ECONOMICS U$A:

21st Century Edition

PROGRAM #8

POLLUTION AND THE ENVIRONMENT:
HOW MUCH IS A CLEAN ENVIRONMENT WORTH?

AIRSCRIPT

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Annenberg Learner (Logo and Music)

NARRATOR: FUNDING FOR THIS PROGRAM IS PROVIDED BY ANNENBERG LEARNER

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? In 2009, Congress tried to limit global warming with a new approach. Cap and Trade. - Could that work?

DAVID SCHOUMACHER: Ever since the late 1960s, there has been a consensus among Americans that the air we breathe and the water we drink should meet certain standards. And more recently, economists and politicians have been debating how to deal with global warming. How much is a clean environment worth? Economic analysts Richard Gill, Nariman Behravesh and I will examine that question on this 21st-Century edition of Economics U$A. I'm David Schoumacher.

(MUSIC PLAYS -– OPENING TITLES)

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.

RUTH 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.

ALDEN 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…

PHILIP 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?

PHILIP 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 it 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."

ALDEN 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 counterclaim.

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

DAVID SCHOUMACHER: Hearing followed hearing.

WITNESS: "No."

DAVID SCHOUMACHER: 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 shut down the plant if denied access to the lake. Silver Bay residents saw an economic catastrophe in the making.

RUTH ERICKSON: "One 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 sight 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 that 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; ECONOMICS U$A 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

CROWD CHANTING: “Save our earth! Save our earth!”

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 laws.

RICHARD NIXON:
And in swearing in Mr. Ruckelshaus, I know that 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."

WILLIAM 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 percent job of cleaning up the environment?"

WILLIAM 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?"

WILLIAM 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.

KENNETH HAHN: "Well, 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?

WILLIAM 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 ensure 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 few out there and announced that 80% of the cars were going to have to get off the road."

WILLIAM RUCKELSHAUS: " I am here in Los Angeles because, in the implementation of the Clean Air Act, Los Angeles is really in a unique position. There are other cities…"

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

KENNETH 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?

WILLIAM 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?

WILLIAM 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 that 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 1970s.

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) Economics U$A LOGO

RICHARD GILL: Well, one principle economists don't think too highly of is 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

DAVID SCHOUMACHER: Most scientists agree that our planet is warming due to greenhouse gas emissions like carbon dioxide and sulfur dioxide. Weather patterns are more unpredictable as a result of this climate change. But what, if anything, could be done about the problem? That provoked a heated debate.

ERIC POOLEY: "You had people like the National Association of Manufacturers and the U.S. Chamber of Commerce saying 'if we act on climate change, if we reduce emissions, we're going to lose those 20th-century jobs.' And then you had another group, the U.S. Climate Action Partnership, saying, 'if we don't act we're going to lose 21st-century jobs.' "

DAVID SCHOUMACHER: Passage of comprehensive energy legislation that employed a cap and trade system seemed to be the right course to reduce carbon dioxide emissions for many.

A cap and trade system was first used, with great success, to reduce sulfur dioxide emissions under the rules of the Clean Air Act of 1990. But would a cap and trade system reduce carbon emissions without destabilizing utilities, manufacturing centers, and the American economy? And who would support it?

TOM WILLIAMS: There was a hard cap on emissions. The environmental groups wanted that, we wanted that. That's how the cap and trade system works. You have a hard cap that's ratcheted down over time, and ultimately, by 2050, you will reduce your greenhouse gas emissions by 80 percent.

DAVID SCHOUMACHER: And there were other advantages as well.

ERIC POOLEY: "I've got to reduce my emissions or I've got to buy more allowances on the market. Now if I can reduce those emissions myself and I don't need all those permits, I can sell them, because they have an economic value."

DAVID SCHOUMACHER: Cap and trade would give the federal government the duty of determining a limit, or cap, on allowable amounts of greenhouse gas emissions for utility companies and heavy manufacturing centers. How would that suit the needs of energy companies?

TOM WILLIAMS: "Power plants are typically built for a 30-50 year time horizon. So you really need to know what the rules are long term to succeed in that environment."

BARACK OBAMA: "…so help me, God…

DAVID SCHOUMACHER: When an energy-bill friendly President took office in 2009, the timing seemed right.

DAVID SCHOUMACHER: In 2009, The American Clean Energy and Security Act, comprehensive energy legislation based on a cap and trade blueprint, was floated by Congressman Henry Waxman of California and Congressman Ed Markey of Massachusetts.

ERIC POOLEY: "And they were very, very smart because they went to the center. They went to where the compromise had already been fashioned between industry and the environmental groups. And they used that as the basis of their bill."

DAVID SCHOUMACHER: Momentum grew for passage of the bill, as did its complexity. It was rushed to the floor of the House of Representatives for debate as supporters scrambled to secure the votes needed for a majority.

HENRY WAXMAN: "Today we're taking a decisive and historic action to promote America's energy security."

JOHN DINGELL: "This bill gives certainty to American industry. Without this certainty, new expansion and new investment in this difficult time is not going to occur…"

RICK BOUCHER : "It achieves broad reductions in greenhouse gases. It enhances America's energy security, and, by placing a price on carbon dioxide emissions, will unleash investments in clean energy technologies that will create millions of new American jobs."

PETE SESSIONS: "The Democrats' answer to the worst recession in decades is a national energy tax, thinly disguised as a climate change bill."

JOHN BOEHNER: "What we have on the floor today is typical big government. And the fight that we have between the two sides of the aisle really boils down to one word. It boils down to 'freedom,' the freedom to allow the American people to live their lives without all of these extra taxes and all of this bureaucracy."

TED POE: "We're going to close America's energy with this bill. The CBO and the EPA says there's not going to be much difference in the climate if we pass this deal. Bummer. It's not even going to work."

ED PERLMUTTER: "My friend Mr. Poe from Texas says 'just vote no.' Well, that's the party of the status quo. 'Just vote no, we like the status quo.' It is time for a change, ladies and gentlemen."

FLOOR SPEAKER: "Yeas are 219. Nays are 212. The Bill is passed."

ERIC POOLEY: "It was the first time that either the House or the Senate had passed a serious piece of climate legislation. It was a historic moment."

DAVID SCHOUMACHER: The bill moved to the Senate. And complicating matters further, the unemployment rate was high and the economy was still struggling to recover from the worst recession in seventy years. A Republican-led filibuster ensued.

EDWARD MARKEY: "And, ultimately, the Republican leadership then used the sixty-vote rule in the Senate as a way of engaging in obdurate, obstinate opposition to this legislation passing. And time was their friend. "

DAVID SCHOUMACHER: Energy legislation passed out of committee in the Senate but never reached the floor for debate. Done in by politics, energy legislation died.

We'll never know the effect this version of carbon dioxide reduction legislation would have had on utility companies and heavy manufacturing centers or whether it would have been a boon or a boondoggle for the American economy. We asked economic analyst Nariman Bahrevesh to comment.

(MUSIC PLAYS -- COMMENT & ANALYSIS) Economics U$A LOGO

NARIMAN BEHRAVESH: Economists like cap and trade systems because they use the market place to determine the optimum balance between the costs and benefits of cutting pollution. The government sets the hard target or cap on pollution by issuing a limited

number of permits. These permits are then auctioned off. The more emissions an industry has, the higher its demand for permits and the higher the price it is willing to pay—up to a point. That price point is a pretty good indicator of where the costs and benefits of pollution abatement balance out. A well-designed cap and trade system on greenhouse emissions is the equivalent of a tax on carbon. Most economists believe that taxes on consumption–and, especially, on pollution–are better than taxes on income. In retrospect, cap-and-trade in the U.S. might have been more politically acceptable if it had been accompanied by equivalent cuts in income, corporate, or payroll taxes.

DAVID SCHOUMACHER: America didn't get dirty overnight. And it's not going to be totally pure tomorrow. But thanks to public concern and government response, the country's environment is cleaner and healthier than it was back in 1970 when we first celebrated Earth Day. Today, given the warnings about climate change, the challenges are even greater. We have learned that if we want a cleaner world the way to get it may not be to cleanup every last bit of the environment, but instead to look for levels of change that provide adequate safety at a price we can afford. For this 21st-Century Edition of Economics U$A, I'm David Schoumacher.

(MUSIC PLAYS –OVER CREDITS)

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