

PART III -- POLITICAL ECONOMY OF SINKS

CHAPTER 8 -- DOMESTIC POLITICS OF CARBON SEQUESTRATION

The role sinks play in future climate change policy will depend on more than just economic considerations. The views of political players will help shape future sink policy. Sink policies will need to be politically feasible as well as economically and socially acceptable. This chapter describes some of the key political considerations that will affect the future of carbon sequestration in overall climate change policy.

The Kyoto Protocol is a working document that has effectively polarized many groups. As is the case with many controversial environmental policies, it is a test of power, influence, money, and research which determines the outcome. Currently, government officials, NGOs, nonprofits, and environmental and industrial coalitions are struggling to mold U.S. climate change policy to fit their respective political and economic agendas. This struggle has now begun to focus on carbon sequestration.

The Kyoto Protocol had a very clear mission—establish an international binding agreement between nations to reduce their emissions of greenhouse gases (GHGs). While the details were vague, the intent was a comprehensive enforceable international effort to reduce GHGs. Initially, most American industries opposed the Kyoto Protocol. They saw it as an agreement that would curtail their energy production or consumption, thereby restricting their growth while giving developing countries a significant edge in global markets. On the other side, many environmentalists touted Kyoto as a step in the right direction. They praised the Protocol for finally addressing the issue of global warming and offering a solution that would punish the responsible parties.

After their initial claims, the affected parties began to examine the Kyoto Protocol's terms more carefully. Many eyes began to focus on Article 3, sections 1, 3, 4, and 7—all of which pertain to sinks. In very vague and noncommittal terms, sinks were to be allowed in a limited fashion as an acceptable method to reduce CO₂ emissions. Sinks seemed to offer an alternative to the potentially painful proposition of major changes to U.S. energy practices. The applicability and practicality of this alternative was unclear. Because of that ambiguity, the politics behind the issue of sinks began to escalate. The final answers to questions like: What is considered a sink? How much CO₂ do different sinks sequester? How would sink projects be monitored? Can sinks be used in conjunction with other mitigation strategies (JI, CDM, trading)? could have a major impact on the acceptance or denial of any climate change action plan that the United States considers.

Since December 1997, many different groups have investigated the prospects of sinks. This paper examines the response of the U.S. environmental, industrial/business, and congressional communities to the issue of sinks as a method of CO₂ emission reduction. In most cases, the major players in the formulation of sink policy assume that the U.S. government will adopt some sort of climate change policy, though not necessarily the Kyoto Protocol. With that in mind, most of the players involved have formulated positions on sinks, positions which are usually extensions of their philosophical and/or economic positions. For the most part, the new battlelines drawn over the sink issue do not resemble the original lines created by the initial reactions to Kyoto.

I. Environmental Groups

As sinks are defined thus far in the Kyoto Protocol, only those projects that fall under the categories of reforestation, afforestation, and deforestation are accepted. On the surface, it seems that most environmental groups would embrace measures that focus on reversing deforestation, promoting new forest growth, and replenishing marginal lands with new tracts of forest. However, environmental groups have taken a wide range of views on how sinks should be used, and this has led to a fragmented view towards sinks.

Environmental Supporters -- Environmental supporters of sinks argue that sinks are a credible policy tool that can accomplish two objectives. In their view, sinks, specifically those which are forestry projects, are significant mitigators of CO₂ emissions and thus help avert global warming. Sinks provide other co-benefits, such as reversing deforestation, improving poor or marginal land quality, preventing erosion and improving water quality, creating wildlife habitat, and promoting conservation. Following this general line of thinking are three main players in the sinks issue.

The Nature Conservancy (TNC) -- "We are actively supportive of sinks," said Tia Nelson, deputy director of The Nature Conservancy (1999). TNC has taken both a political and hands-on approach to promote forest sinks. It actively lobbies government officials to include forests in the Kyoto Protocol and is closely involved with the IPCC and COP meetings. In addition, TNC has also contributed substantially to the creation of forestry provisions in the Lazio Credit for Early Action bill and has undertaken the Rio Bravo Carbon Sequestration Project in Belize. The project purchased approximately 6,000 hectares of endangered forest, implemented a sustainable forest management policy, and is expected to sequester approximately 1 million tons of carbon. It is not surprising that the TNC actively supports sinks, since it is widely regarded as the leading U.S. conservation society. Sinks provide a way for TNC to use the climate change debate to further their preservation philosophy.

American Forests -- American Forests is the oldest U.S. nonprofit conservation organization. American Forest's "Global Releaf 2000" campaign is an attempt to improve the environment and climate by planting trees. "Planting and caring for trees is one of the most cost-effective ways to combat global climate change and should be an integral part of any comprehensive greenhouse gas reduction strategy," said Deborah Gangloff, American Forest's executive director (American Forests, 6 April 1999). The Global Releaf program targets large industries that want to have a major impact on reducing greenhouse gases and also provide other environmental co-benefits. The program's goal is to plant 20 million trees by 2000. Major contributors include two petroleum companies: Mobil (\$500,000 for 500,000 trees) and Exxon (one million trees). As with TNC, American Forests is able to use sinks to further their mission of forest preservation.

World Resources Institute (WRI) -- WRI is a nonprofit think tank that supports the coexistence of a healthy environment and a healthy economy. In keeping with their mission, WRI feels that certain types of sinks, or land use strategies, can help moderate global warming by reducing CO₂ levels. Paul Faeth, WRI's Economics Program Director, commented that WRI

does not take institutional positions, but he went on to say, "My own opinion, and I think the opinion of most people here is fairly aggressively in favor of offsets...it would be great to include cropland management in the Other Activities Section of Kyoto, Sec 3.4" (1999).

In 1988, WRI was a pioneer in evaluating and implementing forestry carbon sequestration projects. In 1989, WRI directed a sustainable forestry project in Guatemala is estimated to eventually sequester 16.3 million tons of carbon over 40 years, at a cost of \$14 million. In response to other project requests, WRI developed the Land Use and Carbon Sequestration Model (LUCS) to estimate how much carbon certain forestry projects could sequester and at what cost.

While WRI is no longer involved in the hands-on creation of sink projects, their experience has led them to several conclusions about sinks. The critical element to sequestration projects is their ability to support local sustainable development. In Faeth's view, sustainability is the key factor in a project's longevity and its ultimate ability to sequester carbon. Another conclusion is that some failures are inevitable, and there is "no reason to expect that they won't fail. The probability of them failing in the future is larger because there will be larger amounts of money and people with less experience putting them into place" (1999). In light of these conclusions, an important element to implementing sinks, especially in developing countries, will be helping people and institutions assemble sound projects, manage them, handle the money wisely, and keep the projects running. It will be a serious task, especially in those countries which historically have had accountability problems.

Environmental Opponents -- Environmental opposition towards sinks stems mainly from the belief that sinks are a way for U.S. industry and government to sidestep their respective responsibilities to reduce consumption of fossil fuels. To support this claim, sink opponents focus on scientific uncertainty surrounding sinks, including poor measuring ability, monitoring/enforcement issues, and possible negative environmental impacts as a result of an aggressive sink policy.

Ozone Action -- Ozone Action is a small nonprofit that focuses on issues surrounding climate change and ozone depletion. Ozone Action's platform on climate change is that the United States must do all it can to reduce atmospheric concentrations of GHG emissions. However, according to Kert Davies, Science Policy Director for Ozone Action, "Carbon sequestration activities should not be substituted for emission reductions" (1999). Their view is that sinks offer an easy way out for the U.S. government and industry, a way that is not a sustainable long-term solution. Ozone Action sees an emphasis on sinks by both the U.S. government and by corporate entities as "a real distraction and intentional avoidance of dealing with the problem"—the problem of fossil fuel consumption (1999). Ozone Action seems to imply that it would like to use climate change legislation as a platform to alter the character of U.S. consumption patterns. However, the inclusion of sinks as a viable offset would undermine any such consumption-altering agenda.

Ozone Action also decries the focus on forests as carbon sinks instead of as ecosystems. They contend that the preservation of the natural forest ecosystem should be the first priority, and that carbon sequestration would be only one of many co-benefits. This narrow focus on

carbon, they claim, may cause the ecological impact of sinks to be overlooked, and the unchecked planting of trees may occur at the expense of other natural communities.

Worldwatch Institute -- Worldwatch Institute is another environmental nonprofit. Their position is that the policy of sinks has gotten ahead of the science. Until there is more scientific certainty, Worldwatch proposes that sinks are little more than escapist accounting and tree planting schemes that do not result in furthering the ultimate goal of global climate stability. Ashley Mattoon, a staff researcher/author at the Worldwatch Institute, is the author of *Bogging Down in the Sinks* (Mattoon, 1998). Despite the scientific uncertainty surrounding sinks, they have been viewed as a useful and flexible carbon accounting mechanism. This role "may already have become essential for the [Kyoto] treaty's survival...the mechanism is now a critical part of selling the treaty to a Congress largely hostile to the idea of cutting emissions at all" (Mattoon, 1998). Mattoon also believes that the scientific and political issues of sinks have gotten the Kyoto Protocol away from its real objective of reducing fossil fuel emissions. She sees the United States moving towards a policy of accepting sinks as a standard policy tool to address the problem of global climate change, and this, she argues, will create a "major loophole which emits vast quantities of fossil carbon into the skies...[and] is likely to encourage types of forestry that aren't generally very good for forests" (Mattoon, 1999).

Environmental Groups That Are Cautiously Undecided -- While some environmental groups have formulated stances on the role of sinks in the global climate debate, others have chosen to withhold judgment until all pertinent facts have been established.

National Environmental Trust (NET) -- National Environmental Trust is a nonprofit environmental organization, and Dr. Bonizella Biagini is the director of its International Climate programs. According to Dr. Biagini, the negotiation on sinks has proceeded very slowly while governments have struggled to develop acceptable guidelines for their use and implementation. The United States, Canada, and Japan are pushing hard for increasing the role of sinks, while the European Union views an over-reliance on sinks as an unacceptable "quick fix" that masks the real problem of fossil fuel emissions. Dr. Biagini is following the process of the sink debate very closely for NET, and she feels that the best decision at this time is to postpone any type of policy decision/position statement until the COP6 has met and there has been time to respond to the IPCC report, due in the summer 2000 (1999). She predicts that the COP6 will accept sinks as a mitigation strategy, but she hopes sinks will have strict guidelines accompanied by even stricter enforcement.

Center for International Environmental Law (CIEL) -- CIEL is a nonprofit specializing in international environmental law. It has taken an active role in the issue of climate change, specifically with regard to the of sinks. In January 1998, CIEL hosted an educational workshop for approximately a dozen forestry groups. The workshop was an attempt to inform the forestry representatives of the implications of the proposed Kyoto sinks and determine what types of sinks they thought would be feasible. In addition, CIEL conducted a two-year review of JI carbon sequestration projects in Costa Rica. Currently, Senior Attorney and IPCC lead author Don Goldberg is evaluating the protocol language on sinks and drafting new guidelines for the IPCC 2000 report. CIEL's conclusion thus far is that "given the right legal and institutional framework, CDM forest projects could be potent tools in achieving carbon reduction goals as

well as providing socioeconomic and ecological benefits for recipient countries” (CIEL, 1999). However, if the rules and guidelines for sinks and forests are “drawn carelessly or with an eye only to easing compliance with the Protocol’s other obligations, they could result in serious harm” (Goldberg, 1995). Thus, CIEL maintains that until the rules and guidelines are drawn and the report released, they will refrain from making any policy statements in favor of or in opposition to sinks.

II. Business Groups

Another set of important players in the controversy over sinks is American businesses. Despite their efforts to stop U.S. ratification of the Kyoto Protocol, U.S. businesses and industries seem to support the use of sinks in any U.S. climate change policy. Most major corporate players have aligned themselves into powerful groups and lobbies. While many have been open to the fact that sinks make them look environmentally responsible, they stand firmly grounded in the need for climate change to do as little damage as possible to their bottom line.

Business Supporters

American Petroleum Institute (API) -- API is the major national trade association representing the entire petroleum industry. While API president William O’Keefe and senior economist Ronald Sutherland have voiced the Association’s discontent with the Kyoto Protocol, research for API done by Steve Crookshank has produced a policy paper in favor of a wide variety of carbon sinks as options in Kyoto’s framework. According to Mr. Crookshank, “we [the industry] are generally supportive of ways in which carbon emissions can be managed that do not necessarily reduce fossil fuel consumption” (1999). Crookshank finds the Protocol to be disappointing in its limited inclusion of sinks, and is pushing for the IPCC 2000 report to include the full range of sink options, especially deep sea injection, which he concludes may have the most sequestration potential (one to ten trillion metric tons).

Crookshank’s analysis concluded that sequestering carbon is an attractive economic option for mitigating carbon emissions, especially on an international scale. He evaluated the few economic studies which attempt to estimate the cost of carbon sequestration in foreign countries. The available studies can be criticized for failing to include the opportunity cost of land, but the numbers are still attractive—from less than a dollar per ton up to \$15 per ton of CO₂ in Mexico, China, and India. Based on these findings, Crookshank recommends that Kyoto be renegotiated or amended to reflect these economic aspects of sinks. This position may reflect the fact that the petroleum industry would like to proceed into the next century with a business-as-usual approach in terms of fossil fuel use. However, Crookshank’s argument is compelling in that it encourages policy makers to keep all options open.

The Edison Electric Institute (EEI) -- The Edison Electric Institute is the association of U.S. investor-owned electric utilities and industry affiliates worldwide. The U.S. members of EEI (about 200) generate approximately 75 percent of all U.S. utility-generated electricity, serve about 70 percent of all U.S. utility customers, and represent the U.S. electric power industry in public policy matters. EEI and its members have been highly amenable to the role sinks may play in offsetting emissions. As a response to the potential benefits of sinks, EEI entered the

voluntary Climate Challenge Program (CCP) with DOE. The CCP allowed the utilities to start a variety of pre-approved sequestration projects and then report on their progress to the Energy Information Association with the potential to qualify under future Early Action legislation. From this, Edison created its own Utility Carbon Forestry Management Program for individual or group participation by utilities.

This endeavor was so successful it spawned a nonprofit sequestration company. The Utilitree Carbon Company (also mentioned in chapter 7) is a nonprofit private consortium of forty U.S. electric companies. It operates six forestry carbon sequestration projects around the world with an annual budget of approximately \$2.5 million. According to John Kinsman of EEI and deputy secretary of Utilitree, the science behind forest sinks is sound, and "there is no doubt that there are benefits" (1999). Utilitree actively supports tree planting, improved forest management, improved harvesting, and conservation/preservation projects to offset CO₂ emissions and their inclusion in any binding climate treaty. According to Kinsman, it is good for the utility companies' images to preserve forests, but they do not want artificial constraints put on their efforts without a firm scientific basis. In addition, the utilities are not satisfied with the current Early Action Bills before Congress which only give credit to industries that cut their emissions below 1990 levels. The companies behind Utilitree are upset that they have been voluntarily reducing their CO₂ emissions for three years and "the government has not followed through with its repeated promises to give us credit for what we have done" (1999). For the utilities, sinks are a clear positive choice in which "the uncertainties are drastically overplayed....There isn't any real scientific controversy on this...Properly implemented, these practices are proven technically and can offset a large amount of CO₂" (1999).

The utilities' position with regard to sinks is consistent with its interests. The electric utility sector is responsible for one-third of all U.S carbon dioxide emissions. The industry views sinks as a potential cost-effective solution to the emission reduction requirements it may face in the future. By participating in forestry sink projects, they offset some of their emissions in a low cost manner while developing an environmentally friendly image.

The National Mining Association (NMA) -- The NMA is a national association representing the interests of over 200 individual corporations, the majority of which are coal utility providers. According to Connie Holmes, Senior Vice President of Policy Analysis, NMA is "very supportive of sinks as a long-range solution" (1999). While NMA maintains its strong opposition to the Kyoto Protocol, mandated reduction targets, and any policy that eliminates or reduces the use of coal, sinks are an attractive, cost-effective option for NMA. Holmes went on to praise the Clinton Administration (which NMA rarely does) for going to bat for sinks. As she pointed out, the United States is the only country actively fighting for the inclusion of sinks in a climate change agreement. However, she said the NMA would like to see the U.S do even more. When it comes to sinks, "we are very anxious to promote sinks, should we ever need them" (1999).

To promote sinks, the NMA is lobbying the IPCC through the Global Climate Coalition (GCC). Within the GCC, the NMA's lobbyist is pushing for more appropriations to be earmarked for the research and development of sinks, and for the IPCC report of 2000 to include all types of sinks as viable mitigation strategies. According to Holmes, "it is way too early in our

view to foreclose any sink option” (1999). It is not surprising that the NMA finds sinks an attractive option. Composed mainly of coal utilities, the NMA stands to be adversely affected by any mandates that favor cleaner energy technologies. Much of their business could be lost to natural gas or renewables. However, if sinks are included in an agreement, the initial shock could be postponed, giving the industry a chance to regroup and prepare for a future with cleaner fuels.

The American Forest and Paper Association (AFPA) -- AFPA is the national trade organization of the forest, pulp, paper, paper board, and wood products industry. AFPA members (approximately 250) own 90% of the 70 million acres of U.S. industry-owned timberland. Like many other industry groups, AFPA is opposed to Kyoto as it exists. For Kyoto to be effective, AFPA claims, the U.S. government must recognize the following: the need to treat developing and developed countries equally, the timber industry's long capital investment cycles, the potential for fossil fuel conservation through biomass, carbon sequestration in forests and forest products, and conflicts among U.S. environmental objectives.

AFPA views carbon sequestration in managed forests as a “scientifically valid, measurable, and verifiable mechanism to mitigate and offset greenhouse gas emission” (AFPA, 1998). The AFPA has put together a sink agenda and effectively communicated it to policy makers involved in determining sink status in Kyoto. AFPA's sink agenda has seven main points:

(1) AFPA disagrees with Kyoto's current language, which excludes forests before 1990, along with reforestation of previously existing forestlands from being considered carbon sinks.

(2) AFPA strongly opposes any initiative that denies carbon sequestration credits to private companies or individuals and instead places the credits into some type of national account. The organization argues that it is only appropriate that those who own the timber and bear the expense of managing it should receive the carbon credits.

(3) AFPA wants the adopted definitions pertaining to sinks to “reflect professional international practice which will maximize the potential for carbon sequestration offsets” (AFPA, Pamphlet), including the definition of direct human-induced land use change and forestry activities to include any management action “that has a discernible impact on the use and productivity of forest and land” (AFPA, 1999). AFPA also wants afforestation, reforestation, and avoidance of deforestation to be viewed and defined as separate and distinct activities which should all be eligible as carbon sinks.

(4) AFPA views the carbon stock model as the most accurate model to accurately measure and track carbon stock flows in forests and forest products. Therefore, they want the calculation of carbon sink credits to be based on the carbon stock model.

(5) AFPA wants the long-term storage of carbon in forest products (including paper and furniture) to be recognized as a human-induced activity and thus a carbon sink. This storage will represent approximately 13 MMTC annually by the year 2000 (USFS).

(6) AFPA wants an international verification requirement for emissions and carbon sinks. This goal would be satisfied by the inventory and reporting of each nation, similar to the reporting requirements under the Resources Planning Act.

(7) AFPA wants the adoption of CDM that will permit credit for both projects between Annex A countries and with Annex B countries.

Business Groups Cautiously Undecided or Undeclared Opposition

The Business Council for Sustainable Energy (BCSE) -- The BCSE is composed of approximately thirty companies and industry trade associations in the energy efficiency, natural gas, renewable energy, and electric utility industries. One of the Council's areas of focus is climate change; specifically, the BCSE promotes clean energy technologies as a way to reduce GHG emissions. While not officially against sinks, it is not promoting them. According to Lisa Jacobson, BCSE's Policy Manager, sinks are unreliable in the Council's eyes because of the unresolved issue of monitoring and enforcement, especially when used in a CDM project. Instead of sinks, the BCSE is more in favor of "pushing more reliable projects forward; we just don't believe sinks/carbon sequestration to be reliable" (1999). The Council recommends that the focus should instead be on clean energy technologies as a more reliable way to reduce emissions. The first CDM projects must be credible, which in their opinion means using clean technologies but not sinks. In addition, the BCSE would like to see sinks excluded from any early action legislation. The BCSE is in direct competition with sinks to offer the best all-around solution to climate change.

The American Farm Bureau Federation (AFBF) -- As the voice for agriculture at the national level, the American Farm Bureau represents approximately five million farming families. The Kyoto Protocol received some of its harshest criticism from AFBF. According to AFBF economists, the treaty as it exists would cause at least a 24% loss in net farm income. The biggest contributor would be the possible loss of markets to foreign competitors who are not bound by the treaty due to their status as developing countries. The AFBF has launched FACT: Farmers Against the Climate Treaty, who lobby their position quite heavily to the IPCC and the COP. When it comes to sinks, the Bureau has not quite made up its mind where it stands, but it has some serious concerns.

For starters, Kyoto has not shown clearly how sinks will be incorporated into the treaty's language. This kind of vagueness is unnerving, according to Jon Doggett, Senior Director for Government Relations/Natural Resources and Energy for the AFBF, who stated that the "the devil is in the details" (1999). Doggett states that the Bureau has concerns with several aspects of possible sink policy: 1) If lax regulation or weak enforcement of sequestration activities occurs, a foreign competitor could cheat the system and gain an advantage over the American farmer. 2) Many farmers have been using minimum and no till soil practices for the last 10 to 20 years. Under the proposed Early Action legislation, unless farmers started their improved tilling practices after 1990 and could demonstrate carbon capture, then their efforts would not receive credit. 3) At some point, usually every two, five, or ten years, the soil must be turned over for aeration. When this aeration occurs, some carbon is lost. Whether the farmers will face penalties for this event is unclear. 4) It is hard to get farmers interested in the issue of sinks.

“They say with \$3 wheat, \$2 corn, and 70¢ calves, don't talk to me about something that might happen on down the road someday, somewhere” (1999). With all of those concerns the AFBF is beginning to put together a sink position; however, the prospects for its support are dim.

Global Climate Coalition (GCC) -- The GCC is a coalition of business trade associations and private companies that represents the interests of large energy consumers and producers. The GCC was established in 1989 as an effort to coordinate industry response to the issue of global climate change. The GCC does not support Kyoto because they perceive its science to be uncertain and its short time frame unrealistic. The GCC favors setting aside 20 to 100 years to perform serious R&D efforts to determine with certainty the science of climate change. According to Eric Holdsworth, GCC's Deputy Director, the Coalition's early opinion on sinks is that it is "an area in which we share similar views with the U.S. government...we want a broad, all-inclusive definition of sink activities" (1999). The GCC feels that the more flexibility and choices available in any treaty for reductions, the more applicable it could be for businesses.

Some major corporations (Shell, BP, Amoco, Ford, General Motors, Southern Electric) have pulled out of the GCC as a result of the potential profits associated with carbon trading through sinks. These corporations now want to make sure that sinks are included in any final climate change policy. These defections may put pressure on the GCC to revamp their climate change policies to include the sink option.

III. Selected Congressional Views

The issue of global climate change has been characterized as half-science, half-politics. The political debates over each step of the COP have been quite heated and have involved many members of Congress. The issue of sinks has received little attention other than its inclusion in the Early Action bills. However, there does seem to be some movement in support of sinks by a few members of Congress.

Senator Ron Wyden (D-OR) -- Senator Ron Wyden serves on both the Senate Environment and Public Works Committee and the Energy and Natural Resources Committee. Senator Wyden feels that Senator Chafee's Early Action bill is moving in the right direction, in the sense that it strongly supports sinks. The Wyden camp is evaluating the feasibility of bringing a state level reforestation program to the national level to be implemented as a sink program. The state plan is run by Oregon Forest Resources Trust and offers economic assistance to those landowners who reforest their degraded land. Early indicators show solid support largely due to the positive environmental co-benefits associated with such a project. While co-benefits are important, the bottom line on sinks for senators from heavily forested states like Oregon is that sinks represent a significant economic potential.

Senator John Chafee (R-RI) -- Senator John Chafee, Chairman of the Environmental and Public Works Committee, has been one of the strongest and earliest supporters of carbon sequestration. His bill, S.547 Credit for Voluntary Reductions Act, directly addresses the issue of sinks and what early credit should be given for them until a final, ratified international climate change treaty can be agreed upon. According to Dan Delich, Chafee's Senior Committee advisor, "Just about everybody other than the far left thinks sinks are great" (1999). He

explained that both moderates and conservatives feel that sinks are a good way to deal with the threat of climate change. Sinks are the one cost-effective offset which let companies continue to grow, respond to market demands, and emit—if they offset with sequestration techniques. "It's viewed by most as a nice handy tool to try to do something about the threat while still eating your dessert" (1999).

The opposed liberals counter with two main arguments. First, they feel if sinks are allowed to qualify as offsets, then there will be no incentive for companies to develop new technologies that will actually reduce emissions—in other words, sinks are a cop out. Second, those opposed maintain that it is and will continue to be very difficult to monitor, quantify, and verify the amount of carbon that sinks (especially soils) actually sequester.

Chafee does not agree and is instead motivated by the co-benefits sinks bring to the environment. Cleaner water, less erosion, and habitat protection all make sinks very attractive. However, as Mr. Delich admits, even with these impressive co-benefits, the Early Action bill has three main sticking points with regard to sinks that must be resolved before passage is possible:

- 1) How to deal with growth. Is it appropriate to give credits to companies that are growing and emitting more GHGs in net terms, but are also increasing efficiency and reducing emissions through sinks? This question addresses the utility companies' status in particular.
- 2) How to credit past activities. What is the appropriate baseline year?
- 3) Must carbon credits only be given to projects that are complete sinks or completely environmentally benign? For example, does the farmer who wants to count one forest for sequestration and harvest another forest for chipboard get credit?

To work through these tough issues, the Committee has met with representatives of both the timber and agricultural communities, as well as with environmental organizations. "We're working on the language and trying to get it right...with luck it will be out of committee by summer and out of the Senate before the end of the year" (1999).

Senator Pat Roberts (R-KS) -- Senator Roberts serves on the Agriculture, Nutrition, and Forestry Committee and has become closely involved with the sink issue. According to his legislative assistant Keith Yehle, the Senator is "very interested in research going on with the natural carbon cycle" (1999). Roberts has had several meetings with NOAA's Climate Monitoring and Diagnosis Laboratory, and seeks further study of the potential sequestration capacity of the Great Plains states. Based on NOAA's early findings, Roberts is quite optimistic that a large portion of the U.S. sink capacity is based in agriculture. Roberts sees carbon sequestration without a government mandate as a "win-win situation, helping the environment, helping production, doing something for the global climate...and agriculture as providing a solution" (1999). He believes that modified agricultural practices combined with energy efficiency improvements could be a solution without Kyoto.

In terms of legislation, Roberts is not in favor of any type of government-mandated approaches to climate change. He is opposed to Kyoto, in which he sees agriculture getting the short end of the stick by being labeled a significant emitter and not credited for its sequestration

practices. Roberts is also opposed to the Early Action legislation that has been proposed. "Any time you support an early action bill, you're basically saying we will have a cap and trade GHG emission policy" (1999). The bottom line for this Senator is that he "wants to know more about the science side," does not want government intervention (i.e., carbon taxes or binding agreements), and wants agriculture to be recognized as a significant sink.

With these convictions, Roberts has drafted legislation that would amend the Agricultural Research, Extension, and Education Reform Act of 1998 to include an Act called the "Carbon Cycle and Agricultural Best Practices Research Act." This bill is still in the preliminary stage but should be introduced in the Senate soon. The bill recognizes the United States as having enormous potential to increase the quantity of carbon stored in both agricultural lands and commodities. The bill recommends that the Department of Agriculture be the lead federal agency with respect to agricultural soil carbon research. The research would include:

- developing a soil carbon database, using a baseline of 1985
- determining (through a cost/benefit analysis) the economic potential of carbon sequestration to the agricultural sector and the effect of agricultural sinks on watersheds
- mapping and monitoring carbon sequestering land use and its changes

The bill specifically calls for significant amounts of funding for this research to go to a consortium of the USDA, NASA, land grant colleges and universities, and State Geological surveys. The Secretary of USDA is charged with providing an annual report to Congress detailing the status of the research programs carried out by the consortium. In addition, the research is to be reviewed every two years by the National Academy of Sciences.

IV. Conclusion

The role of sinks in climate change has become a controversial environmental policy issue involving business, environmental groups, and government. The position of any group on sinks is often difficult to predict, based on past policy statements.

Most businesses initially opposed any climate change response. They saw climate change as a potential problem, something that could adversely affect their growth or profits by restricting consumption or production of fossil fuels. However, with the introduction of sinks as a possible emissions mitigator, many businesses and industries have reconsidered their position. Climate change, and more specifically sinks, are seen in a more favorable light, partly because of the profit potential.

Environmental organizations also found it difficult to reconcile policy toward sinks with other climate change positions. Prior to sinks, many environmental groups were united in championing the cause of correcting climate change by any available method. Most of those methods involved (to some degree) reductions in production and consumption of fossil fuel use. However, the introduction of sinks as a possible offset caused some members of the environmental community to become conflicted in their climate change position. Some groups have rejected sinks because they consider them a diversion to the original goal of reducing fossil fuel consumption and production through climate change legislation. Other groups have

embraced sinks as a positive offset because of the multiple co-benefits that sinks provide. Other groups are still undecided and have decided to wait before choosing sides.

Finally, while only a few politicians have looked into the issue of sinks, the preliminary responses have been mostly positive. Sinks offer a compromise position, and one in which many groups come out winners. In addition, sinks could delay by 100 or more years the formidable task of addressing fossil fuel consumption and production practices. For these reasons, sinks are popular for most politicians.

The future of sink policy is uncertain. The IPCC does not release its recommendations on sinks until May 2000, and currently many different groups are racing to establish the "facts" on sinks. However, even in light of this uncertainty, climate change policy incorporating sinks seems to be here to stay. While the environmental community remains fragmented, businesses have unified in support of sinks. Such a united voice within American business represents a powerful political force. On their own, oil and coal are some of the largest private interests in the world. In 1997-1998 alone, oil, gas, coal, and electric utilities spent approximately \$9.4 million on Political Action Committee contributions for both Republican and Democrat national candidates. With a clear position, access to lawmakers who stand to benefit politically from sinks, and the political influence of business, it is difficult to imagine that a divided environmental community will keep sinks from having a significant role in any future climate change plan.

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