

## Chapter 5: AGRICULTURE & RURAL AMERICA

### BACKGROUND

- Agriculture accounts for 6 percent of America's greenhouse gas emissions. Only 1 percent of this is CO<sub>2</sub>, mainly from burning of fossil fuels to run machinery and vehicles. Most agricultural emissions come from methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). If other aspects of the farming industry are incorporated, such as food production and transportation, agriculture is associated with almost one-quarter of U.S. emissions.
- Methane's heat trapping properties in the atmosphere are 23 times more potent than those of CO<sub>2</sub>. One ton of N<sub>2</sub>O has the warming equivalent of 310 tons of CO<sub>2</sub>. Seventy-four percent of national N<sub>2</sub>O emissions come from agriculture.<sup>1</sup>
- U.S. crops and livestock were valued at about \$200 billion in 2002, according to the [Scientific Assessment of the Effects of Global Climate Change](#) – a 2008 report of the Committee on Environment and Natural Resources produced by the National Science and Technology Council. That report cites the U.S. Climate Change Science Program (CCSP) finding that “it is *very likely* that temperature increases, increasing carbon dioxide levels, and altered patterns of precipitation are already affecting U.S. water resources, agriculture, land resources, biodiversity, and human health, among other things.”
- The CCSP and the Intergovernmental Panel on Climate Change (IPCC)<sup>2</sup> found the U.S. agricultural sector is “...strongly affected by weather and climate factors...” because of a number of issues, including: “pre-existing climatic and soil conditions, changes in pest competition, water availability, and the sector's capacity to cope and adapt through management practices, seed and cultivar technology, and changes in economic competition among regions.”
- Increasing use of corn as a petroleum substitute for fuel and plastics has led to rising food costs and food shortages worldwide. As reported in [The Economist](#), “the grain needed to fill up an SUV would feed a person for a year,” according to the World Bank. Increased meat consumption by newly emerging middle classes in countries such as India and China is also contributing to the problem as grain crops are redirected from humans to animals.
- The [Energy Independence and Security Act of 2007](#) (EISA) put an emphasis on ethanol production, which is further contributing to the food crisis. EISA also contains provisions encouraging greater production of other biofuels, allowing farmers to profit from a move to cellulosic biofuel production that would assist in alleviating the impact on food costs and production.
- The industrialization of agriculture – fed by the overly specific U.S. subsidy system that supports the growth of two crops, soybeans and corn – has led to over-working of arable land, the reduction of investment in small farm operations and the loosening of environmental controls that allow a small number of large businesses to generate and dispose of (without oversight) huge amounts of animal waste. These wastes are polluting not only the land but also gulfs, oceans and seas. A recent editorial in [The New York Times](#) referenced the New Jersey-sized (and growing) dead zone in the Gulf of Mexico that has been the subject of [study](#) by the [National Oceanic and Atmospheric Administration's](#) (NOAA) National Centers for Coastal Ocean Science.
- Organic farming practices require less energy to maintain, produce fewer greenhouse gas emissions, avoid the use of chemical fertilizers and are more resilient in the face of drought of any kind, including that brought on by climate change.<sup>3</sup>

## FRAMEWORK FOR FEDERAL POLICY

- Federal policy must recognize that because the United States has only 3 percent of the world's oil reserves, we will not drill our way out of our dependence on foreign oil. We will grow our way out, harvesting energy from crops and woodlands as well as from sunlight and wind. Well-designed policies to encourage rural energy development can resurrect struggling rural economies, creating new jobs, industries and tax revenues. Rural areas also contain some of the greatest opportunities for carbon sequestration.
- Congress should move from a five-year to a 50-year farm bill to encourage coherent, long-term agricultural policy.
- Agriculture policies should be designed to support environmental stewardship, mitigation of greenhouse gases and rural carbon sequestration.
- Federal policies must encourage crop diversity. Past policies have over-emphasized the production of two crops – corn and soybeans – particularly in the American Midwest. This lack of diversity has contributed to the decline in the number of farms and, as a result, the decline of the American rural community as farms failed and families moved away. By restructuring the farm subsidy system to encourage crop diversity, diversity of land use and environmentally responsible farming practices, the government can begin the process of revitalizing rural America.

## EXECUTIVE & LEGISLATIVE FOUNDATION

- **7 U.S.C. § 6701** directs the Secretary of Agriculture to establish a Global Climate Change Program within the Department of Agriculture. This chapter also makes the United States Department of Agriculture (USDA) responsible for “studying the effects of global climate change on agriculture and forestry; the means of mitigating the effects of global climate change on crops of economic significance; and the emissions of methane, nitrous oxide and hydrocarbons from tropical and temperate forests.”<sup>4</sup>
- **Methane to Markets Partnership**, a presidential initiative announced 7/28/2004. (See item 4b.) Under the Partnership, member countries will work in coordination with the private sector to share and expand the use of technologies to capture methane emissions that are now wasted in the course of industrial processes and use them as a new energy source.<sup>5</sup>
- **Executive Orders:**
  - a) [E.O. 13134](#), August 12, 1999: Developing and Promoting Biobased Products and Bioenergy.
  - b) [E.O. 13423](#), January 24, 2007: Strengthening Federal Environmental, Energy, and Transportation Management.
  - c) [E.O. 13432](#), May 14, 2007: Cooperation Among Agencies in Protecting the Environment With Respect to Greenhouse Gas Emissions From Motor Vehicles, Non-road Vehicles, and Non-road Engines.
- **Legislation:**
  - a) [Rural Electrification Act of 1936 \(REA\)](#) (with Amendments as Approved through 12/31/2000) authorized the USDA Secretary to make loans “for rural electrification and for the purpose of furnishing and improving electric and telephone service in rural areas, ... and for the purpose of assisting electric borrowers to implement demand side management, energy conservation programs, and on-grid and off-grid renewable energy systems.”

- b) [The Clean Air Act \(CAA\)](#): It has been determined, following a court challenge ([Massachusetts et al. v. Environmental Protection Agency et al.](#)), that the Environmental Protection Agency (EPA) has the authority to regulate CO<sub>2</sub> under the Clean Air Act. The Landfill Rule of the CAA requires the capture and combustion of methane.
- c) [Global Climate Protection Act of 1987 \(GCPA\)](#): GCPA includes methane in its discussion of “manmade pollution” that “may be producing a long-term and substantial increase in the average temperature on Earth, a phenomenon known as global warming through the greenhouse effect.”
- d) [Farm Security and Rural Investment Act of 2002](#) included reauthorization of the [Environmental Quality Incentives Program](#) “to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals.”
- e) [EISA](#) contained incentives for production of ethanol from food crops. Ethanol subsidies are one of the factors blamed for the food crisis in 2008.

## EXECUTIVE ACTIONS

1. **Direct the USDA to establish a 50-Year Federal Farm Policy.** The [Land Institute](#)’s Wes Jackson recently initiated a discussion which [recommends the next 10 five-year Farm Bills](#) be developed to achieve a) no net loss of soil, soil fertility or soil biodiversity; b) net reductions in greenhouse gas emissions; c) conservation and detoxification of water supplies; d) minimal nitrogen runoff; e) more profitable farms, more farm families and more vital rural communities; f) healthful food; and g) high yields. They also should achieve the objectives of making rural America the nation’s principal source of renewable energy supply and carbon sequestration services.

### *Associated Legislative Actions:*

- a) Request that Congress structure future five-year Farm Bills as part of a broad 50-Year Federal Policy for U.S. agriculture.
- b) Request that Congress incorporate into future Farm Bills the restructuring of agricultural subsidies and loan programs to reward practices based on how much carbon is put – and kept – in soil.<sup>6</sup>

2. **Invest in the New Rural Energy Economy.** The president should direct agencies to refocus current federal financial and technical assistance programs toward the objectives stated above, insofar as current law allows. Low-interest loans offered by the USDA’s [Rural Utilities Service](#) should be redirected from greenhouse gas-creating projects to investments in renewable energy utilities, companies and projects that equip rural America to be the nation’s principal supplier of green energy. Wind farms, solar arrays, projects that capture greenhouse gas-producing methane and convert it to energy and carbon sequestration projects should receive priority in funding.

### *Associated Legislative Actions:*

- a) Support the USDA’s [proposal](#) to invest \$50 million over 10 years to encourage new private markets to supplement existing conservation and forestry programs.<sup>7</sup>
- b) Fully fund the new conservation provision in the [2008 Farm Bill](#) (P.L. 110-234, the Food, Conservation, and Energy Act of 2008) that seeks to engage farmers and landowners in environmental services markets by directing the USDA to develop technical guidelines

for measuring farm- and forestry-based environmental services. This provision focuses first on carbon storage and will help address the need for uniform standards and ways of measuring emissions reduction and increases in carbon storage in the agriculture and forestry sectors.

- c) Propose an investment tax credit of 50 percent to encourage climate-related conservation improvements by farmers, ranchers and forest landowners.

**3. Direct the U.S. Forest Service, through the USDA, to establish a comprehensive forest management policy that enhances forest carbon-sequestration.** This policy should incorporate the fact that old growth forests better sequester carbon than newly planted or younger forests and that the carbon consequences of fire, disease and pest damage to forests must be examined to determine the best methods of containing the damage and mitigating the release of carbon. Specific steps should include removing financial barriers preventing farmers from converting marginal agricultural lands to permanent grassland or forest; modifying forestry programs to promote management practices that improve carbon sequestration, such as thinning, increasing harvesting rotation periods and reforestation; and directing the USDA and the Department of Energy to quantify the contributions reducing urban sprawl can make to sustaining forested lands, grasslands and pastures as a carbon sequestration measure.

***Associated Legislative Actions:***

- a) Increase funds appropriated to the U.S. Forest Service's [State and Private Forestry Program](#).
- b) Extend existing tax credits for permanent easements beyond 2008 to keep forested land in forests.
- c) Repeal or retool incentive programs that subsidize inefficient land uses.

**4. Direct the USDA and the EPA to work with the [Chicago Climate Exchange](#) to develop criteria** for agricultural and forestry practices that are legitimate, verifiable and productive opportunities **for funding from carbon offset programs.**

**5. Direct the EPA to quantify the connections between water quality and greenhouse gas emissions.** Emissions that degrade water quality and practices that sequester carbon and improve water quality should be identified. Set up a system whereby polluting operations can purchase nutrient credits from those reducing run-off. Integrate greenhouse gas language into water quality regulations. (See Fresh Water chapter.)

**6. Direct the USDA and the EPA to make wetland protection a joint-agency priority.** Consider No Net Loss wetland policy when calculating cropland conversion options and include offsets from functional wetland creation or restoration in standards for greenhouse gas offset programs. (See Adaptation chapter.)

**7. Tie environmental standards to payments and measurement standards.** Extend compliance requirements for receipt of commodity payments to include nutrient management requirements in Total Maximum Daily Load (TMDL) non-attainment watersheds. Create a pilot project for the Chesapeake Bay or the Upper Mississippi River Watershed, with joint USDA/EPA jurisdiction. Tie payments for voluntary programs to standardized quantitative measures of environmental performance, and fund a pilot program to better tie these measures to payment allocations.

8. **Direct the USDA to manage the evolution of biofuels and to study methods of mitigating the impact of current corn ethanol production and use on food availability and costs.** Biofuel research and production should be moved away from corn and other food grain-based technologies as quickly as possible to reduce current food supply and cost impacts.
9. Direct the USDA to determine what funds are needed (and budget said amount) **to finance Section 9010 of the 2008 Farm Bill**, which “Subsidizes the use of sugar for ethanol production through federal purchases of surplus sugar for sale to ethanol producers.” Most other sections have specific dollar figures attached. Currently, this section simply states that “funds will be provided in sufficient amounts.”

## ADDITIONAL LEGISLATIVE ACTIONS

10. **Re-visit EISA** to reduce conflicts between food and energy.
11. **Revoke the provision of limitations under “d,” Section 9001 of the 2008 Farm Bill, “Biobased Markets Program,”** Title IX of the 2008 Farm Bill. This section addresses Federal Procurement of Biobased Products and states that federal procuring agencies are directed to establish procurement programs to obtain bio-based products, and that, when available, biobased products are to be given preference. However, the limitation states that “nothing in this section shall apply to the procurement of motor vehicle fuels, heating oil or electricity.”
12. **End restrictions on sugar imports.** Using sugar rather than corn for biofuel would help avoid food crises due to the diversion of food cropland for the production of ethanol feedstocks. According to [Citizens Against Government Waste](#), this program artificially inflates the price of sugar, costing consumers \$1.9 billion annually.

## ADDITIONAL RESOURCES

- “The Boundaries of Executive Authority: Using Executive Orders to Implement Federal Climate Change Policy.” Vol 1. Center for Energy & Environmental Security. Boulder, Colorado. February, 2008. [http://www.climateactionproject.com/docs/CEES\\_PCAP\\_Report\\_Final\\_Feb\\_08.pdf](http://www.climateactionproject.com/docs/CEES_PCAP_Report_Final_Feb_08.pdf)
- “The Boundaries of Executive Authority: An Evaluation of Priority Proposals from the Presidential Climate Action Plan.” Center for Energy & Environmental Security. Boulder, Colorado. July, 2008. [http://www.climateactionproject.com/docs/Executive\\_CEES\\_PCAP\\_II\\_Report\\_Jul\\_17.pdf](http://www.climateactionproject.com/docs/Executive_CEES_PCAP_II_Report_Jul_17.pdf)
- “Farmer in Chief.” Michael Pollan. The New York Times. 10/9/2008. [http://www.nytimes.com/2008/10/12/magazine/12policy-t.html?\\_r=1&oref=slogin](http://www.nytimes.com/2008/10/12/magazine/12policy-t.html?_r=1&oref=slogin)
- “Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1996-2006.” April 15, 2008. U.S. Environmental Protection Agency, Washington, D.C. [http://www.epa.gov/climatechange/emissions/downloads/08\\_CR.pdf](http://www.epa.gov/climatechange/emissions/downloads/08_CR.pdf)
- The Land Institute. <http://www.landinstitute.org>
- PCAP I, Chapter 5: Agriculture and Rural America. [http://www.climateactionproject.com/chapters/Section\\_5.pdf](http://www.climateactionproject.com/chapters/Section_5.pdf)
- Regenerative Organic Farming: A Solution to Global Warming. LaSalle, T., Ph.D. and Hepperly, P., Ph.D. © 2008 Rodale Institute. [http://www.rodaleinstitute.org/files/Rodale\\_Research\\_Paper-07\\_30\\_08.pdf](http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf)

- “Renewable Energy Policy in the 2008 Farm Bill.” CRS Report for Congress. Order Code RL34130. August 1, 2008. <http://www.nationalaglawcenter.org/assets/crs/RL34130.pdf>
- “Scientific Assessment of the Effects of Global Climate Change on the United States: A Report of the Committee on Environment and Natural Resources.” National Science and Technology Council. May 2008. <http://www.ostp.gov/galleries/NSTC%20Reports/Scientific%20Assessment%20FULL%20Report.pdf>
- USDA Fact Sheet: 2008 Farm Bill Renewable Energy Provisions. [http://www.usda.gov/documents/FB08\\_Pub\\_Mtg\\_Renew\\_Energy\\_Factsheet.pdf](http://www.usda.gov/documents/FB08_Pub_Mtg_Renew_Energy_Factsheet.pdf)
- “World Development Report 2008: Agriculture for Development.” The World Bank. Washington, D.C. © 2007 The International Bank for Reconstruction and Development/The World Bank. [http://siteresources.worldbank.org/INTWDR2008/Resources/WDR\\_00\\_book.pdf](http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf)
- 2008 Farm Bill. [http://www.usda.gov/documents/Bill\\_6124.pdf](http://www.usda.gov/documents/Bill_6124.pdf)
- “2008 Farm Bill Renewable Energy Programs.” Windustry Fact Sheet. Great Plains Windustry Project. <http://www.windustry.com/2008-farm-bill-renewable-energy-programs - title2>

<sup>1</sup> EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006, Figure and Section 6.1. April 14, 2008.

<sup>2</sup> Scientific Assessment of the Effects of Global Climate Change on the United States. Executive Summary, 11.

<sup>3</sup> Rodale Institute, [www.rodaleinstitute.org/](http://www.rodaleinstitute.org/).

<sup>4</sup> “The Boundaries of Executive Authority: An Evaluation of Priority Proposals from the Presidential Climate Action Plan.” Center for Energy & Environmental Security. Boulder, Colorado. July, 2008. [http://www.climateactionproject.com/docs/Executive\\_CEES\\_PCAP\\_II\\_Report\\_Jul\\_17.pdf](http://www.climateactionproject.com/docs/Executive_CEES_PCAP_II_Report_Jul_17.pdf), 9, 12.

<sup>5</sup> Ibid, 26.

<sup>6</sup> Timothy LaSalle and Paul Hepperly, “Regenerative Organic Farming: A Solution to Global Warming.” Rodale Institute, [http://www.rodaleinstitute.org/files/Rodale\\_Research\\_Paper-07\\_30\\_08.pdf](http://www.rodaleinstitute.org/files/Rodale_Research_Paper-07_30_08.pdf) and, Wes Jackson, The Land Institute. “[The Next Fifty Years of Federal Farm Policy \(a draft document for discussion\)](#).”

<sup>7</sup> USDA 2007 Farm Bill Proposal, Title II: Conservation. “Improve and increase funding of USDA conservation programs to better serve farmers, the environment, and all U.S. citizens.” <http://www.usda.gov/documents/07title2.pdf>.