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U.S. Statement: November 3, 1998

**Matters Related to SBSTA 9th Session:
Land Use Change and Forestry (LUCF) Activities**

We thank the IPCC and Dr. Watson for the report on progress made at the Rome workshop and at the IPCC Plenary. We welcome Japan's proposal to host and financially support the Technical Support Unit for a new working group on methods. And we agree with the Austrian recommendation to the IPCC that it seek expeditiously to complete the work on defining the policy-relevant questions for the synthesis report of the Third Assessment Report. We note Dr. Watson's statement that the IPCC and the TEAP of the Montreal Protocol could undertake a joint workshop on CFC substitutes that affect the climate system. We support this idea, noting that the SBSTA has an important role in this process. We will return to this issue later in the agenda.

The U.S. greatly appreciated the thoughtful and open discussion on land use and forestry accounting issues related to Article 3.3 that occurred in Rome at the workshop. We support the IPCC's work on the Special Report on LUCF activities, and commend the IPCC's progress to date. The U.S. thanks Italy, the UN FAO, and all of the Parties that participated in the productive, informative exchange. We appreciate the useful report on the workshop provided by its co-chairs. We note that the end-product for the Article 3.3 and 3.4 discussions will need to include new, specific inventory and reporting methodologies. We took the first step in this direction at our last session, where we focused on Article 3.3. The Rome workshop took the next step, and we anticipate the IPCC's Special Report will further build on that work. As Dr. Watson noted in his statement, and as we see from the Special Report outline included in INF.4, we have a comprehensive effort underway, particularly for Article 3.3. We also have a time frame for completion of that report in May, 2000.

We look forward to building on this excellent beginning at the second workshop that will focus on issues arising from Article 3.4, the comments submitted by Parties, and issues arising from the first workshop. We welcome the opportunity to host the second workshop in February or March, 1999 in Athens, Georgia near the University of Georgia campus.

Additional activities under Article 3.4 would offer many Parties opportunities to use verifiable forest and agricultural activities to help meet some portion of their commitment under the Kyoto Protocol. Some Parties have national circumstances that limit the applicability of Article 3.3 activities, for example Parties with significant agricultural and range/pasture lands but relatively little forest, and they could benefit from the addition of new Article 3.4 activities. Further, many of these activities provide valuable ancillary environmental and economic benefits. For us to overlook opportunities to verifiably increase long-term carbon pools on a variety of land types would not only disregard key national circumstances, but also conflict with the principles of the Framework Convention that call on Parties to cover all relevant sources and

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sinks, comprise all economic sectors, and take into account policies and measures that are cost effective.

The workshop's technical exchange can further a number of mutual goals:

The workshop would improve our collective understanding of various Parties' particular national circumstances and their unique opportunities for verifiably increasing long term terrestrial carbon pools.

- The workshop could provide valuable input to the IPCC's Special Report on Land Use, Land Use Change and Forestry, whose draft chapters are scheduled to be completed in April of 1999. We propose that the convening lead authors for each chapter of the IPCC Special Report be invited to give SBSTA a status report on their chapter. Since the Special Report breaks new ground in the relationship between the SBSTA and the IPCC, we should ensure that the SBSTA and IPCC experts have ample opportunity to communicate.
- The workshop will address important issues such as methodologies, uncertainty, and research and data needs for activities for consideration under Article 3.4. Some of the activities we think should be part of the discussion are outlined below.

Recommended topics for the workshop and IPCC Special Report

In the U.S. Submission to SBSTA on "Methodological Issues Related to Land Use Change and Forestry and the Kyoto Protocol," included in FCCC/CP/1998/MISC.1, the U.S. noted that other activities that should be considered under Article 3.4 should include three broad categories: soil carbon management of forest lands, crop lands, range lands and pasture lands; improvements in forest management; and conservation. Under each of these categories, a range of potential land use practices and management systems should be evaluated for potential inclusion under Article 3.4 by the COP/MOP. Examples of practices and management systems that the report should consider and evaluate are:

- 1) soil carbon management
 - techniques and policies, including market-based incentives, that maintain or increase carbon stocks in forest, cropland, range and pasture soils
- 2) forest and forest product management
 - forest management techniques and policies, including market-based incentives, that maintain or increase carbon stocks
 - ways to increase long term carbon storage in products and reduce waste input to landfills
- 3) conservation and restoration of carbon storage capacity

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- techniques and policies, including market-based incentives, that conserve and enhance the carbon stock on existing vegetated land and promote restoration of degraded lands

In our August 1998 submission to the IPCC, "Methodological Issues Related to Land Use Change and Forestry and the Kyoto Protocol," we recommended that the IPCC consider a set of objective questions in evaluating alternative interpretations of key terms. The IPCC should consider similar questions in evaluating additional activities for consideration under Article 3.4:

- Can verifiable inventory methods and reporting guidelines be developed and made available (or are they already available)?
- What are the data requirements for the inventory methods and reporting guidelines?
 - What information gaps and relevant uncertainties exist?
 - How can risk and uncertainty be incorporated into the accounting system?
- What uncertainties exist in our scientific understanding of the effects of the activities on the carbon cycle?
- What structural problems and accounting gaps are associated with the activities?
- What are the greenhouse gas mitigation options that are included and excluded?
 - How significant might be their potential to increase carbon stocks?
 - What are their economic and environmental costs and benefits, including ancillary effects?

Decisions at COP 4

In order to continue our progress on resolution of land use change and forestry issues, the United States feels that three decisions need to be made at this session:

First: As discussed during our deliberations in Bonn, we need to make a commitment to hold the next workshop, hosted by the United States, providing for technical discussions on Article 3.4 activities.

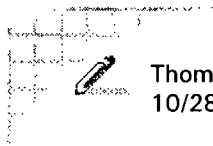
Second: We need to decide that this workshop should address important issues such as methodologies, uncertainty, and research and data needs for activities for consideration under Article 3.4. Parties should be given the opportunity to present technical papers on these matters. In addition, the workshop should provide valuable input to the IPCC's Special Report on Land Use, Land Use Change and Forestry, whose draft chapters are scheduled to be completed in April of 1999. Convening lead authors for each chapter of the IPCC Special Report should be invited to give SBSTA a status report on their chapter. Since the Special Report

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breaks new ground in the relationship between the SBSTA and the IPCC, we should ensure that the SBSTA and IPCC experts have ample opportunity to interact and communicate.

Third: We need to make a commitment that the Parties will be prepared to come to agreement on decisions regarding the language in Articles 3.3 and 3.4 of the Kyoto Protocol at the first COP subsequent to the release of the IPCC Special Report.

We look forward to working with the Parties on discussing land use, land use change and forestry activities to make progress on meeting commitments under the Kyoto Protocol.



Thomas D. Peterson
10/28/98 05:21:27 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP

cc:

Subject: Re: farm bureau 

I just talked with Margo and she will obtain the Hartland Inst. study over the next two days and be in a position in BA to respond to it and the Sparks study. Keith Collins will be able to do so back here. They will not, however, be in a position to provide their own analysis at that time. Obviously the sooner they can do that the easier it will be to provide the alternate view that everyone wants to see. As I noted in the last message, the Hill and industry have been after them to do this for some time. Keith and Margo should understand the urgency of this.

- O. L. Phillips and A. H. Gentry, *Science* **263**, 954 (1994); R. A. Houghton, *Tellus Ser. B* **48**, 420 (1996); R. F. Keeling, S. C. Piper, M. Heimann, *Nature* **381**, 218 (1996).
31. R. B. McKane, E. B. Rastetter, J. M. Melillo, G. R. Shaver, C. S. Hopkins, *Global Biogeochem. Cycles* **9**, 329 (1995); Ch. Körner and F. A. Bazzaz, Eds., *Carbon Dioxide, Populations, and Communities* (Academic Press, San Diego, 1996); J. Lloyd and G. D. Farquhar, *Funct. Ecol.* **10**, 4 (1996).
32. R. Swap, M. Garstang, S. Greco, R. Talbot, P. Kallberg, *Tellus Ser. B* **44**, 133 (1992).
33. For example, D. S. Schimel et al., *Global Biogeochem. Cycles* **10**, 677 (1996); P. M. Vitousek et al., *Ecol. Appl.* **7**, 737 (1997). Tropical forest tree growth has been shown experimentally to increase after N and P fertilization [E. V. J. Tanner, V. Kapos, W. Franco, *Ecology* **73**, 78 (1992)].
34. We assumed that: (i) 48% of biomass is in the form of C (based on burning experiments near Manaus, central Amazonia [J. A. Carvalho Jr., J. M. Santos, J. C. Santos, M. M. Leitão, N. Higuchi, *Atmos. Environ.* **29**, 2301 (1995); J. A. Carvalho Jr., N. Higuchi, T. M. Araujo, J. C. Santos, *J. Geophys. Res.* **103**, 13195 (1998)]); (ii) that the ratio of aboveground biomass to root biomass is 3:1 (the average value of three studies in Brazilian Amazonia [P. Fearnside, *Emissão e Sequestro de CO₂*, (Companhia Vale do Rio Doce, Rio de Janeiro, 1994), pp. 95–124]), consistent with a global analysis of root biomass allocation [M. A. Cairns, S. Brown, E. Helmer, G. Baumgardner, *Oecologia* **111**, 1 (1997)]; and (iii) that root biomass increased in proportion to aboveground biomass. We ignored C stocks in fine litter, dead wood, and soil, which may also have changed.
35. Although PSP data address the problem of spatial variability that can limit extrapolation of eddy covariance studies, they clearly cannot assess the behavior of necromass and belowground C pools, which might be expected to increase together with biomass. A combination of eddy covariance and biomass studies may provide a useful tool in the future to examine belowground processes.
36. The "missing" sink was recently estimated at ~1.4 Gt [D. S. Schimel, *Global Change Biol.* **1**, 77 (1995)]. By comparison, deforestation in Brazilian Amazonia was estimated to yield a net C emission of 0.34 Gt in 1990 [P. M. Fearnside, in *Biomass Burning in South America, Southeast Asia, and Temperate and Boreal Ecosystems, and the Oil Fires of Kuwait*, J. S. Levine, Ed. (MIT Press, Cambridge, MA 1996), pp. 606–617]. Deforestation in the whole Neotropics was estimated to yield 0.6 ± 0.3 Gt C annually between 1980 and 1990 [R. A. Houghton, in *Forest Ecosystems, Forest Management and the Global Carbon Cycle*, M. G. Apps and D. T. Price, Eds., NATO ASI Ser. I *Global Environ. Change*, vol. 40 (Springer-Verlag, Heidelberg, Germany, 1996)].
37. W. F. Laurance, *Trends Ecol. Evol.*, in press.
38. E. Salati and C. A. Nobre, *Clim. Change* **19**, 177 (1991); A. Kattenberg et al. (1996), *Climate Change* (Intergovernmental Panel on Climate Change/Cambridge Univ. Press, Cambridge, 1995), pp. 285–357.
39. D. Z. Sun, *Geophys. Res. Lett.* **24**, 2031 (1997).
40. We gratefully acknowledge help in Peru from the late A. H. Gentry, as well as M. Aguilón, C. Diaz, C. Grández, N. Jaramillo, M. Jarrelli, K. Johnson, D. Milanowski, R. Ortiz, S. Roca, J. Trifonov, A. Vázquez, and the logistical support of INRENA, ACEER, Cuzco Amazonico Lodge, Explorama Tours, Instituto de Investigaciones de la Amazonia Peruana, Peruvian Safaris, Universidad Nacional de la Amazonia Peruana (Iquitos), and Universidad Nacional de San Antonio Abad del Cusco (Cusco and Puerto Maldonado). In Brazil, we acknowledge the help of R. J. Ribeiro, Y. Biot, P. Delamonica, C. Gascon, and other BIONTE and BDFFP project members. We thank J. Terborgh, R. Foster, R. Condit, S. Lao, S. P. Hubbell, M. D. Swaine, D. Nicholson, R. Keenan, T. Richards, J. N. M. Silva, J. P. Veillon, J. Comiskey, and R. Moraes de Jesus for kindly making data available and for other help. Peruvian field research was supported by the American Philosophical Society, National Geographic Society (grant 5472-95), NSF (BSR-9001051), World Wide Fund for Nature (WWF)—U.S./Garden Club of America, Conserva-

tion International, the MacArthur and Mellon Foundations, Missouri Botanical Garden, and a Research Fellowship from the U.K. Natural Environment Research Council (NERC). Support for Venezuelan data analysis was provided by a cooperative agreement between the USDA Southern Forest Experiment Station and the University of Illinois (grant 19-91-064). The Biological Dynamics of Forest Fragments Project (BDFFP) was supported by WWF-US, INPA, Smithsonian Institution, and the MacArthur and

Mellon Foundations. Work by Y.M., N.H., and J.G. formed part of the Biomass and Nutrient Experiment (BIONTE) and the Anglo-Brazilian Climate Observation Study (ABRACOS), supported by the U.K. Overseas Development Administration in collaboration with the Agência Brasileira de Cooperação, and aided by a NERC Terrestrial Initiative in Global and Environmental Research (TIGER) grant.

13 January 1998; accepted 11 September 1998

A Large Terrestrial Carbon Sink in North America Implied by Atmospheric and Oceanic Carbon Dioxide Data and Models

S. Fan, M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, P. Tans

Atmospheric carbon dioxide increased at a rate of 2.8 petagrams of carbon per year (Pg C year^{-1}) during 1988 to 1992 ($1 \text{ Pg} = 10^{15}$ grams). Given estimates of fossil carbon dioxide emissions, and net oceanic uptake, this implies a global terrestrial uptake of 1.0 to 2.2 Pg C year^{-1} . The spatial distribution of the terrestrial carbon dioxide uptake is estimated by means of the observed spatial patterns of the greatly increased atmospheric carbon dioxide data set available from 1988 onward, together with two atmospheric transport models, two estimates of the sea-air flux, and an estimate of the spatial distribution of fossil carbon dioxide emissions. North America is the best constrained continent, with a mean uptake of $1.7 \pm 0.5 \text{ Pg C year}^{-1}$, mostly south of 51 degrees north. Eurasia–North Africa is relatively weakly constrained, with a mean uptake of $0.1 \pm 0.6 \text{ Pg C year}^{-1}$. The rest of the world's land surface is poorly constrained, with a mean source of $0.2 \pm 0.9 \text{ Pg C year}^{-1}$.

A number of carbon cycle studies conducted in the last decade have indicated that the oceans and terrestrial ecosystems in the Northern Hemisphere absorb atmospheric CO_2 at a rate of about 3 Pg C year^{-1} (1–3). Atmospheric CO_2 concentrations in the Northern Hemisphere are about 3 parts per million (ppm, mole fraction in dry air) greater than those in the Southern Hemisphere. Fossil CO_2 is released predominantly at northern latitudes (Table 1), which should result in a north-to-south decrease of 4 to 5 ppm in the concentration of atmospheric CO_2 (4). A

Northern Hemisphere sink is implied because the observed gradient is smaller than this. The original studies disagreed on whether the sink was predominantly oceanic (1) or terrestrial (2). Recent studies with atmospheric $^{13}\text{C}/^{12}\text{C}$ ratios (5) and oxygen concentrations (6) concluded that the sink is caused primarily by terrestrial biosphere uptake. Other studies demonstrated increased activity of sufficient magnitude by the terrestrial biosphere in northern latitudes: a longer growing season observed in satellite measurements of surface color (7) and an increase over time of the amplitude of the annual cycle of atmospheric CO_2 concentrations caused by terrestrial vegetation (8).

The partitioning of the Northern Hemisphere terrestrial CO_2 sources and sinks between Eurasia and North America may be estimated by using the west-to-east gradient of atmospheric CO_2 across the continents. The west-east signal is much smaller and more difficult to detect than the north-south signal for two reasons. First, the CO_2 distribution is smoothed more by the relatively rapid zonal atmospheric transport than by the slower meridional transport (weeks instead of ~1 year for interhemispheric exchange). Sec-

S. Fan and J. Sarmiento, Atmospheric and Oceanic Sciences Program, Princeton University, Princeton, NJ 08544, USA. M. Gloor and S. Pacala, Department of Ecology and Evolutionary Biology, Princeton University, Princeton, NJ 08542, USA. J. Mahlman, Geophysical Fluid Dynamics Laboratory–National Oceanic and Atmospheric Administration (NOAA), Princeton University, Post Office Box 308, Princeton, NJ 08542, USA. T. Takahashi, Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY 10964, USA. P. Tans, Climate Modeling and Diagnostics Laboratory, NOAA, Boulder, CO 80303, USA.

*Correspondence should be addressed to the Carbon Modeling Consortium, AOS Program, Princeton University, Princeton, NJ 08544, USA. E-mail: cmc@princeton.edu

ond, atmospheric sampling stations have traditionally been located primarily offshore, away from the largest terrestrial signals to avoid the complexities associated with continental atmospheric boundary layers, the diurnal character of photosynthesis, local fossil fuel emissions, and topography (Fig. 1).

To provide improved estimates of net annual terrestrial sources and sinks, we have developed an inverse model. Let $O(x)$ be the annual-average spatial pattern of atmospheric CO_2 caused by atmospheric transport acting on the sea-air CO_2 flux, and $F(x)$ and $R(x)$ be the corresponding annual-average spatial patterns associated with fossil fuel emissions and the seasonal rectification, respectively (where x is the spatial coordinate vector). Seasonal rectification results from the correlation between the seasonality of vertical mixing in the atmosphere and the seasonality of photosynthesis and respiration in the land biosphere, which causes gradients in the annual mean CO_2 concentration even when the terrestrial biosphere has no net annual emissions (9). Assuming a terrestrial biosphere with no net emissions, the expected annual average spatial pattern of atmospheric CO_2 is $O(x) + F(x) + R(x)$. We use the difference between this expected spatial pattern and the observed annual average concentrations of atmospheric CO_2 at sampling stations [$S(x_i)$ for a station located at x_i] to estimate the magnitude and spatial distribution of terrestrial uptake.

We divide the land surface into N regions and let $b_i(x)$ be the global spatial pattern of atmospheric CO_2 caused by atmospheric

transport acting on a standard annual terrestrial uptake of 1 Pg C within the i^{th} region. Then, the total spatial pattern caused by non-zero terrestrial uptake is

$$B(x) = \sum_{i=1}^N \alpha_i b_i(x) \quad (1)$$

where α_i is the magnitude in Pg C year^{-1} of terrestrial uptake in the i^{th} region, and is estimated by linear regression (10).

We used two separate atmospheric transport models of the Geophysical Fluid Dynamics Laboratory (GFDL) to calculate the expected spatial pattern of atmospheric CO_2 . A previous model comparison study showed significant differences in predictions of the fossil CO_2 distribution and rectification effect (4). The use of two different models gives us some measure of the sensitivity of the results to differences in the transport model. The Global Chemical Transport Model (GCTM) uses winds generated previously by an atmospheric general circulation model (11, 12). In contrast, the SKYHI model (12, 13) calculates tracer transport at the same time it calculates the winds and subgrid-scale mixing.

To calculate the $O(x)$ function, we used two different estimates of the global spatiotemporal distribution of net sea-air CO_2 flux. OBM is an annual mean sea-air flux from a global ocean biogeochemistry model (14). T97 is a seasonally resolved sea-air flux field based on estimates from the more than 2.1 million measurements of the sea-air difference of CO_2 partial pressure

($p\text{CO}_2$) gathered over the last three decades and interpolated by using annual mean ocean currents from OBM (15, 16). Pacific equatorial (10°N to 10°S) observations made during El Niño periods were excluded from the estimate. The data are normalized to 1990. The total sea-air CO_2 flux is larger in OBM than T97 (Table 1). A comparison of model simulations with observations of $\Delta^{14}\text{C}$ in the ocean favors the larger uptake of OBM (17).

The two atmospheric models and two patterns of sea-air CO_2 flux gave us four possible combinations. To calculate in each case, we ran the atmospheric model with the prescribed pattern of sea-air flux for five annual cycles until the annual average spatial distribution of atmospheric CO_2 reached a steady state.

To calculate $O(x)$, we used data on national fossil fuel consumption distributed with the same spatial distribution as population density (18). Using this pattern of release at the surface, we ran each atmospheric model to its steady state as above.

Finally, to calculate $R(x)$ and the $b_i(x)$, a

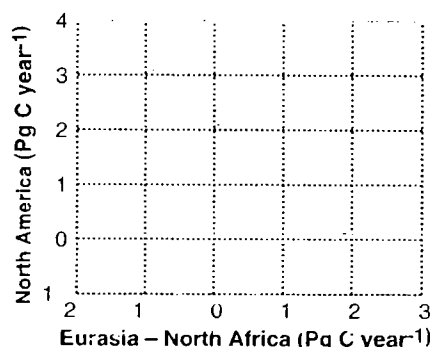


Fig. 2. Inversion uncertainties for North American terrestrial uptake versus Eurasia-North African terrestrial uptake. Ellipses of 1, 2, and 3 SDs are shown.

Table 1. Regional distribution of fossil CO_2 emissions and sea-air fluxes for 1990. T97 and OBM are two different air-sea flux estimates (see text).

Region	Fossil emissions (Pg C year ⁻¹)	
	T97	OBM
North America (>15°N)	1.6	1.6
Eurasia and North Africa (>24°N)	3.6	3.6
Tropics and Southern Hemisphere	0.7	0.7
Total	5.9	5.9
	Ocean uptake (Pg C year ⁻¹)	
	T97	OBM
North Atlantic (>15°N)	0.55	0.51
North Pacific (>15°N)	0.29	0.70
Tropics and Southern Hemisphere	0.27	1.04
Total	1.11	2.25

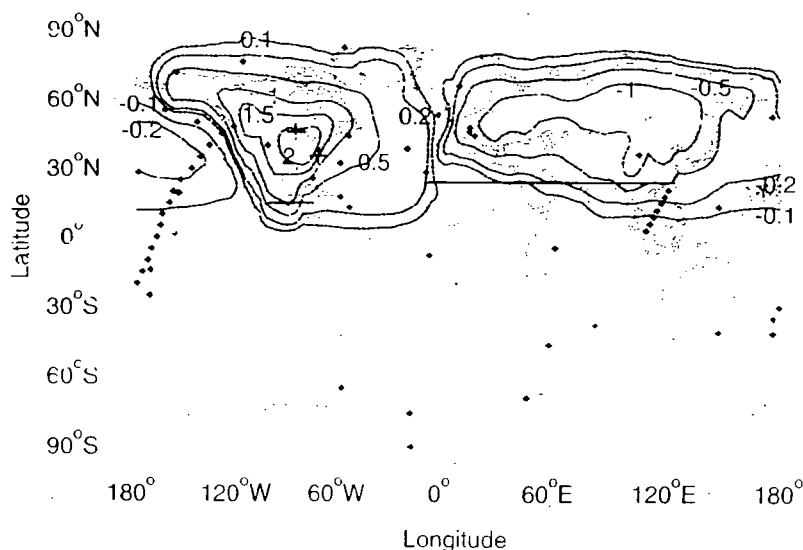


Fig. 1. A map of the atmospheric CO_2 sampling network. Sites are shown as solid diamonds. (The Globalview labels for the Northern Hemisphere stations are given in the legend of Fig. 3). The tall tower sites are shown as crosses. The thick horizontal lines divide the land surfaces into three regions where terrestrial carbon uptake has been estimated: North America, Eurasia-North Africa, and Tropics and Southern Hemisphere. The dotted contour lines show the difference between predicted surface CO_2 concentrations (ppm) with estimated terrestrial uptake and with North American terrestrial uptake set to zero (model results are shown for GCTM with the T97 sea-air fluxes).

model of the terrestrial biosphere is required. We chose the Carnegie-Ames-Stanford Approach (CASA) model (19), because it predicts ecosystem fluxes of CO₂ with a relatively straightforward extrapolation of global satellite imagery (normalized difference vegetation index or NDVI measurements on a 1° grid). We calculated $R(x)$ by running each atmospheric model with surface fluxes from a version of the CASA model (again until a steady state spatial pattern was achieved). To calculate $b_i(x)$, we ran the atmospheric model with no sources or sinks of CO₂ except net primary production (NPP) from the CASA model in only the i^{th} region. This NPP was first rescaled until the annual total was 1 Pg C. Thus, the spatiotemporal distribution of estimated carbon sinks within each terrestrial region is assumed to be proportional to the distribution of NPP, but this assumption has little impact on the results (see below).

The atmospheric CO₂ data we used cover the 1988 to 1992 period at a subset of 63 sampling stations (20) taken from the GLOBALVIEW database (21) compiled with methods as described by Masarie and Tans (22) (Fig. 1). Before 1988 there were fewer sampling stations; a separate study indicates that even with optimal placement, which the present data set does not have, a minimum of about 10 stations per region is necessary to obtain estimates with useful accuracy (23).

We first defined three regions, North America north of 15°N, Eurasia–North Africa north of 24°N, and all other land to the south (Fig. 1). Subsequently, North America was separated into temperate and boreal zones at approximately the evergreen–broadleaf ecotone (51°N). Additional divisions lead to prohibitively large estimation errors.

In particular, there are insufficient atmospheric stations in the Southern Hemisphere to separate Africa from South America.

North America is constrained by the atmospheric observations on three sides of the continent (Fig. 1); a large North American terrestrial uptake is estimated in all four combinations of atmospheric models with sea–air CO₂ flux data (Table 2). Most of the North American terrestrial uptake (70 to 100%) is estimated to be in the broadleaf region south of 51°N. If the North American terrestrial uptake were zero (that is, all of the Northern Hemisphere's net terrestrial uptake were in Eurasia), the models would predict an average increase of atmospheric CO₂ of more than 0.3 ppm from stations located between 10°N and 60°N in the North Pacific to those in the North Atlantic. A North American terrestrial sink is implied by the data because the observed gradient shows a decrease from North Pacific to North Atlantic of about 0.3 ppm.

We estimated standard deviations for the estimates of terrestrial uptake by propagating independent, identically distributed Gaussian station errors (Table 2). The ellipses in Fig. 2 suggest that the total Northern Hemisphere sink is well constrained, and that the partitioning between North America and Eurasia–North Africa is more weakly constrained. However, the terrestrial carbon sink in North America is sufficiently large to be detected with the present observational and model constraints.

None of these error estimates include systematic errors such as differences between GCTM and SKYHI and between T97 and OBM. We use the differences between estimates from the four models (Table 2) as an admittedly limited assessment of the magnitude of systematic errors. The range of esti-

mates produced by the differences between the models is small for North American uptake and intermediate for Eurasian uptake. Estimates of Eurasia–North African terrestrial uptake obtained with SKYHI are 0.7 to 0.9 Pg C year⁻¹ lower than those obtained with GCTM. SKYHI has a more rapid vertical mixing than GCTM and predicts lower fossil CO₂ at stations in the mid-latitude Northern Hemisphere, which implies a lower terrestrial uptake in the region.

The systematic errors are especially large for estimates of the terrestrial uptake in the tropics and Southern Hemisphere, as evidenced by the large differences among the estimates shown in Table 2. The wide range of 2.0 Pg C year⁻¹ in these estimates is caused by a combination of factors. Differences between OBM and T97 account for 1.3 Pg C year⁻¹ (Table 2). Differences between SKYHI and GCTM account for 0.7 Pg C year⁻¹.

An alternative four-region inversion, with only one region in North America but two in Eurasia–North Africa, yields marginal evidence of a weak uptake in boreal Eurasia (0.6 ± 0.4 Pg C year⁻¹) with a more uncertain, but generally compensating source in temperate Eurasia (-0.5 ± 0.7 Pg C year⁻¹). However, five-region inversions (with separate temperate and boreal regions in both North America and Eurasia–North Africa) were unstable, with standard errors of estimates as large as 1.4 Pg C year⁻¹. The only stable regions were temperate and boreal North America and the union of temperate and boreal Eurasia–North Africa, for which terrestrial uptake estimates and errors similar to those in Table 2 were obtained.

Detection of the terrestrial CO₂ uptake in North America and in Eurasia can be improved

Table 2. Estimated terrestrial carbon uptake for 1988 to 1992. Positive terrestrial carbon uptake is a flux out of the atmosphere. GCTM and SKYHI are the two atmospheric GCM models and T97 and OBM are the two air–sea flux estimates used in the inversions (see text).

Source region	Terrestrial uptake (Pg C year ⁻¹)				SD of the estimate* (Pg C year ⁻¹)	Mean and summary SE† (Pg C year ⁻¹)	Forest area (10 ⁹ ha)
	GCTM		SKYHI				
	T97	OBM	T97	OBM			
Three-region inversion							
North America	1.6	1.7	1.7	1.7	±0.5	1.7 ± 0.5	0.8
Eurasia and North Africa	0.5	0.5	-0.4	-0.2	±0.5	0.1 ± 0.7	1.2
Tropics and Southern Hemisphere	0.1	-1.1	0.9	-0.5	±0.1	-0.2 ± 0.9	2.1
Total	2.2	1.1	2.2	1.1	—	—	—
Four-region inversion							
North America							
Boreal	0.4	-0.1	0.5	0.1	±0.3	0.2 ± 0.4	~0.4
Temperate	1.2	1.7	1.2	1.3	±0.4	1.4 ± 0.5	~0.4
Eurasia and North Africa	0.6	0.7	-0.4	0.0	±0.5	0.2 ± 0.7	1.2
Tropics and Southern Hemisphere	0.0	-1.3	0.9	-0.4	±0.1	-0.2 ± 0.9	2.1
Total	2.2	1.1	2.2	1.1	—	—	—

*The SD of the estimate was found by assuming that the Gaussian variance equals χ^2/q ($q = 63$) (10), and that data errors from different stations are independent. SDs of estimates obtained with T97 include the sampling uncertainty for oceanic CO₂ exchange (15), but those obtained with OBM include no oceanic uncertainty. However, the contribution of T97 error to the total uncertainty is small. †This is the mean of the estimates from the four combinations of atmospheric and oceanic models. The SE is $\sqrt{\sigma^2 + V^2}$, where σ is the SD from the adjacent column and V is the SD of the four estimates in the first four columns.

with atmospheric measurements within or near the continents. If the North American uptake were zero, the CO_2 mixing ratios over eastern North America should increase by over 2 ppm (Fig. 1), which would make that the best place to detect a source or sink proportional to NPP. Data are available from two extremely tall towers (>400 m) within this region (crosses in Fig. 1) for a period later than the 1988 to 1992 interval considered here. Analyzed with a completely different method, these data are consistent with the existence of a large sink in North America (24).

A detailed summary of the present data that constrain the North American sink (Fig. 3) illustrates how near the limit of detection the signal is. The fit of the model to the observations in the optimal case is better than 0.5 ppm at most locations in both the Pacific and Atlantic. Zeroing out the North American sink lowers the Pacific model predictions and raises the Atlantic, thereby reversing the west-to-east gradient from -0.3 to $+0.3$ ppm (Fig. 3; note particularly that the Atlantic predictions go from being relatively well centered around the observations to having five stations well above the observations). Zeroing out Eurasia raises the model predictions in the Pacific and lowers them in the Atlantic.

We tested the sensitivity of the solutions to individual stations by removing stations one at

a time. In all cases the removal of a station had an impact of ≤ 0.3 Pg C year^{-1} , with most being near zero. The exclusion of Sable Island ($44^\circ\text{N}60^\circ\text{W}$) from the data set (20) does have a substantial impact on the inversion results. Including it in the GCTM-T97 and -OBM inversions reduces the North American terrestrial uptake by 0.4 to 0.5 Pg C year^{-1} and shifts it to Eurasia-North Africa.

The estimate of North American terrestrial uptake was found to be insensitive to large changes in the North Pacific uptake, and only weakly related to the Southern Ocean (south of 54°S) uptake. In contrast, for an incremental change in the temperate North Atlantic sink, the estimate of North American terrestrial uptake changes by ~ 1.5 times as much in the opposite direction. However, the temperate North Atlantic sink had to be increased by about a factor of 5, from 0.3 to 1.4 Pg C year^{-1} , to eliminate the North American sink (25).

A large North American terrestrial uptake was estimated consistently for a range of spatiotemporal patterns assumed for the terrestrial uptake (26), because subcontinental terrestrial signals are sufficiently smoothed at most of the air-sampling stations (Fig. 1).

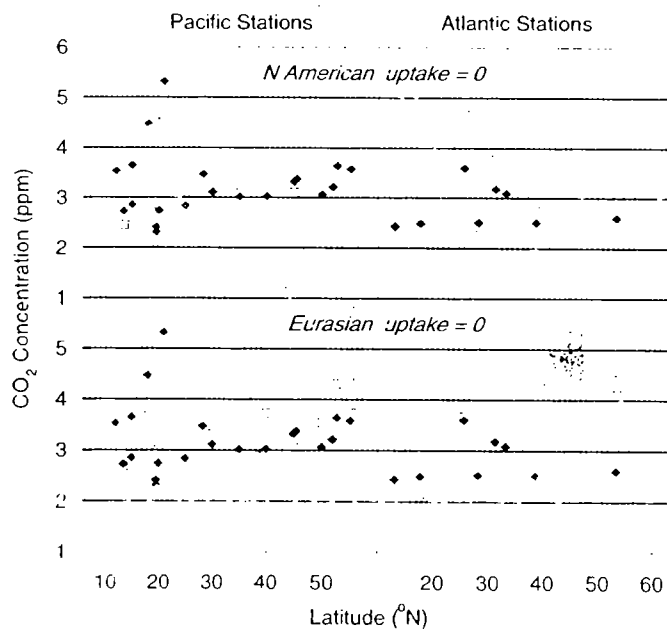
Suppose that our mean estimate of the North American terrestrial carbon sink were distributed uniformly over the forest region south of 51°N (Table 2) (27); then, the per

unit area forest uptake would be 3 to 4 $\text{t C ha}^{-1} \text{ year}^{-1}$. This is in the uppermost range of some independent measurements at local sites (28, 29). A lower estimate on the order of 1 Pg C year^{-1} for the North American terrestrial uptake, which is near the lower error bound of 1 SD (Fig. 2), would be in better agreement with the local measurements. However, even our low estimate is much larger than the 0.2 to 0.3 Pg C year^{-1} uptake estimated on the basis of forest inventory data for North American forests (30, 31), which did not take full account of carbon storage in soils, wetlands, and lakes (32).

The terrestrial uptake in North America is at least partly due to regrowth on abandoned farmland and previously logged forests (30, 31). Numerous field and laboratory studies have suggested that terrestrial uptake is currently enhanced by anthropogenic nitrogen deposition [0.2 to 2.0 Pg C year^{-1} globally, with much of this in the Northern Hemisphere (33, 34)], CO_2 fertilization [0.5 to 2.0 Pg C year^{-1} globally, with most of this in the tropics (33)], and global warming [mostly in the north temperate zone (8, 35)]. On the other hand, warming might also have reduced terrestrial uptake by enhancing decomposition (29, 36).

Although the inversion results indicate that the North American terrestrial uptake is large enough to be detected with current data and model constraints, its magnitude remains uncertain and its cause unknown. Thus, the immediate implication of our results is the need for additional constraints of four kinds: (i) intensive atmospheric sampling and ecological field studies to identify the location and cause of North American terrestrial CO_2 uptake; (ii) new atmospheric measurements to constrain estimates for Eurasia, South America, Africa, and Australia; (iii) studies to better characterize oceanic CO_2 uptake, particularly in the Southern Hemisphere; and (iv) reduced uncertainty in atmospheric transport modeling.

Fig. 3. Comparison of model-predicted atmospheric CO_2 concentrations ($\square$) with observations (1988–1992 average) ($\blacklozenge$) at Pacific and Atlantic sampling locations between 10° to 60°N . Model results are shown for GCTM with T97 sea-air fluxes, and with North American terrestrial uptake set to zero (that is, all Northern Hemisphere terrestrial uptake placed in Eurasia-North Africa), or Eurasia-North African terrestrial uptake set to zero (that is, all Northern Hemisphere terrestrial uptake placed in North America). Although the Mace Head station (in the Atlantic at 53.3°N) is an outlier in all plots,



it has little impact on the inversion estimates because predictions at this station are affected only slightly by zeroing North American or Eurasian uptake. Data are shown for the following locations, with their latitude ($^\circ\text{N}$) and longitude (a negative sign indicates $^\circ\text{W}$ and a positive sign indicates $^\circ\text{E}$) in parentheses: AVI (17.75, -64.75), AZR (38.75, -27.03), BME (32.37, -64.65), BMW (32.27, -64.88), CBA (55.20, -162.72), CMO (45.48, -123.97), CSJ (51.93, -131.02), GMI (13.43, 144.78), IZO (28.30, -16.48), KEY (25.67, -80.20), KUM (19.52, -154.82), MHT (53.33, -9.90), MID (28.22, -177.37), RPB (13.17, -59.43), SHM (52.72, 174.10), STP (50.00, -145.00), pocn15 (15.00, -150.00), pocn20 (20.00, -158.00), pocn25 (25.00, -154.00), pocn30 (30.00, -148.00), pocn35 (35.00, -143.00), pocn40 (40.00, -138.00), pocn45 (45.00, -131.00), scsn12 (12.00, 111.00), scsn15 (15.00, 113.00), scsn18 (18.00, 115.00), and scsn21 (21.00, 117.00).

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$$\chi^2 = \sum_{j=1}^q [B(x_j) + O(x_j) + F(x_j) + R(x_j) - S(x_j)]^2 \quad (2)$$

where q is the number of atmospheric sampling stations. In practice, it is convenient to reference all concentrations in the sum of squares to the value at the South Pole, and then solve for the values of α_i by using singular value decomposition [W. H. Press, B. R. Flannery, S. A. Teukolsky, W. T. Vetterling, *Numerical Recipes* (Cambridge Univ. Press, New York, 1992)] with a mass conservation constraint [G. H. Golub and C. F. V. Loan, *Matrix Computations* (Johns Hopkins Univ. Press, Baltimore, 1990)] that requires the terrestrial biosphere to balance all the other sources minus sinks.

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37. This research was carried out as part of the Carbon Modeling Consortium (CMC), which is supported by the Office of Global Programs and Geophysical Fluid Dynamics Laboratory of the NOAA. We acknowledge support from the Department of Energy. Stimulating discussions with our colleagues in the CMC and elsewhere is gratefully acknowledged, with particular appreciation to P. Bakwin, D. Baker, and M. Bender, I. Bruhwiler, R. Hemler, H. Levy, and W. Moxim provided advice on the GCTM and SKYHI simulations. T. Hughes helped access the OBM results, and C. Field provided the CASA simulation results.

29 May 1998; accepted 15 September 1998

North Atlantic Oscillation Dynamics Recorded in Greenland Ice Cores

C. Appenzeller,* T. F. Stocker, M. Ankin

Carefully selected ice core data from Greenland can be used to reconstruct an annual proxy North Atlantic oscillation (NAO) index. This index for the past 350 years indicates that the NAO is an intermittent climate oscillation with temporally active (coherent) and passive (incoherent) phases. No indication for a single, persistent, multiannual NAO frequency is found. In active phases, most of the energy is located in the frequency band with periods less than about 15 years. In addition, variability on time scales of 80 to 90 years has been observed since the mid-19th century.

The North Atlantic oscillation (NAO) is one of the Northern Hemisphere's major multiannual climate fluctuations and typically is described

C. Appenzeller and T. F. Stocker, Climate and Environmental Physics, University of Bern, Sidlerstrasse 5, CH-3012 Bern, Switzerland; M. Ankin, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ 85721, USA.

*To whom correspondence should be addressed. E-mail: christof.appenzeller@climate.unibe.ch

with an index based on the pressure difference between Iceland and the Azores (1). On multiannual time scales, variations in the NAO have a strong impact on North Atlantic and European climate (2) and also on the recent surface temperature warming trend in the Northern Hemisphere (3). In recent decades the winter index remained predominantly in a positive state, and there is evidence that during this period the variability might have increased (4). Analysis of various NAO indices (5) showed

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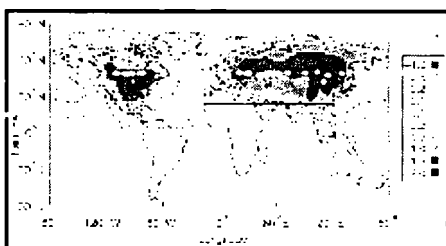
Possibly Vast Greenhouse Gas Sponge Ignites Controversy

Jocelyn Kaiser

As greenhouse warming experts try to predict how much the world's climate may heat up in the next century, they keep bumping up against a mystery: Where does much of the carbon dioxide (CO₂) pumped into the air actually end up? Answering this question could have huge ramifications for nations that ratify the climate change treaty signed in Kyoto, Japan, last December: Countries shown to harbor substantial carbon "sinks" could argue that an ability to soak up excess CO₂ should offset their emissions.

If those arguments prevail, it appears that North America may have drawn the winning ticket in the carbon sink sweepstakes. In what is shaping up as one of the most controversial findings yet to emerge in the greenhouse gas debate, a team of researchers on page 442 of this issue of *Science* presents evidence that North America sops up a whopping 1.7 petagrams of carbon a year--enough to suck up every ton of carbon discharged annually by fossil fuel burning in Canada and the United States. The magnitude of the apparent sink, says team member Jorge Sarmiento of Princeton University, "is going to be a lightning rod for all sorts of criticism."

Indeed, critics have already thrown up a fistful of red flags, attacking the study for everything from its methodology to its implications. "There's a huge amount of skepticism about the result," says ecologist David Schimel of the National Center for Atmospheric Research in Boulder, Colorado, who notes that at least one other group has calculated a much smaller North American sink. Moreover, a second paper in this issue--by a group led by Oliver Phillips of the University of Leeds in the United Kingdom (p. 439)--adds to the uncertainty. It points to a carbon sink in tropical South America so large that it is hard to reconcile with the Sarmiento group's results.



Disappearing act. Contours show how predicted CO₂ levels (in parts per million) would change if there were no terrestrial uptake in North America. Measured levels decline, rather than increase, from west to east North America, however, implying a large carbon sink.

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Especially worrisome, Schimel and others say, is that groups opposed to the Kyoto treaty will seize on

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the estimate to argue that the United States doesn't need to reduce its emissions to comply with the accord. "We're all really concerned that many people will find it convenient to accept the result," Schimel says. At the same time, scientists say this sort of calculation is a key step toward honing our understanding of the global carbon cycle. "The authors deserve a lot of credit for sticking their necks out," says climate modeler Inez Fung of the University of California, Berkeley.

At the heart of the debate is a simple math problem, resembling a chronic inability to balance one's checkbook, that has bedeviled scientists for nearly 2 decades. The balance sheet looks like this: Less than half of the 7.1 petagrams of carbon produced by human activity each year stays in the atmosphere. Although about 2 petagrams go into the oceans, another 1.1 to 2.2 petagrams appear to vanish into the land, likely taken up by plants during photosynthesis. Figuring out what's going on--whether the extra CO₂ is spurring faster tree growth, for example, or carbon is disappearing into soils--is crucial to learning whether reforestation and other actions might help stave off warming (*Science*, 24 July, p. 504). "If you understood the mechanism, you'd be in a much better position to say whether the sink will continue," says biogeochemist Richard Houghton of Woods Hole Research Center in Massachusetts.

To get at how much carbon the different land masses are absorbing, Sarmiento and his colleagues with the Carbon Modeling Consortium (CMC), based at Princeton, used an approach called inversion modeling. They first gathered data on atmospheric CO₂ levels taken from 1988 to 1992 at 63 ocean-sampling stations. Next, they divided the world into three regions--Eurasia, North America, and the rest--then fed the CO₂ data into two mathematical models: one that estimates how much carbon the oceans absorb and release, and another that gauges how CO₂ is spread across the globe by wind currents. When they fitted their models to the data, they found that, surprisingly, CO₂ levels dropped off slightly from west to east across North America--even though fossil fuel emissions should boost levels in the east. That meant there must be a big carbon sink in North America.

Straining belief among other experts is the sink's estimated magnitude--1.7 petagrams of carbon per year, plus or minus 0.5 petagrams--roughly equaling the continent's fossil fuel carbon emissions of 1.6 petagrams. "It's hard for me to know where that much carbon could be accumulating in North America," says Houghton. Data from forest inventories suggest the U.S. sink absorbs only 0.2 to 0.3 petagrams of carbon a year. Sarmiento's team suggests that the inventories have missed a lot of forest regrowth on abandoned farmland and formerly logged forests in the east fertilized by CO₂ or nitrogen pollution, and that they fail to account for carbon stored in soils and wetlands. But the result also suggests that Eurasia's immense forests are taking up only a fifth as much carbon as U.S. forests. "Ecologically, it seems almost incomprehensible," Schimel says.

Several modelers contend that the study is riddled with uncertainties. For one thing, the two models used to gauge carbon flux "could easily be off by just a little bit, and you get a very different conclusion," says Fung. The results could also be skewed by a dearth of data from the North Atlantic, as the authors note in their paper. For example, the group threw out readings off Sable Island, Nova Scotia, because the data were unreliable, says team member Pieter Tans of the National Oceanic and Atmospheric Administration. Factoring in Sable Island, the sink shrinks by 30%.

Even if the results do hold up, observers note, the CMC study's time period includes the 1991 Mount Pinatubo eruption, which led to cooler, wetter conditions and a much higher global carbon uptake than usual. "Some of this sink must clearly be ... transient," says Martin Heimann, a modeler at the Max Planck Institute for Biogeochemistry in Jena, Germany. And the findings clash with those from a team led by Peter Rayner of Monash University in Australia, which calculates a North American sink of only 0.6 petagrams of carbon from 1988 to 1992--about one-third the CMC group's estimate. The Australian group's results will be published next year in *Tellus*.

The CMC team acknowledges that its results strain credibility. "I have trouble quite believing" the size of the sink, says Tans, adding that "We're pushing the data pretty far." But, says Sarmiento, "we've really carefully analyzed the data in a lot of different ways." U.S. Geological Survey geochemist Eric Sundquist agrees: "The paper is a credible and rigorous interpretation of the available data."

More and better data, including direct measurements of carbon storage and flux over land, will be needed to narrow the gap between the two studies. Already, this approach has turned up a big surprise: According to the U.K. group's results, undisturbed tropical forests in South America are getting thicker and may account for about 40% of the missing sink, a figure seemingly at odds with the CMC group's inversion results. The study is the first to pool data from measuring carbon storage, or biomass, over 2 decades at over 150 tropical forest plots worldwide. "This illustrates the types of studies that really need to be integrated," says Sundquist.

Before this research has time to mature, however, the possibly vast North American carbon sink could be the subject of heated debate in climate treaty implementation talks next month in Buenos Aires, Argentina. If the CMC team's findings are accurate, "the most obvious conclusion" would be that "there's no need for the U.S. and Canada to curb emissions," says Heimann. Indeed, Steven Crookshank of the American Petroleum Institute says the study "calls into question the scientific basis on which we're making these decisions, when we still don't know if the United States is even emitting any carbon in the net."

But some observers argue that a large North American sink should not be an excuse to go easy on emission controls. Maturing forests eventually stop storing carbon, so "this part of the missing sink [won't] be with us forever or even much longer," says atmospheric physicist Michael Oppenheimer of the Environmental Defense Fund in New York City. "The existence of the sink isn't important. What's important is the changes in the sink."

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A Large Terrestrial Carbon Sink in North America Implied by Atmospheric and Oceanic Carbon Dioxide Data and Models.

S. Fan, M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, and P. Tans

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Volume 282, Number 5388 Issue of 16 Oct 1998, pp. 386 - 387

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Even Mahlman, one of the authors, has problems with it. So, the bold sentence at the bottom of our
tps is the best we can say right now, I honestly think. This new study implies we know far less about sinks than we assumed-- No one
understand why Eurasia didn't show up as a sink. The Sarmiento paper says the sink is up to 3 times what for
on the ground estimate. The one station they eliminated from the study would have changed the total estimat
tons of carbon. There is another paper in the same issue of SCIENCE that argues it's the tropics that are a huge si

The BEST angle is to say, 'see, forests are important'. But, as to how the heck one estimates
annual uptake or interannual variability is getting less clear....Very important to figure this out and
to begin to do test plots and pilot projects, but we're not ready to do this on a grand scale. I think
that's very consistent with our message to the hill, what we said in Kyoto, and what
we asked the IPCC to do.....RB

CLIMATE CHANGE:
Possibly Vast Greenhouse Gas Sponge Ignites
Controversy

Jocelyn Kaiser

As greenhouse warming experts try to predict how much the world's climate may
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sorts of criticism."

Indeed, critics have already thrown up a fistful of red flags, attacking the study for everything from its methodology to its
implications. "There's a huge amount of skepticism about the result," says ecologist David Schimel of the National Center for
Atmospheric Research in Boulder, Colorado, who notes that at least one other group has calculated a much smaller North
American sink. Moreover, a second paper in this issue--by a group led by Oliver Phillips of the University of Leeds in the United
Kingdom (p. 439)--adds to the uncertainty. It points to a carbon sink in tropical South America so large that it is hard to reconcile
with the Sarmiento group's results.

Disappearing act. Contours show how predicted CO2 levels (in parts per million) would change if there were no terrestrial uptake
in North America. Measured levels decline, rather than increase, from west to east North America, however, implying a large

carbon sink.

CREDIT: S. FAN ET AL.

Especially worrisome, Schimel and others say, is that groups opposed to the Kyoto treaty will seize on the estimate to argue that the United States doesn't need to reduce its emissions to comply with the accord. "We're all really concerned that many people will find it convenient to accept the result," Schimel says. At the same time, scientists say this sort of calculation is a key step toward honing our understanding of the global carbon cycle. "The authors deserve a lot of credit for sticking their necks out," says climate modeler Inez Fung of the University of California, Berkeley.

At the heart of the debate is a simple math problem, resembling a chronic inability to balance one's checkbook, that has bedeviled scientists for nearly 2 decades. The balance sheet looks like this: Less than half of the 7.1 petagrams of carbon produced by human activity each year stays in the atmosphere. Although about 2 petagrams go into the oceans, another 1.1 to 2.2 petagrams appear to vanish into the land, likely taken up by plants during photosynthesis. Figuring out what's going on--whether the extra CO₂ is spurring faster tree growth, for example, or carbon is disappearing into soils--is crucial to learning whether reforestation and other actions might help stave off warming (Science, 24 July, p. 504). "If you understood the mechanism, you'd be in a much better position to say whether the sink will continue," says biogeochemist Richard Houghton of Woods Hole Research Center in Massachusetts.

To get at how much carbon the different land masses are absorbing, Sarmiento and his colleagues with the Carbon Modeling Consortium (CMC), based at Princeton, used an approach called inversion modeling. They first gathered data on atmospheric CO₂ levels taken from 1988 to 1992 at 63 ocean-sampling stations. Next, they divided the world into three regions--Eurasia, North America, and the rest--then fed the CO₂ data into two mathematical models: one that estimates how much carbon the oceans absorb and release, and another that gauges how CO₂ is spread across the globe by wind currents. When they fitted their models to the data, they found that, surprisingly, CO₂ levels dropped off slightly from west to east across North America--even though fossil fuel emissions should boost levels in the east. That meant there must be a big carbon sink in North America.

Straining belief among other experts is the sink's estimated magnitude--1.7 petagrams of carbon per year, plus or minus 0.5 petagrams--roughly equaling the continent's fossil fuel carbon emissions of 1.6 petagrams. "It's hard for me to know where that much carbon could be accumulating in North America," says Houghton. Data from forest inventories suggest the U.S. sink absorbs only 0.2 to 0.3 petagrams of carbon a year. Sarmiento's team suggests that the inventories have missed a lot of forest regrowth on abandoned farmland and formerly logged forests in the east fertilized by CO₂ or nitrogen pollution, and that they fail to account for carbon stored in soils and wetlands. But the result also suggests that Eurasia's immense forests are taking up only a fifth as much carbon as U.S. forests. "Ecologically, it seems almost incomprehensible," Schimel says.

Several modelers contend that the study is riddled with uncertainties. For one thing, the two models used to gauge carbon flux "could easily be off by just a little bit, and you get a very different conclusion," says Fung. The results could also be skewed by a dearth of data from the North Atlantic, as the authors note in their paper. For example, the group threw out readings off Sable Island, Nova Scotia, because the data were unreliable, says team member Pieter Tans of the National Oceanic and Atmospheric Administration. Factoring in Sable Island, the sink shrinks by 30%.

Even if the results do hold up, observers note, the CMC study's time period includes the 1991 Mount Pinatubo eruption, which led to cooler, wetter conditions and a much higher global carbon uptake than usual. "Some of this sink must clearly be ... transient," says Martin Heimann, a modeler at the Max Planck Institute for Biogeochemistry in Jena, Germany. And the findings clash with those from a team led by Peter Rayner of Monash University in Australia, which calculates a North American sink of only 0.6 petagrams of carbon from 1988 to 1992--about one-third the CMC group's estimate. The Australian group's results will be published next year in *Tellus*.

The CMC team acknowledges that its results strain credibility. "I have trouble quite believing" the size of the sink, says Tans, adding that "We're pushing the data pretty far." But, says Sarmiento, "we've really carefully analyzed the data in a lot of different ways." U.S. Geological Survey geochemist Eric Sundquist agrees: "The paper is a credible and rigorous interpretation of the available data."

More and better data, including direct measurements of carbon storage and flux over land, will be needed to narrow the gap between the two studies. Already, this approach has turned up a big surprise: According to the U.K. group's results, undisturbed tropical forests in South America are getting thicker and may account for about 40% of the missing sink, a figure seemingly at odds with the CMC group's inversion results. The study is the first to pool data from measuring carbon storage, or biomass, over 2 decades at over 150 tropical forest plots worldwide. "This illustrates the types of studies that really need to be integrated," says Sundquist.

Before this research has time to mature, however, the possibly vast North American carbon sink could be the subject of heated debate in climate treaty implementation talks next month in Buenos Aires, Argentina. If the CMC team's findings are accurate, "the most obvious conclusion" would be that "there's no need for the U.S. and Canada to curb emissions," says Heimann. Indeed, Steven Crookshank of the American Petroleum Institute says the study "calls into question the scientific basis on which we're making these decisions, when we still don't know if the United States is even emitting any carbon in the net."

But some observers argue that a large North American sink should not be an excuse to go easy on emission controls. Maturing forests eventually stop storing carbon, so "this part of the missing sink [won't] be with us forever or even much longer," says atmospheric physicist Michael Oppenheimer of the Environmental Defense Fund in New York City. "The existence of the sink isn't important. What's important is the changes in the sink."

Thomas D. Peterson



Thomas D. Peterson
10/16/98 12:36:07 PM

Record Type: Record

To: See the distribution list at the bottom of this message

cc:

Subject: TP's on new climate article in SCIENCE

Our proposed talking points on the just released sinks article in Science strike me as overly defensive and likely to add to the perception that the US government continues to be "cool" at best to climate mitigation and credits through sinks. They may also reinforce the view that the administration views the climate change "problem" in an unnecessarily narrow manner.

Several congressional contacts called yesterday and today suggesting that this study adds to our ability to obtain forward thinking policy in this area - and to remind us that this is a sore spot with many friendly members, NGO's and industries (a point brought home rather clearly in a members meeting with cabinet last week). They do not, however, suggest that a study of this sort is necessary for us to move aggressively in the international or domestic policy arena given the ground level assessments already in the literature, and others in progress.

I suggest we take a second crack at our response to this new study and cast a more positive light on the opportunities for credit and investment: We should reiterate our strong support for comprehensive and aggressive policies on sinks and our plans to pursue them in Argentina and at home through much stronger domestic budgets related to incentives and capacity building. I also think we should be prepared to discuss this with the Senate Ag committee very soon, based on a flurry of incoming calls.

----- Forwarded by Thomas D. Peterson/WHCCTF/EOP on 10/16/98 12:18 PM -----

From: Dirk Forrister on 10/16/98 11:58:36 AM

Record Type: Record

To: Thomas D. Peterson/WHCCTF/EOP

cc:

Subject: TP's on new climate article in SCIENCE

----- Forwarded by Dirk Forrister/WHCCTF/EOP on 10/16/98 11:59 AM -----

Michael L. Rodemeyer 10/15/98 06:07:12 PM

Record Type: Record

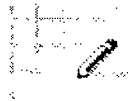
To: Dirk Forrister/WHCCTF/EOP

cc:

Subject: TP's on new climate article in SCIENCE

Dirk -- a head's up. This will be out tomorrow -- possibly in morning dailies.

----- Forwarded by Michael L. Rodemeyer/OSTP/EOP on 10/15/98 06:06 PM -----



Rosina M. Bierbaum
10/15/98 02:21:10 PM

Record Type: Record

To: Peter W. Backlund/OSTP/EOP, Ann P. Kinzig/OSTP/EOP, Michael L. Rodemeyer/OSTP/EOP

cc: Martin C. Offutt/OSTP/EOP, Sandra J. Toomey/OSTP/EOP, Gregory P. Guibert/OSTP/EOP

Subject: TP's on new climate article in SCIENCE

Here are the tps we gave CEQ and Todd for the Sarmiento paper. Thanks to Ann and Peter for quick compilation!

DRAFT OSTP Talking Points (October 15, 1998)

Summary: In tomorrow's *Science* (16 Oct 1998) researchers will report new evidence that North American ecosystems are absorbing significant amounts of carbon dioxide from the atmosphere -- up to 1.7 billion metric tons of carbon annually (*which would be more than total U.S. emissions*). This result could be used by critics of the Administration's policy as evidence that the US need not take action to reduce emissions, since it shows that U.S. forests are already taking up more than we emit. A number of factors undermine this argument.

First of all, this is only one modeling result, and is not yet confirmed by additional model runs. Moreover, some direct observational and experimental evidence suggests that the North American carbon sink may be much smaller. The authors themselves state that there are significant uncertainties in their results.

These results are for the period 1988-1992. There is no assurance that this rate will continue into the future, and there is considerable evidence from other studies that large forested areas switch back and forth between being sinks and sources of greenhouse gases.

It is also important to note that under the existing definition of allowable sinks in Kyoto Protocol Article 3.3, which is restricted to human induced sinks since 1990, the U.S. would not be able to claim credit for much of this sink, because most of the regrowth of U.S. forest lands began before 1990.

The article does provide very compelling evidence that forest sinks play a very significant role in the global carbon cycle, and provide a powerful argument in favor of the comprehensive approach advocated by the US -- inclusion of all sinks and sources of greenhouse gases in mitigation efforts.

"A Large Terrestrial Carbon Sink in North America implied by Atmospheric and Oceanic CO2 Data

and Models", written by S. Fan, M. Gloor, J. Mahlman, S. Pacala, J. Sarmiento, T. Takahashi, and P. Tans (researchers at Princeton and Columbia Universities, and the Commerce Department's National Oceanic and Atmospheric Administration).

Background: Carbon dioxide is a greenhouse gas that is associated with global warming. Its main human source is from fossil-fuel burning.

Evidence had already suggested there was a relatively large land "sink" for carbon (carbon being transferred from the atmosphere to vegetation or soils) in the mid- to high-latitude regions of the Northern Hemisphere, but the latest study suggests that the sink is mainly North American. The North American sink was estimated to be between 1 to 2 gigatons of carbon per year from the period 1988 to 1992; global fossil-fuel emissions during this time averaged about 5 to 6 gigatons of carbon per year. (A gigaton is 1015 grams.) The authors of the paper have emphasized that the magnitude and locations of sinks can vary significantly from year to year.

The mechanisms behind this carbon sink are not determined, but could include contributions from forest regrowth on previously cleared lands, carbon fertilization (where increased carbon in the atmosphere leads to increased plant growth), increased nitrogen deposition from industrial activity (where the nitrogen acts as a 'fertilizer'), and extensions of the growing season due to warming. All of these mechanisms promote only finite additional storage of carbon, and thus the sink is eventually expected to "saturate" and disappear.

The researchers emphasize that their results are highly uncertain, and the relevance of the result for mitigating future greenhouse warming cannot be assessed until this uncertainty is reduced. These results remain to be verified by independent studies.

Message Sent To: _____

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FACSIMILE TRANSMISSION SHEET

To	Gold Stern Ann Rence Edward S. Scahalew Roger Balafout	From	Tom Peterson
Office	456-2215 6-17-97 456-2710 6-16-98	Date	
Fax Number		Fax Number	395-2311
Office Number		Office Number	395-2310

Comments:

Pages: _____, including this cover sheet.

IF TRANSMITTAL IS INCOMPLETE, PLEASE PHONE

DRAFTNote:

From: Tom Peterson
To: Climate Staff
Subject: Farm State Members Meeting - Background And Q's
Date: October 5, 1998

BACKGROUND:

In August Todd Stern and Roger Ballentine asked me to set up a farm state senate breakfast as a part of cabinet level outreach associated with COP4. Towards that end, I have been working with a coalition of state senate staff to organize an ag/forestry members meeting, and to resolve other outstanding concerns on administration climate policy -- many of which are contained in a series of letters from the ag committee to the administration. Carbon storage (sinks) issues have been a prominent concern. I have been working with a number of White House and agency staff on these issues.

On September 15 this senate staff group met with David Sandalow (CEQ), Melinda Kimble (State), Jerri Berc (USDA) and me to air concerns over climate policy and outreach, particularly relating to sinks. In the process they requested that we organize a members meeting with Secretary Glickman, Under Secretary Eizenstat, and Janet Yellin -- as well as other follow up actions (noted below). Effectively this reinforced our earlier decision to host a members meeting. At this point it must happen in a few days to comply with congressional schedules.

Issues raised at the September 15 meeting are likely to be reiterated, and included:

- An expression that many members would like to support a climate change agreement, but cannot at present due to apparent weaknesses of the protocol on ag and forest issues, and due to a lack of support in agriculture and forestry industries at home.
- **Response:** Staff were assured that ag and forestry are policy priorities of the administration and will continue to be, both in domestic and international climate policy. This area deserves greater investment, and we will continue to expand outreach and policy development related to it.
- A belief that support in the ag and forestry communities can be developed through more aggressive outreach, if the administration gets more serious about it in key areas.
- **Response:** Staff were assured that the administration is pursuing outreach in these areas and is in the process of broadening this support at senior political levels in key agencies.
- A belief that international climate policies can be supplemented to deal with ag and forestry (including stronger action on sinks, trading, CDM, developing nations) and a desire to see commitment by cabinet officials to do so.

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- **Response:** Staff were assured that the administration is pursuing all of these areas as priorities, and it was noted that the existence of these provisions in the Kyoto Protocol, albeit incomplete, is due primarily to US persistence during COP3 negotiations. Follow up work for COP4 and beyond is in progress, although COP4 is likely to focus on process agreements, and not policy.
- Members are most focused on sinks, and believe that the administration and Hill should be able to agree that carbon storage is an essential part of climate policy that both can support.
- **Response:** Staff were assured that the administration agrees wholeheartedly and wants to work with the Hill and industry in this area.
- They believe arguments against strong, comprehensive policies for terrestrial sinks based on "scientific uncertainty" are a red herring. As well, they do not accept arguments that a lack of international support on sinks should deter the us from pursuing the issue at a domestic or international level.
- **Response:** Staff were assured that US policy is not being driven by these concerns, but that some international opposition is driven by perceived scientific uncertainty. In response, at the Bonn meeting this July, the US negotiated a special IPCC report on sinks due in 18 months to build technical consensus. This may include an article 3.4 workshop in the US next February. As well, federal agencies are conducting a substantial amount of research in this area to address technical needs.
- Specific requests were made to include top scientific experts on sinks from the federal government at relevant policy meetings, and to include top outside experts on its nomination list to the IPCC technical panel.
- **Response:** Staff were assured that the administration intends to do so. **Note:** at the Rome IPCC/SBSTA meeting September 23-25 it was agreed, at US request, that the IPCC technical panel would be opened to supplemental nominations. Task Force staff have since notified senate ag committee staff and may receive nominations. This opportunity for supplemental reps should relieve some tension over the makeup of the current IPCC/article 3.3 panel for the US, which was perceived by industry and some NGO's as inadequate.
- A number of farm state offices want to see the administration work with industry and NGO's on a domestic "no regrets" package over the next year or more that could be developed into a domestic incentives proposal. And they want hill staff to be looped into this process as observers.
- **Response:** Staff were asked how the administration should proceed in light of concerns about Kyoto Implementation. They advised us to develop a no regrets incentives package based on enhancements of existing ag and forest conservation provisions. **Note:** Prior to the meeting David Sandalow requested USDA, EPA and DOE to prepare an internal discussion paper on this issue, due next week. It is anticipated that this paper can then be used as a discussion tool with industry and NGO's through ongoing industry consultation discussions. Additionally, USDA, EPA and DOE have scheduled

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a series of technical meetings with industry and NGO's over the next year that focus on components of this package, as well as other technical issues.

- A belief that the administration has not yet allayed the fears of the ag and forestry community regarding energy cost impacts and trade shifts, and needs to do so quickly with an analysis of ag sector impacts that demonstrates affordable pathways for action.
- **Response:** Staff were assured that the White House has made this request known to USDA, and that USDA plans to release this analysis soon and hold a technical meeting. Staff were asked to contact USDA directly on its status.
- Specific requests were made for state and USDA to staff the issue broadly at senior political levels and research levels including: 1) a senior political point person at USDA; 2) engagement by a broad array of senior officials at USDA; 3) a dedicated policy and technical representative on ag and forest issues at state.
- **Response:** Staff were assured that these issues would be raised subsequent to the meeting. **Note:** follow up conversations are in progress.

Invitations are being extended to Senators Harkin, Kerrey, Wyden, Daschle, Baucus, Leahy, Roberts and Lugar to meet with Secretary Glickman, Under Secretary Eizenstat, and Janet Yellin this week at a location and time to be determined. Other White House staff to attend include: Todd Stern, David Sandalow, Roger Ballentine, and Tom Peterson.

Additional questions that can be anticipated at this meeting include:

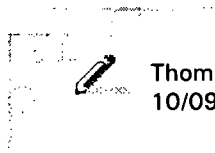
- How serious is Secretary Glickman about this issue and what is he planning to do to reach out to the Hill and industry? Who is his political point person on this? Who are the lead political players at USDA? Are they involved in serious outreach? What are the next steps?
- How serious is Under Secretary Eizenstat about agriculture and forestry interests, and what is he doing to deal with concerns in these industries? Who are the other lead political players at State? Who is the lead technical staff on ag? What are the next steps?
- Does the administration realize how critical the farm vote will be on this issue? Is it clear that ratification will be very difficult without it? What's the congressional strategy in this area?
- How do ag and forestry fit into the overall policy strategy by the administration? How far along is the thinking on how to treat the US ag and forest industries under a final international agreement?
- Does the administration realize that the Kyoto Protocol appears to be mostly punitive to ag and forest interests? What are you doing to develop positive incentives for these industries? How will sinks fit into this? What about bioenergy? Ag technology?
- What are you doing to keep the energy costs down for these industries? When can we expect action in these areas?

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- When will we see the ag sector analysis we asked for last year? What is USDA doing to respond to the Farm Bureau study on economic impacts? What can CEA Chair Janet Yellin do to allay fears in the industry? What is the administration doing to deal with trade shift concerns of US commodity producers? When can we expect results in this area?
- Who are you working with in the ag and forest industry? Have you seen any change in views over the past several months? How far away do you think we are from agreements with industry groups that will help win their support, and ours?
- What should we expect in your next budget proposal in this area? Any significant new emphasis on conservation incentives? What about bioenergy? Other technical assistance?
- NRCS just published a great book on carbon sequestration on US cropland that makes a powerful statement of opportunity in this area. What is the administration doing on comprehensive ag and forest sinks policies - specifically article 3.4 and other provisions under the protocol? When can we expect these additional provisions to be included in an international agreement?
- What are we doing at a domestic level in this area? Will you include proposals for demos and pilots in the next budget? What do you think about the view that there is too much scientific uncertainty on sinks to nail down an agreement? What are you doing to deal with these concerns?
- Will sinks be included in early action proposals by the administration? When will we see these? What are you doing to ensure credit for domestic sinks projects so that US money doesn't have to flow overseas on sinks projects?
- We've had a really rough year in the US on commodity producers - US production is down, and overseas production is up. Farmers are in a heck of a squeeze. Climate disruptions have hurt us. But climate mitigation looks like it could hurt farmers even worse with high energy prices. What are you doing in the long term to help farmers out of this squeeze?
- What is the administration doing to talk with ag and forest industries about severe weather impacts? What are you hearing from ag groups about this year's severe weather - any warming up to the connection with climate?

Agriculture Meeting
6 October 1998
4:00 PM

1. Todd Stern
2. Linda Delgado
3. Margot Anderson
4. Anne Pence
5. Susan Gordon
6. David Sandalow
7. Roger Ballentine
8. Tom Peterson
9. Michele Jolin



Thomas D. Peterson
10/09/98 01:11:24 PM

Record Type: Record

To: Jonathan H. Adashek/WHO/EOP, Todd Stern/WHO/EOP

cc: Roger S. Ballentine/WHO/EOP, David B Sandalow/CEQ/EOP, Rosina M. Bierbaum/OSTP/EOP

Subject: weekly

The White House Climate Change Task Force organized a farm state members meeting at 5 PM Thursday evening on behalf of Secretary Glickman and Under Secretary Eizenstat to discuss the status of climate change policy and identify ways to collaborate. Senators Lugar, Wyden, Kerrey and Harkin met with Secretary Glickman, Under Secretary Rominger, Under Secretary Eizenstat and Todd Stern for 45 minutes regarding their shared interest in supporting administration climate change efforts, contingent on much stronger support by the agriculture and forestry communities. Staff from Senators Baucus, Roberts and Daschle were also present.

Requests: This coalition wants the administration to: significantly upgrade its carbon sequestration policies and incentives programs in both agriculture and forestry; to increase emphasis on bioenergy development; to substantially increase its commitment to farm and forestry conservation incentives in the FY 2000 budget; to develop stronger and broader political and technical representation by USDA and the State Department on climate policy issues related to ag and forestry; and to create a stronger dialog and participation process for agriculture and forest industry groups on climate mitigation programs.

Response: Internal follow up discussions on FY 2000 budget will be held next week, along with discussion of White House and agency outreach to these groups. A White House/interagency paper on opportunities to expand ag and forest conservation incentives is in progress and due shortly. A high level briefing by USDA and State for ag and forest groups will be held before COP4 at USDA. Under Secretary Eizenstat is in the process of identifying opportunities to expand the visibility and profile of this issue in Buenos Aires at COP4. Consultations with forestry products industries are underway through the White House Climate Change Task Force. Preliminary meetings are in progress through the Task Force that could lead to consultations with some agriculture industries.



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

October 12, 1998
(House)

STATEMENT OF ADMINISTRATION POLICY

(THIS STATEMENT HAS BEEN COORDINATED BY OMB WITH THE CONCERNED AGENCIES.)

H.R. 3899 - American Homeownership Act of 1998 (Lazio (R) NY and 31 others)

The Administration supports the objective of H.R. 3899 – to improve homeownership opportunities for all Americans. The bill would complement many of the Administration's own efforts to expand homeownership. The Administration is especially pleased that H.R. 3899 would reauthorize the HOME program and the Neighborhood Reinvestment Corporation and create Homeownership Zones to promote development in distressed neighborhoods. The Administration, however, has a number of serious concerns about the October 7th version of the bill. In particular, the Administration opposes the provisions in H.R. 3899 that would:

- Require HUD to transfer ownership of certain FHA multi- and single-family properties to community development corporations or units of local government. This provision would unnecessarily restrict the Secretary's ability to dispose of property and safeguard neighborhood and taxpayer interests. This provision would also conflict with recently approved provisions of the 1999 VA/HUD appropriations bill which would improve the way HUD disposes of foreclosed FHA property. Lastly, the provision would duplicate current National Housing Act procedures for multi-family property disposition.
- Raise the Adjustable Rate Mortgage cap to 40 percent, with an increased premium for mortgages over 30 percent. The Administration does not believe that it is fair or desirable to charge higher premiums to additional ARM borrowers who carry the same risks as other ARM borrowers.
- Add unnecessary specialized analytical requirements to the Federal rulemaking process. The Administration strongly opposes the bill's requirement for a specific "housing impact analysis" because it would duplicate existing requirements and unnecessarily delay the rulemaking process. Federal agencies are already required to consider costs and benefits when developing a proposed rule and produce an economic analysis for major rules.
- Allow PHAs to capitalize Section 8 subsidies for downpayment assistance. This provision would further liberalize new homeownership opportunities for low-income families provided by the recently enacted FY 1999 VA/HUD bill, by reducing or eliminating the cash barrier to purchase posed by mortgage downpayment requirements. It could prove unworkable, however, if these families do not otherwise qualify for a mortgage or if many families subsequently default because they cannot afford the ongoing costs of the mortgage and other expenses.

- Relax the income targeting requirements of the HOME program. The targeting of the HOME program was established in order to supply affordable housing to low-income individuals. Any relaxation of the income requirements would dilute the targeting of HOME funds and decrease the number of low-income families that would receive assistance.
- Authorize a new HOME Loan Guarantee program that is inconsistent with existing Federal credit program standards. The Administration would support authorization provided this bill is amended to be consistent with existing Federal credit program standards. These standards are necessary in order to ensure the least expensive, most efficient method of financing for credit programs and minimize Federal exposure to loss.

The Administration understands that H.R. 3899 may be further modified before House action, and hopes that those modifications will address its concerns.

Pay-As-You-Go Scoring. H.R. 3899 would affect direct spending; therefore, it is subject to the pay-as-you-go requirement of the Omnibus Budget Reconciliation Act of 1990. OMB's preliminary estimate is that the bill could result in a net increase in direct spending during FYs 1999-2003.

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FACSIMILE TRANSMISSION SHEET

To	<i>Roger Ballentine</i>	From	<i>Tom Peterson</i>
Office		Date	
Fax Number	<i>446-6468</i>	Fax Number	395-2311
Office Number		Office Number	395-2310

Comments:*Just received - left
disamb***Pages:** _____, including this cover sheet.**IF TRANSMITTAL IS INCOMPLETE, PLEASE PHONE**

United States Senate

WASHINGTON, DC 20510

October 9, 1998

Stuart Eizenstat
Under Secretary of State for Economic, Business
and Agricultural Affairs
U.S. Department of State
Washington, D.C. 20520

Dear Ambassador Eizenstat:

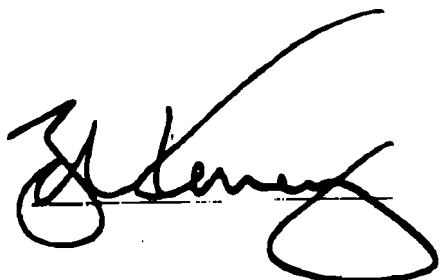
As you and your staff prepare for the upcoming meetings and negotiations of the Fourth Conference of the Parties (COP4) of the United Nations Framework Convention on Climate Change, scheduled for 2-13 November, 1998 in Buenos Aires, Argentina, we would like to express our concerns that an issue that is key to our interests be appropriately and adequately addressed. The issue is carbon sinks, particularly sinks within the agricultural sector. A few weeks ago, several members of the Senate Agriculture Committee sent a letter to Secretary Glickman to express our concerns that the Department become more engaged in this issue, both internally and with constituents. We are also concerned that this technical area be adequately represented in high-level discussions and strategy sessions within the Administration, and that USDA or U.S. scientists with the appropriate technical background (i.e. soil or forestry science) join U.S. delegations to technical meetings and workshops on these topics.

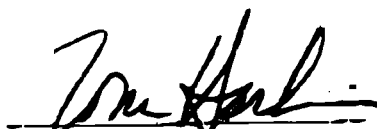
We think it is an important enough issue that a technical expert from the USDA with the relevant background be made available to your office on a full or part-time basis. We believe that the knowledge of such an individual for internal discussions and strategy sessions and for international negotiations on the topic would be helpful in insuring that the agricultural sector is positively incorporated into both domestic and international approaches to mitigating against climate change. Together with the signal that this addition would send to our constituents who are seeking constructive engagement on this issue, we feel that the benefits to your staff in preparations for COP4 and beyond will be a winning combination for the U.S. and the agricultural sector.

Eizenstat
Page 2 of 2

We welcome, as do our staffs, the opportunity to discuss these issue with you in greater detail, and look forward to your response.

Sincerely,


John Kerry



THE WHITE HOUSE

Climate Ag mty 10/8/98

Lugar - How much can we gain w/
sinks?

- what will be definitions of
"sequestration" etc. critical to
negotiations.

Wyden - Were missing big opportunity.
Has 5 proposals. 20% of whole
problem can be solved w/ sinks; more
politically palatable.

Kerry - want support of changes. Sept em-
mty not good enough. Ag groups have
been dealt out. Need to hear
from ag guys that they are being
included etc. Need sinks specialists.

~~ag groups~~ continue want just
briefings of ag groups; need
an inclusive process & their
active participation.

Lisa K

~~Penny K 624110 (Terry)~~

~~Glenn (Meha)~~

~~May 30th 682 9460~~

~~0600 x 231~~

~~Juanita Lague~~

~~6082 957 6105~~

~~Jessica (Sisutey) 705-6365~~

~~4315~~

Dave A

Climate Change: The International Process

- The United Nations Framework Convention on Climate Change (FCCC) was signed by the U.S. and more than 150 other countries at the Earth Summit in Rio de Janeiro in June 1992; the Convention refers to “sources and sinks of all greenhouse gases...”
- A second agreement was concluded in Kyoto, Japan in December 1997. It has several key features, including setting binding obligations for reductions in greenhouse gas emissions (again including all sources and sinks, but this time specifying the six major gases), and providing for innovative market mechanisms to be used to reduce the costs of emissions reductions.
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**U.S. Department of Agriculture
Office of the Chief Economist**

Room 112-A, Jamie L. Whitten Federal Building

Ag Box 3810

T. Stern 456-2215

T. Petersen 395-6870

D. Scudlow 456-2710

A. Pence: 647-0191

R. Belkhtine: 456-6468

1400 Independence Avenue, SW

Washington, DC 20250-3810

Phone: (202) 720-5955 (Collins)

(202) 720-4164 (Collins)

(202) 720-6185 (Glauber)

FAX: (202) 690-4915

RE:

Meeting with Farm State Secretaries

From

_____ Keith Collins

_____ Larry Salathe

_____ Joe Glauber

_____ Adela Backiel

_____ Jim Schaub

_____ Carol Goodloe

_____ Al French

_____ Ginny Taylor

720-4164

_____ Shirley Brown

✓ _____ Margot Anderson

MESSAGE

Talking points for Secretary + 2 proposed handouts (we handed these out at our Sept 10 briefing)

Number of Pages (including cover sheet)

(6)

Climate Change Talking Points

- Our commitment:** Climate change is an extremely important issue for USDA. Agriculture is more sensitive to weather than any other economic sector. Deeply committed to understanding how global change affects agriculture and forestry and what we can do to mitigate greenhouse gas emissions from these sectors. We can address the global greenhouse gas issue and protect the environment while carefully considering the interests of American farmers, foresters, ranchers, and consumers. USDA involvement occurs at highest levels down through research staff. Linda Delgado, Deputy Secretary Rominger's executive assistant is our point of contact in my office.
- Coordination office:** Global Change Program Office (in Chief Economist's office) coordinates agricultural, rural and forestry issues related to global change. Focal point for coordinating activities with other Federal agencies, interacting with the legislative branch, and representing USDA on U.S. delegations to international climate change discussions.
- Kyoto Progress:** Measurable gains since Protocol on carbon sequestration. IPCC (international scientific panel on climate change) was tasked with writing a report on carbon sequestration. Report will help parties implement Kyoto language. Two international workshops scheduled: one on forest sinks took place in September, 1998; another scheduled for March, 1999 in the U.S. sponsored, in part by USDA. Will cover agricultural carbon sequestration activities. These activities help to build international consensus on how to measure and verify carbon stocks and flows.
- Working together:** USDA is committed to working with Congress on domestic and international policy options on abating greenhouse gas emission and on sequestering carbon from forestry and agricultural activities.
- Outreach:** USDA has met several times with Congressional staff and meets frequently with constituent groups to discuss climate change issues. Our research staff are on the go presenting technical work on carbon sinks and new technologies to reduce greenhouse gas emissions. Committed to working with the White House Climate Change Task Force on an aggressive outreach program. Outreach includes high level meetings, technical/scientific meetings, and meetings with constituents groups. We also conduct outreach through our involvement in the national assessment. Goal is to clarify the science, understand the unique concerns of our constituents, and work together to find solutions to meet U.S. greenhouse gas goals.
- Economic analysis:** Now that CEA has finalized their assessment of the impact of the Kyoto

Protocol on the U.S. economy, USDA is finalizing our Senate-requested analysis of the effects of Kyoto Protocol on agriculture. Will schedule Congressional briefing to discuss our results.

USDA Research: Crucial to maintain strong research program on effects of climate change on agriculture. Even with Kyoto, climate change will occur and we need to have the tools available to help farmers, foresters and ranchers adapt to change. USDA is conducts international-recognized research on forest and agricultural carbon sinks. World's greatest research minds working on this issue.

Biomass: This is an area that we need to continue investigating. Without legislation or regulations requiring an increasing proportion of electric power to be produced from biomass, greater use of biomass is expected to be limited over the next decade. The use of biomass to produce electricity continues to be more costly than alternative sources using coal or natural gas, in most instances.

Budget Issues: 1999 request: \$57 million for global change research: \$10 million to support Climate Change Technology Initiative (research for biomass production; research on improved grasses and woody plants for electricity generation; carbon cycle research).

2000 request: \$62 million for global change research (includes new initiatives on carbon and impacts on agricultural ecosystems). \$10 million to support Climate Change Technology Initiative (research for biomass production; research on improved grasses and woody plants for electricity generation; carbon cycle research).

Senator Wyden: You've made several suggestions (to the White House) to enhance carbon sinks (expand CRP; increase tree planting programs; provide tax incentives to discourage premature harvests of older forests; increase USDA sequestration research on carbon sinks; and provide direct incentives to sequester carbon). I assure you we will look into your suggestions and examine how they might be implemented.

USDA GLOBAL CHANGE FACT SHEET



USDA's Global Change Program Office

- ▶ The issue of climate change is important for agriculture and forestry. The risks of climate change, such as higher temperatures, changes in precipitation, increased climate variability and extreme weather events can result in significant impacts on agriculture, forestry and rural areas. The risks posed by climate change and the substantial challenge presented by mitigation and adaptation strategies require a strong USDA commitment to global climate change issues.
- ▶ The Global Change Program Office operates within the Office of the Chief Economist and functions as the Department-wide coordinator of agriculture, rural and forestry-related global change program and policy issues facing USDA.
- ▶ The Office serves as USDA's focal point for climate change issues and is responsible for coordinating activities with other Federal agencies, interacting with the legislative branch on climate change issues affecting agriculture and forestry, and representing USDA on U.S. delegations to international climate change discussions.
- ▶ The Office ensures that USDA is a source of objective, analytical assessments of the effects of climate change and proposed mitigation strategies, and has a coordinated research program to address the multidisciplinary dimensions of climate change.
- ▶ Linda Delgado, Executive Assistant to Deputy Secretary Rominger, is the point of contact in the Office of the Secretary:

Phone: (202) 720-6158

Fax: (202) 720-5437

- ▶ Margot Anderson is the Director of the Global Change Program Office:

Phone: (202) 720-6186

Fax: (202) 690-4915

e-Mail: manderson@oce.usda.gov

web site: <http://www2.hqnet.usda.gov/oce/#gcpo>

How accurately can we measure carbon sequestration in agricultural soils

Changes in soil carbon stocks are difficult to verify because of their temporal and spatial heterogeneity. The most direct means of determining soil carbon sequestration is to measure, over time, sequential changes in soil carbon. Such measurements are complicated by the slow rate of change. And soil carbon can exhibit significant field-scale variability due to varying topology management history. Ongoing studies to quantify the capacity for agricultural activities as carbon sinks are needed. Many researchers agree that we need to: strengthen the soil carbon database; obtain better data on soil processes that affect carbon; and increase our knowledge about the carbon effects of land conversion and soil management. There is a need to develop and standardize a methodology that will translate farming systems in a landscape to carbon sequestration rates.

Is sequestering carbon compatible with other environmental goals important to agriculture?

Yes, USDA's conservation programs and many conservation practices available to and being used by farmers today represent a multifaceted opportunity in light of climate change. Adoption of appropriate conservation strategies lead to (1) carbon sequestration in soil, (2) improvement in soil quality (raising agronomic productivity and contributing to sustainable land use), and (3) enhancement of overall environmental quality (providing benefits of improved wildlife habitat, water quality and erosion reduction).

How are agricultural soil sinks treated in the Kyoto Protocol?

Agricultural sinks are acknowledged in the Kyoto Protocol, (particularly in article 3.4) in a limited manner. International consensus has not been reached on the role of carbon sequestration in soils for the first reporting period under the Kyoto agreement. International activities that can help achieve consensus include upcoming IPCC workshops focusing on sequestration activities, and an IPCC report currently underway on land use, land use change and forestry and the potential for greenhouse emission offsets. Keys to gaining international understanding of carbon sequestration include developing scientifically sound projections of the potential for sequestration from agricultural activities and developing agreed-upon methods for determining, reporting and verifying changes in soil carbon stocks.

What is USDA doing to better understand soil sequestration?

USDA research is focusing on understanding the role of agricultural ecosystems in the global carbon cycle. For example, scientists from USDA's Agricultural Research Service are using state-of-the-art technology to measure carbon dioxide emissions from soil during tillage and analyzing the rates of storage of atmospheric carbon dioxide as organic carbon in soils following the adoption of conservation practices. This research will help document the extent that agricultural soils can serve as sinks for greenhouse gases. Scientists are also measuring the rates of carbon dioxide assimilation of rangelands to help climate modelers develop better estimates of future atmospheric carbon dioxide levels. USDA's Natural Resources and Conservation Service is focusing on improving the Nation's soil carbon database. This information is necessary to show how much carbon has been lost and the potential for future sequestration. NRCS is also developing models to link on farm practices to carbon sequestration and to assess regional and national carbon sequestration rates.

USDA GLOBAL CHANGE FACT SHEET



Frequently Asked Questions about Soil Carbon Sequestration

What is soil carbon sequestration?

Atmospheric concentrations of carbon dioxide can be lowered either by reducing emissions or by taking carbon dioxide out of the atmosphere and storing in it terrestrial, oceanic, or freshwater aquatic ecosystems. A sink is defined as a process or an activity that removes a greenhouse gas from the atmosphere. The long-term conversion of grassland and forestland to cropland (and grazing lands) has resulted in historic losses of soil carbon worldwide but there is a major potential for increasing soil carbon through restoration of degraded soils and widespread adoption of soil conservation practices.

What agricultural activities sequester carbon?

Soil conservation practices not only reduce soil erosion but also increase the organic matter content of soils. Principal conservation strategies which sequester carbon include converting marginal lands to compatible land use systems, restoring degraded soils, and adopting best management practices. For example, removing agriculturally marginal land from production and adopting an ecologically compatible land use, such as wildlife habitat, can lead to increases in total biomass production and an increase in carbon content in the soil.

USDA programs such as the Conservation Reserve Program (CRP), the Wetland Reserve Program (WRP) and the Secretary's conservation buffer strip initiative all help increase soil organic carbon. Also important are various strategies for sustainable management of the soil, such as (1) conservation tillage, (2) management of crop residue and application of organic materials and manures, (3) soil fertility optimization through site-specific management, (4) elimination of summer (bare) fallow, (5) use of winter cover crops and rotations, and (6) other techniques that may improve crop yields and reduce on-site and off-site production risks.

How much carbon could actually be sequestered through these activities?

The total carbon sequestration and fossil fuel offset potential of U.S. cropland is estimated 154 million metric tons of carbon per year or 133 percent of the total emissions of greenhouse gases by agricultural activities. While agricultural lands can be managed to increase carbon storage, the increase can only *temporarily* offset greenhouse gas emissions. Many view land-based carbon sinks as buying valuable time to address the more significant challenge—reducing greenhouse gas emissions.

10 ⇒ Roger - 456-6468
DRAFT
for Ballentine

Note:

From: Tom Peterson
To: Todd Stern
Subject: Farm State Members Meeting - Background And Q's
Date: October 7, 1998

MEETING TIME AND PLACE:

Thursday, October 8, in room S-224 off the senate floor.

ATTENDING:

Senators: Wyden, Harkin, Kerrey, Lugar are confirmed. Roberts, Baucus and Daschle may drop in. Leahy will not attend. Staff from all invited offices may attend.

Administration: Principals - Glickman, Rominger, Eizenstat, Yellin, Stern. Staff from agencies and White House (David Sandalow has asked agencies to keep numbers down).

FORMAT:

Glickman opens and delivers five minute presentation.

Eizenstat follows with five minute presentation.

Discussion. All principals available for Q's and A's.

HANDOUTS:

State Department fact sheets on Kyoto and Buenos Aires. One pager on sinks - possible (David Sandalow review).

USDA fact sheets (David Sandalow review).

Calendar of agency outreach events - possible (David Sandalow review).

BACKGROUND:

In August Roger Ballentine and you asked me to set up a farm state senate breakfast as a part of cabinet level outreach associated with COP4. Towards that end, I have been working with a

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coalition of farm state senate staff to organize an ag/forestry members meeting, and to resolve other outstanding concerns on administration climate policy -- many of which are contained in a series of letters from the ag committee to the administration. Carbon storage (sinks) issues have been a prominent concern, along with political and technical representation by the agencies, the need for domestic action independent of international policy, and the need for stronger domestic outreach. I have been working with a number of White House and agency staff on these issues.

On September 15 this senate staff group met with David Sandalow (CEQ), Melinda Kimble (State), Jerri Berc (USDA) and me to air concerns over climate policy and outreach, particularly relating to sinks. In the process they requested that we organize a members meeting with Secretary Glickman, Under Secretary Eizenstat, and Janet Yellin prior to the end of this session -- as well as other follow up actions (noted below). Effectively this reinforced our earlier decision to host a members meeting.

Issues raised at the September 15 meeting are likely to be reiterated at tomorrow's meeting. They included:

- An expression that many members would like to support a climate change agreement, but cannot at present due to apparent weaknesses of the protocol on ag and forest issues, and due to a lack of support in agriculture and forestry industries at home.
- **Response:** Staff were assured that ag and forestry are policy priorities of the administration and will continue to be, both in domestic and international climate policy. This area deserves greater investment, and we will continue to expand outreach and policy development related to it.
- A belief that support in the ag and forestry communities can be developed through more aggressive outreach, if the administration gets more serious about it in key areas.
- **Response:** Staff were assured that the administration is pursuing outreach in these areas and is in the process of broadening this support at senior political levels in key agencies.
- A belief that international climate policies can be supplemented to deal with ag and forestry (including stronger action on sinks, trading, CDM, developing nations) and a desire to see commitment by cabinet officials to do so.
- **Response:** Staff were assured that the administration is pursuing all of these areas as priorities, and it was noted that the existence of these provisions in the Kyoto Protocol, albeit incomplete, is due primarily to US persistence during COP3 negotiations. Follow up work for COP4 and beyond is in progress, although COP4 is likely to focus on process agreements, and not policy.
- Members are most focused on sinks, and believe that the administration and Hill should be able to agree that carbon storage is an essential part of climate policy that both can support.
- **Response:** Staff were assured that the administration agrees wholeheartedly and wants to work with the Hill and industry in this area.
- They believe arguments against strong, comprehensive policies for terrestrial sinks based on

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"scientific uncertainty" are a red herring. As well, they do not accept arguments that a lack of international support on sinks should deter the us from pursuing the issue at a domestic or international level.

- **Response:** Staff were assured that US policy is not being driven by these concerns, but that some international opposition is driven by perceived scientific uncertainty. In response, at the Bonn meeting this July, the US negotiated a special IPCC report on sinks due in 18 months to build technical consensus. This may include an article 3.4 workshop in the US next February. As well, federal agencies are conducting a substantial amount of research in this area to address technical needs.
- Specific requests were made to include top scientific experts on sinks from the federal government at relevant policy meetings, and to include top outside experts on its nomination list to the IPCC technical panel.
- **Response:** Staff were assured that the administration intends to do so. Note: at the Rome IPCC/SBSTA meeting September 23-25 it was agreed, at US request, that the IPCC technical panel would be opened to supplemental nominations. Task Force staff have since notified senate ag committee staff and may receive nominations. This opportunity for supplemental reps should relieve some tension over the makeup of the current IPCC/article 3.3 panel for the US, which was perceived by industry and some NGO's as inadequate.
- A number of farm state offices want to see the administration work with industry and NGO's on a domestic "no regrets" package over the next year or more that could be developed into a domestic incentives proposal. And they want hill staff to be looped into this process as observers.
- **Response:** Staff were asked how the administration should proceed in light of concerns about Kyoto implementation. They advised us to develop a no regrets conservation package based on enhancements of existing ag and forest incentives provisions. Note: Prior to the meeting David Sandalow requested USDA, EPA and DOE to prepare an internal discussion paper on this issue, due next week. It is anticipated that this paper can then be used as a discussion tool with industry and NGO's through ongoing industry consultation discussions. Additionally, USDA, EPA and DOE have scheduled a series of technical meetings with industry and NGO's over the next year that focus on components of this package, as well as other technical issues.
- A belief that the administration has not yet allayed the fears of the ag and forestry community regarding energy cost impacts and trade shifts, and needs to do so quickly with an analysis of ag sector impacts that demonstrates affordable pathways for action.
- **Response:** Staff were assured that the White House has made this request known to USDA, and that USDA plans to release this analysis soon and hold a technical meeting. Staff were asked to contact USDA directly on its status.
- Specific requests were made for state and USDA to staff the issue broadly at senior political levels and research levels including: 1) a senior political point person at USDA; 2) engagement by a broad array of senior officials at USDA; 3) a dedicated policy and technical representative

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on ag and forest issues at state.

- **Response:** Staff were assured that these issues would be raised subsequent to the meeting. **Note:** follow up conversations are in progress.

Invitations were extended to Senators Harkin, Kerry, Wyden, Daschle, Baucus, Leahy, Roberts and Lugar to meet with Secretary Glickman, Under Secretary Eizenstat, Janet Yellin and Todd Stern.

Additional questions that can be anticipated at this meeting include:

- How serious is Secretary Glickman about this issue and what is he planning to do to reach out to the Hill and industry? Who is his political point person on this? Who are the lead political players at USDA? Are they involved in serious outreach? What are the next steps?
- **USDA tasked to respond.**
- How serious is Under Secretary Eizenstat about agriculture and forestry interests, and what is he doing to deal with concerns in these industries? Who are the other lead political players at State? Who is the lead technical staff on ag? What are the next steps?
- **State tasked to respond.**
- Does the administration realize how critical the farm vote will be on this issue? Is it clear that ratification will be very difficult without it? What's the congressional strategy in this area?
- **State and USDA tasked to respond.**
- How do ag and forestry fit into the overall policy strategy by the administration? How far along is the thinking on how to treat the US ag and forest industries under a final international agreement?
- **State and USDA tasked to respond.**
- Does the administration realize that the Kyoto Protocol appears to be mostly punitive to ag and forest interests? What are you doing to develop positive incentives for these industries? How will sinks fit into this? What about bioenergy? Ag technology?
- **USDA tasked to respond.**
- What are you doing to keep the energy costs down for these industries? When can we expect action in these areas?
- **State, USDA and Yellin tasked to respond.**
- When will we see the ag sector analysis we asked for last year? What is USDA doing to respond to the Farm Bureau study on economic impacts? What can CEA Chair Janet Yellin do

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to allay fears in the industry? What is the administration doing to deal with trade shift concerns of US commodity producers? When can we expect results in this area?

- **USDA and Yellin tasked to respond.**
- Who are you working with in the ag and forest industry? Have you seen any change in views over the past several months? How far away do you think we are from agreements with industry groups that will help win their support, and ours?
- **State and USDA tasked to respond.**
- What should we expect in your next budget proposal in this area? Any significant new emphasis on conservation incentives? What about bioenergy? Other technical assistance?
- **USDA tasked to respond.**
- NRCS just published a great book on carbon sequestration on US cropland that makes a powerful statement of opportunity in this area. What is the administration doing on comprehensive ag and forest sinks policies - specifically article 3.4 and other provisions under the protocol? When can we expect these additional provisions to be included in an international agreement?
- **State and USDA tasked to respond.**
- What are we doing at a domestic level in this area? Will you include proposals for demos and pilots in the next budget? What do you think about the view that there is too much scientific uncertainty on sinks to nail down an agreement? What are you doing to deal with these concerns?
- **USDA tasked to respond.**
- Will sinks be included in early action proposals by the administration? When will we see these? What are you doing to ensure credit for domestic sinks projects so that US money doesn't have to flow overseas on sinks projects?
- **White House tasked to respond.**
- We've had a really rough year in the US on commodity producers - US production is down, and overseas production is up. Farmers are in a heck of a squeeze. Climate disruptions have hurt us. But climate mitigation looks like it could hurt farmers even worse with high energy prices. What are you doing in the long term to help farmers out of this squeeze?
- **State and USDA tasked to respond.**
- What is the administration doing to talk with ag and forest industries about severe weather impacts? What are you hearing from ag groups about this year's severe weather - any warning up to the connection with climate?
- **USDA tasked to respond.**

DRAFT

Responses are in draft as per David Sandalow's request. Finals should be available tomorrow morning.

Climate Change: The International Process

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- A second agreement, negotiations on which began in 1995, was concluded in Kyoto, Japan in December 1997; it has several key features, including setting binding obligations for reductions in greenhouse gas emissions (again including all sources and sinks, but this time specifying the six major gases); and providing for innovative market mechanisms to be used to reduce the costs of emissions reductions.
- For the US, the magnitude of the potential sinks for carbon emissions provided by forests, soils and vegetative cover are revealing: Land use change and forestry activities in the US in 1995 is estimated to have led to an uptake of 117 MMTCE (which includes the carbon stored both in the U.S. wood product pool and in landfills), representing an offset of about 8 percent of the 1995 CO2 emissions from fossil fuel combustion.
- Recognizing the importance of sinks, the US aggressively sought to include in the Protocol each of these categories; they are contained in two separate paragraphs: (1) afforestation, reforestation and deforestation (in Article 3.3), and additional activities in the agricultural soils and the land use change and forestry categories (in Article 3.4).
- While the Protocol establishes various new mechanisms, few are fully operational. Specific details of the operation of the sinks offsets, as well as the market mechanisms are currently the focus of extensive debate, and will form a significant element of the discussions at the next meeting of the FCCC's Parties – to be held in Buenos Aires in November 1998.
- Current efforts are underway internationally to better assess the scientific, technical and methodological issues underlying the sinks issues, with a special report anticipated to be released by the Intergovernmental Panel on Climate Change in mid-2000 on this issue. The U.S. is actively engaged in that assessment process, and currently anticipates the effort will provide information on methods to more accurately count sinks as part of national efforts to limit emissions.
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Note:

From: Tom
To: Roger
Re: Sinks
Date: October 2, 1998

- David Sandalow is arranging a call from the VP to Glickman on this issue ASAP.
- Dave Carlin and Linda Delgado are working on a members meeting with Glickman, Eizenstat and possibly Yellin next week. Invites are going to Harkin, Leahy, Kerrey, Wyden, Daschle, Baucus, Roberts, Lugar. Todd will join, and I recommend that David Sandalow, you and I join as well.
- The latest international science meetings on sinks held in Rome and Vienna last week apparently went well for us. There was much heartburn in advance over the process, strategy and our representation. Based on an agreement, we now have a chance to supplement our representation. I recommend that Rosina do a debrief with ag and forest groups, with Hill observers, ASAP on this. I will talk with Rosina.
- State is doing a series of pre Argentina meetings with industry and NGO's that need to include a full invite to ag and forest groups, and specific discussion on sinks. I am working with Melinda's office on this.
- Staff of Harkin, Kerrey, Lugar will be in Argentina, along with Kerrey himself. We should have an internal meeting on this with our delegation prior to the meeting, in my view.
- Hill staff complained at our meeting, and afterward, that their bosses feel ostracized by us for speaking out in favor of more aggressive action on sinks. They note that they have not been invited to White House events on climate this year. I raised this with Todd last week and he asked to have Wyden and others invited to the next weather event. We may need to do more than that.
- David Sandalow commissioned an internal paper on potential enhancements to domestic ag/forest conservation and biofuels programs that deliver non climate as well as climate benefits. Deadline is two weeks. It includes sinks, biofuels and technology/land management. This paper should then be used as a discussion tool with industry and NGO's. I am working on a process to accomplish this.
- In general, we are making progress on the sinks issue but have not yet resolved members concerns. Staff and members going to B.A. intend to keep the pressure up.

DRAFT MEMORANDUM TO THE VICE PRESIDENT

Subject: Call To Secretary Glickman On Climate Change
From: David Sandalow
Date: September 28, 1998

Background:

As you know, the agriculture industry plays a key role on the Hill on climate change. To date the industry has appeared predominantly negative due to strident opposition from the American Farm Bureau Federation. In reality, however, most ag groups have not been particularly focused on climate change until recently, and they are just now starting a more serious and independent due diligence process. Over the past year the Farm Bureau took advantage of this relative vacuum and represented ag groups essentially by default. Its coal, oil and transportation allies want farmers to front some of their political concerns about energy prices.

A number of major commodity groups (including corn, cotton, soybeans, wheat) as well as some input suppliers and processors (including Monsanto, John Deere and Cargil) have indicated privately to us and our friends in the senate that they are interested in becoming more independent and supportive on climate change. Their concerns over severe weather, and a general disbelief in the Farm Bureau's viewpoints on some elements of climate change, appear to be growing. In addition, several key farm state senators have indicated an interest in getting more positive. This coalition includes: Daschle, Wyden, Harkin, Kerrey, Roberts and Lugar.

To be clear, these groups have strong concerns about some of our work, or lack of it, on climate change. And they are generally frustrated with an apparent lack of political representation for ag in the policy arena. But they have gone out of their way to indicate that they are not locked-in to a negative position, and see the potential for financial gains through bioenergy, carbon sequestration, and farming technologies. They are genuinely concerned about the prospect of chronically severe weather, and its disruptive effects.

They are asking for our help in several key areas:

- They want stronger political representation at USDA by the Secretary and other senior appointees, including appointment of a senior political contact. Frustration is high in this area.
- They want stronger representation in the State Department, particularly in the form of technical and policy support for Under Secretary Eizenstat as lead negotiator. Frustration is high here also.
- They want a more open budget process that allows them to help us develop expanded domestic climate mitigation programs to benefit the ag industry.
- They want us to complete our ag sector economic analysis, and hold a technical meeting with CEA and USDA to talk through our numbers, with a critique of the Farm Bureau's Sparks Institute study.
- Several farm state senators want a meeting with Secretary Glickman and Under Secretary Eizenstat prior to the next round of negotiations in Argentina in November.

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Ironically, this year's financial crisis in agriculture may help our work with the industry on climate change. As you know, this settlement is likely to involve several billion dollars related to floods, droughts and disease that have *reduced* US ag production in the face of *expanding* foreign production. While this is not totally attributable to anthropogenic climate change, part of it could be related, and it is certainly consistent with climate change projections. Presently no one in the administration has publicly linked climate change and the farm crisis, or spoken of the opportunity to enact preventive measures that could increase farm revenues. A tiny slice of the farm bailout package could easily fund the President's request for ag climate mitigation.

Talking Points:

- Dan and Stu should meet directly with the senate farm state coalition prior to our November meeting in Argentina. Key offices include: Daschle, Harkin, Kerrey, Wyden, Roberts and Lugar. They are anxious for a call.
- We should appoint a senior political contact at USDA on climate change as soon as possible.
- We should direct senior appointees elsewhere at USDA to begin working out concerns with constituency groups regarding climate outreach in coordination with the White House Climate Change Task Force.
- USDA's economic analysis should be reviewed and finalized as soon as possible, and a technical meeting held between CEA, USDA and industry groups.
- We should explore opportunities to discuss climate change and the farming crisis in ways that build support for preventive policies in agriculture.
- USDA should work with the White House Climate Change Task Force to start ongoing discussions with industry and NGO's on "no regrets" programs, including bioenergy, carbon sequestration, and farming technologies.

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United States Senate

COMMITTEE ON
AGRICULTURE, NUTRITION, AND FORESTRY

WASHINGTON, DC 20510-6000

202-224-2035

Sept. 2, 1998

The Honorable Dan Glickman
Secretary, U.S. Department of Agriculture
Room 200A Whitten Building
12th Street and Jefferson Drive, S.W.
Washington, D.C. 20250

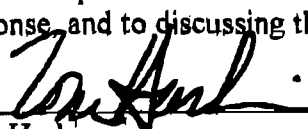
Dear Secretary Glickman:

As the November meetings of the Fourth Conference of the Parties (COP-IV) of the United Nations Framework Convention on Climate Change approach, we believe that the Department of Agriculture (USDA) needs to take a more active role as an advocate for the U.S. agricultural sector, particularly in terms of the Administration's preparations for those meetings.

Over the past several months, researchers from the USDA and elsewhere have provided valuable information and analyses on both the costs of climate change on agriculture and the potential benefits that can be derived from agricultural carbon sequestration and greater utilization of renewable fuels. However, we believe it is important that the Department also enter into the high-level policy discussions and strategic planning that will ultimately determine the U.S. negotiating position with respect to these critical issues when COP-IV convenes in Buenos Aires, Argentina in November.

With an eye toward improving the Department's policy record and strategic involvement in climate change issues, we would like to encourage greater interaction between high level members of your Department and staffers of key members of the Senate Agriculture Committee, to discuss the Department's activities in this area. These members are interested in ensuring that the agriculture sector's contributions and involvement in domestic climate change mitigation strategies are acknowledged and incorporated. In addition to outlining what benefits the sector can contribute to and garner from such strategies, it would also be useful to begin discussing ways to constructively engage the principals in this sector -- such as commodity groups, agricultural cooperatives, and agribusiness firms -- and to delineate clearly the potential benefits of their involvement, both domestically and internationally.

Since we now face two important deadlines, namely the end of the 105th Congress in October and the COP-IV meetings in November, we feel strongly that we should schedule such a meeting as soon as possible once the Senate reconvenes in September. We look forward to your response, and to discussing these issues with you very soon.


Tom Harkin

Wm. G. Gordon
Patrick Leahy

Tom Varchle
E. Kennedy

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FACSIMILE TRANSMISSION SHEET

To	<i>Roger Ballentine</i>	From	<i>Tom</i>
Office		Date	<i>9/17</i>
Fax Number	<i>456-6468</i>	Fax Number	<i>395-2311</i>
Office Number	<i>456-7500</i>	Office Number	<i>395-2310</i>

Comments:

*Background on reactions to
our sinks policy options.*

Tom

Pages: _____, including this cover sheet.**IF TRANSMITTAL IS INCOMPLETE, PLEASE PHONE**

DRAFT**Note:**

From: Tom Peterson
To: Todd Stern, David Sandalow
cc: Dirk Forrister, Roger Ballentine
Subject: Sinks Feedback
Date: September 15, 1998

BACKGROUND:

As you know, I've been meeting over the past few months with ag and forest industry and conservation groups, as well as the Senate Ag staff, to identify their interests and top issues on climate. The sinks issue comes up invariably as a major concern. To help you understand where they are on this, I've pulled together a compilation of their perceptions. I have not formally or systematically vetted our sinks policy options (something we should consider prior to October) so my sample is restricted. As far as I can tell, however, the feedback I have received is representative of the groups really in favor of, and focused on, strong sinks and carbon storage policies. Again, these are perceptions only, and they are based on imperfect information in some areas, I'm sure.

FEEDBACK:**Article 3:**

It still is not clear to most outside interests why we have separate articles on sinks: the first (3.3) with three arbitrarily chosen categories, and the second (3.4) with a process for additions. More logically the text should recognize the need for a comprehensive, full carbon accounting system (at least at for terrestrial carbon) and lay out procedures for adopting it at once, as we did for all six gases and essentially all known sources. Instead, one set of procedures were apparently used to arrive at the inclusions in 3.3, and another new process (the IPCC assessment for SBSTA) is now proposed for additions under 3.4.

This is awkward: Little of the process that yielded article 3.3 appears based on science, making scientific objections to additional, comprehensive inclusions under 3.4 less than credible. Further, it appears that US is effectively deferring to an international science body for its internal position

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through the IPCC process by declining to take a position in advance of the IPCC special report.

The prevailing view is that a comprehensive approach in Kyoto, versus the piecemeal agreement that resulted, would have served US interests better in a number of ways and been more balanced and consistent. The economic and environmental upsides appear very large. Nonetheless, it is recognized that "we are where we are."

Response: The US proposal going into Kyoto was for a comprehensive terrestrial accounting system - not for a partial system or stepwise process, and it remains so. We did not, however prevail on this point in Kyoto and as a consequence agreed to a partial resolution and continuation of the process to resolve outstanding needs. Unfortunately the international policy process is every bit the sausage factory as domestic law making, and it was certainly rough and tumble in Kyoto. In all fairness, virtually no delegation came to Kyoto prepared to fully engage the sinks issue, and this greatly handicapped the negotiation. Much of the "scientific uncertainty" argument against sinks forwarded in Kyoto reflected this lack of preparation as well as a general lack of investment in this part of the climate issue.

In Kyoto, the administration felt half a loaf was better than no bread on sinks, provided that we had a firm and realistic option for getting the whole loaf later. Indeed, this is where we are in the negotiating process now. We are trying to navigate a tactical and strategic pathway for installation of a full terrestrial carbon accounting system, including resolution of articles 3.3 and 3.4 combined. As you correctly observe, this will require an intensive effort on our part, and we need your help with technical support and outreach. The US however, cannot be alone or necessarily in the lead on the sinks issue. So international outreach and capacity building is also essential, not to mention development of US domestic support.

Options advanced for fixing this general problem include: 1) a major rewrite of the treaty; an expansive definition of the terms of 3.3 that effectively pulls in and resolves the 3.4 issues; an aggressive negotiation of 3.4 to include all terrestrial sinks categories.

Response: These are all possible options in our view, but we haven't decided which direction to go. We agree that the ultimate goal is to create a comprehensive carbon accounting system for terrestrial sinks and sources - both for national credits, and project credits. At this point we are open to the best tactical advice on how to achieve this, whether it be through a stepwise process that sequentially resolves article 3.3 issues, then article 3.4 issues, or a single packaged resolution of all. We are absolutely interested in your perspective on the pros and cons of these options, and your support. To be realistic, the parties may not be ready to deal with these issues in Argentina, and we may have better odds by waiting another year and building the domestic and international case. However, we must be sure that action in Argentina lays groundwork for our ultimate objective. Please give us comments!

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Article 3.3:

Advocates do not see resolution of the technical definitions in article 3.3, per se, as key to ratification, principally because it is viewed as a technical issue. On the other hand, resolution of 3.4 is seen as a major strategy and policy issue that will affect their ratification views strongly. The operating assumption is that some working definition of afforestation, deforestation and reforestation must have been used by our negotiators in Kyoto, that an established international definition exists, and that the final decisions on definitions will necessarily converge on these previously established views. Otherwise, the process of crafting novel new definitions could be quite problematic and risk unintended consequences. Hypothetically, if we figure out a way to formulate new definitions without downsides, they're for it. But this is hard to imagine and risky.

Article 3.3 is not necessarily a "now" issue to sinks advocates in comparison to the overarching strategy decisions involved in 3.3 and 3.4 COMBINED. However, they believe the administration strongly implied that the sinks issue (i.e. article 3.4) would be resolved in Argentina.

One caveat: Forest industries and forest conservation NGO's are deep into the detail on 3.3 and support a very careful and detailed approach. It's not clear to me that they think this has to happen "now", but it needs to be done right when it is. I have papers from AFPA, Pacific Forest Trust and Wyden's office that summarize their views if you don't already have them.

Response: These points are well taken. Indeed, we are seriously deliberating at present with the analytical implications of varying technical definitions under article 3.3, which are substantial, and with the larger issue of how far to go down the article 3.3 road before we deal with article 3.4. We very much recognize that the deal reached on 3.3 was predicated on a set of operative forestry definitions, and we are examining our interpretation of these closely. However, there is disagreement by some parties over those exact definitions, and they may have suffered from a certain amount of "reinterpretation."

Again, our ultimate objective is a full terrestrial carbon accounting system, and you correctly note that this requires joint resolution of articles 3.3 and 3.4. Our best evidence at present is that we don't have the necessary support to favorably negotiate article 3.4, so the next question is how far to go with article 3.3. Be assured that we have prevailed in our efforts to keep the sinks issue alive and preserve our option for a full negotiation of this at some point. The real issues we face now are timing and tactics.

Article 3.4:

The prevailing view by sinks advocates is that complete terrestrial carbon accounting will be a

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key factor in ratification support for several senators. They are increasingly into the details of the issue, and in all probability will want to see inclusions of all relevant ag and forestry activities. They believe risk and uncertainty issues can be resolved, particularly through discounting procedures for operational risk and uncertainty. It is recognized that this operational capacity may vary based on national circumstances. But it is thought that such a process would essentially be the same approach as we have advocated on emissions sources.

Response: This is a fair point. We would like to have a parallel process and policy on sources AND sinks, and we are trying to move tactically in that direction by beefing up the IPCC process and creating negotiation pathways for the COP. But, the reality is that much larger science and policy investment has been made on the sources side of this equation, so we have a lot of catching up to do. We definitely need to supplement basic science with implementation research on sinks to do this. In fact, the President intended that we invest in sequestration opportunities as a part of our domestic initiative on climate, so we have an open door here that we can work on together. We definitely appreciate specific budget and program ideas to achieve this.

It is very important to be aware that sinks advocates do not accept our view that new categories included in 3.4 should be restricted to those with a confidence interval (CI) of ten percent, or any other arbitrary or inconsistent cutoff level. Unfortunately, to them much of our policy position appears to rest on the criteria of scientific uncertainty. To give some notion of our internal views on this, the latest State Department draft position I have states: "What, if any sinks issues should be decided in Buenos Aires at this time? None... the scientific uncertainties with regard to how forests and soils interact with the climate preclude us from coming to any definitive conclusions in either regard at this time." (Revision #2, page 2, par a)).

Sinks advocacy groups believe this "uncertainty" argument against full carbon accounting is a red herring for a variety of reasons, and they seriously call into question the use of it as a the sole or primary determinant of policy feasibility in this area. Instead of postponing policy formulation and outreach on sinks due to uncertainties concerns, they believe we should float the option for full carbon accounting for all ag and forest activities that can be documented and discounted, and make tactical use of a longer-term technical process to iron out these procedures. They believe this would be a more appropriate role for the IPCC assessment.

Response: This is a fair concern and a fair suggestion, and we are seriously deliberating on the tactical implications of article 3.4 issues at present. To be honest, the US has not invested the same level of research and policy emphasis on sinks as it has on sources for a variety of understandable reasons, and this may have contributed to the lack of technical consensus in climate circles on uncertainty and implementation issues. This may also be why so much of the science debate plays out in atmospheric circles. However, this is changing as we look increasingly at land use as a source and solution, and our relative underinvestment in the past is potentially correctable with investment and policy focus. Sadly, the US is probably light years ahead of many other key parties to these negotiations in our work on sinks. We would like to make this issue a higher science and

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policy priority here in the US, and elsewhere.

We should remember, that emissions from energy related sources will be the top cause of future greenhouse gas increases, and must be a top policy priority if we are to have any hope of solving this problem. Increasingly, however, it is becoming clear that degradation of sinks has played a major role in the buildup of greenhouse gas concentrations, that a massive amount of terrestrial sequestration occurs at present in some locations, and that the potential for emissions reductions through sink enhancement is high, particularly in the near to mid term. There are many potentially large political, economic and environmental benefits. So we need to build this in to our policy mix as a prominent component. Along the way we need to improve both our basic science, which is spotty in some areas, and our understanding of implementation issues.

The following are some of the questions and negative reactions the "uncertainty" argument triggers:

- The balance of evidence test that led us to support binding targets and timetables in the first place is essentially a 51 percent test - certainly not a 90 percent test - and even at that it is full of uncertainties and caveats as indicated by IPCC.
- **Response:** Fair point, although the balance evidence on the climate signal is only one of several circumstances that we believe argue for action. Additional facts that support action include: greenhouse gases are persistent once emitted; greenhouse gas concentrations have increased substantially and can be reasonably projected to increase at high rates and levels; evidence is strong that climate change is underway; all GCM models project warming in the future; the rates and magnitude of temperature increases are likely to be unprecedented and basically irreversible for long periods; credible evidence exists that damages could outweigh benefits, perhaps dramatically in some cases. But you are correct that we do not have a crisp cause and effect data set that satisfies a ten percent CL. This is why our policies are intended to be precautionary at this stage, versus totally remedial. But it would not be consistent to erect a data requirement on CI's that really doesn't exist elsewhere on this issue.
- The IPCC has still not determined "dangerous" concentrations levels, and therefore our concentration target goals, even as ranges, are full of uncertainties inherent in calculating deleterious effects. Certainly the field of regional and local effects is rife with uncertainty, and our overall risk analysis on this issue far from the ten percent CI level of precision sometimes held out as a threshold for action.
- **Response:** Fair point, as noted above a number of other circumstances lead us to conclude we must take precautionary action, but that doesn't license us to be overly restrictive in our search for solutions.
- Oceans constitute an vastly larger source and sink in the carbon cycle than terrestrial sources,

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and our scientific understanding in this area is quite limited. It seems inconsistent to be overly preoccupied with uncertainty on terrestrial sources when even small changes in ocean measurements can overwhelm terrestrial measurements.

- **Response:** Fair point, although the reality is that the cost of waiting for full resolution of oceans science issues could be very high if it means postponing precautionary action on sources and terrestrial sinks. We need to proceed on both tracks jointly.
- Measurements of historical emissions include gases and activity sources that contain very significant uncertainties - either by national location, or by gas and activity. For instance, ruminant methane emissions are thought, at best, to be plus or minus 20 percent. Some of the developing nations fossil energy use data appears very sketchy. The list goes on... Yet our policy has been to accept the need for action in face of these uncertainties, and these activities and sources were included, with our support, in the Kyoto agreement. Why not a parallel approach on sinks? Why not an equal bias for action?
- **Response:** Fair point. We should have an equal bias for action on sinks based on current science and policy. And we shouldn't use international opposition as an excuse; if we have at any time left this perception, it is in error. It is our intention to create a parallel track on sinks, the only issues are timing and tactics. Be assured that it is a priority.
- The "too much noise in the system" argument is exactly what some industry groups have used to oppose action on emissions reductions. It seems ironic for us to use the same logic in resisting strong credits for sinks.
- **Response:** Agreed.
- A full terrestrial accounting system needs to be honest about anthropogenic as well as natural emissions. There isn't necessarily a nice bright line separating the two, as in the case of many landscape related emissions. It is also true that there are many emissions sources in both the man-made and "natural" categories that don't meet a ten percent CI. The atmosphere doesn't care whether the molecule of greenhouse gas is natural or anthropogenic, nor it's source or sink status. Yet we have supported actions on the anthropogenic side and largely ignored the natural side. Stated another way: A full terrestrial carbon accounting system has four corners, not two: natural and anthropogenic sources on the one side, and natural and anthropogenic sinks on the other. The lines between natural and anthropogenic in some of these areas have been drawn out of convenience and necessity, not scientific reasons. As a consequence, it makes little sense to exclude "natural" emissions, or sinks, from an accounting system. If, we do so, we ignore many significant areas.
- **Response:** Fair points. We need to keep an open mind about what causes this problem and how we solve it, and not get caught in the trap of focusing only on those

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areas we can measure best at the moment. And our research plans need to continue to build understanding all areas of the greenhouse gas accounting system. I believe this has been the intent of US research efforts. The fact that we have proposed and agreed to take serious action in one area should not be construed to mean that we do not intend to look at others as well. Part of what's going on in the policy process is a sequencing of issues, hopefully in rank order of priority. What is clear to now, based on emerging science and policy concern on sinks, is that it must be a priority in this process.

- Forecasts of future emissions from anthropogenic and natural sources contain uncertainties driven by the inherent difficulties of time-based projections, as well as cross-sectional uncertainties. As a consequence, we cannot predict with any real precision what source emissions will be in the future. The best we can do is set broad ranges, certainly beyond a ten percent confidence level. For instance, ex ante review of energy forecasts show enormous error in past estimates on petroleum demand and supply, not to mention prices. The same can be said for many basic industrial emissions which are heavily affected by macro environmental factors (notoriously hard to predict) as well as microeconomics strategy decisions that affect emissions output (also hard to predict). In some ways, these involve more uncertainty than landscape related changes over time. Witness the steel industry debate where business as usual emissions estimates by 2008 run from plus 15 percent growth (EIA) to minus 25 percent (EPA), with the industry predicting plus 10 percent.
- **Response:** Fair points, as noted in previous responses. There is uncertainty in emissions projections. Our policies are intended to reflect, not deny, that reality. Of course, we have uncertainty on sinks in the same regard as you note, and we must act with prudence and precaution here as well.
- The "missing sink" question is viewed as largely irrelevant to the question of whether a given sink activity can be documented, and operationally discounted for uncertainty and risk. The top-down macro approach doesn't address this issue per se, and appears academic. To the extent that it is relevant, federal research seems to be concluding that the missing sink is likely to be terrestrial in the northern hemisphere - adding further credence to bottom up estimates and frankly calling into question the negotiating assumption that gross emissions estimates accurately portray national responsibility for causing the problem. (Will the US still be the world's leading emitter if the missing sink is indeed terrestrial, northern hemisphere?). It also raises the issue of who's research we are relying upon for our uncertainty conclusions - if our own leading scientists are saying this, why do our international negotiators hold a different view?
- **Response:** This is another fair point, and raises an interesting negotiating point. You have correctly observed that the Kyoto negotiation was based largely on gross emissions numbers by nation, rather than net, due to shortfalls in accounting systems. At present we do not have a crisp double entry accounting system for all

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(any?) nations that can accurately portray their NET contribution to emissions. So the gross figures have been used as a proxy. Obviously this involves error risks. Our leading federal scientists on sinks are indeed saying that the US sequesters large amounts of carbon compared to gross emissions and has the capacity to do significantly more in the future with policy. They also advise us that in some areas this is quite sketchy; in others it's much better. By negotiating article 3, and article 3.4 in particular, we created a mechanism by which this double entry system could theoretically be installed in the climate framework. We are undertaking a variety of basic research to facilitate full carbon accounting, and it will require a sustained research effort, not to mention an intense negotiating effort to assuage doubts by some international detractors that this is just another US loophole.

- There is a general concern that we put more stock in our atmospheric scientists than our terrestrial scientists on sinks issues. Related to this concern is disappointment and general puzzlement over the US submission of technical participants in the IPCC special report on sinks. Calls from NGO's, and ag and forest industry, indicate that they were not consulted, and do not feel the scientists chosen for this process represent the science of forest and agriculture carbon management particularly well. The emphasis appears to be on atmospheric science. None of the top federal researchers are listed (Rich Birdsey et al?).
- **Response:** We were not aware of your concerns that this list did not represent our best technical expertise in this area and will look into it. We will also try to make sure the panel going to the article 3.4 meeting in February includes our top forest, range land and soil experts on carbon storage. Certainly we agree that our top sinks experts should represent us in the technical process with IPCC. It is my understanding that we asked for industry and NGO submissions for this list. I'm interested in knowing who you recommend for both the 3.3 and 3.4 panels.
- Bottom up estimates from the US forest service (Birdsey, et al) apparently show 10 percent CI for above ground forests, and 25 percent for forest soils, not at all inconsistent with uncertainties involved in many source emissions, as noted above. Ag soil estimates are improving and already in this ball park in some areas as well (Kimble, et al).
- **Response:** Agreed. The recent book by NRCS on cropland sequestration is very helpful, as well as work provided by Dr. Birdsey. Both were presented at Senator Wyden's seminar this summer and are a part of our knowledge base. If you have other studies that provide documentation in this area, they would be very helpful.
- While there is volatility in some sinks measurements from year to year, this is driven by primarily by climate variability (Kimble, Lundquist, et al). So the root of inter-annual variation is the same "noise" in the climate system that makes the climate change "signal" so difficult to decipher in the first place (the balance of evidence issue noted earlier). Obviously, we have acted in the face of substantial noise in the climate system.

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- **Response:** As Dr. Lal and Dr. Lundquist mentioned at Senator Wyden's briefing, there is noise in the soil sinks system that varies based on ecological factors. Clearly, climate variation itself is one of them. Unfortunately, warmer temperatures may distort this process as well. It sounds like we need more research in some of these areas to pin down the sources and size of variation. But this should not prevent us from attempting to score carbon storage in soils as a policy issue. It may simply be that the discount rate for uncertainty remains a bit high until this clears up. It may also be that this is much clearer by 2008. So we should keep this door open for sure, and continue work on it.
- Volatility in measurements of annual carbon storage does not in and of itself constitute a barrier to estimation, discounting, or real carbon returns (witness the field of finance, investment and portfolio management). Inter-annual volatility can, of course, be analytically smoothed with multi-year averages (as we have done with emissions sources - witness multi-year targets) and other more complex analytical procedures. And, portfolio risk can be managed through discounting and diversification. Why not approach the variability problem in this manner?
- **Response:** Good suggestion. This issue should be raised in technical sessions that are planned by the agencies with industry, NGO's and universities. We look forward to more guidance in this area, but agree that uncertainty per se should not be a bar to action.
- Furthermore, volatility should not be the sole measure of investment potential for a sink activity. Magnitude must also be considered. Federal research leaders (Kimble, Birdsey et al) indicate carbon storage magnitudes are potentially very high. By way of analogy: the stock market is also volatile, but its magnitude and long-term return make it a very good investment. US forest sinks are estimated at 300 MMTCE per year during the first Kyoto budget period (Birdsey et al), and US ag soil sinks add potentially another 140 - 200 MMTCE per year (Kimble, Lal et al). Given that this constitutes well above half of our Kyoto commitment, it raises the issue of "why not" pursue it.
- **Response:** Agreed. The potential for sinks credit and enhancement in the US and worldwide appears large and potentially manageable. So it should be a priority. We will continue to press forward.
- A given level of "scientific" uncertainty today is not likely to hold in ten years. So, the fact that we have high uncertainty in current estimates of certain sinks today does not preclude us from improving estimates through additional research (provided we actually do it - which is another issue). It also does not preclude us from discounting current sinks estimates with existing uncertainty adjustments, and then revising these estimates and discount rates in the future, as we intend to do with source emissions.

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- **Response: Agreed.** Discounting for risk and uncertainty is a well established analytical precedent that appears to hold great promise for sinks, as well as sources. We have articulated this view in policy deliberations and negotiations and will continue to do so. We also will look at policy analysis needs in this area. It is important that we develop the PROCESS for discounting, as well as preliminary discount rates for the first budget period. But we must also bear in mind that these rates will change with research and testing. So we must have verification procedures that accommodate an evolving process.
- Similarly, the future discount rates for sinks shouldn't be the top decision before us today. Instead, our focus should be on what's in and what's out in articles 3.3 and 3.4 COMBINED. It is not at all clear that we need to know point estimates and discount factors in advance in order to agree to a comprehensive system for the future. Just as we have agreed to comprehensive inclusions of gases and source activities on the emissions side and then undertaken longer term research for scoring procedures, we could agree immediately that we want comprehensive inclusion of sinks by gas and activity, and work out scoring systems later. This is also why the article 3.3 definitions are not necessarily considered a "now" decision. What's in and what's out of the overall terrestrial carbon accounting system is, however, a "now" issue.
- **Response: Agreed.** But as noted earlier, the sequencing of 3.3 vs. 3.4 vs. the combination of the two is more a tactical than strategic issue in our view. We agree that a full terrestrial carbon accounting system is the way to go.
- A line item listing of sinks in article 3.4, with a requirement for a CI of ten percent, is neither necessary nor appropriate as an approach to establishing a full carbon accounting system. First, the ten percent CI requirement seems entirely arbitrary and inconsistent for the several reasons stated above. Second, a detailed line item list is likely to engage all of the technical issues now under debate for article 3.3; these are secondary and longer-term implementation issues that will drag on endlessly. The more relevant first step is to resolve the overall strategy decision of whether or not to have a full carbon accounting and, if so, which very general categories to include in 3.4. On this point, advocates would like to see language explicitly recognizing all ag and forest activities that can, at least potentially, sequester carbon. I am not sure if the catch all phrase "sustainable" agriculture and forestry does this, because it is a loaded term subject to widely varying interpretations. Nonetheless, a clear general inclusion is needed, with an agreement to work out scoring and discounting procedures later.
- **Response: Agreed,** as noted above. We are open to your insights on language that covers the relevant categories of a comprehensive system.
- The President has a stated policy of support for a \$6.3 billion R&D development and diffusion plan that is essentially an technology engineering approach to reducing

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anthropogenic emissions from the energy sector. Returns from these investments are, arguably, no where near the ten percent CI, and we have not included them in our economic analysis for that reason. Technology returns are quite speculative. On the other hand, investments in sinks are at least as certain, if not more so, than R&D investments. And they are immediate. Why not give them equal status in administration policy? Why not broaden and deepen the portfolio - particularly when the returns on sinks are near and mid term, and the returns on engineering R&D are long term? Wouldn't this build a more strategic, higher return portfolio?

- **Response:** Absolutely. It is our intention to create a diversified portfolio that is optimally structured in time and across action areas. And sinks can play a very key role as you note. Our first installment of the \$6.3 billion R&D package was intended to deal with the most energy intensive sectors. But that doesn't mean we've forgotten sinks or other issues. In fact, we are very interested in your suggestions on budget items that would address portfolio building in this area. Please share!
- To further use the analogy of an investment portfolio, it appears as if we are artificially narrowing our investments to guaranteed, fixed income securities by focusing on the sources we can measure well. In the process, we appear to be bending this rule heavily for one category of investments (anthropogenic sources) and ruling out high return variable rate securities on the others. Not only does this bar us from participating in a high magnitude and high return segment of the carbon reduction market, but this segment may prove to be a large and deep percentage of the overall portfolio opportunity. And, more to the political point, our current portfolio ain't performing very well...
- **Response:** Again, we agree in portfolio optimization and it is our intention to do so. The sequencing may be sending the wrong signal, and we can change that by working with you now to identify budget actions that you could support towards this end. We also need to deal realistically with portfolio constraints at home and abroad, and loosen those constraints where possible and appropriate. Let's work together on this.
- A final, more political issue arises if and when we explain that a comprehensive full carbon accounting system is not "realistic." The blunt response will be that our targets and timetables in Kyoto are not realistic under current text and policy. Further, we indicated to many supporters that an agreement on trading was not realistic at Kyoto, yet the US prevailed by insisting that it was a priority and sticking to its guns. Isn't the issue of sinks also a priority? Can't we make it realistic by making it a must have?
- **Response:** Yes, the Kyoto agreement is ambitious and revolutionary in some regards. If we do not obtain flexibility measures and meaningful participation, as well as comprehensive treatment of sinks, it will be far more ambitious. But we are convinced it is a sensible and affordable start if we get a full agreement on outstanding issues. Obviously, we're not there yet. But we have the opportunity if we

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work together. We really appreciate your support and suggestions on that process, particularly on sinks. I know the sinks issue could be a big win-win for many constituencies in the US and abroad if we can pull it together. We can't mislead you into thinking that will be easy. We have technical and political hurdles. But we also have intent. Let's talk about where we go from here to keep this discussion alive and turn it into successful policy.



Thomas D. Peterson
07/17/98 10:52:31 AM

Record Type: Record

To: Todd Stern/WHO/EOP
cc: Jonathan H. Adashek/WHO/EOP, Roger S. Ballentine/WHO/EOP, Julie M. Anderson/WHCCTF/EOP, Dirk Forrister/WHCCTF/EOP
Subject: Ag outreach events

Regarding suggested ag outreach events:

Glickman/Eizenstat congressional members event

We will need to make a decision very soon on a Glickman/Eizenstat congressional members ag event (breakfast or otherwise) if we are to schedule it for September. I will work up a sign off proposal for you to review early next week if you want to proceed. After that I will need to work with personal offices in the Senate (and House if applicable) to find a date. September is already tight for members.

Ag industry event with Rominger and Eizenstat

I have the same concern over scheduling of a September ag industry event with Rominger and Eizenstat. Stu's schedule is tight, so the more lead time the better. I will also work up a signoff proposal on this.

DC ag reps briefing

Linda Delgado at USDA (Rominger's chief of staff) is working out schedules for Undersecretaries and Department Heads at USDA for a DC ag reps briefing in a few weeks. Susan Gordon is waiting for dates from USDA in order to schedule Melinda Kimble. I have also put Dan Reicher and David Gardiner's offices on notice that we will need them involved. I reviewed our invite list yesterday and believe it will be about 50 groups if it is all-inclusive. We can trim this if we need to. We could also add a half dozen forestry groups and do them at the same time with no problem. Let me know if you want to do this. Also, do you want friendly congressional staff to observe?

USDA talking points

Have you decided what you want to do with the USDA talking points? I thought they needed surgery. Our box of ag mitigation solutions could/should be larger and stronger, and the problem stated more clearly and forcefully.

Technical workshops

I will work up a proposed calendar of technical workshops, seminars, etc. for technical consensus building over the next week or two with agencies. Key issues include: economic impacts, energy efficiency, sequestration, trading, emissions reduction technologies, biomass/biofuels, weather variability, pest management. These are the underpinning of mitigation strategies that will require budget and policy action.

USDA economic analysis

I asked Keith Collins' office to complete the internal vetting process with their ag sector economic analysis and be prepared to do a senate ag brief before August recess. I will get back with you with a date of completion for the vetting and a briefing proposal. Internal vetting should include CEA, EPA, DOE at a minimum. Joe Aldi is a USDA employee who was hired by and reported to Margo Anderson, and they have been in contact.

Please advise.

**White House Climate Change Task Force**

734 Jackson Place, N.W. • Washington, DC 20503

FACSIMILE TRANSMISSION SHEET

To	Roger Ballentine	From	Tom Peterson
Office		Date	7/21/98
Fax Number	66468	Fax Number	395-2311
Office Number		Office Number	395-2310

Comments:

Pages: 10, including this cover sheet.**IF TRANSMITTAL IS INCOMPLETE, PLEASE PHONE**

Joe Walker

To: Global Climate Science Team
Cc: Michelle Ross Susan Mays
Subject: Draft Global Climate Science Communications Plan

As promised, attached is the draft Global Climate Science Communications Plan that we developed during our workshop last Friday. Thanks especially to those of you who participated in the workshop, and in particular to John Adams for his very helpful thoughts following up our meeting, and Alan Cawdell for turning around the notes from our workshop so quickly.

Please review the plan and get back to me with your comments as soon as possible.

As those of you who were at the workshop know, we have scheduled a follow-up team meeting to review the plan in person on Friday, April 17, from 1 to 3 p.m. at the API headquarters. After that, we hope to have a "plan champion" help us move it forward to potential funding sources, perhaps starting with the global climate "Coordinating Council." That will be an item for discussion on April 17.

Again, thanks for your hard work on this project. Please e-mail, call or fax me with your comments. Thanks.

Regards,
Joe Walker

April 3, 1998

Global Climate Science Communications Action Plan

Situation Analysis

In December 1997, the Clinton Administration agreed in Kyoto, Japan, to a treaty to reduce greenhouse gas emissions to prevent what it purports to be changes in the global climate caused by the continuing release of such emissions. The so-called greenhouse gases have many sources. For example, water vapor is a greenhouse gas. But the Clinton Administration's action, if eventually approved by the U.S. Senate, will mainly affect emissions from fossil fuel (gasoline, coal, natural gas, etc.) combustion.

As the climate change debate has evolved, those who oppose action have argued mainly that signing such a treaty will place the U.S. at a competitive disadvantage with most other nations, and will be extremely expensive to implement. Much of the cost will be borne by American consumers who will pay higher prices for most energy and transportation.

The climate change theory being advanced by the treaty supporters is based primarily on forecasting models with a very high degree of uncertainty. In fact, it not known for sure whether (a) climate change actually is occurring, or (b) if it is, whether humans really have any influence on it.

Despite these weaknesses in scientific understanding, those who oppose the treaty have done little to build a case against precipitous action on climate change based on the scientific uncertainty. As a result, the Clinton Administration and environmental groups essentially have had the field to themselves. They have conducted an effective public relations program to convince the American public that the climate is changing, we humans are at fault and we must do something about it before calamity strikes.

The environmental groups know they have been successful. Commenting after the Kyoto negotiations about recent media coverage of climate change, Tom Wathen, executive vice president of the National Environmental Trust, wrote:

"...As important as the extent of the coverage was the tone and tenor of it. In a change from just six months ago, most media stories no longer presented global warming as just a theory over which reasonable scientists could differ. Most stories described predictions of global warming as the position of the overwhelming number of mainstream scientists. That the environmental community had, to a great extent, settled the scientific issue with the U.S. media is the other great success that began perhaps several months earlier but became apparent during Kyoto."

Because the science underpinning the global climate change theory has not been challenged effectively in the media or through other vehicles reaching the American public there is widespread ignorance which works in favor of the Kyoto treaty and against the best interests of the United States. Indeed, the public has been highly receptive to the Clinton Administration's plans. There has been little, if any, public resistance or pressure applied to Congress to reject the treaty, except by those "inside the Beltway" with vested interests.

Moreover, from the political viewpoint, it is difficult for the United States to oppose the treaty solely on economic grounds, valid as the economic issues are. It makes it too easy for others to portray the United States as putting preservation of its own lifestyle above the greater concerns of mankind. This argument in turn, forces our negotiators to make concessions that have not been well thought through, and in the end may do far more harm than good. This is the process that unfolded at Kyoto, and is very likely to be repeated in Buenos Aires in November 1998.

The advocates of global warming have been successful on the basis of skillfully misrepresenting the science and the extent of agreement on the science, while industry and its partners ceded the science and fought on the economic issues. Yet if we can show that science does not support the Kyoto treaty - which most true climate scientists believe to be the case - this puts the United States in a stronger moral position and frees its negotiators from the need to make concessions as a defense against perceived selfish economic concerns.

Upon this tableau, the Global Climate Science Communications Team (GCST) developed an action plan to inform the American public that science does not support the precipitous actions Kyoto would dictate, thereby providing a climate for the right policy decisions to be made. The team considered results from a new public opinion survey in developing the plan.

Charlton Research's survey of 1,100 "informed Americans" suggests that while Americans currently perceive climate change to be a great threat, public opinion is open to change on climate science. When informed that "some scientists believe there is not enough evidence to suggest that [what is called global climate change] is a long-term change due to human behavior and activities," 58 percent of those surveyed said they were more likely to oppose the Kyoto treaty. Moreover, half the respondents harbored doubts about climate science.

GCST members who contributed to the development of the plan are: A. John Adams; John Adams Associates; Candace Crundall, Science and Environmental Policy Project; David Rothbard, Committee For A Constructive Tomorrow; Jeffrey Salmon, The Marshall Institute; Lee Garrigan, Environmental Issues Council; Lynn Bouchey and Myron Ebell, Friends of Freedom; Peter Cleary, Americans for Tax Reform; Randy Randol, Exxon Corp.; Robert Gehri, The Southern Company; Sharon Kneiss, Chevron Corp.; Steve Milloy, The Advancement of Sound Science Coalition; and Joseph Walker, American Petroleum Institute.

The action plan is detailed on the following page.

Global Climate Science Communications

Action Plan

Project Goal

A majority of the American public including industry leadership, recognizes that significant uncertainties exist in climate science, and therefore raises questions among those (e.g. Congress) who chart the future U.S. course on global climate change.

Progress will be measured toward the goal. A measurement of the public's perspective on climate science will be taken before the plan is launched, and the same measurement will be taken at one or more as-yet-to-be-determined intervals as the plan is implemented.

Victory Will Be Achieved When

- Average citizens "understand" (recognize) uncertainties in climate science; recognition of uncertainties becomes part of the "conventional wisdom"
- Media "understands" (recognizes) uncertainties in climate science
- Media coverage reflects balance on climate science and recognition of the validity of viewpoints that challenge the current "conventional wisdom"
- Industry senior leadership understands uncertainties in climate science, making them stronger ambassadors to those who shape climate policy
- Those promoting the Kyoto treaty on the basis of extant science appear to be out of touch with reality.

Current Reality

Unless "climate change" becomes a non-issue, meaning that the Kyoto proposal is defeated and there are no further initiatives to thwart the threat of climate change, there may be no moment when we can declare victory for our efforts. It will be necessary to establish measurements for the science effort to track progress toward achieving the goal and strategic success.

Strategies and Tactics

- I National Media Relations Program: Develop and implement a national media relations program to inform the media about uncertainties in climate science; to generate national, regional and local media coverage on the scientific uncertainties, and thereby educate and inform the public, stimulating them to raise questions with policy makers.

Tactics: These tactics will be undertaken between now and the next climate meeting in Buenos Aires, Argentina, in November 1998, and will be continued thereafter, as appropriate. Activities will be launched as soon as the plan is approved, funding obtained, and the necessary resources (e.g., public relations counsel) arranged and deployed. In all cases, tactical implementation will be fully integrated with other elements of this action plan, most especially Strategy II (National Climate Science Data Center).

- Identify, recruit and train a team of five independent scientists to participate in media outreach. These will be individuals who do not have a long history of visibility and/or participation in the climate change debate. Rather, this team will consist of new faces who will add their voices to those recognized scientists who already are vocal.
- Develop a global climate science information kit for media including peer-reviewed papers that undercut the "conventional wisdom" on climate science. This kit also will include understandable communications, including simple fact sheets that present scientific uncertainties in language that the media and public can understand.
- Conduct briefings by media-trained scientists for science writers in the top 20 media markets, using the information kits. Distribute the information kits to daily newspapers nationwide with offer of scientists to brief reporters at each paper. Develop, disseminate radio news releases featuring scientists nationwide, and offer scientists to appear on radio talk shows across the country.
- Produce, distribute a steady stream of climate science information via facsimile and e-mail to science writers around the country.
- Produce, distribute via syndicate and directly to newspapers nationwide a steady stream of op-ed columns and letters to the editor authored by scientists.
- Convince one of the major news national TV journalists (e.g., John Stossel) to produce a report examining the scientific underpinnings of the Kyoto treaty.
- Organize, promote and conduct through grassroots organizations a series of campus/community workshops/debates on climate science in 10 most important states during the period mid-August through October, 1998.

- Consider advertising the scientific uncertainties in select markets to support national regional and local (e.g., workshops/debates), as appropriate.

National Media Program Budget - \$600,000 plus paid advertising

- II. Global Climate Science Information Source: Develop and implement a program to inject credible science and scientific accountability into the global climate debate, thereby raising questions about and undercutting the "prevailing scientific wisdom." The strategy will have the added benefit of providing a platform for credible constructive criticism of the opposition's position on the science.

Tactics: As with the National Media Relations Program, these activities will be undertaken between now and the next climate meeting in Buenos Aires, Argentina, in November 1998, and will continue thereafter. Initiatives will be launched as soon as the plan is approved, funding obtained, and the necessary resources arranged and deployed.

- Establish a Global Climate Science Data Center. The GCSDC will be established in Washington as a non-profit educational foundation with an advisory board of respected climate scientists. It will be staffed initially with professionals on loan from various companies and associations with a major interest in the climate issue. These executives will bring with them knowledge and experience in the following areas:
 - Overall history of climate research and the IPCC process;
 - Congressional relations and knowledge of where individual Senators stand on the climate issue;
 - Knowledge of key climate scientists and where they stand;
 - Ability to identify and recruit as many as 20 respected climate scientists to serve on the science advisory board;
 - Knowledge and expertise in media relations and with established relationships with science and energy writers, columnists and editorial writers;
 - Expertise in grassroots organization; and
 - Campaign organization and administration.

The GCSDC will be led by a dynamic senior executive with a major personal commitment to the goals of the campaign and easy access to business leaders at the CEO level. The Center will be run on a day-to-day basis by an executive director with responsibility for ensuring targets are met. The Center will be funded at a level that will permit it to succeed, including funding for research contracts that may be deemed appropriate to fill gaps in climate science (e.g., a complete scientific critique of the IPCC research and its conclusions).

- The GCSDC will become a one-stop resource on climate science for members of Congress, the media, industry and all others concerned. It will be in constant contact with the best climate scientists and ensure that their findings and views receive appropriate attention. It will provide them with the logistical and moral support they have been lacking. In short, it will be a sound scientific alternative to the IPCC. Its functions will include:
 - Providing an easily accessible database (including a website) of all mainstream climate science information.
 - Identifying and establishing cooperative relationships with all major scientists whose research in this field supports our position.
 - Establishing cooperative relationships with other mainstream scientific organizations (e.g., meteorologists, geophysicists) to bring their perspectives to bear on the debate, as appropriate.
 - Developing opportunities to maximize the impact of scientific views consistent with ours with Congress, the media and other key audiences.
 - Monitoring and serving as an early warning system for scientific developments with the potential to impact on the climate science debate, pro and con.
 - Responding to claims from the scientific alarmists and media.
 - Providing grants for advocacy on climate science, as deemed appropriate.

Global Climate Science Data Center Budget - \$5,000,000 (spread over two years minimum)

- II. National Direct Outreach and Education: Develop and implement a direct outreach program to inform and educate members of Congress, state officials, industry leadership, and school teachers/students about uncertainties in climate science. This strategy will enable Congress, state officials and industry leaders will be able to raise such serious questions about the Kyoto treaty's scientific underpinnings that American policy-makers not only will refuse to endorse it, they will seek to prevent progress toward implementation at the Buenos Aires meeting in November or through other ways. Informing teachers/students about uncertainties in climate science will begin to erect a barrier against further efforts to impose Kyoto-like measures in the future.

Tactics: Informing and educating members of Congress, state officials and industry leaders will be undertaken as soon as the plan is approved, funding is obtained, and the necessary resources are arrayed and will continue through Buenos Aires and for the foreseeable future. The teachers/students outreach program will be developed and launched in early 1999. In all cases, tactical implementation will be fully integrated with other elements of this action plan.

- Develop and conduct through the Global Climate Science Data Center science briefings for Congress, governors, state legislators, and industry leaders by August 1998.
- Develop information kits on climate science targeted specifically at the needs of government officials and industry leaders, to be used in conjunction with and separately from the in-person briefings to further disseminate information on climate science uncertainties and thereby arm these influentials to raise serious questions on the science issue.

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- Organize under the GCSDC a "Science Education Task Group" that will serve as the point of outreach to the National Science Teachers Association (NSTA) and other influential science education organizations. Work with NSTA to develop school materials that present a credible, balanced picture of climate science for use in classrooms nationwide.
- Distribute educational materials directly to schools and through grassroots organizations of climate science partners (companies, organizations that participate in this effort).

National Direct Outreach Program Budget - \$300,000

IV. Funding/Fund Allocation: Develop and implement program to obtain funding, and to allocate funds to ensure that the program is carried out effectively.

Tactics: This strategy will be implemented as soon as we have the go-ahead to proceed.

- Potential funding sources were identified as American Petroleum Institute (API) and its members; Business Round Table (BRT) and its members; Edison Electric Institute (EEI) and its members; Independent Petroleum Association of America (IPAA) and its members; and the National Mining Association (NMA) and its members.
- Potential fund allocators were identified as the American Legislative Exchange Council (ALEC), Committee For A Constructive Tomorrow (CFAT), Competitive Enterprise Institute, Frontiers of Freedom, and The Marshall Institute.

Total Funds Required to Implement Program through November 1998 - \$2,000,000 (A significant portion of funding for the GCSDC will be deferred until 1999 and beyond)

Measurements

Various metrics will be used to track progress. These measurements will have to be determined in fleshing out the action plan and may include:

- Baseline public/government official opinion surveys and periodic follow-up surveys on the percentage of Americans and government officials who recognize significant uncertainties in climate science.
- Tracking the percent of media articles that raise questions about climate science.
- Number of Members of Congress exposed to our materials on climate science.
- Number of communications on climate science received by Members of Congress from their constituents.
- Number of radio talk show appearances by scientists questioning the "prevailing wisdom" on climate science.

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- Number of school teachers/students reached with our information on climate science
- Number of science writers briefed and who report upon climate science uncertainties
- Total audience exposed to newspaper, radio, television coverage of science uncertainties



Thomas D. Peterson
08/28/98 02:31:42 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP, David B Sandalow/CEQ/EOP
cc: Dirk Forrister/WHCCTF/EOP
Subject: sinks

Wyden's staff as well as Pacific Forest Trust will be sending a suggested approach on article 3.3 that, as I understand it, uses very expansive definitions for the three terms as well as defining forestry as an agricultural practice to eliminate the perverse incentives issue. I'll forward it. The general hope on their part is that we get the most expansive treatment of sinks as possible under 3.3 and additional expansions under 3.4 as necessary. This approach is endorsed by a number of other senate ag offices.



peterson_t <peterson_t @ btgcinema.com>
06/11/98 04:32:58 PM

Record Type: Record

To: David B Sandalow/CEQ/EOP, Julie Anderson <mcneilly_l @ btgcinema.com>, Jim Rubin <risley_p @ btgcinema.com>
cc: Roger S. Ballentine/WHO/EOP
Subject: Wyden response

draft response for Wyden's dear colleague on ag and forest sequestration

Dear Senator Wyden:

Thank you for the May 22 letter that you and your colleagues sent President Clinton expressing support for improvements to climate mitigation policies that affect forestry and agriculture. These sectors are extremely important to the environment and economy of the US, and present great opportunities for progress in both areas. With respect to climate change, forestry and agriculture are unique as the only two sectors of our economy that both emit and sequester greenhouse gases, presenting special opportunities for reducing net emissions. As your letter suggests, many broader environmental and economic interests related to land conservation might also benefit from enhanced policies in this area.

With respect to international policy, the US supported a comprehensive system of credits and accounting for sustainable forest and agriculture practices (for budget baselines and project-based trades) during the COP3 negotiations in Kyoto last December. While the protocol that emerged from negotiations includes only partial agreement in this area (including categories of afforestation, deforestation and reforestation under article 3.3) the US succeeded in negotiating a process under article 3.4 for inclusion of a more comprehensive list of land conservation and management practices. We will continue to press for credit for sustainable forest and agriculture practices as a US priority in COP4 in Argentina this November.

At the same time we recognize that significant technical issues must be resolved over standardized scoring and verification methods for sequestration before an international credit system can be implemented in the 2008-2012 time period. A number of federal agencies have conducted research in this area over the last few years, including EPA, DOE and USDA, and will continue long-term research in this area. We agree that it is important to collaborate with forest products, agriculture, research and conservation groups on standardized approaches to carbon stock methodology and accounting principles as a part of this process. We also agree that pilot sequestration projects in soil and forest management should be conducted.

With respect to domestic climate policy, the President's FY 99 budget proposed a variety of research on agriculture and forestry programs related to climate change, including sequestration. We agree that land conservation approaches that increase carbon storage in soils and forests are an important complement to technology and R&D programs as a means to net CO2 reductions, and greatly appreciate your insights in this area. For your information, I have attached a budget fact sheet that outlines our past funding and current requests related to agriculture and forestry sequestration and incentives. We welcome your support of these requests.

Finally, let me thank you for providing us a list of suggested cost-effective climate mitigation options for forestry and agriculture, and assure you that they will be considered in our budget and policy deliberations on climate mitigation. We will also consider the scientific data you provided in related discussions. I was particularly intrigued by your paleo-climate data that shows a dramatic drop in CO2 levels 300 million years ago at the time forests emerged on earth.

Thank you for sharing your concern about climate change, and your interest in working for solutions that reduce the risk of climate change and benefit US agriculture and forestry in the process.

United States Senate

WASHINGTON, DC 20510

May 22, 1998

The Honorable Bill Clinton
President
The White House
Washington, D.C.

Dear Mr. President:

The latest protocol to the climate change treaty that was negotiated in Kyoto was an important step towards international collaboration in addressing the environmental effects of rising concentrations of greenhouse gases in the atmosphere. It could be improved, however, by encouraging investment in the natural mitigation capacity of forestry and agricultural sinks. In a market-based system that encourages the most cost-effective methods for reducing net emissions of carbon, forestry and agricultural carbon sinks are a profitable pathway to reducing excess atmospheric concentrations of greenhouse gases.

Forestry and agriculture play a significant role in sequestering atmospheric carbon and economic analysis shows these strategies to be cost-effective. With costs of \$2-\$20 per ton of carbon, domestic forest conservation and management strategies achieve not only greenhouse gas mitigation but, a host of other environmental benefits such as protection of watersheds, water supplies, and critical wildlife and fish habitat, increased soil conservation, and reduction of storm water runoff and landslides.

Unfortunately, ambiguous language in the Kyoto Protocol appears to foreclose the highly effective, credible, and low-cost option of reducing carbon dioxide emissions through improved forestry and agricultural management and conservation practices. Without clarifying existing language, the treaty may have unintended negative impacts on vital forest resources and actually increase forest-based carbon emissions, both in this country and abroad. Such incentives are contrary to a number of national policies and international programs such as the Northwest Forest Plan, the Clean Water Act, the Endangered Species Act, the International Tropical Timber Agreement, the Montreal Process, the Gore-Chernomyrdin agreements and the recently convened Intergovernmental Forum on Forests. Consequently, the effectiveness of the treaty can be enhanced by simplifying the language to enable the use of forestry and agricultural practices.

We urge you to promote domestic policy initiatives and seek clarifications to existing Protocol language that would establish comprehensive accounting for forestry and agriculture and enable the issuing of credit for domestic forest and agriculture management and conservation strategies. Furthermore, we recommend directing the Environmental Protection Agency and the Department of Agriculture to work with forest products, agriculture, research, and conservation groups to help develop standardized carbon stock methodology and accounting principles for carbon

sequestration which are key to establishing the credibility of any action undertaken to mitigate excess atmospheric greenhouse gases. To this end, we strongly encourage development of pilot projects investigating the effectiveness of management approaches in selected forests and fields of the United States. As reflected by the sense of the United States Senate and expressed in a Wyden amendment to the FY 1999 Senate Budget Resolution, these elements should be among our initiatives to foster cost-effective and performance-based methodologies to reduce greenhouse gasses.

We appreciate your attention to our call for expanding the role of forests and agriculture in the scientific strategy for mitigating atmospheric greenhouse gases and look forward to working with you on this important matter.

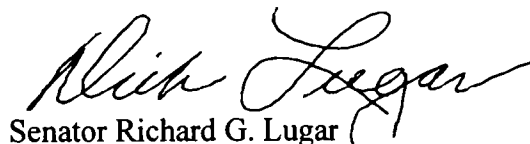
Respectfully,



Senator Ron Wyden



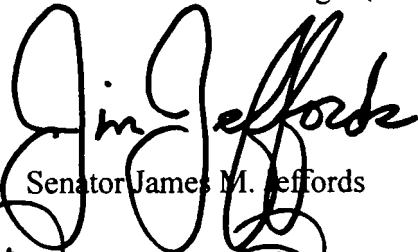
Senator Patrick J. Leahy



Senator Richard G. Lugar



Senator Tom Harkin



Senator James M. Jeffords



Senator J. Robert Kerry



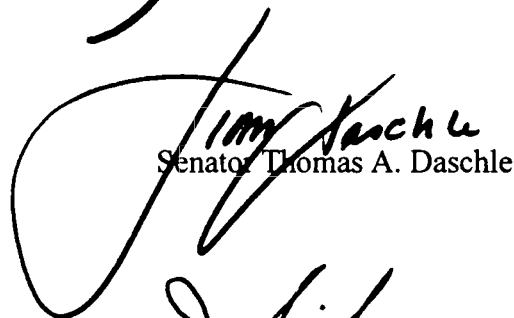
Senator Barbara Boxer



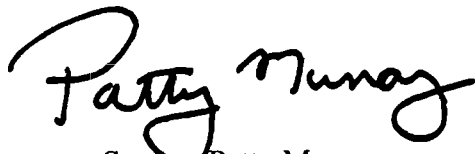
Senator Dianne Feinstein



Senator Tim Johnson



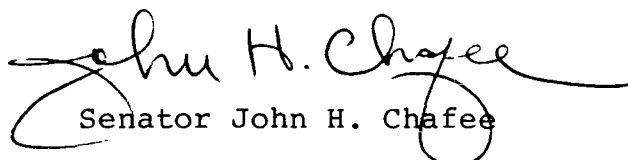
Senator Thomas A. Daschle



Senator Patty Murray



Senator Joseph I. Lieberman



Senator John H. Chafee



Thomas D. Peterson
08/04/98 10:13:18 AM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP, Julie M. Anderson/WHCCTF/EOP
cc: Dirk Forrister/WHCCTF/EOP, Todd Stern/WHO/EOP
Subject: cong ag breakfast proposal

Congressional Ag Breakfast - September

Administration Team: Glickman, Eizenstat, Barschevsky (if possible), Yellen (strongly recommended)

Ag Messages:

- ag is a priority for the administration and we are focused on it in the climate change arena
- we are not going to support a treaty that runs up major energy price increases or hurts economic growth; CEA, USDA analyses show there are pathways
- we are not going to support a treaty that distorts the international trade playing field for ag - and we know where the potholes are
- there are many smart things we can do at a purely domestic level - we want to capitalize on "no regrets" opportunities (bioenergy, sequestration, technology, trading, farming efficiency)
- ag can get hurt at a local and regional level from severe weather if we do nothing; witness this past spring in the northern great plains, and this summer in the southern great plains and southeast
- we want to collaborate with you and have a plan

Congressional Members: full senate ag cte plus select others from farm and forest states (* denotes priority)

cte R's

- Lugar*
- Helms
- Cochran*
- McConnell
- Coverdell*
- Santorum*
- Roberts*
- Grassley*
- Gramm, TX
- Craig

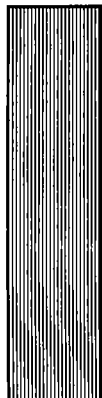
cte D's

- Harkin*
- Leahy*
- Conrad*
- Daschle*
- Baucus*
- Kerrey*

- Johnson*
- Landrieu*

Others

- Wyden*
- Dorgan*
- Durbin*
- Ford*
- Warner



From the TelePort of: Tom Peterson

Date: Friday, May 22, 1998

Number of Pages: 17

To: Roger Ballentine, WH Legislative

Fax Number: 202 456-2604

Memo: Attached: draft ag and forestry climate change outreach plan - 15 pages

This Task Force draft reflects input from USDA, and could be used as a discussion draft for next Tuesday's meeting with USDA, State and White House on ag/forestry outreach. Let me know if additional backup materials would be helpful. Tom

DRAFT

Climate Change Outreach Plan - Agriculture And Forestry

I. Challenge:

Agriculture and forestry sectors are unique as they relate to climate change - presenting both obstacles and opportunities. At the same time, they share common concerns of high emissions sectors. Key points that shape the outreach challenge in agriculture and forestry are:

- they are the only two sectors that both emit and sequester greenhouse gases
- they include large and highly concentrated corporations, as well many highly decentralized small business entities nationwide
- they have highly diversified industry structures (both horizontal and vertical) that link input suppliers, producers, processors, distributors, wholesalers and retailers in a powerful network
- they are heterogeneous due to the immense variety of markets and products involved, but relatively homogeneous as skeptics of environmental issues
- many primary agriculture states are also primary for coal production and heavy manufacturing
- overall these industries see themselves as abnormally energy intensive, over regulated, and captive to a thin profit margin
- farm producers, in particular, enjoy widespread public sympathy and have been effectively used as a front by other industries and political organizations to defeat major environmental issues
- these sectors feel generally disaffected from the administration, including climate change policy formulation
- US agriculture and forestry interests diverge from global interests in many areas of climate mitigation, although they converge on the risks of climate change

II. Goals:

Outreach with these sectors needs to reduce the level of confusion and mistrust and improve collaboration and common ground - for key entities as well as mainstream groups. Prospects have been improving over the past year, but upgraded efforts are needed to:

- work with agricultural and forestry sectors to clarify science and policy of climate change and its likely impact on agriculture and forestry activities
- understand the unique concerns of the agriculture and forestry sectors with regard to climate change and any actions taken to reduce net greenhouse gas emissions
- foster the development and implementation of cost-effective strategies and technologies to mitigate agriculture and forestry contributions to net greenhouse gas emissions

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- develop common ground and commitments for positive action at key levels of industry, NGO's, and elected officials

III. Approach:

While many agencies and offices have been active working on agriculture and forestry issues, efforts need to become more constituency oriented, systematic, and high profile. Next steps should:

- identify primary groups (industry, NGO's, media, elected officials) who are affected by or have a stake in climate change issues
- create outreach opportunities for outreach teams to interact with industry groups and others interested in the climate change issue
- develop informational materials that address current science, policy, economic and research issues relating to climate change, agriculture and forestry
- use these materials to engage in dialog with industry groups, USDA leadership, other federal agencies, Congress, and the public

IV. Target Groups:

Part of the challenge in outreach to agriculture and forestry is the need to interact intensively with a few key groups, as well as working more systematically with all groups. To do so, we recommend grouping the sectors into two tiers:

First tier (groups directly affected by mitigation policy)

- agriculture and forest producers and related associations
- processors and wholesalers
- input suppliers

Second tier (others with a clear stake in the issue)

- conservation NGO's
- state and local groups
- Congress
- regional and trade media (appendix 1)

(see appendix 1)

V. Key Policy Issues:

A standard set of issues are consistently the focus of these sectors in discussions on policy, and serve as a platform for administration actions on research, policy analysis, and education. They are:

- economic impacts of mitigation
- risks of inaction
- no regrets actions
- sequestration opportunities
- trading opportunities
- technology opportunities
- renewables opportunities

(see appendix 2)

VI. Key Outreach Opportunities (And Suggested Calendar):

Existing policy dialog processes for climate change (primarily domestic policy) should be expanded to agriculture and forestry groups. Additional processes also are needed (particularly in the international policy process). Opportunities include:

- industry consultations and credit for early reduction
- FY 2000 budget discussions
- COP4 and other international policy development
- POTUS/VPOTUS events
- Cabinet/Subcabinet events

(see appendix 3)

VII. Educational Package:

The substantive content of information materials should be based on key policy and research issues. Format and content can be tailored for particular events and dialog processes, but the standard package should include:

- cabinet speeches
- speaker's notes
- fact sheets (addressing key policy, research and education issues)
- Q's and A's
- media background

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- current website(s)

(see appendix 4)

VIII. Interagency Outreach Teams (Suggested):

White House and interagency teams should be available as needed to work with Congress, industry, NGO's and media. These teams should include reps for coordination and outreach from relevant White House offices and agencies. To the extent possible, they should integrate policy, legislative and communications functions from the following:

- DOS
- USDA
- EPA
- DOE
- NOAA
- DOI
- White House offices

(see appendix 5)

Appendix 1: Target Groups

I. Agriculture - first tier

Producers And Related Associations

National Cattemans's Association
American Farm Bureau
State Farm Bureaus
National Grange
Cotton Council
Rice Federation
National Wheat Farmers
National Corn Growers
National Farmers Union
Renewable Fuels Association
Business Council For Sustainable Energy

Processors And Wholesalers

Cargil
ADM
National Food Processors Association
Perdue
Tysons
American Meat Institute
Proctor and Gamble
General Mills
Grocery Manufacturers Association
Agricultural Retailers Association

Input Suppliers

Southern States
Agway
Cenex
Monsanto
DuPont
Fertilizer Institute
Pioneer Seed
Agri Bio Tech
National Ag Credit

II. Agriculture - Second Tier

Conservation NGO's

WRI
Soil and Water Conservation Society
Wildlife Management Institute

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Sustainable Ag Coalition
Henry Wallace Institute
Delta Land Trust
Farm Foundation
National Wildlife Federation

State And Local Groups

National Association of Ag Commissioners
National Governors Association
National Chambers of Commerce

Congress

Senate Ag
Senate Budget
House Ag
House Approps
CRS

Regional And Trade Media

Farm Journal Publishing
Farm Progress Companies
Des Moines Register
Chicago Star and Tribune

I. Forestry - first tier

Producers, Manufacturers, Associations

Georgia Pacific
Weyerheuser
Champion
International Paper
American Forest Products Association
American Pulpwood Association
National Woodland Owners Association
Kafus Industries

II. Forestry - second tier

Conservation NGO's

Society of American Foresters
Wildlife Management Institute
Izaak Walton League
American Forests
Pacific Forest Trust
The Nature Conservancy
National Association of Consulting Foresters

State And Local Groups

National Association of Forestry Commissioners
National Association of State Foresters

Congress

Senate Ag
Senate Energy
Senate Budget and Approps
House Ag
House Interior
House Approps
CRS

Trade And Regional Media

American Forestry
SAX Publications

Appendix 2: Key Policy Issues

I. Economic Impacts Of Mitigation

- energy and fuel prices
- other input prices (chemicals, fertilizers, seed, etc.)
- farm income
- trade shifts
- interest rates
- GDP

II. Risk Of Inaction

- 2x, 3x, 4x CO2 scenarios
- severe weather
- soil moisture
- ecosystem disruption
- water and land use tradeoffs
- regional dislocation
- worldwide production effects

III. No Regrets Actions

- nutrient management
- soil conservation
- water conservation
- reduced till

IV. Sequestration Opportunities

- forests - comprehensive above and below ground practices
- agriculture - comprehensive above and below ground practices

V. Trading Opportunities

- domestic policy based (responsive to POTUS 10/22/97 announcement)
- international - CDM, Annex 1 (articles 3.3 and 3.4)

VI. Technology Opportunities

- biomass
- feedstocks
- chemicals and fertilizer efficiency
- land management systems
- water management systems
- fuel and electricity efficiency
- waste systems/methane recapture and cogeneration

VII. Renewables Opportunities

biomass crops
waste
cogeneration

Appendix 3: Key Outreach Opportunities (And Suggested Timing)

I. Industry consultations

- informal discussions - ongoing?
- policy and program barriers - timing?
- no regrets programs - timing?
- technical education - timing?
- credit for early reduction - timing?

II. Budgets

- FY 1999 ongoing?
- FY 2000 summer startup?
- Alternative Hill/NGO packages ongoing?

III. International Policy Input And Review

- Pre Argentina meetings - summer, fall?
- Argentina/COP4 - fall?
- IPCC methodology - input and review by NGO's and industry (source and sinks reporting) - summer, ongoing?
- input and review related to other technical and policy meetings (post Bonn) - timing?

IV. Special Events

White House exchanges with Todd/Katie/Eizenstat/Rominger - June, July?

- agriculture first tier
- forestry first tier
- agriculture NGO's
- forestry NGO's

Technical conference series - Agency sponsored, DC and regional locations - summer, fall?

- science and risks of inaction - weather focus?
- economic impacts - macro and sectoral
- technology, renewables, energy efficiency
- sequestration/trading

Glickman speech(es) - summer, fall?

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POTUS/Glickman harvest event - northern midwest - early fall?

- tie-in conservation, renewables, technology, low cost reductions, no regrets, risk avoidance
- tie-in governors, NGO's, industry

V. Hill Activities

- Senate ag committee policy roundtables (Kerrey, Lugar, Harkin, Daschle) - summer?
- Members meetings - timing?
- Congressional Research Service seminars and briefs on key policy issues - timing?
- Third party fora for Hill members and staff - timing?
- Administration briefs - timing?

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Event Calendar (TBD):

May?:**June?:****July?:****August?:****September?:****October?:****November?:****December?:**

Appendix 4: Educational Package

I. Cabinet/Subcabinet Speeches And Inserts

- for Glickman, Rominger, Eizenstat, Moler, Witt, Baker, Browner, et al.

II. Speakers Notes - overheads, handouts

- general domestic policy issues
- general international policy issues
- ag and forestry specific issues

III. Fact Sheets

- **The Science Of Climate Change** - overview, perhaps an enhanced version of “state of knowledge” focused on natural resources
- **Impacts Of Climate Change On Agriculture And Forestry** - production, resource tradeoffs (water, forest systems), severe weather, beyond 2x scenarios, geographical maps, etc.
- **Agriculture And Forestry’s Contribution To Greenhouse Gas Emissions** - by greenhouse gas and by sector
- **Carbon Sinks** - agriculture and forestry sequestration potential and issues
- **Reducing Greenhouse Gas Emissions From Agriculture And Forestry - The Role Of Technology:** range of technologies, status of development and action, adoption paths, economics, environmental benefits, and anecdotes of real world programs for:
 - fuel, electricity, processing, transportation
 - feed efficiency
 - land management systems
 - pesticides and herbicides
 - seeds
 - fertilizer management
 - waste management
 - biomass
- **Policy Responses To Climate Change** - overview of actions available to reduce greenhouse gas emissions, economic and environmental impacts of actions, including market-based approaches (trading)
- **Voluntary Programs/No Regrets Actions**
- **Budgets:** USDA and administration-wide on ag and forestry; agency research plans and funding
- **National Assessment** - Calendar And Reports

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IV. Q's And A's - range of key domestic and international issues

- international process, timetable and review opportunities
- domestic process, timetable and review opportunities

V. Media

- fact sheets, Q's and A's, speeches by senior officials, third party materials (validators, etc.)

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VI. Website(s)

- key issues
- calendar of events
- links to White House, USGCRP, DOS, NOAA, DOE, EPA, etc.

Appendix 5: Suggested Outreach Teams

I. Congress

- **Members:** Glickman, Rominger, Eizentstat, Kimble, Moler, Witt, Baker, Stern, McGinty
- **Staff:** Kimble, T. Karl, K. Collins, J. Glauber, M. Anderson, D. Riecher, D. Swinks, D. Gardiner, R. Ballentine, T. Peterson, A. Morris

II. Industry

- **CEO's** - Glickman, Rominger, Eizenstat, Moler, Witt, Baker, Stern, Forrister, Reicher, Gardiner
- **VP's and managers** - Forrister, A. Morris, Peterson, Collins, Glauber, M. Anderson, D. Riecher, D. Swinks, T. Karl, R. Wolcott, P. Kuch

III. NGO's

- **CEO's** - Glickman, Rominger, Eizenstat, Moler, Witt, Baker, Stern, Forrister, Reicher, Gardiner
- **VP's and managers** - Forrister, T. Karl, A. Morris, Peterson, Collins, Glauber, M. Anderson, D. Riecher, D. Swinks, R. Wolcott, P. Kuch

IV. Media

- **background** - T. Karl, M. Anderson, M. Kimble, T. Peterson
- **on record** - Glickman, Rominger, Collins, Eizenstat, Kimble, Witt, Baker, T. Karl, Stern, McGinty, Forrister

V. Administration Contact Point(s) - TBD

- DOS
- USDA (including USFS, NRCS)
- NOAA
- EPA (including Policy and Air)
- DOE
- FEMA
- DOI
- USGCRP
- White House Offices

DRAFT

Note:

From: Tom Peterson
To: Todd
CC: Shelly, Dirk, Roger
Re: Scoping Of Potential Ag Outreach Events To Follow White House/Glickman Event(s)
Action: Review and Comment
Date: June 2, 1998

This paper outlines options for potential follow-up events/actions to take place after the White House/Glickman event(s) we've been discussing, although some could start in advance. I have not shopped these with agencies or White House staff. My thinking is that you should first have a look to see if this is directionally correct. If so, I will work up a parallel recommendation from agencies/offices with their input and refinement. If not, I'll revise based on your guidance. In either case, I can put this decision process in motion as soon as you like. My intention is to identify events that are doable over the next few months, and strategic in terms of interest groups, issue areas, and timing. There is a significant amount of potential linkage to other outreach events and dialog processes.

I've divided the options into technical consensus building and policy consensus building. My general thinking is that we should go heavy on technical consensus building ASAP, and light on policy consensus building, but begin a high-level policy consensus building process that will ramp up over the next 9 to 12 months to deal with COP5 and domestic policy decisions. To get there we need to create a much stronger base of technical common ground, and a wider and stronger infrastructure of constituent support. I believe we have reason for hope; a number of ag and forestry groups have moved significantly in the last six months.

Let me add that the White House/Glickman event we've discussed may need to be broken into two or three events to avoid a cast of thousands and muddled message. As a consequence this could be a time consuming drill in the short term. The first priority needs to be ag producers - farmers. Of itself this will be a large group encompassing the big commodities groups as well as specialty and livestock groups. We may even need to break these up. The second (and/or third) meetings should bring in related industries, depending on how we want to cut it. These should include processors (such as Cargil and ADM); chemical suppliers (DuPont, Monsanto, others); fertilizer/nutrient suppliers (CENEX, others); equipment and "hard technology" providers (John Deere, CENEX, others); and a garden variety of other key players. You should have a better view of this after the USDA talking points are done (I've asked Joe and Keith to move them forward ASAP).

The following is a summary of the potential follow-up event plan:

I. Technical Consensus Building

- Technical Workshops - Create a series of analytical workshops to address technical issues (economic impacts; climate impacts; technology; renewables; sequestration; trading). Regional locations over remainder of the year. Agency or university sponsorship. Some of these are already in the works and could be enhanced. Work spin-off actions.
- USGCRP Regional Assessments - Enhance existing regional assessments to include ag, forestry and water focus and interest group participation wherever it is lacking in the current plan. Regional locations over remainder of the year. University sponsorship. This wraps with a national assessment workshop in the fall that needs strong ag/forestry involvement. Work spin-off actions.
- USGCRP Seminar Series - Enhance existing Hill series to more fully include ag, forestry and water focus and interest group attendance. Senate location over remainder of year. Improve notification to interest groups and Hill staff and work spin-off actions.

II. Policy Consensus Building

- Cabinet Policy Roundtable(s) - Cabinet level with participation by some combination of industry, NGO's, congress and state and local officials. Regional location(s) and/or DC in early fall. Use as a forum for Glickman et al speech(es) and positioning, as well as bringing high-level regional players into the process.
- Budget Collaboration - To be determined by OMB, White House and agencies, but with a specified ag and forestry input component. DC location consistent with FY 2000 budget schedule. Emphasis should be inclusion of key Hill, NGO and industry players up front in an identifiable process.
- Industry Consultations - To be determined by White House and agencies, but with a specified ag and forestry input component. DC location consistent with broader policy schedule. Timing, scope and participation issues need resolution. Ideally this process should be preceded by or concurrent with strong technical consensus building.

See attachments for details.

I. Technical Consensus Building

This area has the greatest short-term potential for significant, tangible progress, and it is a prerequisite for policy consensus building.

Basic workshop goals are: 1) information exchange and review; 2) facilitation of informal agreement about state of knowledge and future research needs. Workshops can be held in regional locations as well as DC - perhaps on a parallel track - and sponsored or funded by USDA, EPA, DOE, DOI and/or NOAA. EPA has several cooperative agreements with universities (Berkeley, Iowa State, Texas A&M) that could rapidly be activated for technical workshops with appropriately structured participation by technical experts in industry, academia, government and NGO's. These arrangements have high industry and NGO credibility. Agencies could also do direct sponsorship, perhaps through regional offices or even labs. A number of ag industries and NGO's have requested technical workshops, and they have been very successful on related ag and forestry issues in the past. This can be structured as a relatively non-threatening forum.

Trade media should be invited (Farm Journal, et al). Hill staff should be notified and invited as observers, particularly if DC locations are used. Follow up reports and proceedings should be distributed to Hill staff and key interest groups and media. Editorial board visits with regional media could be scheduled concurrently as spin-offs, along with state office visits to federal and state officials. Technical workshops should be attended by administration policy staff as observers, and can serve as de facto scoping sessions for policy issues. Results and proceedings will be quite helpful in policy formulation.

1. Technical Workshops (Regional And DC)

The following technical workshops would address key policy interests:

Economic impacts:

- This is a hot button with Hill and industry. It may be too controversial to work, but it would be helpful to have a purely technical session on CEA's analysis, and the USDA sectoral analysis to attempt to get on the same page with basic assumptions and methodologies. This would also be a chance to rule out worst-case analyses on technical grounds, or grounds of irrelevance to policy. I think it is inevitable that both Hill staff and industry reps will ask for a briefing once the CEA analysis comes out, and will press for an ag translation. We should have a serious talk with Keith Collins and CEA/NEC on this. I also fear that the absence of some technical discussion of this could cloud the White House event. This workshop could be set up by a university cooperative agreement, or directly by USDA. One option is to do this at roughly the same time as the CEA rollout and put it to bed. Another is to postpone and downplay it, but that gets increasingly risky as time passes. It would be good to include upside opportunities from technology, renewables and sequestration/trading. DC, Midwest. Focus on all ag and forestry industry groups. Possible Hill briefing.

Weather variability:

- This is another hot button, no pun intended. Ag producers and industries are coming around to believing that future variability may occur at dangerous levels that surpass

historical adaptation in the industry. They are willing to listen and learn. Tom Karl and NOAA should play a major role, with emphasis on future scenarios. It is important not to get bogged down in the complexities and inconsistencies of GCM's, but instead to focus on the general agreement among all models that the earth will warm and lead to increased climate variability, albeit at a variety of potential levels. The range of overall magnitude and rate of climate change will be unprecedented; IPCC predicts BAU magnitude in 2100 to be greater than anytime in last 50 million years, and the rate greater than any in the last 10,000 years. Focus should be on US and other major ag regions in the world. Late summer or mid September would be a good time. Great Plains, Southeast, California. Focus on all ag and forestry groups, with emphasis on farm producers. Possible Hill briefing.

Technology:

- Ag has two angles on this. First are the indirect technology and R&D issues relevant to fuel and electricity use that affect farmers, processors, distributors as energy buyers - this is their major fear on climate mitigation. Second are the direct farm production improvements that could be realized by improved feedstocks (methane reduction); nutrient management (fertilizer and manure management); water conservation systems (electricity use for pumping); seed stocks (adaptation and reduced energy use); conservation tillage programs (sequestration and reduced energy use); precision farming techniques (reduced use of pesticides, herbicides and fertilizers); renewables production (bioenergy production and processing); land management systems (reduced energy inputs, increased sequestration). These will be key budget issues due to the need for incentives and research, so technical sessions may also serve as budget scoping. This should be completed before we announce FY 2000 budget package. Midwest, other regions. Focus on input suppliers and processors, as well as producers. Possible Hill briefing.

Renewables:

- This issue could be handled as a stand alone, or woven in to a technology workshop. Obviously this is a carrot that falls in agriculture's lap from climate mitigation if handled correctly. Tradeoffs are involved, however, in some areas and this needs to be a part of the technical discussion. For instance, intensified bioenergy production for conservation set asides or low till areas could reduce sequestration and conflict with water, wildlife and public health. Key renewables areas include biomass for electricity production (switch grass and Timothy grass); biomass for fuels (grain and cellulosic ethanol); animal waste conversion (methane recapture); and wind and solar production. This should also be completed before we announce FY 2000 budget package. Midwest, Great Plains, Northwest. Focus on producers and processors, perhaps with a link to fuel and electricity providers. Possible Hill briefing.

Sequestration:

- This could be combined with a trading workshop, or done as a stand alone, but it is one of the top win-win areas for both ag/forestry industries and other industries that may fall under caps in the future. It should cover both ag and forestry, and focus on what we know and don't know about carbon scoring of projects and practices, including inventory systems. Batelle corporation planning a workshop for the fall and inviting federal participation, but we may want to have a more directly sponsored event due to the profile of this and the need to establish leadership and comprehensive coverage.

Chicago. Focus on producers and potential brokers and bankers. Possible Hill briefing.

Trading:

- Another top priority, perhaps to be combined with sequestration. The workshop should include discussion of Kyoto and additional provisions under consideration; a review of the SO2 program and others; a review of the emerging options market; and discussion of market/policy technical issues. This is an excellent chance to bring in the brokers (Richard Sandor, Carlton Bartels), the ag commodity traders (Cargil and others), as well as conservation groups, and farm/forest producers. Chicago. Focus on producers and potential brokers and bankers. Possible Hill briefing.

2. Regional Assessments (Regional And DC):

USGCRP regional assessments are ongoing and should include discussion of ag, forests and water resources. The national assessment should have a focus on these areas as well. Hill staff, NGO's and industry should be notified and invited as appropriate, and proceedings distributed to key interest groups. This in one area where we should take credit for what we are already doing. This is also a chance for experts to do editorial board visits, and trade media sessions. Multiple locations. Focus on key regional ag/forestry players. Possible Hill briefings.

3. USGCRP Seminar Series (DC)

These seminars are an ongoing, once per month series on the Hill that were moved to the Senate side this year. Ag and forestry technical issues have been the subject of some past seminars, and could be plugged in to the future schedule to address technical priorities. DC/Senate. Focus on key staff and industry, NGO reps in town.

II. Policy Consensus Building

1. Policy Roundtables (Regional And/Or DC)

A possible high-profile event for Glickman et al. A regional location is preferred (such as the Mid West). This could be combined with a field event or two that tie-in the various on-farm, and within-plant, opportunities to do smart things. This could include other cabinet, such as Secretary Daley. Participants could include any combination of: industry (both ag and ag related); farm conservation groups; congressional members; and governors and other state and local officials. The simplified version would be industry only with Glickman. Late September through October is the best time. Among the downsides is the expectation that the administration will bring back an agreement from Argentina that addresses the concerns raised in a roundtable. A major upside is the opportunity for Glickman to debunk scare tactics of the opposition and build a collaborative stance with industry at large, as well as the regional education value of the event. Regional and trade

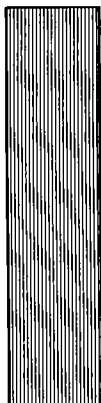
media are important, as well as state and local outreach, and congressional outreach. Midwest, Great Plains, Southeast. Focus on both producers and related industries; may need to break into separate events.

2. Budget Collaboration (DC)

To Be Determined: it is essential that a process is created that provides industry and NGO input on ag and forestry in the budget, and that all relevant agencies weigh in on these issues. We need coordination with OMB and the agencies on this. Perhaps the solution is to more aggressively use existing budget formulation processes to receive input and address ag and forestry. The FY 2000 process is unfolding very soon, so this is a priority for internal discussion. DC. Key Hill and industry, NGO players.

3. Industry Consultation (DC)

It may be best to hold off on the ag portion of this until we get further along on technical consensus building, both for our own guidance and so that we start from a stronger base of common ground. The technical workshops and policy roundtables can be valuable as scoping instruments for consultations, and will build stronger buy in for consultations. Proposals for forestry consultations also need to be firmed up. Trade media should be notified of these. DC. Key producers and related industries, but we must include the very large small business part of the industry.



From the TelePort of:

Tom Peterson

Date: Tuesday, May 19, 1998

Number of Pages: 17

To: Roger Ballentine, WH Legislative

Fax Number: 202 456-2604

Memo: Todd: This is the package Julie Norton provided Stu's people in advance of his appointment with Bob Kerrey and the ag/forestry groups last Thursday. Julie asked me to provide the attached talking points and background; I sent advance drafts to Roger, EPA and USDA. USDA sent additional background materials to Julie at my request. My understanding from Kerrey's staff is that the meeting was set up between Stu's people and Kerrey's people at Kerrey's request following a conversation between principals. I've notified State and USDA that you want a meeting on related issues in the near future. Tom



United States Department of State

Washington, D.C. 20520

BUREAU OF LEGISLATIVE AFFAIRS (H)
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United States Department of State

Washington, D.C. 20520

TO: Under Secretary Eizenstat

FROM: H - Julie Norton, LMO for OES *JN*

RE: Bob Kerrey (D-NE)/John Kerry (D-MA) Agricultural Meeting; May 14th, 12:00 p.m.; Hart 708

As you know, Bob Kerrey is hosting a meeting of various agricultural interests to give you an opportunity to discuss their issues and reassure them that the State Department is working hard to achieve agriculture-friendly goals in the climate change negotiations. John Kerry will also attend this meeting.

We anticipate that staff from the offices of Senators Chafee, Lugar, Baucus, and Lieberman will attend.

Tom Peterson from the White House Climate Change Task Force is in charge of agricultural outreach, and has prepared the attached talking points (Tab 1) and background papers, including a list of participants (Tab 2). He will attend the meeting with you.

Also attached are materials provided to us by Senator Kerrey's office. They are a paper prepared by Monsanto on no-till farming (Tab 3), a paper written by Martin Kleinschmit of the Center for Rural Affairs (Tab 4), and an article in Successful Farming magazine (Tab 5). We have also received a "Dear Colleague" letter being circulated by Senators Leahy (D-VT) and Wyden (D-OR) which we believe will gain widespread support from many Senators (Tab 6). We do not have a list of co-signers yet.

Attachments:

- Tab 1 - Talking points
- Tab 2 - Background and participants list
- Tab 3 - Monsanto no-till farming paper
- Tab 4 - Center for Rural Affairs paper
- Tab 5 - Successful Farming magazine article
- Tab 6 - Leahy/Wyden "Dear Colleague"

**Talking Points And Background For Climate Change Meeting With Senators
Bob Kerrey (NE) And John Kerry (MA) - 12 Noon, 5/14**

Talking Points

- The administration is committed to finding win-win policies for agriculture and forestry that minimize energy price impacts and encourage real opportunities for revenue enhancement through carbon sequestration, renewable energy development, technology growth, energy efficiency and no regrets actions. We would like to work with your groups to get on the same page on these issues.
- We would also like to work with you to get on the same page on basic climate change science, policy and economics issues as they relate to agriculture and forestry, and correct any misperceptions that may exist.
- The State Department would like your input as a part of our international policy feedback process, and the White House Climate Change Task Force plans to include both agriculture and forestry in discussions on voluntary commitments and early reductions. The administration is also open to talking about how we make the most of current budget requests, as well as upcoming budgets.
- USDA has recently reestablished its climate change program and is working on a number of key policy areas, including an analysis of the economic effects of climate policy on agriculture at the request of the Senate Agriculture Committee. Results will be shared with industry and NGO's. The low energy cost profile of farm production (energy expenses are estimated at 11 percent of total by USDA) suggests impacts are likely to be low overall. USDA's analysis should identify the potential for excessive impacts in special areas if they exist.
- The trading programs in the Kyoto Protocol hold the potential to substantially reduce climate mitigation costs for the US. They also open doors for US farmers and forest landowners to sell credits on a world market. We would like to work with industry and NGO's in the US to resolve technical and policy hurdles to additional agreements on trading and sequestration issues.
- We are confident that we can get supplemental agreements on trading and sequestration, and that these programs will work. Many projects based on forestry conservation have been underway as successful demos under the JI program since 1993. Other countries, including Japan, are actively scoping out sequestration projects and committed to making budget and project based trading work. An options market for agriculture and forest sequestration is emerging in the US in anticipation of domestic and international policies.

Senate Climate Change Meeting 5/14

Background

Farm groups have been largely opposed to the Kyoto Protocol and generally resistant to climate mitigation policy. The American Farm Bureau has been particularly harsh, and is working in concert with coal, oil and car companies to oppose the protocol. These groups have targeted climate change as a key issue in '98 and 2000 campaigns, and are trying to position it as a farmer issue in order to avoid focus on high emissions industries. In the past industries have succeeded using this same strategy to defeat major legislative proposals, including the biodiversity convention and the elevation of EPA to cabinet status.

Not all farm groups are as strongly opposed. The National Farmer's Union (an association of commodity crop producers in the northern great plains and northern midwest) has been less strident. They have withdrawn participation in the GCC opposition campaign and are talking with the administration about constructive approaches. Renewable energy producers have also been more supportive, including the National Corn Growers Association (due to ethanol), the Renewable Fuels Association, and a garden variety of other groups. Specialty crop producers are less organized and less opposed at present. Some are concerned about the shift of micro climates upon which their production is based.

Forest industries have been less strident in opposition, although they remain seriously concerned as a high emissions sector. Many have been involved in the Industries For the Future Program at DOE, and have been pleased with the process. Similarly, some key industries (such as Georgia Pacific) are prominent members of the President's Council of Sustainable Development. Forest product firms have made great strides in using waste fiber for fuel on site, and also recycling waste heat for power.

Agricultural input suppliers are more energy intensive than farming per se, and far more concentrated in power and profit. They include chemicals (pesticides, herbicides, and fertilizer), seeds and equipment. These industries and their individual companies are diverse in views on climate mitigation, although most seem skeptical and concerned. However, Monsanto has been very positive in private. DuPont has been mixed but good in key areas. On the other hand, The Fertilizer Institute is stridently opposed. John Deere has been cautious and hoping to avoid the issue.

Forest conservation NGO's have been strong supporters of mitigation actions due to land conservation opportunities with sequestration. The Nature Conservancy, the Pacific Forest Trust, American Forests, and others have been very active with the administration, on the Hill, and with key industries with whom they hope to structure win-win policy relationships. They have succeeded in winning over most of the climate NGO's to support of sequestration, but the Sierra Club, Greenpeace, and some others remain skeptical or outright opposed on the grounds that sequestration credit represents a "loophole" for the US.

The Pacific Forest Trust has been particularly active and supportive. However, like the others, they believe the Kyoto Protocol is badly flawed on the sinks issue and needs

Senate Climate Change Meeting 5/14

serious overhaul. They point out that the protocol exempts forestry emissions, which are responsible for 15 percent of worldwide emissions, while smaller emissions categories are not exempt. They also point out that the narrowness of definitions (which do not include management and conservation) are a problem. Conceivably, the protocol rewards the act of clearing and replanting, versus preservation, because it does not count emissions from harvest and only counts sequestration from "reforestation." In addition, it restricts credit for reforestation since 1990, and therefore excludes actions taken to manage stands reforested before 1990. Georgia Pacific is adamantly opposed to this provision, since most of its land was reforested prior to 1990. They also strongly oppose the lack of credit for conservation and management, and want company level credit for sequestration projects.

Farm groups and farm conservation NGO's are conceptually supportive of credit for soil conservation sinks, but very disappointed in the Kyoto language that puts this off to future negotiations - while counting agriculture emissions against them (the opposite of the language on forestry). They are watching the administration very closely to see if we make a serious attempt to change this via article 3.4. Nonetheless, some, such as the Iowa Farm Bureau, are starting to form CO2 trading programs or demo sequestration projects. They are also working with Brokers (such as Carlton Bartels of Cantor Fitzgerald and Richard Sandor of Centre Financial Products) to start an options market.

Apparently the speculative market for sequestration is growing fast. Carlton Bartels reports selling large volumes of options (one investor bought seven millions tons of CO2 reduction options a few months ago). The market is emerging as a diversified options market in order to manage risk, with investors betting that some options will make the grade as policy evolves. In this regard it is similar to the junk bond market in its life stage. Most of the options are going to agricultural soil conservation, not forests. They are typically structured as annual options at \$.10-.25 per ton (pre Kyoto prices), with strike prices at \$3-4 per ton. Options rates appreciated by a factor of ten after Kyoto, even though agricultural soils were essentially left out. The strike prices are discounted for risk, but it is not clear exactly what the discount rate is (and therefore the true cost per ton compliance figure).

Activity in the options market leads some congressional members (such as Bob Kerrey) to believe the administration has underestimated the opportunity and value of farm conservation credit for climate mitigation. They would like USDA to press forward with demos and research to sort out the technical issues. They would also like the administration to include a comprehensive set of sequestration policies in its domestic program as a part of industry consultation and credit for early action. Some members may want to legislate this pathway as a way to encourage international policy to converge. They do not want to wait for international policy to yield an ideal domestic approach.

USDA has reestablished its climate program under competent and committed leadership recently in the Office of the Chief Economist (Keith Collins). Margo Anderson was recently named as the new director, and will chair USDA's climate task force that includes representatives from the US Forest Service, Natural Resources Conservation Service and other offices within USDA. The new climate office reports through Keith to the Secretary and Deputy Secretary. Keith and Margo are formulating a plan for research, education and policy that addresses agriculture and forestry needs and opportunities. It will build on a rather large investment base on these issues over the last few years. In addition, the White House Climate Change Task Forces is formulating a White House/interagency

Senate Climate Change Meeting 5/14

outreach plan that is near completion. EPA, DOE, NOAA and other agencies will be involved with USDA's agriculture and forestry plans as well. One of Margo's key startup goals is to get USDA more effectively represented in domestic and international policy formulation at the interagency/White House level. The White House Climate Change Task Force is in the process of substantially increasing outreach in this area as well.

One of USDA's primary research tasks is a sectoral analysis of economic impacts. It is in progress. The Senate Ag committee requested this analysis early last year. The analysis will be based on macro analysis by CEA/NEC (Janet Yellen's testimony). Because production agriculture has a low energy cost profile (about 11 percent of overall production expenses are energy related according to USDA's annual agriculture outlook) the effects of the Kyoto Protocol, with the supplements Dr. Yellen assumed, will probably have very little economic effect on farmers. To the extent that the market for renewables is improved and technology for energy efficiency accelerates, the effects could turn positive.

The primary criticisms of the USDA analysis will be reliance on what are deemed overly optimistic scenarios by Dr. Yellen, including the feasibility of an international trading program and the probability of getting meaningful commitments from key developing nations. USDA will point out that most of our competitors for major commodities, like wheat, are in Annex B and therefore not likely to gain competitive advantage. However, some major commodity producers are not yet under Annex B, and this leaves some groups concerned. USDA will also point out that the energy cost exposure of farm input suppliers is also relatively low.

The administration's outreach efforts to agriculture have not been highly systematic to date, although the White House Climate Change Task Force has been involved in discussions with many associations, companies and NGO's over the past year. USDA has kept a low profile until lately. In the future, agriculture will receive a stronger focus and be folded into domestic industry consultation and White House outreach. There may be a need to elevate its profile in the international policy input process.

The suite of key policy issues affecting agriculture and forestry include: economic impacts of mitigation; renewables and biomass; technology opportunities, including energy efficiency; trading programs; carbon sequestration; climate change impacts.

Most of the farm industry is in the dark on the outlook for severe weather events and soil moisture problems under future climate change. However, the farm community is apparently beginning to feel more uneasy about the peculiar weather the US is experiencing and no longer writing it off to natural variation or El Nino. The party line from opposition groups has been that agriculture can adapt to any future change in climate, and that it is likely to be beneficial anyway. This view is strongly articulated by the Washington farm lobbies, but much less so elsewhere.

Senate Climate Change Meeting 5/14

Attendee Profile

Monsanto	Has been relatively positive about climate mitigation opportunities and heavily involved in administration dialog.
Sierra Club	One of the most strident environmental NGO's. Has been relatively cool to sequestration credit and trading programs. Favors more traditional approaches, particularly CAFE.
National Farmers Union	Has been on GCC's support list and helped fund "it's not global and it won't work" ads, but pulled support and dropped from the list recently. Has indicated a strong interest in helping the administration. Other main policy issue is a desire to roll back the "freedom to farm" provisions of the 1996 farm bill.
Renewable Fuels Association	Essentially created by Archer Daniels Midland. Has focused primarily on grain ethanol policy in the past, but this is changing with new cellulosic technology and a new energy marketplace that isn't tied so exclusively to government action. Has been supportive of climate mitigation generally but includes many skeptics. Want more in our domestic budget to support renewables.
Iowa Farm Bureau	Undecided on climate mitigation. Many skeptics and ultra conservatives in group, but also very progressive on policy. Is starting a CO2 trading group focused on soil conservation. Being heavily courted by the coal industry to make the Iowa Primaries a occasion for the defeat of Kyoto protocol.
Sustainable Agriculture Coalition	Supportive of mitigation in general, but has not been in the loop of administration outreach and policy formulation.
Clean Fuels Association	Supportive of mitigation in general.
National Corn Growers	A mixed group at the individual level. Ethanol interests predominate. Have progressive and supportive representation and have given some positive overtures.
Governor Nelson's Office	Has backed Bob Kerrey in his interest to be moderate and constructive, particularly on renewable fuels and carbon sequestration.

Tom Peterson

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Senate Climate Change Meeting 5/14

NRDC

A relatively strident and highly informed NGO that has strongly supported technology and renewables policy. Supports sequestration credits, although has some concern.

Union of Concerned Scientists

A relatively strident and highly informed NGO that has strongly supported technology and renewables policy. Supports sequestration credits, although has some concern.

International Paper

Has been mixed. Supports forest sequestration, technology and renewables approaches. Concerned about energy impacts. Willing to talk and be constructive.

Shea and Gardner

James Woolsey has been actively articulating concerns about national energy policy and security, and advocating stronger incentives for renewables (such as ethanol) and other measures to reduce foreign oil dependence.

EDF

Leading NGO proponent of trading programs and market flexibility. Strongly supportive of sequestration. Very active with industry outreach, including agriculture and forestry.

May-13-98 12:39P Climate Change Task Force

MAY. 13. 1998 8:08AM

NO. 767

P. 2/6

P. 03

The Role of Conservation Tillage (No-Till) in Reducing the Amount of Greenhouse Gases (CO₂)

Agricultural soils in the U.S. have lost between 30 and 50% of the soil organic matter (carbon) in the last 100 years due to intensive cultivation, primarily tillage. Much of the carbon in agriculture ecosystems recycles within the carbon cycle, but there has been a net soil loss that ends up as carbon dioxide in the atmosphere.

Schlesinger, W.H. 1985. Changes in soil carbon storage and associated properties with disturbance and recovery. P. 194-220. In J.R. Trabulha and D.E. Reichle (eds.) *The changing carbon cycle: A global analysis*. Springer-Verlag, New York.

Houghton RA, Hobbie JE, Melillo JM, More B, Peterson BJ, Shaver GR, and Woodwell GM (1983) Changes in the carbon content of terrestrial biota and soils between 1860-1980: A net release of CO₂ to the atmosphere. *Ecological Monographs* 53:235-262

Post WM, Peng TH, Emanuel WR, King AW, Dale VH and DeAngelis DL (1990) The Global Carbon Cycle. *Am Scientist* 78:310-326

Carbon dioxide is the final decomposition product of soil organic matter and is released to the atmosphere following intensive tillage. Research has shown that moldboard plowing caused more than 5 times the short-term carbon dioxide loss compared to plots not tilled in a 19 day study. The carbon loss after the moldboard plow was more than the net carbon input from the preceding wheat crop. Other forms of less intensive tillage were intermediate in carbon dioxide loss. These results illustrate management options to reduce agriculture's contribution to the greenhouse effect and point to needed research.

Reicosky DC and Lindstrom MJ (1995) The effect of fall tillage method on short-term carbon dioxide flux from soil. *Agron J* 83:1237-1243

Reicosky DC (1995) Soil variability and carbon dioxide loss after moldboard plowing. Chap. 63 pp 847-865. In: Robert PC, Larson WE and Rust RH (eds) *Proc Second Intl Conf on Site Specific Management for Agric Systems*. Am Soc Agron. Madison, WI

Reicosky DC and Lindstrom MJ (1995) Impact of fall tillage and short-term carbon dioxide flux pp 177-187 In: Lal R, Kimble J, Levine E and Stewart BA (eds.) *Soil and Global Change*. Lewis Publishers Chelsea, Michigan

There are 290 million acres of U.S. cropland that can be used to sequester carbon to approach pre-agriculture levels. Agriculture can partially help offset fossil fuel sources of carbon dioxide that results in a "win-win" scenario for the environment. Conservation tillage and "no-till" methods can save carbon to enhance soil and air quality that contribute to improved environmental quality.

Conservation Technology Information Center, 1220 Porter Drive, Room 170 West Lafayette, IN 47906-1383

No-Till, when practiced on a permanent basis over a long term period (25 years) can sequester as much as 0.18 ton/acre/year of carbon or the equivalent of 0.66 ton/acre/year of CO₂. Hence, the amount of atmospheric CO₂ that can be sequestered with an acre of no-till is equivalent to not burning 20 gallons of gasoline.

May-13-98 12:39P Climate Change Task Force
MAY.13.1998 8:08AM

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P.316

P.04

Soil Water Conservation Society, 7515 N.E. Ankeny Road, Ankeny, Iowa 5001-9764

Another positive impact from no-till is the reduction in fossil fuel use. Because no-till requires fewer trips across the field to grow a crop, switching from conventional tillage to no-till can reduce fuel use by at least 3.5 gallons/acre. On a 1,000 acre farm this would reduce fossil fuel use by 3,500 gallons.

Conservation Technology Information Center, 1220 Potter Drive, Room 170, West Lafayette, IN 47906-1383.

Soil organic matter is the largest global terrestrial carbon pool and is a source of the carbon dioxide, methane and other greenhouse gases. Over the next 30 years, conversion from intensive conventional till to conservation till or no-till in the U.S. can change agricultural systems from net carbon sources (207-230 million tons of carbon or 760-844 million tons of CO₂) to net carbon sinks (301-447 million tons of carbon or 1.0 - 1.6 billion tons of CO₂). The net gain in carbon sequestration due to conservation tillage and improved residue management is a positive step toward reducing carbon dioxide in the atmosphere.

Soil Water Conservation Society, 7515 N.E. Ankeny Road, Ankeny, IA 5001-9764

Kern JS and Johnson MG (1991) The impact of conservation tillage use on soil and atmospheric carbon in the contiguous United States. US EPA Report EPA/600/3-91/056. 28 pp

Kern, J.S. and M.G. Johnson. 1993. Conservation tillage impacts on national soil and atmospheric carbon levels. Soil Sci. Soc. Am. J. 57:200-210.

Potential climate change can be related to man's activities that increase atmospheric carbon dioxide which causes 50% of the greenhouse effect. Agricultural soils have the potential to store or sequester nearly the 50 to 80% of the carbon lost due to intensive tillage over the last 100 years. Conservation tillage and no-till methods offer promise for reducing agriculture's carbon dioxide contribution to climate change, but need more research to reduce tillage-induced losses.

Bowman, 1990. USEPA Report, 1990.

Schlesinger, W.H. 1985. Changes in soil carbon storage and associated properties with disturbance and recovery. P. 194-220. In J.R. Trabulsi and D.E. Reichle (eds.). The changing carbon cycle: A global analysis. Springer-Verlag, New York.

Conclusion:

Current scientific data strongly suggests that sustainable Agricultural practices, such as no-till, can have a significant influence in sequestering atmospheric CO₂ in the soil organic matter. The scientific evidence suggests that the adoption of no-till on a significant number of crop land (80%) would have a positive impact in preventing the development of global warming.

May-13-98 12:40P Climate Change Task Force
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What is needed:

- Assurance that agricultural practices such as no-till farming is recognized as a viable sequestering solution to reducing atmospheric CO2 in the Climate Change Treaty.
- Support legislation that will provide incentives for growers who adopt and maintain environmentally friendly farming practices such as no-till.
- Support legislation that will allow rational CO2 credit trading schemes among both the private and public sector.
- Additional research dollars to fund research to determine the true impact that various tillage practices have on sequestering atmospheric CO2.
- Additional research dollars to fund practical research to develop and fine tune viable conservation tillage systems that overcome agronomic barriers to CT growth i.e. cold/wet soils; crop rotation; disease/insect management, etc.

Agricultural Solutions to Global Warming

Martin Kleinschmit, Bow Valley, Nebraska

Farmers have a lot at risk as the global climate heats up. Farmers also have a lot to gain, like lower input costs, reduced weather and financial risks, and better soil quality, by participating in the solution to global warming.

Climate models of global warming indicate increased temperatures and erratic weather which will lead to higher temperatures, more numerous droughts, and periods of excessive moisture. This will threaten crops, raise production expenses, and increase risk of financial and agronomic failure.

Whether or not there is a treaty on global warming, the US needs a national energy policy to curtail fossil fuel use, reverse greenhouse gas concentrations, and continue to produce a safe, healthy, and adequate food supply. To protect our food supply, we need healthy soils high in organic matter which are able to withstand erratic weather patterns.

An agricultural carbon credit program, not mentioned in the treaty discussions, will encourage farmers to capture atmospheric carbon in the form of plants and store it in the soil in the form of organic matter and humus. (Presently, most US farmland has only half or less of its historical level of organic matter.) Raising organic matter levels reduces crop susceptibility to weather fluctuations and reduces input costs.

Carbon credits can be given for any crop that sequesters carbon. This kind of program can compensate farmers to plant their land into grass or crops that will build soil organic matter and capture the most carbon. It would not require farmers to take their land out of agricultural production.

Establishing grass is the most effective way to reduce emissions and provide a long term carbon sink at the same time. If farmers are allowed to graze the grass, carbon sequestering increases by about 6 fold over non-grazed grass and the land stays in agricultural production.

Carbon credits require no new technologies. They could be implemented today. The program could be operated through the USDA Farm Service offices and financed through a one cent per gallon tax on gasoline (or equivalent for alternative fuels). It would be a payment for a common good service instead of a payment for not doing anything.

May-13-98 12:40P Climate Change Task Force
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P.07

BUSINESS

By Dan Looker, Business Editor

An Illinois farmer, Jim Kinsella, has the best idea for ag policy in decades. He wants the government to reward farmers for doing the right thing—building soil humus. That would help lessen the potential of global warming.

His concept would not be a giveaway. The Global Climate Change Treaty would require developed countries to tax fuels that add carbon dioxide to the atmosphere, or to buy "carbon credits" from nations, such as Russia, where fuel use has dropped.

Kinsella proposes that, instead of relying completely on that approach, the government reward farming practices that trap carbon in the soil in the form of soil humus. In the short run, that could be cheaper and more effective than other ideas in Washington.

Kinsella, a no-till farmer who in 20 years has doubled topsoil organic matter on one farm from 1.9% to 3.9%, sees no-till as the best carbon trap. But he would also give credit for carbon added to soil with manure, sludge and landscape waste. A 1¢ per gallon gasoline tax would easily raise enough to pay 2¢ for every pound of carbon trapped in the soil.

On Kinsella's farm that's nearly \$30 per acre for corn. (He describes his Soil Humus Improvement Program—SHIP—on page 50 of our March issue.)

Good science supports good stewardship

In the past, agriculture and forestry were big contributors to the buildup of carbon dioxide in the atmosphere. The Woods Hole Research Center estimates that over 150 years, up to a fourth of the new CO₂ in the earth's atmosphere came from clearing forests and plowing sod. After the turn of the century, fossil fuels pulled ahead as the biggest source; today, agriculture may add as little as 2%.

Planting new trees and grasses, as we've done with the Conservation Reserve Program, is the fastest way to take carbon back out of the atmosphere. But with the right farming practices, "we have a chance to restore and bring some of the carbon levels back up," says Don Reicosky, a USDA soil scientist in Morris, Minnesota. Research shows that broadcast tillage breaks down humus very fast. Carbon restored by a

Illinois farmer has
an idea that could
restore soil, fight
global warming, and
boost farm income



D. Looker

decade of CRP grasses can be lost in a year. No-till farming helps conserve and restore what's been depleted—40% or more of the humus in virgin soils.

In the short run, Kinsella's idea could be blocked by Republican opposition to the global warming treaty, which is also opposed by the Farm Bureau.

Concept needs to be broadened and refined

And it's too narrow. No-till farmers aren't alone in working to restore native soil fertility. Organic farmers like Del Akerlund of Valley, Nebraska, are among those who preceded them.

Akerlund's sandy-loam soil was down to 0.5% organic matter when he changed farming practices in 1967. He trucked in tons of manure from packing plants and rotated crops with pasture and oat-clover-hay. Today some pastures are up to 7% OM and crop fields have 3%. Looking back, Akerlund says he got the biggest boost from rotating with thick-rooted pasture and hay—a view supported by Dennis Keeney, a soil scientist who heads Iowa State University's Leopold Center for Sustainable Agriculture.

Federal policy should encourage such long-term rotations and grassland farming, too. Tricky issues of fairness and compliance remain to be worked out.

But Kinsella's basic idea of making agriculture an asset against global warming is sound. That general concept has support from Senate Ag Committee chair Dick Lugar and Deputy Ag Secretary Richard Rominger. Kinsella deserves a hearing in Washington for an idea that can be part of the solution. When I described his concept of payments for captured carbon to Del Akerlund (who's no fan of farm programs), he said, "It's about time." **SE**

BUSINESS Highlights

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Growing more dollar signs ... 14

Focus on forage:

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• Hay entrepreneur looks at the future ... 23

• Tips from a top grass manager ... 24

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United States Senate

WASHINGTON, DC 20510

May 11, 1998

Dear Colleague:

We plan to send the attached letter to President Clinton. The letter urges clarification of existing language regarding forestry and agriculture in the latest protocol to the climate change treaty. We ask the President to promote domestic policy initiatives that encourage investment in the credible and cost-effective mitigation capacity of forestry and agricultural sinks to reduce excess atmospheric carbon dioxide concentrations. We believe that fair market competition should determine which technologies and strategies are employed to reduce greenhouse gases.

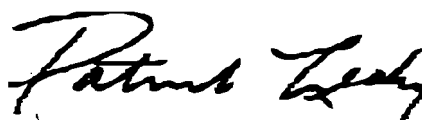
Forestry and agricultural management strategies are proven and cost-effective methods for reducing atmospheric greenhouse gas concentrations and provide ancillary environmental benefits as well such as watershed protection, soil conservation, and reduced storm water runoff. We urge the adoption of credits for domestic forestry and agricultural management and conservation strategies and development of standardized accounting methods for carbon sequestration.

We hope that you will support us in our efforts to bring clarity to the next iteration of the climate change treaty scheduled for discussion in early June. If you would like to sign this letter, please have your staff contact Dave Verardo (4-3430) in Senator Wyden's office or Susanne Fleak (4-4242) in Senator Leahy's office by May 22, 1998.

Respectfully,



Senator Ron Wyden



Senator Patrick J. Leahy

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05/13/98 10:57 P.003/004

United States Senate

WASHINGTON, DC 20510

May 11, 1998

The Honorable Bill Clinton
President
The White House
Washington, D.C.

Dear Mr. President:

The latest protocol to the climate change treaty that was negotiated in Kyoto was an important step towards international collaboration in addressing the environmental effects of rising concentrations of greenhouse gases in the atmosphere. It could be improved, however, by encouraging investment in the natural mitigation capacity of forestry and agricultural sinks. In a market-based system that encourages the most cost-effective methods for reducing net emissions of carbon, forestry and agricultural carbon sinks are a profitable pathway to reducing excess atmospheric concentrations of greenhouse gases.

Forestry and agriculture play a significant role in sequestering atmospheric carbon and economic analysis shows these strategies to be cost-effective. With costs of \$2-\$20 per ton of carbon, domestic forest conservation and management strategies achieve not only greenhouse gas mitigation but, a host of other environmental benefits such as protection of watersheds, water supplies, and critical wildlife and fish habitat, increased soil conservation, and reduction of storm water runoff and landslides.

Unfortunately, ambiguous language in the Kyoto Protocol appears to foreclose the highly effective, credible, and low-cost option of reducing carbon dioxide emissions through improved forestry and agricultural management and conservation practices. Without clarifying existing language, the treaty may have unintended negative impacts on vital forest resources and actually increase forest-based carbon emissions, both in this country and abroad. Such incentives are contrary to a number of national policies and international programs such as the Northwest Forest Plan, the Clean Water Act, the Endangered Species Act, the International Tropical Timber Agreement, the Montreal Process, the Gore-Chernomyrdin agreements and the recently convened Intergovernmental Forum on Forests. Consequently, the effectiveness of the treaty can be enhanced by simplifying the language to enable the use of forestry and agricultural practices.

We urge you to promote domestic policy initiatives and seek clarifications to existing Protocol language that would establish comprehensive accounting for forestry and agriculture and enable the issuing of credit for domestic forest and agriculture management and conservation strategies. Furthermore, we recommend directing the Environmental Protection Agency and the Department of Agriculture to help provide standardized methodologies and accounting principles for carbon

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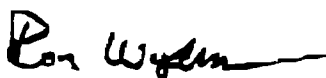
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sequestration which are key to establishing the credibility of any action undertaken to mitigate excess atmospheric greenhouse gases. To this end, we strongly encourage development of pilot projects investigating the effectiveness of management approaches in selected forests and fields of the United States. As reflected by the sense of the United States Senate and expressed in a Wyden amendment to the FY 1999 Senate Budget Resolution, these elements should be among our initiatives to foster cost-effective and performance-based methodologies to reduce greenhouse gasses.

We appreciate your attention to our call for expanding the role of forests and agriculture in the scientific strategy for mitigating atmospheric greenhouse gases and look forward to working with you on this important matter.

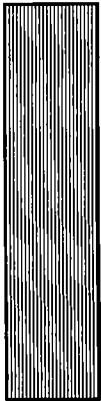
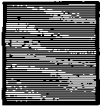
Respectfully,



Senator Ron Wyden



Senator Patrick J. Leahy



From the TelePort of: Tom Peterson

Date: Monday, May 11, 1998

Number of Pages: 13

To: Roger Ballentine, WH Legislative

Fax Number: 202 456-2604

Memo: This is the draft ag/forestry outreach plan I sent to USDA and EPA for comment last week. I'd like to firm it up for Todd this week if possible. I thought this would be a good time for your initial review, and I'll plan on getting you a second draft pending your comments and those of the agencies. Whatd do you think? Tom

DRAFT

Agriculture and Forestry - Climate Outreach Plan

General goals: Develop a more accurate understanding of the issue among key constituencies and the public. Develop positive commitments for action among key groups in key geographical areas.

Implementation: Provide objective, policy-relevant information on key issues to areas and entities in greatest need. Structure effective dialog on key policy and education issues. Work with key industry sectors, leaders and individual companies on to correct misperceptions, develop smart policy options, and develop greater appreciation for the risks of inaction.

1. **Target groups** - agriculture and forest producers (and related associations), processors, wholesaler/retailer groups, input suppliers, conservation NGO's, state and local groups, congress, trade media (appendix 1)
2. **Key policy issues** - economic impacts of mitigation, resource impacts of inaction, no regrets actions, sequestration opportunities, trading opportunities, technology opportunities, renewables opportunities (appendix 2)
3. **Key federal process opportunities** - industry consultations and credit for early reduction; FY 99 and 2000 budget discussions; international policy development feedback (appendix 3)
4. **Interagency analytical/research plan** - economic impacts, resource impacts, no regrets, sequestration, trading, technology, renewables (appendix 4)
5. **Educational package** - cabinet speeches, speaker's notes, fact sheets, Q's and A's, media guide (appendix 5)
6. **Calendar** - POTUS/VPOTUS events, Glickman speech, other cabinet events, actions by subcabinet and agency experts (appendix 6)
7. **Interagency outreach team** - White House, USDA, EPA, DOE, NOAA teams to brief congress, industry, NGO's, media (appendix 7)

DRAFT

Appendix 1: Target Groups**Agriculture**

- Producers And Related Associations - commodity crops, livestock, biomass, specialty crops
 - National Cattemans' s Association
 - National Grange
 - Cotton Council
 - Rice Federation
 - National Wheat Farmers
 - National Corn Growers
 - National Farmers Union
 - National Farm Bureau
 - Renewable Fuels Association
 - Business Council For Sustainable Energy
 - others?
- Processors
 - Cargil
 - ADM
 - National Food Processors Association
 - Perdue
 - Tysons
 - American Meat Institute
 - Proctor and Gamble
 - General Mills
 - others?
- Wholesale/Retail Groups
 - Grocery Manufacturers Association
 - Agricultural Retailers Association
 - others?
- Input Suppliers - agriculture related groups
 - Southern States
 - Agway
 - Cenex
 - Monsanto
 - DuPont
 - Fertilizer Institute

DRAFT

- Pioneer Seed
- Agri Bio Tech
- National Ag Credit
- others?
- Conservation NGO's
 - WRI
 - Soil and Water Conservation Society
 - Wildlife Management Institute
 - Sustainable Ag Coalition
 - Henry Wallace Institute
 - Delta Land Trust
 - Farm Foundation
 - others?
- State And Local Groups
 - National Association of Ag Commissioners
 - National Governors Association
 - National Chambers of Commerce
 - others?
- Congress
 - Senate Ag
 - Senate Budget
 - House Ag
 - House Approps
- Trade Media
 - Farm Journal Publishing
 - Farm Progress Companies
 - others?
- Regional Media
 - Des Moines Register
 - Chicago Star and Tribune
 - etc.

Forestry

- Producers, manufacturers, associations - pulp and paper, board and beam, biomass
 - Georgia Pacific
 - Weyerheuser

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- Champion
- International Paper
- American Forest Products Association
- National Association of State Foresters
- American Pulpwood Association
- National Woodland Owners Association
- Kafus Industries
- others?
- Conservation NGO's And Professional Societies
 - Society of American Foresters
 - Wildlife Management Institute
 - Izaak Walton League
 - American Forests
 - Pacific Forest Trust
 - The Nature Conservancy
 - National Association of Consulting Foresters
 - others?
- State And Local Groups
 - National Association of Forestry Commissioners?
- Congress
 - Senate Ag
 - Senate Energy
 - Senate Budget and Approps
 - House Ag
 - House Interior
 - House Approps
- Trade Media
 - American Forestry
 - SAX Publications
 - etc.

Regional Media

- ?

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Appendix 2: Key Policy Issues

- Economic impacts of mitigation
 - energy and fuel prices
 - interest rates
 - GDP
 - farm income
 - trade shifts
 - other?
- No regrets actions
 - Nutrient management
 - Soil conservation
 - water conservation
 - reduced till
 - other?
- Resource impacts of inaction
 - 2x, 3x, 4x CO₂ scenarios
 - effects of severe weather
 - tradeoffs/interactions with other resources (e.g. water, landuse)
 - regional dislocation
 - worldwide production shifts
 - other?
- Sequestration opportunities
 - forests - above and below ground (management, conservation, etc.)
 - agriculture - above and below ground (soils, crops, grazing lands, set asides, etc.)
- Trading opportunities
 - domestic policy based
 - international - CDM, Annex 1; current protocol definitions vs. expansions under article 3.4
- Technology opportunities
 - biomass
 - feedstocks
 - chemicals and fertilizers
 - land management systems
 - water management systems

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- energy efficiency for fuel and electricity use
- other?
- Renewables opportunities
 - biomass plantations
 - waste
 - other?

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Appendix 3: Key Federal Process Opportunities

- Industry consultations
 - credit for early reduction
 - policy and program barriers
 - no regrets programs
 - education within industry ranks
- Budgets
 - FY 1999
 - FY 2000
 - Alternative Hill/NGO packages
- International policy input
 - Argentina
 - Beyond
- Special events by White House and Departments
 - White House exchanges with Todd, Katie, key agency reps; target key industries, NGO's and Hill staff
 - first in two weeks
 - periodic sessions to follow
 - Technical Conference Series - experts from both sides compare data on key analytical issues; target industries and Hill staff; regional locations
 - science and risks of inaction - general, agriculture and forestry
 - economic impacts - macro and sectoral
 - policy solutions - technology, renewables, energy efficiency, sequestration, trading, etc.
 - Ag weather event/conference - target state and university ag climatologists, industries, trade media; regional location
- Long-term educational programs
 - extension programs?
 - conferences?
 - workshops?
 - demonstration projects?
 - others?

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Appendix 4: Interagency Analytical/Research Plan

- Economic impacts of mitigation
 - energy and fuel prices
 - interest rates
 - GDP
 - farm income
 - trade shifts
 - other?
- No regrets actions
 - Nutrient management
 - Soil conservation
 - water conservation
 - reduced till
 - other?
- Resource impacts of inaction
 - 2x, 3x, 4x CO₂ scenarios
 - effects of severe weather
 - tradeoffs/interactions with other resources (e.g. water, landuse)
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- Technology opportunities
 - biomass
 - feedstocks
 - chemicals and fertilizers
 - land management systems
 - water management systems
 - energy efficiency for fuel and electricity use

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- other?
- Renewables opportunities
 - biomass plantations
 - waste
 - other?

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Appendix 5: Educational Package

- cabinet speeches - Glickman and others
- speakers notes - overheads and handouts for White House and agencies
 - general domestic issues
 - general international policy issues
 - ag specific issues
- fact sheets
 - climate science - enhanced version of “state of knowledge” targeted to resource managers
 - agriculture and forestry emissions by greenhouse gas and by sector
 - agriculture and forestry sequestration potential by sector
 - resource impacts - production, resource tradeoffs (water, forest systems), severe weather, beyond 2x scenarios, geographical maps, etc.
 - economic impacts - energy prices, trade/export shifts, labor, household income, interest rates, etc.
 - trading - domestic, international opportunities and needs
 - technology - renewables, efficiency, sequestration, etc.
 - voluntary programs/no regrets actions ...
 - others?
- Q's and A's - key domestic and international issues ...
 - international process, timetable and input process
 - domestic process, timetable and input process
 - others?
- Media Guide?

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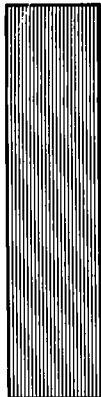
Appendix 6: Calendar

- POTUS, VPOTUS - event/announcement? Fall harvest event in the Mid West?
- Cabinet - Glickman speech, Glickman/Witt/Baker event?
- Subcabinet - events and speeches?
- Industry Consultations?
- FY 2000 budget discussions?
- International policy feedback sessions?
- Staff - conferences, workshops, seminars, briefings, press?
- Congressional hearings and briefings
- Press events? Regional ed. boards? Trade ed. boards?

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Appendix 7: Interagency Outreach Teams

- Congress
 - members: Glickman, Rominger, Collins, Stern, McGinty, Eizenstat, Moler, Witt, etc.?
 - staff: Roger Ballentine, Tom Peterson, Keith Collins, Joe Glauber, Margo Anderson, Dan Reicher, Denise Swinks, etc.?
- Industry
 - CEO's - Glickman, Rominger, Forrister, Stern, Eizenstat, Moler, Reicher, Gardiner?
 - VP's and managers - Forrister, Peterson, Fidler, Collins, Glauber, Anderson, Wolcott, Kuch?
- NGO's
 - CEO's - Glickman, Rominger, Forrister, Stern, Eizenstat, Moler, Reicher, Gardiner?
 - Staff - Forrister, Peterson, Fidler, Collins, Glauber, Anderson, Wolcott, Kuch?
- Media
 - background - ?
 - on record - Glickman, Rominger, Collins, Eizenstat, Stern, McGinty, Forrister?
- What about reps from: USFS? NRCS? NOAA? EPA? DOE? FEMA? DOI? USGCRP? Other White House?



From the TelePort of: Tom Peterson

Date: Wednesday, May 13, 1998

Number of Pages: 7

To: Roger Ballentine, WH Legislative

Fax Number: 202 456-2604

Memo: FYI: draft talking points and background for Stu's meeting with Senators Kerrey and Kerry tomorrow at 12 noon (SH 708). Tom

draft

Talking Points And Background For Climate Change Meeting With Senators Bob Kerrey (NE) And John Kerry (MA) - 12 Noon, 5/14

Talking Points

- The administration is committed to finding win-win policies for agriculture and forestry that minimize energy price impacts and encourage real opportunities for revenue enhancement through carbon sequestration, renewable energy development, technology growth, energy efficiency and no regrets actions. We would like to work with your groups to get on the same page on these issues.
- We would also like to work with you to get on the same page on basic climate change science, policy and economics issues as they relate to agriculture and forestry, and correct any misperceptions that may exist.
- The State Department would like your input as a part of our international policy feedback process, and the White House Climate Change Task Force plans to include both agriculture and forestry in discussions on voluntary commitments and early reductions. The administration is also open to talking about how we make the most of current budget requests, as well as upcoming budgets.
- USDA has recently reestablished its climate change program and is working on a number of key policy areas, including an analysis of the economic effects of climate policy on agriculture at the request of the Senate Agriculture Committee. Results will be shared with industry and NGO's. The low energy cost profile of farm production (energy expenses are estimated at 11 percent of total by USDA) suggests impacts are likely to be low overall. USDA's analysis should identify the potential for excessive impacts in special areas if they exist.
- The trading programs in the Kyoto Protocol hold the potential to substantially reduce climate mitigation costs for the US. They also open doors for US farmers and forest landowners to sell credits on a world market. We would like to work with industry and NGO's in the US to resolve technical and policy hurdles to additional agreements on trading and sequestration issues.
- We are confident that we can get supplemental agreements on trading and sequestration, and that these programs will work. Many projects based on forestry conservation have been underway as successful demos under the JI program since 1993. Other countries, including Japan, are actively scoping out sequestration projects and committed to making budget and project based trading work. An options market for agriculture and forest sequestration is emerging in the US in anticipation of domestic and international policies.

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Background

Farm groups have been largely opposed to the Kyoto Protocol and generally resistant to climate mitigation policy. The American Farm Bureau has been particularly harsh, and is working in concert with coal, oil and car companies to oppose the protocol. These groups have targeted climate change as a key issue in '98 and 2000 campaigns, and are trying to position it as a farmer issue in order to avoid focus on high emissions industries. In the past industries have succeeded using this same strategy to defeat major legislative proposals, including the biodiversity convention and the elevation of EPA to cabinet status.

Not all farm groups are as strongly opposed. The National Farmer's Union (an association of commodity crop producers in the northern great plains and northern midwest) has been less strident. They have withdrawn participation in the GCC opposition campaign and are talking with the administration about constructive approaches. Renewable energy producers have also been more supportive, including the National Corn Growers Association (due to ethanol), the Renewable Fuels Association, and a garden variety of other groups. Specialty crop producers are less organized and less opposed at present. Some are concerned about the shift of micro climates upon which their production is based.

Forest industries have been less strident in opposition, although they remain seriously concerned as a high emissions sector. Many have been involved in the Industries For the Future Program at DOE, and have been pleased with the process. Similarly, some key industries (such as Georgia Pacific) are prominent members of the President's Council of Sustainable Development. Forest product firms have made great strides in using waste fiber for fuel on site, and also recycling waste heat for power.

Agricultural input suppliers are more energy intensive than farming per se, and far more concentrated in power and profit. They include chemicals (pesticides, herbicides, and fertilizer), seeds and equipment. These industries and their individual companies are diverse in views on climate mitigation, although most seem skeptical and concerned. However, Monsanto has been very positive in private. DuPont has been mixed but good in key areas. On the other hand, The Fertilizer Institute is stridently opposed. John Deere has been cautious and hoping to avoid the issue.

Forest conservation NGO's have been strong supporters of mitigation actions due to land conservation opportunities with sequestration. The Nature Conservancy, the Pacific Forest Trust, American Forests, and others have been very active with the administration, on the Hill, and with key industries with whom they hope to structure win-win policy relationships. They have succeeded in winning over most of the climate NGO's to support of sequestration, but the Sierra Club, Greenpeace, and some others remain skeptical or outright opposed on the grounds that sequestration credit represents a "loophole" for the US.

The Pacific Forest Trust has been particularly active and supportive. However, like the others, they believe the Kyoto Protocol is badly flawed on the sinks issue and needs

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serious overhaul. They point out that the protocol exempts forestry emissions, which are responsible for 15 percent of worldwide emissions, while smaller emissions categories are not exempt. They also point out that the narrowness of definitions (which do not include management and conservation) are a problem. Conceivably, the protocol rewards the act of clearing and replanting, versus preservation, because it does not count emissions from harvest and only counts sequestration from "reforestation." In addition, it restricts credit for reforestation since 1990, and therefore excludes actions taken to manage stands reforested before 1990. Georgia Pacific is adamantly opposed to this provision, since most of its land was reforested prior to 1990. They also strongly oppose the lack of credit for conservation and management, and want company level credit for sequestration projects.

Farm groups and farm conservation NGO's are conceptually supportive of credit for soil conservation sinks, but very disappointed in the Kyoto language that puts this off to future negotiations - while counting agriculture emissions against them (the opposite of the language on forestry). They are watching the administration very closely to see if we make a serious attempt to change this via article 3.4. Nonetheless, some, such as the Iowa Farm Bureau, are starting to form CO2 trading programs or demo sequestration projects. They are also working with Brokers (such as Carlton Bartels of Cantor Fitzgerald and Richard Sandor of Centre Financial Products) to start an options market.

Apparently the speculative market for sequestration is growing fast. Carlton Bartels reports selling large volumes of options (one investor bought seven millions tons of CO2 reduction options a few months ago). The market is emerging as a diversified options market in order to manage risk, with investors betting that some options will make the grade as policy evolves. In this regard it is similar to the junk bond market in its life stage. Most of the options are going to agricultural soil conservation, not forests. They are typically structured as annual options at \$.10-.25 per ton (pre Kyoto prices), with strike prices at \$3-4 per ton. Options rates appreciated by a factor of ten after Kyoto, even though agricultural soils were essentially left out. The strike prices are discounted for risk, but it is not clear exactly what the discount rate is (and therefore the true cost per ton compliance figure).

Activity in the options market leads some congressional members (such as Bob Kerrey) to believe the administration has underestimated the opportunity and value of farm conservation credit for climate mitigation. They would like USDA to press forward with demos and research to sort out the technical issues. They would also like the administration to included a comprehensive set of sequestration policies in its domestic program as a part of industry consultation and credit for early action. Some members may want to legislate this pathway as a way to encourage international policy to converge. They do not want to wait for international policy to yield an ideal domestic approach.

USDA has reestablished its climate program under competent and committed leadership recently in the Office of the Chief Economist (Keith Collins). Margo Anderson was recently named as the new director, and will chair USDA's climate task force that includes representatives from the US Forest Service, Natural Resources Conservation Service and other offices within USDA. The new climate office reports through Keith to the Secretary and Deputy Secretary. Keith and Margo are formulating a plan for research, education and policy that addresses agriculture and forestry needs and opportunities. It will build on a rather large investment base on these issues over the last few years. In addition, the White House Climate Change Task Forces is formulating a White House/interagency

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outreach plan that is near completion. EPA, DOE, NOAA and other agencies will be involved with USDA's agriculture and forestry plans as well. One of Margo's key startup goals is to get USDA more effectively represented in domestic and international policy formulation at the interagency/White House level. The White House Climate Change Task Force is in the process of substantially increasing outreach in this area as well.

One of USDA's primary research tasks is a sectoral analysis of economic impacts. It is in progress. The Senate Ag committee requested this analysis early last year. The analysis will be based on macro analysis by CEA/NEC (Janet Yellen's testimony). Because production agriculture has a low energy cost profile (about 11 percent of overall production expenses are energy related according to USDA's annual agriculture outlook) the effects of the Kyoto Protocol, with the supplements Dr. Yellen assumed, will probably have very little economic effect on farmers. To the extent that the market for renewables is improved and technology for energy efficiency accelerates, the effects could turn positive.

The primary criticisms of the USDA analysis will be reliance on what are deemed overly optimistic scenarios by Dr. Yellen, including the feasibility of an international trading program and the probability of getting meaningful commitments from key developing nations. USDA will point out that most of our competitors for major commodities, like wheat, are in Annex B and therefore not likely to gain competitive advantage. However, some major commodity producers are not yet under Annex B, and this leaves some groups concerned. USDA will also point out that the energy cost exposure of farm input suppliers is also relatively low.

The administration's outreach efforts to agriculture have not been highly systematic to date, although the White House Climate Change Task Force has been involved in discussions with many associations, companies and NGO's over the past year. USDA has kept a low profile until lately. In the future, agriculture will receive a stronger focus and be folded into domestic industry consultation and White House outreach. There may be a need to elevate its profile in the international policy input process.

The suite of key policy issues affecting agriculture and forestry include: economic impacts of mitigation; renewables and biomass; technology opportunities, including energy efficiency; trading programs; carbon sequestration; climate change impacts.

Most of the farm industry is in the dark on the outlook for severe weather events and soil moisture problems under future climate change. However, the farm community is apparently beginning to feel more uneasy about the peculiar weather the US is experiencing and no longer writing it off to natural variation or El Nino. The party line from opposition groups has been that agriculture can adapt to any future change in climate, and that it is likely to be beneficial anyway. This view is strongly articulated by the Washington farm lobbies, but much less so elsewhere.

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Attendee Profile

Monsanto	Has been relatively positive about climate mitigation opportunities and heavily involved in administration dialog.
Sierra Club	One of the most strident environmental NGO's. Has been relatively cool to sequestration credit and trading programs. Favors more traditional approaches, particularly CAFE.
National Farmers Union	Has been on GCC's support list and helped fund "it's not global and it won't work" ads, but pulled support and dropped from the list recently. Has indicated a strong interest in helping the administration. Other main policy issue is a desire to roll back the "freedom to farm" provisions of the 1996 farm bill.
Renewable Fuels Association	Essentially created by Archer Daniels Midland. Has focused primarily on grain ethanol policy in the past, but this is changing with new cellulosic technology and a new energy marketplace that isn't tied so exclusively to government action. Has been supportive of climate mitigation generally but includes many skeptics. Want more in our domestic budget to support renewables.
Iowa Farm Bureau	Undecided on climate mitigation. Many skeptics and ultra conservatives in group, but also very progressive on policy. Is starting a CO2 trading group focused on soil conservation. Being heavily courted by the coal industry to make the Iowa Primaries a occasion for the defeat of Kyoto protocol.
Sustainable Agriculture Coalition	Supportive of mitigation in general, but has not been in the loop of administration outreach and policy formulation.
Clean Fuels Association	Supportive of mitigation in general.
National Corn Growers	A mixed group at the individual level. Ethanol interests predominate. Have progressive and supportive representation and have given some positive overtures.
Governor Nelson's Office	Has backed Bob Kerrey in his interest to be moderate and constructive, particularly on renewable fuels and carbon sequestration.

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NRDC

A relatively strident and highly informed NGO that has strongly supported technology and renewables policy. Supports sequestration credits, although has some concern.

Union of Concerned
Scientists

A relatively strident and highly informed NGO that has strongly supported technology and renewables policy. Supports sequestration credits, although has some concern.

International Paper

Has been mixed. Supports forest sequestration, technology and renewables approaches. Concerned about energy impacts. Willing to talk and be constructive.

Shea and Gardner

James Woolsey has been actively articulating concerns about national energy policy and security, and advocating stronger incentives for renewables (such as ethanol) and other measures to reduce foreign oil dependence.

EDF

Leading NGO proponent of trading programs and market flexibility. Strongly supportive of sequestration. Very active with industry outreach, including agriculture and forestry.