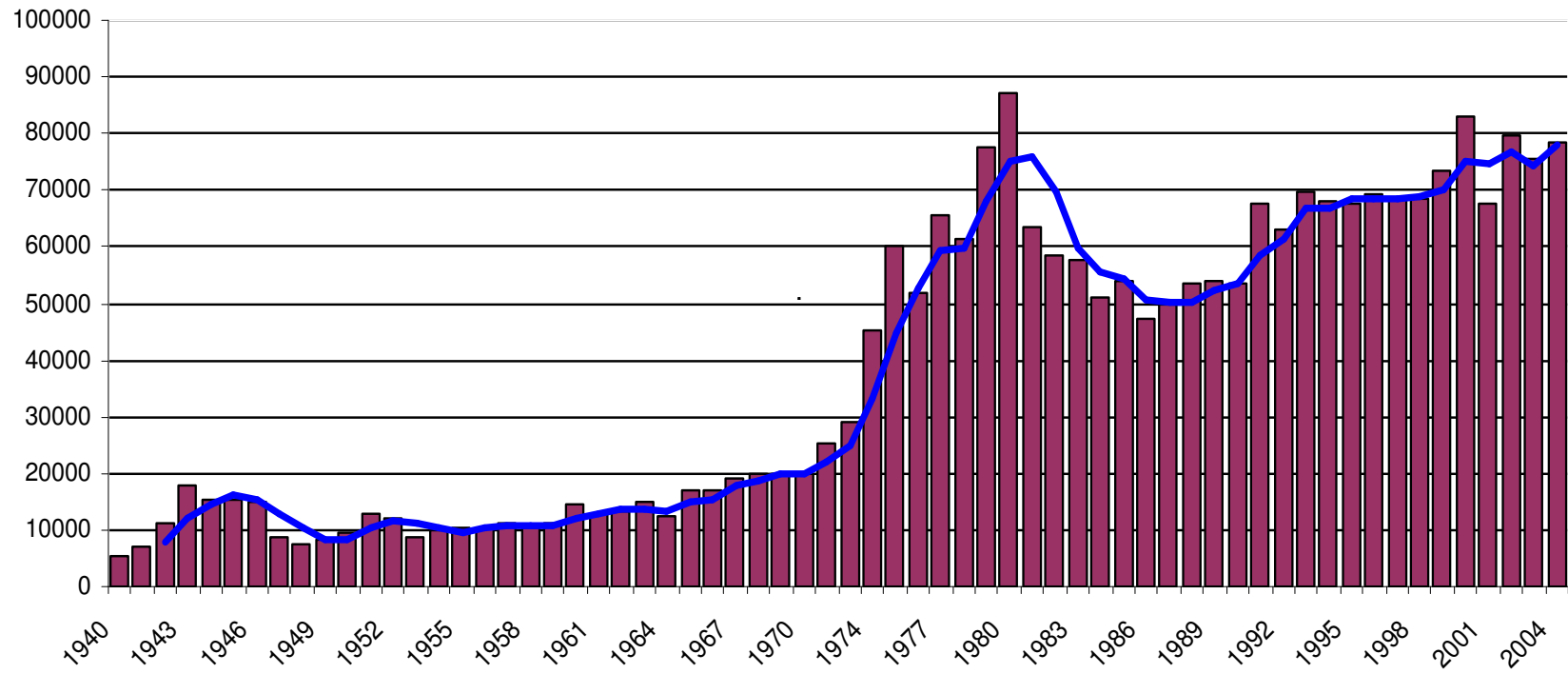


Alternate Institutions

Command and Control
Performance Standards
Economic Incentives
Cap and Trade
Fee simple 3-D rights

1/22/05

Federal Register: 1940-2004



Choosing the Lower Cost Way

Command and Control
Performance Standards
Economic Incentives
Cap and Trade
Fee simple 3-D rights

Theories of Regulation

- **Public Interest:** Elected and appointed officials are dedicated to one thing: Providing maximum benefits to all of people taken together. Politicians never seek to serve a private interest.
- **Capture:** While seeking to determine what is the public interest, politicians and appointees come under the influence of special interest groups. Unwittingly, the noble politician is captured.
- **Special Interest:** It is all above board. Politicians and appointees are in it strictly for themselves and special interest groups that keep them in office. To predict outcomes, follow the money.
- **Bootleggers and Baptists:** Durable social regulation is always associated with two interest groups. One, the “Baptists,” brings a moral element to the cause. The other, the “Bootleggers,” are in it for themselves. If one group is missing, the regulation fails.

Turning Points

Common Law

England and the Anglers Cooperative

Water Quality in the Ruhr

ORSANCO: The Ohio River

North Carolina's Tar-Pamlico River Basin
Association

Greenhouse Gas Activities

Whalen v. Union Bag & Paper Co.

(208 N.Y. 1,101N.E.805, 1913)

A newly constructed paper mill polluted a creek. Whalen, a downstream farmer, sued the mill for making the water unfit for agricultural use. The trial court awarded damages of \$312 per year and granted an injunction against the mill to end harmful pollution within a year. Noting that the mill was an important asset to the community and cost more than \$1 million and employed 500, the appellate division denied the injunction and reduced damages to \$100.

Whalen appealed to New York's highest court, the Court of Appeals, which ruled;

Although the damage to the plaintiff may be slight as compared with the defendant's expense of abating the condition, that is not a good reason for refusing an injunction. Neither courts of equity nor law can be guided by such a rule, for if followed to its logical conclusion, it would deprive the poor litigant of his little property by giving it to those already rich.

Georgia v. Tennessee Copper Co.

237 U.S. 474 (1915)

The state of Georgia, on behalf of its citizens, sued two companies that operated copper smelters in Tennessee near the Georgia border. Justice Holmes noted that a public nuisance had been created because the "sulphurous fumes cause and threaten damage on so considerable a scale to the forests and vegetable life, if not to health, within [several counties in Georgia]. . . ."11 Defendants argued that they had recently constructed new facilities that reduced the scope of the problem, but the Supreme Court held for Georgia. The Court gave the companies a reasonable time to build more emission control equipment, but held that if such equipment did not reduce emissions enough to protect plant life in Georgia, the state could ask the court for an injunction to shut down the smelters.

In 1915 the parties returned to the Supreme Court. The companies showed that their new, expensive equipment cut emissions by more than half. Georgia argued that this was not enough and demanded that the smelters be closed. The chief justice appointed a scientist from Vanderbilt University to spend six months, at company expense, studying the emissions and the likely effect of new controls. In the meantime, the Court ordered the companies to cut back production to reduce emissions further. Based on the evidence presented by the scientist, the companies would either be allowed to continue operation with more emission-control equipment in place, or, if that could not reduce emissions sufficiently, would have to shut down. Finally, after following the guidance of the Vanderbilt professor, the firm satisfied the plaintiffs, and the Court ended its oversight of the case.

Anglers' Cooperative Association

- In the mid-1940s, John Eastwood, a London attorney and avid angler, decided to do something about water pollution. England's laws read well, but did little.
- Eastwood knew that English Common Law provided a cause of action to owners of riparian land when upstream or other parties imposed cost without prior permission.
- Eastwood wrote 3,000 letters to holders of fishing licenses, inviting them to join an association that would protect water quality in trout streams.
- With a small annual fee from thousands of anglers, the ACA hired one attorney and a secretary. The Common Law did the rest.
- ACA has brought more than 2,000 suits against polluters. It has lost three cases. Fisheries have flourished. Water quality has improved.
- ACA has extended its reach to include oceans and lakes.
- It is now known as the Anglers Conservation Association

EIGHT STATES & NYC SUE TOP FIVE U.S. GLOBAL WARMING POLLUTERS

July 21, 2004

Landmark Suit Seeks Dramatic Carbon Dioxide Emission Reductions from Power Plants

The states of California, Connecticut, Iowa, New Jersey, New York, Rhode Island, Vermont and Wisconsin, along with the City of New York, filed suit today against the five largest global warming polluters in the United States. It is the first time state and local governments have sued private companies to require reductions in the heat-trapping carbon dioxide emissions that scientists say pose serious threats to our health, economy and environment.

Companies sued in this action include: American Electric Power Company; the Southern Company; Tennessee Valley Authority; Xcel Energy Inc.; and Cinergy Corporation.

Together, they own or operate 174 fossil fuel burning power plants in 20 states that emit some 650 million tons of carbon dioxide each year – almost a quarter of the U.S. utility industry's annual carbon dioxide emissions and about 10 percent of the nation's total. The action calls on the companies to reduce their pollution, and does not seek monetary damages.

Connecticut Attorney General Richard Blumenthal said: "Our lawsuit is a huge, historic first step toward holding companies accountable for these pernicious pollutants that threaten our health, economy, environment and quality of life now and increasingly in the future. The eventual effects of CO2 pollution will be severe and significant - - increasing asthma and heat-related illnesses, eroding shorelines, floods, and other natural disasters, loss of forests and other precious resources. We must act, wisely and quickly, to stem global warming - - and safeguard both our environment and economy. Time is not on our side."

State sues car firms on climate

BBC News

September 20, 2006

The state of California is suing six carmakers for costs associated with their cars' green house gas emissions. The suit names General Motors, Toyota, Ford, Honda, Chrysler and Nissan. California is asking for "monetary compensation" for the damage which it says their emissions are doing to health, economy and environment.

The Alliance of Automobile Manufacturers (AAM), a pan-industry body, called it a "nuisance" suit and suggested it may be dismissed.

The lawsuit, lodged on behalf of the California people by state attorney-general Bill Lockyer, alleges that emissions from cars made by the firms in question account for 30% of all carbon dioxide emissions in California. The complaint alleges that the firms' activities have harmed the state's environmental health, with California having to spend millions of dollars responding to environmental threats such as coastal erosion.

Water Quality in the Ruhr

- Late 19th century. Westphalia and Rhineland became the world's most industrialized regions. Coal, steel, chemicals..., and people. By 1912, Essen's Krupp Steel employed 70,000.
- Wide variations in flows in the Ruhr led to droughts and floods. Droughts brought stagnant water, and stagnant water brought typhoid and death.
- A small group of businessmen decided to do something. They incorporated the Ruhr River!
- The public corporation first built dams to regulate flow, it then sold water for drinking purposes and sold rights to discharge.
- All municipalities, all industrial plants, even recreational users paid to discharge. The fee was based on the composition of the discharge—the cost imposed on the river.
- Prussian King liked the idea and required it for all river basins. They competed.
- European Union set higher standards for all streams, distributed funds for cleanup, until the funds ran out.

ORSANCO and Regional Compact

- On June 30, 1948, Congress approved an 8-state compact establishing the Ohio River Valley Water Sanitation Commission. Stimulated by Cincinnati Chamber of Commerce.
- Gravity determined Cincinnati water quality. Pittsburgh and other upstream cities discharged untreated sewage. Cincinnati cleaned the river with ever-larger water treatment plants.
- Until the germs went upstream!
- Gastroenteritis and typhoid did what politicians couldn't do. They delivered bills to upstream parties. They decided to join the water quality discussion.
- Congress directed ORSANCO to manage water quality throughout the Ohio River basin, but required that ORSANCO *not require uniform treatment*. Cost was to be minimized!
- ORSANCO operated as a water quality manager until the 1970 formation of EPA.

Tar-Pamlico River Basin Association

- 1989, following a series of serious fish kills, North Carolina declared the Tar-Pamlico River and Pamlico Sound nutrient-sensitive waters. Tougher constraints on discharge were imposed.
- Two categories of dischargers: Point-source and nonpoint-source. EPA has authority over point-source only. No binding rules on nonpoint-source.
- Problem: 80% of nutrient loadings come from nonpoint-source dischargers. If all point-sources were closed, the river would still be in trouble.
- EPA has one regulatory tool—Command and control, technology-based standards to be imposed on point-sources.
- EPA gives community time to deal with the problem, indicating the EPA solution would cost \$100 million and NOT fix the problem.
- A Pamlico-Tar foundation exists.
- Major point-source dischargers volunteers to pay \$1 million to model the basin.
- Cost estimates show that farmers can remove a unit of nutrient for \$13. Point source pays \$50.

Global Climate Change

Assumptions:

It is happening.

Human activity causes it.

Carbon emissions are the culprit

But...

The assumptions do not lead us to conclude that we should venture forth and take costly action to reduce emissions.

Why?

There is a matter of benefits and costs. Is it possible that global climate change is on balance helpful to human populations and the environment? And if not, is it possible that other actions we might take could be more beneficial to human populations and the environment than acting to reduce carbon emissions?

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And...

The estimated annual cost for developed countries to achieve Kyoto targets is \$150 billion.

For \$10 billion annual cost, two billion people facing malaria can be made safe. AND 800 million people lacking safe drinking water can gain access. AND 250 million lacking adequate food can be fed...each year.

Global Climate Change

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And...

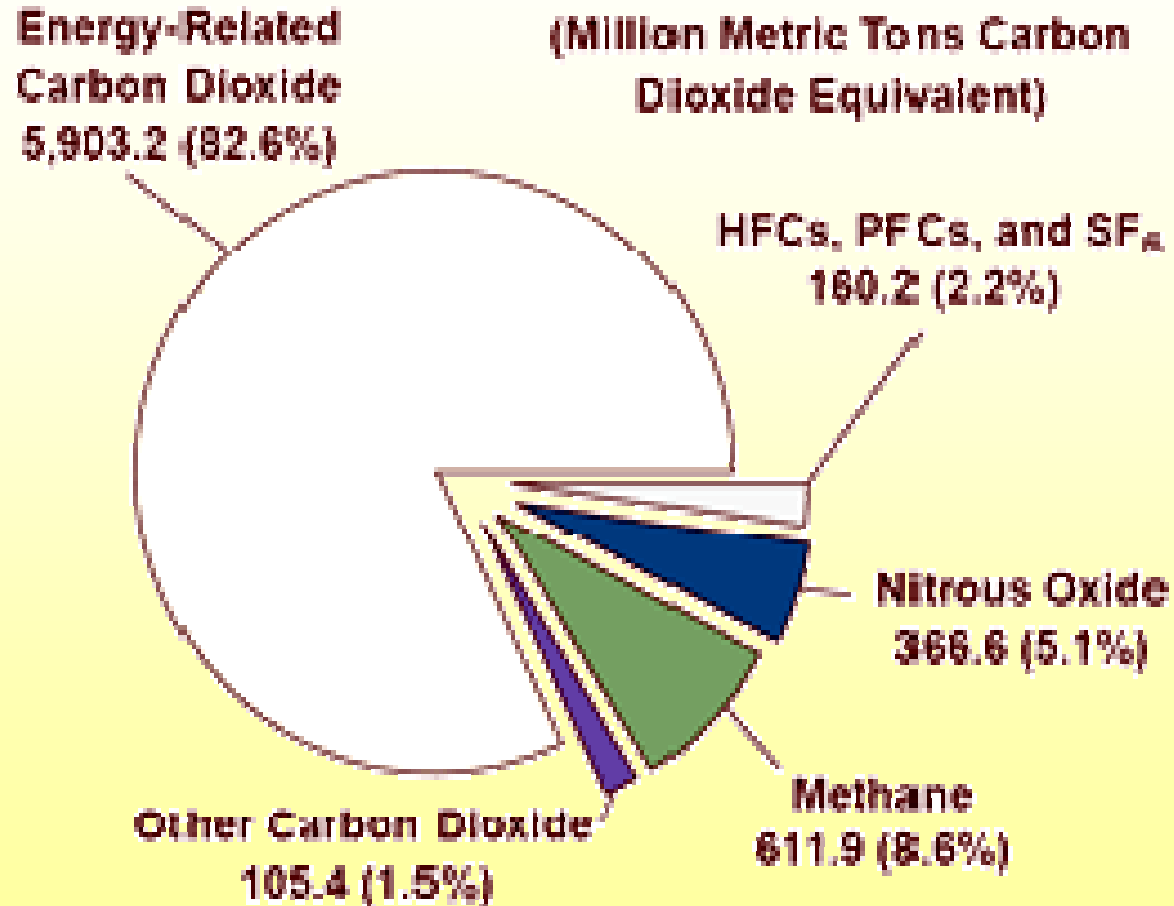
Meeting Kyoto goals—for all industrialized world—would have a vanishingly small—immeasurable impact on the concentration of CO₂ in the upper atmosphere. Major efforts to reduce CO₂ will lead to stabilization and then improvement 100 years from now.

U.S. Anthropogenic Emissions of Greenhouse Gases, 1990-2005

	Carbon Dioxide Equivalent
-----	-----
Estimated 2005 Emissions (Million Metric Tons)	7,147.2
-----	-----
Change Compared to 2004 (Million Metric Tons)	42.7
-----	-----
Change from 2004 (<i>Percent</i>)	0.6%
-----	-----
Change Compared to 1990 (Million Metric Tons)	1,034.4
-----	-----
Change from 1990 (<i>Percent</i>)	16.9%
-----	-----
Average Annual Increase, 1990-2005 (<i>Percent</i>)	1.0%
-----	-----

U.S. DOE. www.eia.doe.gov.
accessed 3/8/07.

2005 Greenhouse Emissions by Gas



Policy Options

Move immediately to:

- **Regulate with command and control.**
- **Set up institutions for registering emissions, monitoring outputs, and contracting among sequestration and other reduction processes.**
- **Cap current emissions from major sources and allow trade among sources..., including sequestration.**
- **Let a huge number of experiments flourish. Impose an emission tax if needed.**



Knowledge sharing

IETA Members are part of a pro active group of business organizations that, under the umbrella of the association, will provide their professional and business experience and expertise to global and national dialogues that are developing the key components of the greenhouse gas (GHG) market.

As part of this process, high-profile invitees give speeches at IETA's Annual General Meetings.

Work Groups and Events

Membership ensures participation in all IETA working groups and events as well as outputs from these activities. It provides an excellent opportunity to work with the leading business organizations within this field in various sectors. In addition members have access to the latest developments and best practices in GHG trading, Joint Implementation and the Clean Development Mechanism.

Please follow the link above to learn more about current activities that include Working Groups in the areas of:

- **European Union Emissions Trading Schemes,**
- **Clean Development Mechanism Executive Board,**
- **Operational Entities: Financial Accounting,**
- **Contracts,**
- **Integration of Trading Schemes,**
- **Market Functioning,**
- **Registries, and**
- **Validation, Verification and Monitoring**

148 members.

The Chicago Climate Exchange (CCX) is North America's only, and the world's first, greenhouse gas (GHG) emission registry, reduction and trading system for all six greenhouse gases (GHGs). CCX is a self-regulatory, rules based exchange designed and governed by CCX Members. Members make a voluntary but legally binding commitment to reduce GHG emissions. By the end of Phase I (December, 2006) all Members will have reduced direct emissions 4% below a baseline period of 1998-2001. Phase II, which extends the CCX reduction program through 2010, will require all Members to reduce GHG emissions 6% below baseline.

The goals of CCX are:

To facilitate the transaction of greenhouse gas emissions allowance trading with price transparency, design excellence and environmental integrity

To build the skills and institutions needed to cost-effectively manage greenhouse gas emissions

To facilitate capacity-building in both public and private sector to facilitate greenhouse gas mitigation

To strengthen the intellectual framework required for cost effective and valid greenhouse gas reduction

To help inform the public debate on managing the risk of global climate change

The participants include Ford, DuPont, Smithfield Foods, Kodak, Suncor Energy, The Nature Conservancy, STMicroelectronics, Temple-Inland, International Paper, the Iowa Farm Bureau Federation, Alliant Energy, Calpine, Cinergy, NiSource, PG&E National Energy Group, Wisconsin Energy, ZAPCO, State of New Mexico, Confederation of UK Industries, Agrilience and GROWMARK.

TRADING VOLUME

European Climate Exchange of Chicago Climate Exchange

- **During 2006, ECX traded a total of 452.8 million tons of which 175.9 million tons was in futures and 276.7 million was in delivery of physical tons to satisfy future contracts.**
- **Membership in ECX grew from 55 members in January 2006 to 72 members at year end.**
- **During 2006, CCX traded a total of 10.2 million tons of CO₂ (2005: 1.4 million tons. CCFE (Chicago Climate Futures Exchange) traded 723,100 tons of sulphur (2005: 4,275 tons)**
- **Membership of CCX grew from 127 members in January 2006 to 237 members by year end.**

A global warming moment

Governor signs measure capping greenhouse gas emissions that could lead to big changes in industries and life in cities

Mark Martin, San Francisco Chronical

September 28, 2006

Gov. Arnold Schwarzenegger signed legislation Wednesday setting California on course to reduce the greenhouse gases that cause global warming, a major political victory for the governor and a step that environmental and political leaders predict will have worldwide ramifications.

In a ceremony on San Francisco's Treasure Island with the city's skyline as a backdrop, Schwarzenegger declared the beginning of "a bold new era of environmental protection in California that will change the course of history" as he approved AB 32, which calls for the state to reduce emissions of carbon dioxide and other gases by 25 percent by 2020.

The new law, the first of its kind in the nation, could lead to a dizzying array of changes in industry and elsewhere that will be seen in cities, on farms and on freeways.

During the next decade, state regulators could require more public transportation, more densely built housing, a major new investment in projects that tap into the wind and sun to generate electricity, millions of new trees and even new ways for farmers to handle animal waste.

Aides to the governor said he also planned to sign legislation later this week that will prohibit the state's electric utilities from buying electricity from high-polluting out-of-state power plants, a key step toward cleaning up the state's power supply.

The California Plan: A global warming moment

"You are showing brilliant leadership that will inspire people around the world," said British Prime Minister Tony Blair, who predicted that the new California law would spur a larger global market that allows companies to buy and sell emissions credits.

Blair noted the law could encourage similar laws in "states within the United States of America as well, and hopefully in time from the whole of America."

Blair, whose country is part of the Kyoto Protocol requiring countries to reduce greenhouse gas emissions, was beamed in via satellite to the morning ceremony, a well-choreographed event that was duplicated in the afternoon in Malibu.

With flags from countries around the world on one side of the stage, a vast lighting system and a giant video monitor displaying Blair and images of the other speakers, it was a Hollywood-quality production.

By January 2008, the board is expected to have developed new rules requiring most industries to report their current greenhouse gas emissions, a key first step. The board also must determine by that time the exact amount of gas that needs to be reduced; experts suggested it will be more than 170 million metric tons of gases.

That is more than all California cars combined produce now.

STATE OF OKLAHOMA

1st Session of the 48th Legislature (2001)

HOUSE BILL HB1192 By: Pope (Clay)

AS INTRODUCED

An Act relating to environment and natural resources; creating the Oklahoma Carbon Sequestration Enhancement Act; specifying legislative findings and intent; creating the Carbon Sequestration Advisory Committee; providing for membership and appointment; specifying compensation; providing for space; providing for powers and duties; requiring submission of a written report; specifying contents; requiring the Oklahoma Conservation Commission to assess agricultural lands in Oklahoma for past and future carbon sequestration; requiring publication of report; authorizing certain contracts and application of and acceptance of gifts; creating the Carbon Sequestration Assessment Cash Fund; providing for expenditures and deposits; providing for codification; and declaring an emergency.

BE IT ENACTED BY THE PEOPLE OF THE STATE OF OKLAHOMA:

SECTION 1. NEW LAW A new section of law to be codified in the Oklahoma Statutes as Section 3-4-101 of Title 27A, unless there is created a duplication in numbering, reads as follows:

A. This act shall be known and may be cited as the "Oklahoma Carbon Sequestration Enhancement Act".

Canadian Consortium of Energy Companies Buys Greenhouse Gas Reductions from Ontario Landfill Operator Vancouver, September 21, 2004

The Greenhouse Emissions Management Consortium (GEMCo) is maintaining its position as a leading buyer of greenhouse gas (GHG) emission reductions credits (ERCs) with its recent payment for 63,750 tonnes (in carbon dioxide, CO₂, equivalents) to integrated Gas Recovery Systems (IGRS) of Niagara Falls, Ontario. IGRS's 2004 GHG ERS Claim is the first of a series of annual claims that GEMCo will pay for under a firm forward agreement that requires IGRS to reduce GHG emissions at ehri Ontario operations by a total of 850,000 tCO₂ over a 10-year term.

Emission reductions are created when IGRS collects methane-producing landfill gas (LFG) that would normally be released to the atmosphere from the landfill site, processes and compresses the LFG, and then moves it 3 kilometers by pipeline to a paper mill.

Walt Graziani, President of IGRS, welcomed the use of emission reduction funding to accelerate reduction projects.

Beijing to Host Carbon Market

By Wange Zhuoqiong (China Daily)

February 7, 2007

Beijing is expected to become the home of Asia's first carbon-trading exchange this summer, giving China a presence in the multi-billion-dollar global carbon market. The three-year, \$1.7 million project to develop the carbon-trading market in China will feature technical service centers in 12 provinces. It will also develop pilot schemes for carbon-trading and capacity-building in the provinces and provide policy input for the expansion of the carbon market.

Carbon trading is widely seen as a cost-effective way of reducing greenhouse gas emissions. Other exchanges have been set up in London and Chicago.

China is currently the source of about a third of the carbon traded on the global market through the Kyoto Protocol's Clean Development Mechanism (CDM).

500 CDMs are now registered worldwide.

States Reach Agreement on Proposed Rules for the Nation's First Cap-and-Trade Program to Address Climate Change

August 15, 2006

The seven Northeast state participating in the Regional Greenhouse Gas Initiative, a multi-state program to reduce harmful climate-changing emissions from power plants, today released a models et of regulations to be proposed in each state to implement the program. The RGGI States also released an amendment to their December 2005 Memorandum of Understanding.

Under the Regional Greenhouse Gas Initiative (RGGI), seven Northeast states agreed to propose a cap-and-trade program to reduce carbon dioxide (CO2) emissions, which are a major contributor to global warming. This is the first mandatory cap-and-trade program for CO2 emissions in U.S. history. The state participating in RGGI are: Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York and Vermont. The State of Maryland recently adopted legislation requiring Maryland to join RGGI by June 2007

GEMCo Members Agree to Buy Emission Reduction Credits from Iowa Farmers (Announced at the Emissions Marketing Association meeting in Washington, DC) October 19, 1999.

GEMCo, a consortium of Canadian energy companies focusing on market-based ways of reducing greenhouse gas emissions, today announced an agreement with IGF Insurance Company, the fourth largest crop insurer in the US, to buy up to 2.8 million metric tons of carbon dioxide equivalent emission reduction credits. Seven consortium members will participate in the agreement which will run through 2012.

The agreement is a first of its kind in that it applies to a broad spectrum of agricultural sources of carbon dioxide emission reduction credits, or CERCs. IGF intended to solicit the CERCs from eligible farmer/landowner participants through its network of crop insurance agents, initially from Iowa, and ultimately nationwide.

CERCs are generated by documenting activities that cause measurable incremental increases in soil carbon and/or actual reduction in carbon dioxide, methane or other greenhouse gas emissions. CERCs may eventually be surrendered by title holders to environmental regulators...

bizjournals.com

Duke CEO urges federal emissions legislation

Monday January 22, 4:07 pm ET

Duke Energy Corp.'s Jim Rogers has joined a group of chief executives and environmental leaders in calling for government action to control carbon emissions, saying the science of climate change is clear.

"We know enough to act now," he said in an opening speech for the U.S. Climate Action Partnership on Monday. "We must act now."

The partnership, involving major corporations and four environmental groups, began meeting this summer. It has come up with what it calls specific proposals for controlling greenhouse gases.

On Monday, it called on President Bush and the U.S. Congress to adopt legislation this year enacting carbon limits. It also called for incentives such as instituting a cap-and-trade system to create a market for cleaner technologies.

Challenged during questions following the presentation, Rogers defended Duke's plans to build an enormous new coal-generation plant in North Carolina. While not naming the \$3 billion Cliffside plant, he described it as a highly efficient plant. And he said the plant would be built to be able to add new technology, once it is available, to capture and store the carbon released by burning coal.

He and other executives -- including Richard Fuld of Lehman Brothers, Jeffrey Immelt of General Electric Co. and Peter Darbee of PG&E Corp. -- called for utilities to use more renewable energy and encourage efficiency and conservation.

Top CEOs Address Climate Change

Source: SocialFunds.com

- *A collaboration between ten major U.S. companies and four environmental organizations calls on the Federal government to quickly enact strong legislation to reduce greenhouse emissions, Anne Moore Odell writes on SocialFunds.com.*

On Monday January 22, 2007, the U.S. Climate Action Partnership (USCAP) released a report that urges the Federal government to create legislation to cut gas emissions that lead to the warming of the atmosphere. The report was timed to appear right before President Bush's 2007 State of the Union address the following day. USCAP's statements clearly outline the steps they think are necessary for combating climate change.

USCAP's strength lies in its membership, which includes a small, but influential group of U.S. companies and environmental organizations. Its corporate members include Alcoa, BP America, Caterpillar, Duke Energy, DuPont, FPL Group, General Electric, Lehman Brothers, PG&E, and PNM Resources. Four non-governmental organizations joined with these business leaders: Environmental Defense, Natural Resources Defense Council, Pew Center on Global Climate Change, and World Resources Institute.

http://www.greenbiz.com/news/reviews_third.cfm?NewsID=34564, accessed 03.12.07

SUMMARY

Accepting the original assumptions, what are the policy risks of the cap and trade option? Why taxes?

- 1. We have no experience to guide us. SO₂ is a cake walk by comparison. Excellent data base existed for SO₂. Small number of power plants. Not nationwide. CO₂ is global. The institution ultimately will mesh with global markets. We have no idea about constraints, where to set the quantity..., and its effect on consumers.**
- 2. The EU effort was a disaster. Initial constraint was not a constraint. Great volatility in price of trades. Price of energy went up. System viewed as temporary. Long term investment is chilled.**
- 3. Taxes can be modulated, and tax revenues can be used to offset burdensome taxes on income and capital gains.**

RECOMMENDATION

- 1. Encourage experiments.**
- 2. Watch development of institutions worldwide.**
- 3. Establish base records, registry and contracting.**
- 4. Reduce capital gains taxes to zero to facilitate new capital investment.**
- 5. Work to facilitate movement of people from areas likely to be harmed by climate change.**
- 6. Use funds that might go toward Kyoto type costs to assist human populations that face disease, lack of water, and lack of food.**

