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Technical Annex

**Environmental Regulations and Agricultural
Competitiveness**

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This document is the technical annex to the full paper “Environment Regulations and Agricultural Competitiveness” which is available separately.

U.S. Environmental Regulation of Agriculture

The United States has a strong set of environmental regulations, but its environmental regulation regime is not as strong as those of a number of other industrial countries. In Esty and Porter’s environmental regulation regime index the United States ranks fourteenth, behind most of the major European countries as well as Singapore, but slightly ahead of Belgium, Australia, Japan and Norway; Finland ranks number one, followed by Sweden, Singapore and the Netherlands (Esty and Porter, 2002). The less developed countries along with Russia and other transition countries generally ranked in the bottom half of the 70 countries included in the index.

In the United States, agricultural production activities are regulated primarily through three federal agencies: the U.S. Department of Agriculture (USDA), which is also one of agriculture’s primary supporters, the Environmental Protection Agency (EPA) and the Department of the Interior – this latter through the Endangered Species Act. Historically the approach was principally one of incentives to induce

improvements in the environment, an activity initiated in the 1930s with the Soil Conservation Service (SCS). The USDA has been the primary federal agency involved in the agricultural sector, for both support and regulatory activities. The Department of the Interior is involved through the Forest Service and federal lands, while the Corps of Engineers has been important through projects dealing with navigable streams, and other agencies have had some involvement. States also have environmental regulations, which vary significantly and have effects on the location of agricultural production, especially concentrated livestock production such as pork and poultry (Hurt, 1994; see Ribaud et al., 2003, p. 10 for a summary of types of state regulations).

The USDA's environmentally related programs continue to be primarily voluntary in nature, with incentives used to induce farmer participation. The SCS, through cost sharing for soil and water conservation practices, has played an important role with regard to the environment. These programs, it might be noted, tended to have a positive effect on the country's competitive position, as they tended to enhance agricultural productivity as well as reducing farmers' costs. Changes in farm support programs from price-based mechanisms to income support programs in the 1985 Food Security Act also changed the environmental role of the USDA, since the act required that producers comply with environmental programs to maintain eligibility for income support payments and the USDA became the enforcement agency (Claassen et al., 2003).

The 1985 act had three types of compliance requirements. Under the conservation compliance provision, farmers with highly erodible land were required to comply with basic conservation practices *to remain eligible for support payments*. Sodbuster provisions required that farmers who brought highly erodible land into production had to comply with stricter conservation practices, i.e., stricter than for those already farming such land. The swampbuster portion of the act meant that farmers who converted wetlands to cropland could lose all benefits. These provisions have been continued in agricultural acts subsequent to 1985, including the 2002 act. The importance of these provisions is that the government established a set of standards or practices that used the leverage of the support programs to induce improved practices that would benefit the environment and did not require direct additional budget outlays. The government, however, did continue to provide technical and other assistance to enable farmers to comply with the conservation requirements through SCS and NRCS programs.

The compliance requirements assisted in improving water quality through reduced runoff and erosion from cropland but had little or no effect on the water quality problems caused by livestock operations, and these became subject to more direct regulatory requirements through the EPA and the Clean Water Act. Direct regulatory provisions affect agriculture in a number of areas (Claassen et al., 2001). These include the Coastal Zone Reauthorization Act which includes provisions to reduce non-point runoff from agricultural land in protected coastal waters, the Clean Water Act regulation of dredging and filling of wetlands, the Federal Insecticide, Fungicide, and Rodenticide Act which regulates (and bans some) materials used in agricultural production, and the Endangered Species Act which can affect farming activities in areas where listed species exist, i.e., it affects utilization of the habitats of species in danger of extinction.

The EPA, under the Clean Water Act, established requirements for manure handling for concentrated livestock feeding operations, i.e., those with over 1,000 animal units and defined as 2,500 hogs (over 55 pounds), 1,000 beef cattle, 700 dairy cattle, 120,000 broilers, 82,000 laying hens, 55,000 turkeys, 30,000 ducks, 1,000 veal calves, 10,000 sheep or 500 horses – smaller sizes if liquid manure systems are used (EPA, 2003). However, as average size grew and concentration increased, the original provisions proved to be inadequate. Consequently, as result of a joint USDA-EPA study and analysis, a new set of regulations was developed and was signed by the EPA administrator on December 15, 2002 (EPA, 2003; Ribaud, 2003). These regulations were published in the Federal Register February 12, 2003 (as a 100-page document) and went into effect April 14, 2003. They are being implemented, will be in full force in 2006, and will affect many producers – they are mandatory for the large producers and recommended for smaller operations. It should be noted that they apply to the farm unit, the producer, and not to the contractor, who often owns the animals and controls the production process. They apply to the distribution of manure on land as well as to the handling of the manure on site, and still involve voluntary aspects. An EPA official is quoted as saying, “The goal in regulating concentrated animal feeding operations has been to develop a mix of voluntary approaches and regulation” (quoted in Bury, 2003, 4).

The distribution of manure on land became a problem with increased concentration, which causes excess nutrients to exist in many areas, i.e., more nutrients than can be utilized by the plants produced on the land in the area. This potential for excess is to be handled by requiring that each operation develop and implement a comprehensive nutrient management plan that is “technically sound,

economically feasible, and site-specific” (Ribaud, 2003, 34). Because land spreading of all manure in the local area is not feasible in some regions and transportation tends to be too expensive, some producers are developing alternative methods of disposing of, or rather other uses for, the manure. PerdueAgriRecycle and Harmony Farms Shenandoah Valley, for example, operate fertilizer plants in Delaware and Virginia, respectively, to convert chicken manure into fertilizer (Ribaud et al., 2003).

Competitor Environmental Regulation of Agriculture

The United States produces and exports many types of agricultural products, and thus many countries are its competitors. However, the principal competitors producing the more important agricultural exports in terms of value or volume include the European Union, Canada and, increasingly, Brazil and Argentina. The EU and other industrialized countries tend to have strong environmental programs, including regulations affecting agriculture, although like the United States and Canada they have depended extensively on voluntary and incentive programs (Brethour et al., 2002; Ozanne, Hogan and Colman, 2001). As in the United States, stronger or mandatory requirements are being considered and/or implemented (Brethour et al., 2002; Oskam, Vijftigschild and Graveland, 1997). The EU’s environmental regulations, while varying among the member countries, tend to be stronger than those of the United States (see, e.g., Larson, 2002; Metcalfe, 2002); the EU, through its parliament, issues directives that member countries are expected to enforce through national legislation, but there is considerable variation from country to country in how the directives are carried out. An example is the nitrate directive, which aims to limit the use of products such as fertilizers and manures that contaminate water. Canada’s regulations are similar to those of the United States, at least with respect to the costs they impose (Metcalfe, 2002). Much of the Canadian regulation is at the provincial level, but tends to be similar among the various provinces (Brethour et al., 2002); as in the United States, environmental spillovers from concentrated agricultural enterprises have been an inducement toward increased regulation (Mussell and Martin, 2000). Brazil and Argentina, as developing countries, have less stringent environmental regulations and are becoming major competitors of the United States in agricultural trade, although this is more related to their lower land and labour costs than to their environmental regimes (see Schnepf, Dohman and Bolling, 2001).