

Final Transcript
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TEASER

DAVID SCHOUMACHER: There's an old saying that the best things in life are free. Things like fresh air, sunshine, clean water. A company in Minnesota found that ain't necessarily so. What happened? Who should pay the cost of cleaning up the environment? And what happened when the Environmental Protection Agency ordered Los Angeles to clean up its smog no matter what the cost?

Global warming. Will it be a disaster? Should we spend billions to mitigate climate change or wait and see what really happens? Since the late 1960's, there has been a consensus among Americans that the air we breathe and the water we drink should meet certain standards of cleanliness. But, like most things of value, those standards come with a price tag attached.

Pollution: How much is a clean environment worth? Economic analyst Richard Gill and I will examine that question on this edition of Economics USA. I'm David Schoumacher.

(MUSIC PLAYS -- OPENING TITLES)

(POLLUTION: How Much Is A Clean Environment Worth? appears on screen.)

PART I

DAVID SCHOUMACHER:

The United States has always been blessed with vast natural resources, including some things we used to take for granted... like fresh water and clean, healthy air... but not any longer. In the past few decades we've learned that industrial activity carries with it a substantial environmental price tag. If we want fresher water and healthier air, somebody is going to have to pay for it, as we found in the tiny town of Silver Bay on the shores of Lake Superior.

Thirty years ago this part of Minnesota was practically a wilderness area. Then, shortly after World War II, some far-sighted entrepreneurs decided there was money to be made in a rock called taconite, found here in abundance near the famous Mesabi Iron Range. They called their venture the Reserve Mining Company. Ruth Erickson remembers the early days... before the trouble started.

ERICKSON:

"Anybody that came here to work was in bad shape economically, and Reserve built the town. They furnished us with our medical facilities, fire, ambulance, everything. I can't say enough good things about Reserve Mining."

DAVID SCHOUMACHER:

Taconite contains iron, not a lot, but enough to make a profit if you know how to crush it and separate the grains of iron from the rest of the rock, and Reserve knew how. But the refining process requires vast amounts of water and produces two tons of sandy residue called "tailings" for every ton of iron pellets. That creates a problem. Those "tailings" have to be put somewhere. For years the cheapest place to put them was the lake. That upset a lot of people like environmentalist, Alden Lind.

LIND:

"The Save Lake Superior Association started in late '69 and came about largely because of concerns of people who lived in the Silver Bay vicinity about the impact of the "tailings" disposal on Lake Superior."

DAVID SCHOUMACHER:

It wasn't long before a new federal agency got involved. Dr. Phillip Cook remembers...

COOK:

"I think there was kind of a "gut reaction" of people living in the area who were more environmentally concerned that something that big was a problem. It

didn't really, at first, have any specific concerns other than it looked like the lake was getting cloudy and there was obvious turbidity being caused in the immediate vicinity of the discharge. But, you're right, there was a feeling that this was a lot of material going in the lake."

DAVID SCHOUMACHER:

Uneasiness soon turned to fear. In 1973, word got out that the "tailings" might contain asbestos, a known carcinogen. Within a few weeks, much of the population of Duluth, 60 miles to the West, had stopped drinking tap water. But was there a problem... or wasn't there?

COOK:

"We knew we had "tailings" in the water. We knew that an amphibole material was an important fraction of these "tailings" particles. We knew that some amphibole minerals, particularly the grunerite, which was in the "tailings," can occur as asbestos and that is associated with human health hazards, particularly for cancer. What we didn't know was whether these particular amphibole particles in the water occurred as fibers. So we took samples of the water and looked at it by electron microscopy and saw that indeed some of the amphibole particles were indeed fiber shaped. That was kind of a shocking revelation to us."

LIND:

"Oh, I think it alarmed an awful lot of people. I think the first response was for an awful lot of people to get very active very quickly. There was a petition, I think, with something like 10,000 names presented to the Mayor of Duluth, insisting that something be done about this.

DAVID SCHOUMACHER:

Duluth responded by building a new filtration system. But that didn't stop the protests.

PROTESTOR:

"And we are too... we're their neighbors. We all drink out of the same lake. It's all our country if, I don't know, people have to draw the line someplace on what kind of environment they want to live in."

DAVID SCHOUMACHER:

That line was finally drawn in Federal court. For the next four years, claim followed counter-claim.

ENVIRONMENTALIST:

"The answer is definitely YES, it will delay it."

DAVID SCHOUMACHER:

Hearing followed hearing. Environmentalists produced expert witnesses who said the "tailings" were dangerous. Reserve produced experts who said they were not... and hinted that they might be forced to shutdown the plant if denied access to the lake. Silver Bay residents saw an economic catastrophe in the making.

ERICKSON:

"On industry town... Everything is dependent upon Reserve Mining operating..."

DAVID SCHOUMACHER:

In 1977, the Federal court handed down its decision. After years of legal maneuvering by all parties, Reserve reluctantly agreed to keep the Silver Bay plant open and to build a "tailings" disposal site seven miles inland from the lake at a cost of nearly \$400,000,000.

INTERVIEWEE:

"I really have nothing to say at this time."

DAVID SCHOUMACHER:

Today, the water in these parts is certainly cleaner than it used to be, and probably safer. And Reserve is still in the taconite processing business, with all the economic benefits it brings to Silver Bay. But the solution to the problem didn't come cheap, and it might not have come at all, if the courts hadn't intervened.

The results of the Reserve Mining case show the society was no longer willing to take a vast natural resource such as Lake Superior for granted, and it also showed that the courts were now willing to force business to spend large amounts of money, in this instance hundreds of millions of dollars, to clean up their act. The case also illustrated the way the American economy in the past had permitted business to overlook the social and environmental cost of industrial enterprise, costs which don't often show up in a firm's bottom line. We asked economic analyst Richard Gill to explain why the government should get involved in cases such as this.

(MUSIC PLAYS)

(COMMENT & ANALYSIS I; ECONOMICS USA LOGO appears on screen)

RICHARD GILL:

The government has to get involved because a market economy can't handle them. Even the most devout proponents of a private "free enterprise" system recognize the need for public intervention in situations like that illustrated by the Reserve Mining case.

Technically speaking, the problem is what economists call "negative externalities" of production. This is rather fancy jargon, but the central idea is clear. When a business firm produces iron, or any other product, it has certain costs: wages, rent for land, and so on, that it has to pay for. But it also may impose other costs on society, in this case the pollution of Lake Superior for which it does not have to pay.

These costs are "external" to the firm and, indeed, "external" to the supply-and-demand price system generally. This is important because usually economists are quite impressed by the efficiency of the price system. When we draw supply and demand curves for a particular product, we are not only determining the price of the product here and the quantity of the product produced here, but we are also making a statement about costs and benefits. Roughly speaking, this demand curve shows how much we consumers want the product, and this supply curve tells us how much it costs the society in terms of scarce resources to produce the product. At the intersection of the two curves, the market exactly balances the added satisfaction we get from the product with the added cost of producing it. Utopia!

But hardly Utopia when we take a swim in a befouled lake or, as one songwriter put it, when we "brush our teeth with industrial sludge!" These external costs change the whole picture. For from the society's point of view, the real costs of producing this product are not reflected in this private supply curve but by another curve up here or even way up here. And the problem with this new curve is that private business firms don't have to take it into account. They don't have to pay these additional costs.

And this is why the government has to step in. Though how it should step in is a slightly tricky matter!

PART II

Audio Clip from demonstration chanting "ERA, ERA, ERA....":

DAVID SCHOUMACHER:

1970 marked a turning point in this country's battle against pollution. People were upset about America's deteriorating environment. They let our lawmakers

know how they felt on April 22, Earth Day. Congress quickly passed a series of amendments to the Clean Air Act, which established higher air quality standards and faster timetables to reach them. They also created an agency to enforce the new law.

NIXON:

And in swearing in Mr. Ruckelshaus, I know the Attorney General is very sorry to lose him, but the nation is very fortunate to get him as the first administrator of this vitally important agency."

RUCKELSHAUS:

"I am very honored, Mr. President. I promise to do the best job that I possibly can."

DAVID SCHOUMACHER:

Was the feeling back then that you could do a 100% job of cleaning up the environment?

RUCKELSHAUS:

"Yes, and a lot of that is reflected in the laws that are still on the books. There was a sense that we knew what the bad pollutants were, we knew how to measure them, we knew what the health and environmental effects of those pollutants were, we had technology that was reasonably available at a reasonable cost to essentially eliminate that pollution. That was, all of that were assumptions written into the law at the time and many of those assumptions are still there, and by the way, they were all wrong."

DAVID SCHOUMACHER:

Let's take the Clean Air Act, the intent to eliminate smog. How was that supposed to work?

RUCKELSHAUS:

"Well, the elements of smog are nitrogen oxide and hydrocarbons that interact in sunlight. They combine in sunlight and cause photochemical oxidants, or... smog. Now, those two pollutants, hydrocarbons and nitrogen oxides, come primarily in places like Los Angeles from mobile sources: automobiles."

DAVID SCHOUMACHER:

But how was the EPA supposed to eliminate smog from a city where the "car is king?" County Supervisor, Kenneth Hahn, had been wrestling with the problem for years.

HAHN:

"Well, the people in Los Angeles love cars. You grow up liking cars. You go over to a high school, you'll see more cars in the parking lot than you do bicycles. Los Angeles County has got 5 million trucks, buses, automobiles, motorcycles... motor vehicles polluting the air. We're in the "big garage." No wonder on certain days people say the smog is harmful to their health. It is."

DAVID SCHOUMACHER:

A neighboring community turned around and sued Los Angeles saying, 'you're dumping on us.' What was that all about?

RUCKELSHAUS:

"It was Riverside, just north of Los Angeles. This was back in the early 70's. The parents of the children who couldn't play football in the afternoon because the smog levels were so high that they were ordered indoors finally got agitated enough that they sued the city. They sued the Federal Government. I was ordered by a court out there to impose, as the Clean Air Act told me to, a transportation control strategy. They said the automobile controls are not going to make it by 1975. The law says you have to insure that these standards are met by that period and if you can't do it by imposing the controls on the automobile, then impose transportation controls. We couldn't figure out what to do. The court threatened to hold me in contempt. It sort of boiled down to an issue of their mobility vs. my freedom so I flew out there and announced that 80% of the

cars were going to have to get off the road. I am here in Los Angeles because, in the implementation of the Clean Air Act, Los Angeles is really in a unique position."

DAVID SCHOUMACHER:

The EPA's plan wasn't greeted with much enthusiasm.

HAHN:

"It would have been a federal disaster. It would be as bad as a hurricane or a flood or an earthquake to tell the people they can't use their automobiles to go to work or go to school or go to church. It's crazy."

DAVID SCHOUMACHER:

The Chamber of Commerce out there calculated that 400,000 jobs would be lost and there'd be billions of dollars of adverse effect to the economy. Had EPA made any kind of calculation on that?

RUCKELSHAUS:

"Out of the Clean Air Act we were not allowed to take that into account in announcing a transportation or land-use control that would achieve the standard. Removing that number of cars would have just devastated it economically. The air would have been cleaner, but there wouldn't have been, people wouldn't have been able to get to hospitals and other things."

DAVID SCHOUMACHER:

But what was the philosophy behind the law that said 'we don't want to count costs.' I mean, how did we get to that point?

RUCKELSHAUS:

"The philosophy is just as I stated at the outset, that we thought we knew what the bad pollutants were, that we knew how to measure them, we knew the level at which health and environmental effects occurred. We could get them below that level with a margin of safety. And we had the technology that could achieve

that at a reasonable cost. All those assumptions are wrong. And if those assumptions are wrong, then the law that embodies those assumptions is bound to drive us to an irrational result and it's just particularly obvious in a case like Los Angeles."

DAVID SCHOUMACHER:

As it turned out, the law, which drove us to an irrational result, was amended. Los Angeles was given a waiver, which allowed the city more time to clean up the air and lowered the standards it was expected to meet. Today, the city of the angels drives on and on. The air isn't as clean as it would have been with 80% of the cars off the road, but neither is Los Angeles an economic basket case.

The story of Los Angeles vs. smog was only one of many conflicts that developed during the 1970's. Cleaning up the environment, no matter how beneficial, wasn't going to be as easy or as cheap as we first thought. But does that mean we shouldn't try to clean up pollution? What are the economic principles involved? We asked economic analyst, Richard Gill.

(MUSIC PLAYS -- COMMENT & ANALYSIS II)

Economics USA LOGO

RICHARD GILL:

Well, one-principle economists don't think too highly of what we might call the "principle of perfection." It's a natural approach. We have these harmful external effects. Let's get rid of them, no matter what the cost. The 1973 plan for Los Angeles was a little like this: Smog is harmful to your health. Let's get rid of it, virtually outlaw driving for six months of the year. There are countless examples of this approach. Nuclear generating plants involve certain hazards. Let's ban them completely. Alcohol leads to driving fatalities. Let's bring back prohibition!

The trouble with this approach is not only that it usually doesn't work. The Los Angeles plan had to be modified, but that it's bad economics. In our society,

clean air has become a product. It brings us certain benefits but it also has certain costs of production, and what economists want to do is to measure these benefits against these costs, taking, of course, all external effects into account.

These look like ordinary supply and demand curves for our product, "cleaner air," measured by some reduction of particulate matter, noxious fumes and the like. But these curves do take external effects into account and are curves of social benefit and social costs. More accurately marginal social benefit (MSB) and marginal social cost (MSC). What these curves tell us is that as we produce cleaner and cleaner air, moving towards the right, the added social benefits begin to decline and the added social costs begin to rise.

This makes sense intuitively, I think. Reducing the first and worst air-pollution brings us a lot of social benefit: getting extremely clean air is somewhat less important. Also, as the Los Angeles case shows, producing somewhat cleaner air is not too expensive, while producing very very clean air would have been disastrously costly. So what the economist says is apparently fairly simple: keep on cleaning up the air until the added, the marginal social costs begin to exceed the added, the marginal social benefits... until the intersection of these two curves.

I say, "apparently simple," because measuring these social costs and benefits is not always that easy.

PART III

From the 1990's and into the new millennium we saw record floods, record high temperatures, more crop failures, longer droughts, melting polar icecaps, rising seas. Most climatologists, though certainly not all, agree that the rising temperatures of the past several decades, a phenomenon known as global warming, are due to human activity. But there's more general agreement that the social and economic ramifications of trying to do something about the

problem are enormous. Both politicians and economists hotly debate the cost versus the benefits of how much to do and when to do it.

WILLIAM NORDHAUS:

To solve global warming or to slow it is likely to be very costly. And we're talking about not just millions of dollars, but billions of dollars and maybe tens of billion dollars every year that we would have to spend to make a significant dent on the trajectory of climate over the years to come.

STUART EIZENSTAT:

But the cost of doing nothing are potentially catastrophic because the changes in the climate which will occur are generally irreversible.

DAVID SCHOUMACHER: December 1997 at the environmental summit in Kyoto, Japan, the World's developed countries pledged to cut their greenhouse gas emissions. Stuart Eizenstat was chief U.S. negotiator.

STUART EIZENSTAT: The major agreements that we reached were for the developed countries to take specific targets on average a reduction of about 5% from 1990 levels to be reached in the year 2001.

DAVID SCHOUMACHER: In January of 2001 a new President assumed power and took another look at the Kyoto agreement. President Bush decided it would hurt the U.S. economy and announced he would not sign the accord. The decision by the United States not to participate in the Kyoto accords touched off an uproar in European capitols. Volatile protestors gathered outside the European Union summit meeting in Gotenberg, Sweden in June of 2001 where President Bush answered questions from the European press.

BUSH:

We didn't feel like the Kyoto treaty was well balanced. It didn't include developing nations. The goals were not realistic. However, that doesn't mean we cannot continue to work together, and will work together, on reducing greenhouse gases.

BO KJELLEN

One can never forget that the United States is responsible for 25 percent of the World's emissions of greenhouse gases.

DAVID SCHOUMACHER:

Natural scientists have pondered questions associated with greenhouse warming for a century. But the political, institutional, and economic issues have only begun to be considered. Professor William Nordhaus of Yale University developed the first model of the economics of climate change a decade ago. Now there are dozens of modeling groups worldwide. Economic computer models permit governments to assess cost versus benefits of the Kyoto protocol and alternative approaches.

WILLIAM NORDHAUS;

We want to know what the relationship is between, historically, between the economy and the forces that are leading to climate change. And then in the future we want to get our best best guess as to what's going to happen to the economy and to the climate and to the impacts of that on human societies over the decades to come. It's as simple as that. One of the conclusions of these analyses is and was that the Kyoto protocol was neither going to make a big difference nor very efficient.

KALLEE KREIDER:

How do you put a cost on new Malarial outbreaks that are as a result of mosquitoes having a larger range that they can live in because of changes in temperature. Or the fact that mosquitoes bite more when temperatures are one to two degrees higher. How do you put a cost on the relocation of millions of people in Bangladesh that live at or below sea level?

WILLIAM NORDHAUS:

It doesn't make sense to just completely overturn your entire economy. Because this is just one of the problems—just one of the threats we face.

STUART EIZENSTAT:

The icecaps which are going to melt aren't going to somehow reformulate. The sea levels, which rise, aren't going to suddenly recede. So that the damages which are likely to occur are already on a trajectory. What we need to do is to interrupt that trajectory before it becomes too late. So, sitting back and doing nothing is not a prescription for reducing cost. It's a prescription for having catastrophic economic as well as social and environmental impacts.

DAVID SCHOUMACHER: As the debate continues scientists are searching for more accurate ways to forecast climate change and pinpoint its causes. This in turn will allow economists to refine their assessment.

In November of 2001 the European Union along with Japan and Canada ratified the Kyoto Accords but the United States pulled back. Still it is expected that the differences eventually will be overcome and the entire international community will work together. For more on cost versus benefit as a policy tool, economic analyst Nariman Behravesht:

COMMENT AND ANALYSIS:

NARIMAN BEHRAVESH:

Unfortunately the debate about global warming has generated more heat than light. Environmental groups assert that global warming is an irreversible disaster that overwhelms all other problems that modern society faces.

Opposing groups assert that the earth has been on a warming trend for the better part of the last 500 years and that man-made emissions have not contributed much to this trend.

Environmental groups minimize the cost of implementing the Kyoto Accords. Many business groups are concerned that such measures would hurt growth and raise the unemployment rates. The key economic lesson here is that resources are indeed limited. This means that we need to figure out cost effective ways of dealing with global warming as well as all the other problems facing our global society including but not limited to poverty, disease, education, and national security.

The good news is that we have made progress over the last couple of decades in improving the environment. Few people would disagree that further improvements are needed. However, the benefits of these improvements need to be balanced against their costs. One challenge that both the supporters and opponents of Kyoto Accords is to come up with better and less exaggerated estimates of the costs and benefits.

CLOSING STAND-UP:

DAVID SCHOUMACHER:

America didn't get dirty overnight. And it's not going to be totally pure tomorrow. But thanks to citizen protests and government response, the country's environment is cleaner and healthier than it was back in 1970 when we first celebrated Earth Day. And now the challenges are even greater. But along the way that we have learned that if we want a cleaner environment the way to get it may not to take every last bit of pollution out of the air, the water, and the earth. But instead, to look for levels of cleanup that provide adequate safety at a price we can afford. This is David Schoumacher.

MUSIC PLAYS – CLOSING CREDITS