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# GATT and Future Soil Conservation Programs in the United States: Some Lessons from Australia

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# GATT AND FUTURE SOIL CONSERVATION PROGRAMS IN THE UNITED STATES: SOME LESSONS FROM AUSTRALIA*

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## I. INTRODUCTION

The United States and Australia are among the world's major agricultural nations. Each year the United States produces over $175 billion in gross sales of agricultural products,[1] and Australia produces over eighteen billion dollars.[2] Both are also major exporters of agricultural products. The United States sells thirty to forty billion in world markets annually,[3] and Australia exports six to ten billion per year.[4] Not surprisingly, each country devotes massive land area to agricultural use. The United States uses over half of its 2.3 billion acres of land for either cropland or pasture and rangeland.[5] Australia devotes 67 percent of its 7,682,000 $km^2$ land area to agricultural uses, the majority in pasture and rangeland.[6]

However, the major contribution of agriculture to the economic

1. OFFICE OF PUBLIC AFFAIRS, U.S. DEP'T OF AGRIC., MISC. PUB. NO. 1063, 1990 FACT BOOK OF AGRICULTURE 29-30 (1991) [hereinafter 1990 FACT BOOK].

2. Nancy Morgan, *Ag Reforms Down Under*, AGRIC. OUTLOOK, (Econ. Res. Serv., U.S. Dep't of Agric., Rockville, Md.) Nov. 1990, at 15, 16.

3. U.S. agricultural export value steadily increased during the 1970's to a peak of $43.8 billion in 1981. A slowdown in world trade sharply reduced the volume and value of U.S. exports during the first half of the 1980's, dipping to $27 billion in 1986. *See* Fred H. Sanderson & Rekha Mehra, *Brighter Prospects for Agricultural Trade*, *in* U.S. AGRICULTURE IN A GLOBAL SETTING 72, 74 (M. Ann Tutwiler ed., 1988). Recent data indicates that the value of exports has again increased, reaching $39 billion for the eleven months of October 1991 through August 1992. *U.S. Agricultural Trade Boosts Overall Economy*, FOREIGN AGRIC. TRADE OF THE U.S. (FATUS) (Econ. Res. Serv., U.S. Dep't of Agric., Rockville, Md.), Sept.-Oct. 1992, at 11.

4. The U.S. dollar value of Australian exports of agricultural exports depends, of course, on whether comparable statistical data is used. Farm products account for approximately one-third of all export earnings. Morgan, *supra* note 2, at 16. In 1989 total exports were $36.7 billion with "food and live animals" (a Standard International Trade Classification) at $10.1 billion. 1992 BRITANNICA BOOK OF THE YEAR 825 (1992).

5. FACT BOOK, *supra* note 1, at 10.

6. AUSTRALIAN GOV'T PUB. SERV., DEP'T OF ARTS, HERITAGE, & ENV'T, STATE OF THE ENVIRONMENT IN AUSTRALIA: SOURCE BOOK 2-3 (1986) [hereinafter SOURCE BOOK] (photocopy on file with *Tulsa Law Journal*).

health of each nation is not without its costs. In both countries the government occasionally provides major assistance to farmers to maintain agricultural viability. This assistance is recognized as a necessary expenditure to sustain a healthy and plentiful food supply as well as to maintain the robustness of an important sector of the economy. The level of support for agriculture in the United States reached a record twenty-six billion per year in 1986.[7] This expenditure level, when combined with other federal budget problems, has led to calls for reductions in outlays for support of farmers.

As major agricultural producers, both countries have been active participants in the current GATT negotiations.[8] The United States has taken the position in the GATT negotiations that all nations should strive to eliminate agricultural subsidies in order to obtain more liberal trade in agricultural products. Likewise, as a member of the Cairns Group, Australia supports reduced subsidies as one step in trade liberalization.[9] In fact, Australia unilaterally reduced its own support programs for producers.[10]

On the other hand, the emphasis on maintaining a viable agricultural economic sector has led to environmental problems in both countries, most importantly non-point source pollution. Both countries have made efforts to address pollution from point sources, including some agricultural point sources. However, neither has significantly addressed the more subtle, but still serious, problems caused by agricultural practices that lead to non-point pollution, in particular, soil erosion.

While no major inroads have been made toward addressing all non-point pollution problems, some attention was focused, commencing fifty years ago, on methods to combat the continued loss of soil by erosion. Both countries developed soil conservation programs, largely of a voluntary nature, designed to encourage farmers to adopt soil conservation measures.

With the continued intensification of agricultural production in each country, there is realization that the soil erosion problem will not go

7. U.S. DEP'T OF AGRIC., HANDBOOK NO. 684, 1989 AGRICULTURAL CHARTBOOK 10 (March 1989). Net farm program outlays reached a peak in 1986-87 with a $26 billion expenditure. Net outlays have since declined and are projected to have been in the range of $12 billion during the 1990-91 fiscal year.

8. *See* Michel Petit et al., *International Agricultural Negotiations, in* U.S. AGRICULTURE IN A GLOBAL SETTING 96-98 (M. Ann Tutwiler ed., 1988) (discussing the United States as a major trading nation and Australia as part of the Cairns Group, a negotiating coalition of "low-subsidy" nations).

9. *Id.* at 98.

10. Morgan, *supra* note 2, at 15.

away unattended. This problem is compounded by the increased use of chemicals, specifically pesticides and fertilizers. Due to the relationship of runoff and leaching from agricultural lands and the pollution of surface and groundwater from not only the soil, but the chemicals borne by the water coming from agricultural land, soil erosion takes on a more ominous cloak. Most of the sediment, nitrogen, phosphorous, and nutrients entering surface waters, which create biological oxygen demand, are from agricultural land. This is to say nothing of pesticides, bacteria, and dissolved solids. In addition, these same lands are a major cause of groundwater contamination from pesticides, fertilizers, and other pollutants. In the United States the problem has been succinctly stated as follows by one of the leading authorities on soil erosion:

> With agricultural exports considered essential to improving the nation's balance of payments, farmers in the 1970s were encouraged by Secretary of Agriculture Earl Butz to plant 'fence row to fence row.' And they did. Harvested lands were used more intensively. Pastures were plowed and planted. Marginal agricultural lands were cultivated, often for the first time. . . . As farmers plowed under more land to take advantage of rising prices, old conservation practices were lost . . . .[11]

Clearly, as agricultural trade in the United States and Australia has increased, so has the resulting environmental damage from non-point source pollution and soil erosion. Opponents of trade liberlization suggest freer trade would only result in increased environmental damage as farmers use more damaging inputs such as chemicals and fertilizers to be competitive in world markets.[12] Advocates of freer trade counter that if farm subsidies are removed, extra production would no longer be stimulated by artificially high prices. Thus, fewer chemicals and fertilizers would be used.[13]

However, reducing or removing subsidies may in fact eliminate one of the effective methods of inducing farmers to develop and implement environmental protective programs. If there is no tie between the receipt of program benefits and environmental or conservation compliance, there

11. SANDRA S. BATIE, SOIL EROSION: CRISIS IN AMERICA'S CROPLANDS? 5-7 (1983).

12. *See* C. Ford Runge, *Free Trade Gives Environmentalists Hope, Trouble*, FEEDSTUFFS, Oct. 19, 1992, at 22.

13. *See A Survey of Agriculture*, ECONOMIST, Dec. 12, 1992, at 3, 4, 18 [hereinafter *Survey*].

would be no effective way to induce farmers to undertake improved environmental measures.[14] Clearly, the interest of farmers in adopting improved measures is directly related to the economic incentives.[15]

In any event, soil erosion and other non-point pollution problems will not be resolved by voluntary programs alone, particularly given the advent of new chemcials whose use is essential to successful, modern farming practices. The solution is likely to be a combination of regulatory programs and government provided incentives, including farm income and price support programs. The extent to which incentive programs will be allowed under the GATT is a major concern.

One of the most debated issues surrounding the farm income and price support programs is the question of "decoupling." Currently, program payments to each producer are "coupled" directly to the quantities produced each year. This coupling of payments and production is criticized because payments tend to favor a small number of producers who only farm a limited number of commodities.[16]

Any changes in policy which would decouple payments from production levels would be resisted by these commodity-specific interest groups. But in truth, the tying of the two together can be defended since an objective of the programs is control over production decisions. If production control is to remain voluntary, it is necessary that all farmers participate in the government programs. The coupling of payment to production is necessary to induce the larger producers to control production.

Adopting a decoupling scheme could mean less total outlays for price and income support and would likely involve a shift of expenditures to income or "needs based" support, rather than to support prices. The concept of decoupling takes the additional step of making support relate to income rather than prices.

The Reagan and Bush administrations took the position that a more market-oriented farm policy must evolve. The 1985 Farm Bill took a step in this direction by taking supply and demand into account in determining support prices for major commodities. More recently, the position of the United States in the GATT round has been that all countries

14. *See* Neil D. Hamilton, *Feeding Our Future: Six Philosophical Issues Shaping Agricultural Law*, AGRIC. LAW CENTER WHITE PAPER No. 92-319 (Drake Univ. Law Sch., Des Moines, Iowa), Sept. 1992, at 19.

15. *See* BATIE, *supra* note 11, at 75-80; John H. Davidson, *Environmental Analysis of the Federal Farm Programs*, 8 VA. ENVTL. L.J. 235, 268 (1989).

16. *See* Gordon C. Rausser & David Neilson, *Looking Ahead: Agricultural Policy in the 1990's*, 23 U.C. DAVIS L. REV. 415, 420 (1990) (favoring farmers producing only four commodities).

should, in the long term, reduce agricultural support and protection to prevent restrictions and distortions in the world markets. Accordingly, forms of support tied to production would be phased out over a ten-year period. Some income support policies not linked to production or marketing would continue under this proposal.

If the GATT agreement adopts proposals mandating the phase out of certain types of support, this could affect domestic farm policy and result in the revamping of current programs. Legislation would be necessary to achieve reduction in price support and to bring domestic policy in line with the GATT agreement. This suggests the elimination of trade distorting subsidies will be required. However, government support would be allowed if it had no distorting effect.[17] Even under the existing GATT, measures relating to the conservation of exhaustible natural resources were allowed. The U.S. negotiating proposal explicitly excluded support for environmental and conservation programs.[18]

Proponents of trade liberalization are also concerned that environmental protection might be used as a pretext for continued protection and support of farmers.[19] Even if the GATT agreement mandates a major reduction in farm subsidies, environmental "services" not tied to production could be one type of "needs based" support possibly still permissible. For example, soil erosion incentives would appear to be allowed, if given on the basis of the severity of problems, or tied to area or regional goals for improvement of water quality through reduction of non-point pollution.

If this is the future direction under GATT, then it is likely that any subsidies for soil erosion control or other non-point source reduction programs will be meshed with regulatory approaches designed to ensure the effectiveness of the programs. The direction such programs might take is the focus of a later section of this article.

This article will first examine the nature of the resource at issue with non-point source pollution and soil erosion problems, namely, agricultural land. Secondly, the nature of the problem, non-point pollution, land degradation and, in particular, soil erosion will be analyzed, with a review of the relationship between agricultural subsidies and environmental damage, and a condensed review of the GATT and how farm subsidies will be treated under a new agreement. Thirdly, the historical

17. General Agreement on Tariffs and Trade, March 1969, Basic Instruments & Selected Documents, art. XX(g) [hereinafter GATT].

18. Larry Deaton et al, *GATT Trade Liberalization: The U.S. Proposal*, AGRIC. INFO. BULL. No. 596 (Econ. Res. Serv., U.S. Dep't of Agric., Rockville, Md.) March 1990.

19. *See Survey, supra* note 13, at 18; Runge, *supra* note 12, at 22.

approaches used to address soil erosion problems in both Australia and the United States are reviewed. A subsequent section will evaluate the potential for control of agricultural activities on the land itself, as the ultimate solution to soil erosion, with attention to the role of the federal, state and local governments in each country in this process. Specific examples of recent efforts in each country will be used to illustrate the potentiality for programs of this nature. Finally, some conclusions will be offered as to the effect of a new GATT agreement on the effectiveness of these programs, particularly if it remains necessary to subsidize the practices necessary to control the problems.

## II. THE RESOURCE

The total land area of Australia is 7,682,000 km$^2$ with agricultural use by far the most important.[20] Agricultural use, primarily for grazing, accounts for two-thirds of the total land area. However, cropland is limited because of climate and soil conditions. Only about ten percent of the total land can support crops, or improved pastures, and most of this is already in use.[21]

Similarly, water resources in Australia are limited and unevenly distributed due to the greatest rainfall occurring in inaccessible areas. Location, quantity, and timing of rainfall is less predictable in Australia than in much of the world.[22] Because of the relative scarcity of water, a greater proportion of the total is used for agricultural purposes. In fact, eighty percent is used for irrigation and stock watering purposes. This is atypical as compared to the rest of the world.[23] Groundwater accounts for fourteen percent of total water use, and some areas are totally dependent on it as a source of water.[24]

The United States, by comparison, has a relative abundance of both land and water resources. Of some 576 million acres of non-federal cropland potentially available for cropland uses, about 377 million is currently used for this purpose.[25] Water is generally plentiful, although also unevenly distributed. Areas most dependent on groundwater have seen some decline in the availability of this resource due to over-pumping and slow recharge.

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20. SOURCE BOOK, *supra* note 6, at 3.
21. *Id.* at 4-5.
22. *Id.* at 45.
23. *Id.* at 45, 48.
24. *Id.* at 45.
25. 1990 FACT BOOK, *supra* note 1, at 10 (indicating that uses include thirty-nine million acres for hay and seven million acres in horticultural uses).

## III. THE PROBLEM

### A. *Soil Erosion*

Soil erosion and land degradation in Australia are among the greatest environmental problems facing the country. Water erosion, land erosion, loss of vegetation, and salinity are the major land degradation problems. Slightly over fifty percent of the total rural land area requires some form of treatment for these problems.[26] Water erosion is a major problem in non-arid regions, and is most widespread in eastern Australia. Land erosion, vegetation degradation and salinity are, of course, greater problems in the arid regions due to the combined effects of drought and overgrazing.[27] The consensus is that soil erosion is increasing in spite of efforts to combat it.[28]

The effects of agricultural use on water quality impact both dry land farming and irrigation areas. Sediment is the most important water pollutant.[29] Land clearing for agricultural purposes removes vegatative cover and contributes greatly to salination of watercourses. Groundwater rises, leaving deposits of salt in the soil. These mobilize in the soil and subsequently flow into streams. In some areas, the soil itself is affected by the salt deposits.[30]

Australian soils inherantly lack fertility and are shallow. This condition has led to agricultural practices which contribute to the problem. Heavy applications of super phosphates, substantial inputs of nitrogen fertilizer, and the widespread use of herbicides and insecticides to control weeds and pests lead to residues of these chemicals in the waters of the country.[31] DDT is still widely used, especially in the cotton producing areas, and residues of this and other pesticides have been found in both the soil and water.[32] Major DDT residue levels have been detected in beef cattle in some areas.[33]

Similarly, in the United States soil erosion continues to be a major environmental problem, not only because of the on-site damage and reduced productivity, but because of the off-site effects on water bodies and other sensitive areas. Water erosion from agricultural land is estimated

26. SOURCE BOOK, *supra* note 6, at 7.
27. *Id.* at 12-14.
28. *Id.* at 53.
29. *Id.* at 52.
30. *Id.* at 53.
31. *Id.* at 30-31, 55.
32. *Id.* at 31.
33. *Id.* at 32.

at nearly four billion tons annually.[34] Only 272 million acres of cropland lose less than the accepted norm of five tons/acre/year. Of this, about one-third of the total U.S. cropland experiences little loss.[35] Ninety-three million acres lose from five to fourteen tons/acre/year and forty-eight million acres lose more than fourteen tons/acre/year. Unfortunately, the highest rates of loss are often in major agricultural regions.[36]

But soil loss, and the consequent sediment load into the nation's waters, are only a part of the problem. Sediment particles often bind with plant nutrients (fertilizer residues) and organic matter, causing eutrophication. Farmers in the United States use more than fifty million tons of commercial fertilizers annually. Consequently, substantial amounts of phosphorous and nitrogen find their way into both surface and ground water.[37] Between 1964 and 1985 pesticide use more than tripled. Today, over 91% of the row crop acreage and 44% of the small grain acreage have herbicides applied annually.[38] Over 900 million pounds of pesticides are applied annually. A significant amount ends up as pollutants in waters of the country.[39]

Clearly, agricultural activities contribute greatly to both surface and groundwater pollution in the United States and Australia. Surveys in the United States indicate that 71% of the states report widespread nonpoint source pollution from agriculture, with nearly one-half of the river miles affected by this pollution service. Nitrogen in the form of nitrate and various agricultural pesticides have been identified as a major cause of groundwater contamination.[40]

Contemporary agricultural practices pose a continuing threat to water quality in both countries. In spite of efforts over the past fifty years directed toward soil erosion, the problem is far from solved. The increased emphasis on intensive production has exacerbated the problem.

### B. *Agricultural Subsidies and Environmental Damage*

The question of whether price and income support programs contribute to agricultural pollution in general, and soil erosion in particular,

34. James L. Arts & William L. Church, *Soil Erosion - The Next Crisis?*, 1982 WIS. L. REV. 535, 542, 547 (1982).

35. *Id.*

36. *Id.* at 549-50.

37. *Id.* at 543.

38. Sandra S. Batie, *American Soil and Water Conservation Policy*, *in* TAMING THE YELLOW RIVER: SILT AND FLOODS 7 (L.M. Brush et al. eds., 1989).

39. Arts & Church, *supra* note 34, at 536, 544.

40. AGRICULTURAL LAW & POLICY INSTITUTE, ISSUES BOOKLET NO. 1, *Agricultural Chemicals*, *in* FARMING & GROUNDWATER 17-23 (1988).

appears settled. The subsidies from these programs encourage planting of crops under subsidy. Some of these crops, grains for example, demand erosive practices. And, the programs encourage specialization by reducing the risk of market fluctuations and thus, the need for diversification. The programs have also played a role in encouraging larger scale farming, which requires more depletive management practices.[41]

In addition, subsidized production encourages the conversion of less suitable lands to agricultural uses, resulting in intensification of chemical usage.[42] Although farm programs have included "set asides" and "acreage limitations," which take some land out of production in a given year, these programs are designed to affect the supply of the particular commodity rather than to conserve the soil. In fact, by requiring a farmer to reserve some land from production, intensification of production occurs on the remaining land. This is because the amount of subsidy received as a deficiency payment is determined by the level of production and not on the amount of acreage. The key to maximizing benefits is to maintain high production on acreage actually farmed.[43] The Committee on the Role of Alternative Farming Methods in Modern Production Agriculture of the Board of Agriculture of the National Research Council summarized the detrimental effects of government policy as follows:

> Many federal policies discourage adoption of alternative practices and systems by economically penalizing those who adopt rotations, apply certain soil conservation systems, or attempt to reduce pesticide applications. Federal programs often tolerate and sometimes encourage unrealistically high yield goals, inefficient fertilizer and pesticide use, and unsustainable use of land and water. Many farmers in these programs manage their farms to maximize present and future program benefits, sometimes at the expense of environmental quality.[44]

The effect of subsidization of agricultural land is felt not only in the United States but in other agricultural systems as well. The use of fertilizer, for example, is highest in those countries with the highest support levels for farmers. For instance, Japan provides 70% of farmers' income in the form of subsidies, and has a rate of fertilizer application of over 400 kg./hectare. In the European Economic Community (EC), over 40% of the income is from subsidies; fertilizer application is over 300 kg./hectare. In the United States about 30% of the income is from farm

41. *See* BATIE, *supra* note 11, at 100.

42. *Survey*, *supra* note 13, at 18.

43. *Id.* at 250.

44. NATIONAL RESEARCH COUNCIL, ALTERNATIVE AGRICULTURE 10 (1989).

programs, and fertilizer application rates are about 100 kg./hectare.[45]

### C. *Agricultural Subsidies and GATT*[46]

The major problems involving current price and income support programs in the United States, including the Food and Agriculture, Conservation and Trade Act of 1990, are not new.[47] Price support is achieved primarily through post-production loan programs, including income support by direct payments. Since price supports could serve as an incentive for excess production, methods of controlling production were introduced along with price supports at the inception of federal programs. Participation in price and income support programs is voluntary, but the availability of government payments has given producers an incentive to participate in acreage control programs.

The approach in the United States is not that unusual. Many other countries also offer support programs for the farm sector.[48] For example, in order to provide adequate income to the producers, the EC's Common Agricultural Policy (CAP) allows for common prices which are often above world market prices. According to CAP, a minimum support price is established in the internal market. If the market price falls below that level, the government intervenes, either purchasing the commodity or taking other action to support the price. If the product is sold on the world market at a lower price than the intervention price, a refund is available from the EC budget. On the other hand, if the same product is brought into the EC, a levy is imposed on the difference between the world price and the intervention price, including adjustments for unloading and transportation costs. The budgetary costs to the EC have been substantial.[49]

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45. *Survey, supra* note 13, at 4, 17.

46. For a more detailed discussion see J.W. Looney, *The Changing Focus of Government Regulation of Agriculture in the United States,* 44 MERCER L. REV. 1 (1993).

47. Pub. L. No. 101-104, 104 Stat. 3359-4078 (1990) (codified as amended in various sections of 7 U.S.C., 15 U.S.C., 16 U.S.C., and 21 U.S.C.).

48. A USDA study published in December, 1989, indicates that government assistance to producers is highest in Japan, followed by the European Community, Western European countries other than the EC, Canada and the United States. Of the industrial market economies, Australia and New Zealand provide the lowest levels of government assistance to agricultural producers. Vernon O. Roningen & Prayeen M. Dixit, *How Level is the Playing Field? An Economic Analysis of Agricultural Policy Reforms in Industrial Market Economies,* FOREIGN AGRIC. ECON. REP. NO. 239 (Econ. Res. Serv., U.S. Dep't Agric., Rockville, Md.), Dec. 1989, at 4. Australia has recently unilaterally reduced government assistance to farmers in light of overall difficulties in the economy. *Reducing Farm Subsidies: The Australian Example,* FARMLINE (Econ. Res. Serv., U.S. Dep't Agric., Rockville, Md.) Nov. 1988, at 4-5.

49. *See* D. GALE JOHNSON ET AL., AGRICULTURAL POLICY AND TRADE: ADJUSTING DOMESTIC PROGRAMS IN AN INTERNATIONAL FRAMEWORK app. at 99-111 (1985).

As a result of the overproduction encouraged by CAP and the subsequent costs, the EC recently embarked on a "set-aside" pattern similar to those in use in the United States, calling for producers to idle some portion of their acreage. However, the EC offers additional payments to farmers to entice them to participate, whereas the United States often require participation as a condition of receiving income support payments.[50]

Certain provisions of the Food Security Act of 1985[51] were aimed at making U.S. export commodities more competitive in world markets by lowering price supports for the major commodities traded internationally.[52] The message seems to be that the United States intends to move commodities in world markets and is willing to provide short-term domestic subsidies to maintain farm income while enhancing the position of U.S. agriculture in international trade.

In the Uruguay Round of the multilateral trade negotiations among the GATT nations, agriculture has become the major stumbling block to a new agreement. In 1987 the United States submitted a proposal in the GATT negotiations calling for the elimination of subsidies affecting agricultural production and trade over a ten-year period.

The United States proposal sought reform in four areas: import access, export competition, internal measures of support, and in sanitary and phytosanitary measures. Import access would be improved by converting nontariff import barriers to tariffs, and then reducing all tariffs over a specified period. The United States sought the phase out of export subsidies over a five year period, and new rules to allow for food aid. Differential export taxes would be progressively reduced and eventually eliminated. Most national policies which have a trade distorting effect would be phased out over ten years. Other policies under which support is not linked to production, such as environmental and conservation programs, disaster assistance, market information and service, inspection and grading and some food reserve programs could continue. New GATT policies would be developed to deal with subsidies that have minimal trade distorting effect to prevent these policies from being used in ways to injure other countries. The proposal sought to harmonize standards related to sanitary and phytosanitary regulations and to establish a process for settling trade disputes involving food safety and animal and

50. *See* MICHAEL TRACY, GOVERNMENT AND AGRICULTURE IN WESTERN EUROPE, 1880-1988 325 (3d ed. 1989).

51. Pub. L. No. 99-198, § 1001, 99 Stat. 1354, 1444 (1985) (codified at 7 U.S.C. § 1308 (1988)).

52. Loan rates were lowered for wheat, feed grains, upland cotton, extra long staple cotton, honey and rice. 7 U.S.C. § 1308.

plant health questions.[53]

The EC initially responded that total elimination of export subsidies, and conversion of all nontariff barriers to tariffs, was unacceptable. The EC considered a long term reduction in government support for farmers satisfactory, given their budget costs for agricultural support. However, the EC preferred to focus on specific products rather than trade liberalization for all agricultural and fisheries products and other selected items.

Other countries also submitted proposals. The Cairns Group, consisting of fourteen "fair trading" nations, suggested a three-stage process. First, they proposec a freeze on market access restrictions, subsidies, and sanitary and phytosanitary measures, with commitments that release of stocks would not be used to disrupt markets. Second, during a phase-in period, countries would eliminate trade distorting practices. Third, the long term agreement would move to total trade liberalization as proposed by the United States.[54]

Various other countries submitted proposals as well. Japan proposed a reduction or elimination of export subsidies, but would retain certain types of domestic support for those commodities that "play an essential role in meeting the multiple needs of agricultural policy, such as land preservation and environmental conservation, and sustenance of regional community."[55] South Korea, Brazil, Columbia, the Nordic Countries and a group called the Net Food Importing Developing Countries made proposals relating to particular aspects of the issues.[56] Insistence by the EC that a country should be allowed to restrict trade on the basis of concerns about production methods and environmental or consumer preferences is at the root of the conflict between the United States and the EC.[57]

In October of 1990 the United States submitted a revised proposal calling for a 90% reduction in export subsidy levels, with a 75% reduction in domestic support levels over a ten year period from a base period of 1986-1988.[58] The EC countered with a proposal for reductions of up

53. *See* Deaton, *supra* note 18, at 7.

54. Sanderson & Mehra, *supra* note 3, at 97-98.

55. Deaton, *supra* note 18, at 35, 37.

56. *Id.* at 38. The Net Food Importing Developing Countries' proposal was prepared by Egypt, Jamaica, Mexico, Morocco, and Peru. *Id.*

57. Ian Elliott, *GATT Farm Trade Panel Head Says Tough Issues Remain*, FEEDSTUFFS, Sept. 24, 1990, at 20.

58. Jon F. Scheid, *U.S. Proposes GATT Trading Rule Changes*, FEEDSTUFFS, Oct. 30, 1989, at 1.

to 30% over a ten year period, starting with the 1986 base.[59] The talks were suspended in early December 1990 after the negotiations appeared to be deadlocked.[60] In early 1991, under intense pressure from non-agricultural sectors and its trading partners, the EC began to consider reform of the Common Agricultural Policy. These reforms would result in sharp cuts in subsidies, and a shift to direct assistance for small family farmers.[61]

The trade talks resumed in March of 1991. Little progress was made until Arthur Dunkel, General Director of the GATT, tabled a proposal in December of 1991. The Dunkel proposal called for a 20% reduction in domestic support programs and a 36% reduction in export subsidies from 1993 to 1999. The EC responded to the proposal with strong objections, but Dunkel refused to reopen the proposal for additional negotiation. A compromise acceptable to all parties seemed unlikely.[62]

In the fall of 1992 the United States pressured the EC by announcing unilateral retaliatory measures to take effect on December 5. Those measures primarily affected French white wines. This action led to an agreement between the United States and the EC with regard to the EC oilseeds regime, and the deadlock in negotiations appeared to end.[63] In January 1993 the Bush administration pushed for conclusion of the trade talks, but no final agreement had been reached by the time of President Clinton's inauguration.[64]

## IV. CONTROL OF SOIL EROSION

### A. *Historical Approaches*

The problem of soil erosion, with its accompanying potential for non-point pollution, is not easily addressed. The measures employed to control pollutants from point sources are basically ineffective against non-point pollution. This is because of the difficulty of applying set numerical performance standards to a pollution that is by nature diffuse. Enforcement is also difficult because of the problem in identifying specific

59. Ian Elliott, *EC Finally Reaches Terms for GATT Offer*, FEEDSTUFFS, Nov. 12, 1990, at 1.

60. Ian Elliott, *GATT Negotiators to Attempt Restarting Talks in January*, FEEDSTUFFS, Dec. 24, 1990, at 1.

61. *EC Moves Toward New Ag Policy*, AGWEEK, Feb. 11, 1991, at 1-2.

62. *See* David Dodwell, *GATT Wobbles on the Brink: The Failure of the Deadlocked Uruguay Round is Almost Unthinkable, but it is Looming Dangerously Near*, FIN-POST, Apr. 3, 1992, at 39.

63. Ian Elliott, *Three-Week Marathon Aims to Unblock GATT*, FEEDSTUFFS, Nov. 16, 1992, at 7.

64. Robert J. Wielaard, *EC Trade Negotiator Sees Good Prospect for GATT Signing*, ARK. DEMOCRAT-GAZETTE., Jan. 20, 1993 at 2D.

sources of pollutants.[65] Suggestions of effluent changes are impractical when applied to non-point pollution.[66]

While after-the-fact measurement and enforcement may be used to a degree in soil erosion control, it is clear the solution for non-point pollution rests instead in restricting the activities which cause the problem. This, of course, means restrictions on agricultural activities designed to reduce their pollution causing potential. For example, to reduce land degradation and to protect both groundwater and surface water from pollution, it may become necessary to place restrictions on the location, type, frequency, and amount of chemical applications, designating critical areas to be protected, such as recharge zones, water course boundaries, and environmentally sensitive areas.

Apparently, in the 1930's land use regulation was contemplated in some of the original soil conservation legislation of the United States and the Australian state governments. In the United States some local soil conservation districts were granted land use regulatory authority.[67] However, this authority was seldom exercised because of the reliance on voluntary methods, incentives, and education as a means of addressing soil erosion. A similar experience is true for Australia as well.[68]

In the 1930's, both countries recognized soil erosion as a problem deserving attention. The first efforts in the United States were at the federal level with the 1935 Soil Conservation Act.[69] States were encouraged to cooperate in carrying out the massive assistance programs by creating local soil and water conservation districts and state boards, committees and commissions.[70] Although the federal programs referred to land use legislation, and the proposed Standard Districts Law gave local districts the authority to enforce land use regulations, most of the actual programs involved only voluntary participation by farmers. Similarly,

65. *See* Debbie Sivas, *Groundwater Pollution From Agricultural Activities: Policies for Protection*, 7 STAN. ENVTL. L.J. 117, 159 (1987-88).

66. Such suggestions have been proposed. *See e.g.*, J. A. Jurgens, *Agricultural Nonpoint Source Pollution: A Proposed Strategy to Regulate Adverse Impacts*, 2 J. LAND USE & ENVTL. L. 195 (1986); Lawrence Ng, *A DRASTIC Approach to Controlling Groundwater Pollution*, 98 YALE L.J. 773 (1989).

67. Dean T. Massey, *Land Use Regulatory Power of Conservation Districts in the Midwestern States For Controlling Nonpoint Source Pollutants*, 33 DRAKE L. REV. 35 (1983-84).

68. *See generally* John Bradsen, *Land Degradation . . . Current and Proposed Legal Controls*, 4 ENVTL. & PLANNING L.J. 113 (1987).

69. Act of April 27, 1935, Ch. 85 §§ 1-5, 49 Stat. 163-64 (1935) (codified at 16 U.S.C. §§ 590a-590e (1988)) (creating the Soil Conservation Service and authorizing funding for financial assistance and other programs to assist farmers in soil erosion control).

70. Massey, *supra* note 67, at 40, 43.

other federal programs dealing with soil conservation have also been voluntary in nature.[71] Until recently, no sanctions were involved for failure to comply with program requirements.[72] Technical assistance and cost sharing for conservation measures have been the primary approaches.

In Australia state legislation on soil conservation generally followed the United States model.[73] Each state, under the Australian Constitution, is left to deal with environmental matters, since the federal government is given no specific delegated power to act on these matters and has, for the most part, not exercised other constitutional powers to attempt to legislate on such questions.

State soil conservation legislation is in effect in all Australian states and territories except Tasmania.[74] These programs have relied primarily on optional approaches and educational efforts, similar to the United States approach. The Australian legislation has been criticized as failing to adequately define terms and to clearly specify what powers and functions are obligatory.[75] One state program has been characterized as a "jungle of unworkable complexity."[76]

But the state programs in Australia go beyond the American programs in that local districts may use soil conservation orders to require land owners to carry out specific work to protect high erosion areas. Furthermore, land clearing activities are restricted, requiring consent of the appropriate authorities. Typically, the legislation creates liability for damage caused by failure to comply with soil conservation notices.[77]

For example, the New South Wales legislation, enacted in 1938, requires operational plans be developed for "catchment areas" and "areas of erosion hazard," if bodies of water are threatened by soil erosion, siltation, or if land degradation is likely. Additionally, if an area is likely to be subject to erosion, it may be designated as an area susceptible to erosion hazard.[78] If such areas are declared, additional coercive powers are available to address erosion problems, including the power to issue orders requiring remedial works and methods of land management, such as limits on stocking rates for livestock.[79] Recent modifications in the New

71. Malone, *supra* note 35, at 317-18.
72. *Id.* at 318.
73. Bradsen, *supra* note 68, at 123.
74. G.M. BATES, ENVIRONMENTAL LAW IN AUSTRALIA 101 (1987).
75. *Id.* at 102.
76. Bradsen, *supra* note 68, at 115.
77. *Id.* at 102.
78. Soil Conservation Act, 1938 § 17; DAVID FARRIER, ENVIRONMENTAL LAW HANDBOOK: PLANNING AND LAND USE IN NEW SOUTH WALES 217 (1988).
79. Soil Conservation Act, 1938 §§ 18, 18B(2)-(3); FARRIER, *supra* note 78, at 218.

South Wales legislation, described in a subsequent section, increase the powers which may be exercised.[80]

## B. *Recent Changes in U.S. Approaches*

In recent years the United States has been reluctant to recognize that voluntary approaches of the past are no longer sufficient to address non-point pollution caused by the agricultural industry, particularly in light of concern over groundwater contamination. As a result, the federal government and various states are attempting new approaches to address the problem.

### 1. 1985 Food Security Act and the 1990 Farm Bill

The 1985 Food Security Act[81] contained a number of provisions directed toward conservation of soil and added incentives for the implementation of soil and water conservation measures. The Act contained a specific provision to restrict the conversion of wetlands to crop production. Any person who converted wetlands after December 23, 1985, is ineligible for price and income support payments and is also excluded from other USDA programs, unless the land falls under a number of specific exemptions from the requirements.[82] Under the Act, for example, conversion that commenced prior to December 23, 1985 (but was not completed) continues to be eligible.[83] Another limited exemption applies where only a minimal impact on hydro-logical and biological aspects of wetlands would occur, considering all other actions in the area.[84]

Similar provisions apply to highly erodible land. Producers are ineligible for program payments for commodities produced on highly erodible land except in compliance with a conservation plan. The restrictions do not apply to land already in production between 1981 and 1985 or under set-aside during that time. However, this land was required to have a conservation plan approved by 1990 or two years after an ASCS soil survey of the farm. A second exemption is allowed if production is under a conservation plan which is in accordance with ASCS technical standards.[85]

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80. *See* FARRIER, *supra* note 78, at 198-199, 218-219.

81. Food Security Act of 1985, Pub. L. No. 99-198, 99 Stat. 1354 (1985) (codified at 16 U.S.C. §§ 3801-3845 (1988)).

82. 16 U.S.C. §§ 3811-13, 3821-23 (restricting payments if the producer is not in compliance with conservation provisions of the Act)

83. 16 U.S.C. § 3822(b)(1)(A).

84. 16 U.S.C. § 3822(f)(1).

85. *See* 16 U.S.C. § 3812(a).

Probably the most far-reaching provision dealing with soil conservation in the 1985 Food Security Act is the conservation compliance provision. This requires all farmers to apply soil conservation plans to highly erodible crop land by 1990, with the plan to be fully implemented by 1995, or stand the potential loss of all program payments. This provision applies to land that was *in production* between 1981 and 1985 or under set-aside during that time.[86]

The Conservation Reserve Program (CRP) of the 1985 Farm Bill has the potential of being one of the greatest soil conservation measures yet enacted. It has the benefit of affecting off-site pollution from soil erosion and presumably improvement in water quality. This program was designed to take highly erodible land out of production and convert the land to permanent vegetative cover in accordance with approved conservation plans. To put highly erodible land in the CRP, the owner-operator must agree to apply the conservation plan, establish vegetative cover, and not use the land for agricultural purposes. In return, the owner receives technical assistance, cost sharing for conservation measures, and annual rental payments to compensate for the removal of the land from production. Contracts are generally for ten years.[87]

Additionally, a special provision supplementing the Food Security Act allows the Farmers Home Administration to cancel debts secured by farm land up to the value of any conservation easements transferred to the government on the land. Generally, conservation easements possess a life of at least fifty years.[88]

2. 1987 Water Quality Act

Since non-point pollution is a major environmental problem in the United States, the goals of the Clean Water Act can only be met by addressing non-point pollution problems. The Water Quality Act of 1987[89] added a specific policy statement: "[I]t is the national policy that programs for the control of non-point sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and non-point sources of pollution."[90]

The Act required that states submit a report to identify those waters

86. 16 U.S.C. §§ 3821-3823.
87. 16 U.S.C. §§ 3831(e)(1).
88. *See generally* 16 U.S.C. § 1501.
89. Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 7 (1987) (codified as amended in scattered sections of 33 U.S.C.).
90. 33 U.S.C. § 1251(a)(7) (Supp. 1990).

in the state which cannot reasonably be expected to attain or maintain applicable water quality standards without additional action to control non-point sources of pollution.[91] Also, within eighteen months each state was to submit a management program to identify the best management practices in addressing the reduction of pollution from non-point sources.[92]

This program differs significantly from the so-called "208 Planning" of the 1972 water pollution control legislation. Under that program, states were mandated to develop plans for agricultural non-point source management.[93] However, most plans called for voluntary efforts with little regulatory control involved.[94]

The 1972 legislation called for the integration of planning with overall pollution control strategies. Consequently, it could be argued that Congress intended for non-point regulatory programs to be implemented by the states. For instance, the legislation called for procedures and methods "including land use requirements" to control non-point sources.[95] Finally, the 1987 language required that control programs of non-point pollution be developed and implemented.[96]

The Control Program focuses on the identification of best management practices (BMP's) to control each category of non-point source pollution. The states in their basic water quality planning must include BMP's for each category or subcategory of non-point sources.[97] BMP's are defined in the regulations related to water quality planning as:

> Methods, measures or practices selected by an agency to meet its non-point source control needs. BMP's include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMP's can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters.[98]

The approach is to identify BMP's that will control each category of pollution in order to achieve water quality goals. This would include BMP's from agricultural and forestry activities among the categories or

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91. 33 U.S.C. § 1329(a).
92. 33 U.S.C. § 1329(b).
93. 33 U.S.C. § 1314(c) (1988).
94. *See generally* Robert E. Beck, *Water Pollution and Water Quality Control, in* 5 WATERS AND WATER RIGHTS §§ 52.05-.06 (1991).
95. 33 U.S.C. § 1288(b)(2)(A)-(K).
96. 33 U.S.C. § 1251(a) (meaning that regulatory programs will be necessary at some point in time for various lands).
97. 33 U.S.C. § 1329(b).
98. 40 C.F.R. § 130.2(1).

subcategories of particular non-point sources. If water quality goals cannot be achieved by voluntary programs, some states may move to mandatory requirements; it appears that the federal legislation approves this approach.

### C. *Recent Australian Approaches*[99]

The original soil conservation legislation in Australia, similar to that of the United States, was primarily designed to encourage better land management practices to reduce soil erosion. In recent years, however, new efforts have been made to strengthen existing programs, and in some cases, to adopt new approaches altogether. Primarily, these new efforts are in apparent recognition of the failure of the voluntary methods.

One major difference in the original Australian legislation, and most legislation in the United States, is that it permits considerable coercive authority to be used, if necessary, to achieve conservation goals. However, "administrative timidity" in implementing these powers has led to their general ineffectiveness.[100]

However, in recent years two Australian states, New South Wales and Western Australia, have revised their soil conservation legislation to strengthen the authority of the administrative bodies to take action. Additionally, South Australia adopted a new scheme for protection of native vegetation, relying on a combination of strict regulation and economic incentives to protect this resource and, naturally, to aid in protecting soil and water.

These three legislative programs provide clear illustration of how land management control may be established in a regulatory framework that, if applied, might successfully address the problem of non-point pollution *at its source*. These programs recognize the public interest in controlling land management, and consequently, call for restrictions on the private interest in property.

#### 1. Legislation in Western Australia

One of the states in Australia most affected by land degradation is Western Australia, a region which accounts for about one-third of the total land area of the entire country. Recent concerns in the state regarding land degradation has led to amendment of the original Soil and Land Conservation Act of 1945. In a symbolic move the 1988 amendments to

99. This section draws from J.W. Looney, *Land Degradation in Australia: The Search for a Legal Remedy*, 46 J. SOIL & WATER CONSERVATION 256 (1991).

100. Bradsen, *supra* note 68, at 116.

the legislation changed references to "soil" conservation districts to "land" conservation districts but, at the same time, the amendments strengthen the enforcement ability of the Commissioner of Soil Conservation.[101] An earlier 1982 amendment extended the general thrust of the legislation to not only soil erosion, but to salinity and flooding and to the removal of vegetation.[102] All of these now encompass a part of land degradation.[103]

The Commissioner of Soil Conservation possesses authority to issue notices to occupiers and owners of land if he believes land degradation is occurring, or is likely to occur on the land *or elsewhere.*[104] The notice may require the occupier or owner to refrain from conducting activities such as land clearing or the destruction or cutting down or injuring of trees, shrubs, grasses or other plants. The notice may also require the adoption of measures to prevent erosion, drift or movement of sand, soil, dust or water on or from the land. Periods may be specified within which the required action must be completed.[105]

Not only does the notice bind each occupier or owner of the land, but successors in interest are also bound if a memorial of the notice is registered with the appropriate land title registrars.[106] While the notice is in effect the outgoing owner or occupier must notify any successor in interest of the existence of the notice before agreeing to any succession in interest.[107]

An appeals procedure is provided for an occupier or owner who objects to the notice or any of its terms but, if the appeal is unsuccessful, failure to comply is an offense punishable by a penalty of up to $2,000. Continued lack of compliance can result in additional penalties.[108]

As a means of further enforcement authority, if the notice is not complied with, the Commissioner is authorized to have the specified measures completed and the expenses are chargeable to the owner or occupier of the land and recoverable in court.[109] In addition, if another

101. Soil and Land Conservation Act Amendments 1988, W. Aust. Stat.

102. *See* BATES, *supra* note 74, at 97.

103. Soil and Land Conservation Act 1945 § 4, W. Austl. Stat.

104. Soil and Land Conservation Act 1945 § 32 (occurring as a result of agricultural or pastoral practices or methods, clearing or intended clearing, failure to take adequate precautions to prevent soil erosion, salinity or flooding, or the destruction, cutting down or injuring of trees, shrubs, grasses, or other plants).

105. Soil and Land Conservation Act 1945 § 32(2).

106. Soil and Land Conservation Act 1945 §§ 32(3), 34A.

107. Soil and Land Conservation Act 1945 § 34B.

108. Soil and Land Conservation Act 1945 § 34 (dealing with appeals); Soil and Land Conservation Act 1945 § 35 (setting penalties).

109. Soil and Land Conservation Act 1945 § 35.

landowner is damaged by the failure to comply with the notice provisions, a private right of action attaches for any damage caused.[110] Additionally, a mortgagee is authorized to pay the amount of the expenses incurred in complying with the notice, and the amount then becomes a part of the principal sum received by the mortgagee.[111]

Once the required work is completed, the notice may be discharged. An appeal procedure exists if the Commissioner refuses to discharge notice.[112]

2. New South Wales Programs

The state of New South Wales ranks fourth in total land area of the six states in Australia, but within that area there is an entire array of land uses. It adopted its Soil Conservation Act in 1938[113] and amended it substantially in 1986 to give the Commissioner of the Soil Conservation Service extensive new powers to deal with land degradation and to protect environmentally sensitive areas. Actions which cause, or are likely to cause, soil erosion or land degradation either on particular land, or *on other land*, may become the subject of a notice procedure similar to that of Western Australia legislation.[114] As is true in Western Australia, failure to comply with notice provisions is an offense punishable by a $2,000 fine; also, the Commissioner may complete the required work and then assess costs chargeable to the landholder. A right of action attaches to others whose land is damaged by the failure to comply with the notice.[115] A specific provision makes it clear a landholder receives no compensation as a result of actions required under the notice provision.[116]

Under the New South Wales legislation some areas may be designated as "areas of erosion hazard" and, in such cases, encouragement is given to landholders to reach agreements for the carrying out of prescribed soil conservation measures.[117] Failure to enter agreements can result in the use of a notice procedure, similar to that described earlier.[118] Under the notice the landholder may be required to undertake remedial

110. Soil and Land Conservation Act 1945 § 35(6).
111. Soil and Land Conservation Act 1945 § 37.
112. Soil and Land Conservation Act 1945 §§ 38, 39, 39A.
113. Soil Conservation Act 1938, No. 10, N.S.W. Stat.
114. Soil Conservation Act 1938 § 15A.
115. Soil Conservation Act 1938 § 15E (setting penalties); Soil Conservation Act 1938 § 15F (awarding costs); Soil Conservation Act 1938 § 15G (granting right of action).
116. Soil Conservation Act 1938 § 15G(3).
117. Soil Conservation Act 1938 § 22B-22P.
118. Soil Conservation Act 1938 § 18.

works or measures, or to adopt particular land utilization on land management methods, and to limit livestock stocking rates (both as to numbers and types of livestock).[119] As before, penalties may be imposed for failure to comply and the Commissioner may complete the prescribed measures and recover costs. No compensation is authorized for actions required under the notice procedure.[120]

A particular concern in the New South Wales legislation deals with the removal of vegetation in sensitive areas. Under 1986 Amendments,[121] areas along rivers with a slope in excess of 18 is defined as "protected land."[122] Also, land mapped as being "environmentally sensitive or affected or liable to be affected by soil erosion, siltation or land degradation" may under the 1986 amendments qualify as "protected land."[123] "Environmentally sensitive" areas include a number of types of land such as arid or semi-arid lands, saline areas, land with rare or endangered flora or fauna, and land of archeological or historical interest, wetlands and areas of scenic beauty.[124]

The legislation prohibits tree removal on protected land or the topping, lopping, removal or injury of trees. Exceptions are made for minor removal or destruction of some trees where the underlying intent is not to convert the land to agricultural or horticultural uses. For example, up to seven trees per hectare per year may be removed, or up to 2 hectares per separate protected area, so long as not to exceed one-fourth of each area. Banana plantations and orchards may deal with trees where it is necessary for harvesting and management (not total re-establishment).[125] As under the other programs, the notice procedure may require certain actions be terminated which cause, or are likely to cause, erosion of protected land or any adjacent land.[126]

### 3. South Australia's Effort to Protect Native Vegetation

South Australia is a state of 984,200 $km^2$ area which is the driest in

119. Soil Conservation Act 1938 § 18(2).

120. Soil Conservation Act 1938 § 18(12) (setting penalties); Soil Conservation Act 1938 § 18(13) (assessing costs); Soil Conservation Act 1938 § 18(14) (disallowing compensation).

121. Soil Conservation (Further Amendments) Act 1986, No. 142, N.S.W. Stat.; Soil Conservation (Amendment) Act 1986, No. 105, N.S.W. Stat.

122. Soil Conservation (Further Amendments) Act 1986 § 21B.

123. Soil Conservation (Further Amendments) Act 1986 § 21B(1).

124. Soil Conservation (Further Amendments) Act 1986 § 21B(6).

125. Soil Conservation (Further Amendments) Act 1986 § 21C(3).

126. Soil Conservation (Further Amendments) Act 1986 § 21(A).

Australia. A matter of particular concern has been the protection of native vegetation in the state. Significant effects from the clearance of vegetation were recognized in its original Soil Conservation Act of 1939, and landholders were required to obtain consent for clearance of rural land. However, the serious effects of continued clearance led the state to attempt other means of restricting vegetation removal. The first effort was through a 1982 amendment to the Planning Act (administered by a different authority), requiring consent for removal of any tree, shrub or plant of a species indigenous to South Australia.[127] This effort met opposition from agricultural interests, and in a challenge reaching the High Court,[128] the Court found the specific language of the Planning Act, relating to "existing uses," meant consent was not necessary. As a result of this decision the state in 1985 adopted a totally separate legislative scheme, the Native Vegetation Management Act.[129] Under this Act, clearance of native vegetation requires consent of a Native Vegetation Authority and a $10,000 penalty may be imposed for clearance contrary to the Act or violations of conditions specified by the Authority.[130] "Clearance" is defined to include "(a) the killing or destruction of native vegetation; (b) the removal of native vegetation; (c) the severing of branches, limbs, stems, or trunks of native vegetation; (d) any other substantial damage to native vegetation."[131] Apparently an increase in stocking rates, if significant, would fall within the definition.[132]

Three particularly interesting aspects of the legislation bear mentioning. First, the legislation sets out a procedure for compensation to landholders required to retain an area greater than 12 1/2% of the total holdings. This applies only to those who held land prior to May 12, 1983. A formula is included to determine the rate of compensation which is based on loss of value.[133] A second interesting aspect is that no appeal is available for refusal to consent on the part of the Authority.[134]

Last, the composition of the Native Vegetation Authority differs from that of the usual agriculturally dominated board or commission. In this case, the chair of the NVA is to be the Chairman of the South Australian Planning Commission and the four other members consist of one

127. *See* R.J. Fowler, *Vegetation Clearance Controls in South Australia*, 3 ENVTL. & PLANNING L.J. 48, 50 (1986).
128. Dorrestijn v. South Austl. Planning Comm'n v. Dorrestijn, 56 A.L.R. 295 (Austl. 1983).
129. Native Vegetation Management Act 1985, No. 87, S. Austl. Acts.
130. Native Vegetation Management Act 1985 § 19.
131. Native Vegetation Management Act 1985 § 3.
132. Fowler, *supra* note 127, at 55.
133. Native Vegetation Management Act 1985 §§ 26, 27, 28.
134. Native Vegetation Management Act 1985 § 21(3); Fowler, *supra* note 127, at 57.

nominee each from the United Farmers and Stock Owners of South Australia, and the Native Conservation Society of South Australia, and of any person possessing extensive knowledge and experience in conservation of native vegetation and agricultural land management.[135] An advisory committee also is to be represented with a mixture of interests.[136] This composition of the Native Vegetation Authority, like the entire Act, resulted from a consensus reached prior to the introduction of the legislative proposal.[137]

4. Environmental and Land Use Planning in Australia

Traditionally, Australia implements local planning regarding land use. Planning schemes are developed which attempt to indicate generally what land uses are permitted and restricted in given areas. Zoning, coordinated with discretionary power to approve or reject development proposals, provides the basis for control of land use.[138] In most states some statutory direction is given to planning authorities to give due consideration to environmental protection. The New South Wales Environmental Planning and Amendment Act of 1979, for example, specifies one of its purposes to be the protection of the environment.[139] It also addresses land use management by stating that "proper management, development, and conservation of natural and man-made resources, *including agricultural land* . . . [is necessary]."[140] While much of the activity of planning authorities relates to particular development proposals, they must deal with the effects of proposed activities on the environment generally and not just local issues of environmental amenity.[141]

In the development of a local environmental plan (LEP) planning authorities direct attention to agricultural activities. For example, land clearing for an agricultural purpose may sometimes be prohibited in certain areas or may be allowed only upon specified conditions.[142] In other cases, agricultural activities may be specifically excluded from development whereas other agricultural activities may proceed unimpeded.[143] Additionally, certain agricultural activities with high pollution potential such as piggeries, poultry farms or cattle feedlots (or those of specified

135. Native Vegetation Management Act 1985 § 7.
136. Native Vegetation Management Act 1985 § 16.
137. Fowler, *supra* note 127, at 53.
138. BATES, *supra* note 77, at 54-55.
139. Environmental Planning and Assessment Act 1979 § 5(v), No. 203, N.S.W. Stat.
140. Environmental Planning and Assessment Act 1979 § 5(i) (emphasis added).
141. *See* BATES, *supra* note 74, at 57.
142. FARRIER, *supra* note 78, at 205.
143. *Id.* at 206.

size) require development consent or, in fact, may be prohibited in some areas altogether.[144]

The planning authorities in Australia have broad powers to deal with proposed development activities, including those of an agricultural nature. The authority extends protection not just to amenities but the general environment as well. An illustration is found in *Hodgson & Ors v. Cranbourne & Molera Pty. Ltd.*[145] which involved an appeal to the Victoria Planning Appeals Board. The appeal involved a proposal for construction of a "housed cow" dairy system, which was denied due to alleged substantial interference with natural drainage. The proposal apparently included an adequate treatment system to handle wastes, but the Board found it to be an "offensive industry" under the planning scheme which was prohibited in rural and farming zones because of the general environmental effects.

A related matter, at least from the perspective of controlling agricultural activities, is the concept of "existing use rights" which is an aspect of most planning legislation. "Existing use" provisions limit development control to new development and allow existing uses to continue if they were underway at the time planning schemes or development controls were introduced.[146] In terms of agriculture, land clearing is the most frequent activity that might be considered an existing use. In *Dorrestijn v. South Australia Planning Commission*[147] the High Court found that clearance of native vegetation on farms was an existing use and consent of planning authorities was not necessary for this activity. Whether this interpretation would be applicable to existing use provisions of other legislation is not clear. For example, the New South Wales EPAA defines *use* of land (not a change of use) as development,[148] and the existing use provisions are applicable only to continuance of use.[149] An argument could be made that some new use beyond the continued use of the land is not protected by the existing use provisions.[150] Additionally, it could be argued that existing use protection extends only to the land area in a particular agricultural use, not to areas not previously used for that purpose.[151] The NSW legislation has specific language indicating that the

144. *Id.* at 213.
145. 1984 Envtl. L. Rep. (Envtl. L. Inst.) 0069.
146. BATES, *supra* note 74, at 59.
147. 56 A.L.R. 295 (Austl. 1983).
148. Environmental Planning and Assessment Act 1979 § 4(1), No. 203, N.S.W. Stat.
149. Environmental Planning and Assessment Act 1979 §§ 107(1), 109(1).
150. *See* FARRIER, *supra* note 78, at 206-07.
151. *Id.* at 207.

existing use protection does not extend to "any enlargement on expansion or intensification" of the use.[152]

The issue is far from clear in Australia.[153] The common law tradition of the superior rights of the private landowner is deeply rooted. The conflict between public interest and private rights is, of course, a major problem in planning.

> For centuries, the law has allowed private landowners to shape their own environments. Rights to build upon land, or to change the use of it, are now generally controlled by planning legislation; but the right to decide how to manage the land is still largely unfettered. Yet the management of land is at least of equal importance as the use to which it is put. For example, a farm is used for agricultural and pastoral purposes, but the way in which it is used will have a significant effect on the environment. The clearing of native vegetation; use of chemical fertilizers; spraying with pesticides, herbicides and other poisons; failure to attend to erosion problems, and so on, will all have a marked environmental effect on that property, on watercourses which flow through it, and the flora and fauna which inhabit it. Yet the right of the private landowner to effect such changes is regarded as sacrosanct at common law.[154]

Thus, the Australian efforts at incorporating land management controls into planning schemes, while more forceful than in the United States, still are only in an evolving stage.

## V. LESSONS FROM THE AUSTRALIAN EXPERIENCE

An examination of recent Australian approaches to soil erosion and land degradation raises a number of questions worthy of attention in any effort to redesign the current system in the United States: What type of land use regulation is required? Is additional land use regulatory authority needed? Which governmental units are most appropriate for the task? What inter-governmental constraints exist to effectively control harmful practices? Realistically, what level of regulation will gain political acceptability? Can soil stewardship be encouraged without regulation? If the conclusion is that a combination of regulatory and incentive programs is necessary, a final question must then be addressed: To what extent will such programs be acceptable under the GATT?

152. Environmental Planning and Assessment Act 1979 §§ 107(2)(b), 109.

153. FARRIER, *supra* note 78, at 207.

154. BATES, *supra* note 74, at 21.

### A. *What Type of Land Use Regulation Is Required?*

To control non-point pollution from agricultural activities, two types of regulations might be used: Land use prohibitions and restrictions on farming activities.[155] This could involve the prohibition of some uses in specific locations (e.g., on steep land or near watercourses). More commonly, it might involve restrictions on agricultural activities, including the implementation of best management practices.[156]

It must be emphasized that pollution from agricultural sources normally does not involve illegal actions. In fact, it usually results from the application of generally accepted farming practices.[157] Thus, it is not the intent of land use management approaches to make these farming practices illegal but, rather, the goal is to reduce problems arising from the way farmers farm. Most land use regulations contain penalty provisions, not for carrying out a specific activity, but for violating the rules or orders of a constituted authority. This, of course, is an ultimate step in regulatory schemes; that is, the authority to encourage compliance by legal means if necessary.

Recall that under the 1987 Water Quality Act, the states were to identify waters requiring additional attention due to non-point source pollution. Additionally, the states were to identify BMP's best suited to address the problems. The existing legislation already called for plans to include measures to deal with non-point source pollution from agriculture.[158] Interestingly, the call suggested that procedures and methods be set forth to control agricultural sources, including *land use requirements.*[159]

State developed BMP's might include land use requirements, such as the identification of critical recharge zones and management practices related to use of nitrogen fertilizer and pesticide applications, which possibly could be restricted in those areas. Also, vegetation removal could be restricted along certain streams where necessary to reduce soil erosion.

The Western Australian approach is instructive in this regard. For instance, the Western Australian legislation may restrict agricultural practices if land degradation is occurring or is likely to occur from those

155. Massey, *supra* note 67, at 52-53.
156. *Id.*
157. *See* BATES, *supra* note 74, at 4.
158. 33 U.S.C. § 1288(b)(2) (1988).
159. 33 U.S.C. § 1288 (b)(2)(F) (indicating that agricultural activity, including return flows and their cumulative effects as well as runoff from manure disposal areas, in addition to land used for livestock and crop production, contribute to agriculture non-point source pollution).

activities. And, the New South Wales legislation prohibits removal of vegetation in sensitive areas. Land use regulation of this type might be eventually required in the U.S. if voluntary implementation of BMP's does not successfully reduce soil erosion and other non-point pollution.

In the United States, some states have adopted soil erosion control legislation for certain areas or for certain practices. "Land-disturbing activity" or forest practices are sometimes covered by such legislation. The possibilities for non-point pollution control strategies include not only soil erosion control but pesticide restrictions, buffer strips, and restrictions on livestock waste disposal.[160]

### B. *Is Additional Land Use Regulatory Authority Needed?*

When soil conservation program authority was delegated to local soil conservation districts, some were given authority to use land use regulations, others were not. If soil conservation districts are to effectively deal with non-point source pollution, they must be given strong authority. Two approaches appear to be available: One is to permit local authorities to exercise land use regulatory authority and the other is to mandate statewide adoption of certain land use regulations or acceptable management and conservation practices.[161] It is highly unlikely that any effective land use regulations would be adopted under the permissive schemes because of a variety of local referendum requirements.[162] Thus, if conservation districts are to be the local governmental unit responsible for non-point pollution control and BMP implementation, it will be necessary for many states to change the approach currently used.

In dealing with this issue, Iowa provides an instructive example. In the Iowa Soil Conservation Districts Law[163] local districts must adopt regulations regarding soil erosion and sediment controls subject to approval of a state agency — the State Soil Conservation Committee. The Iowa program is based on soil loss limits which may be established by classes of land based on topography, soil characteristics, current use, and other factors affecting propensity for soil erosion.[164] Specific soil erosion

160. *See* Daniel R. Mandelker, *Controlling Nonpoint Source Water Pollution: Can It Be Done?*, 65 CHI-KENT L. REV. 479, 482-89 (1989). An example of restrictions in livestock waste disposal can be found in recently adopted regulations in Arkansas relating to liquid animal waste management systems. Ark. Dep't of Pollution Control & Ecology, Reg. No. 5, Liquid Animal Waste Management Systems (July 1992).

161. *See* Massey, *supra* note 67, at 60-61.

162. *Id.*

163. IOWA CODE § 467A-53 (1990).

164. Massey, *supra* note 67, at 79.

control practices, or soil and water conservation practices, may be required if soil loss limits are exceeded for a particular farm.[165]

Michigan instead focuses on land disturbance activities of land use regulations adopted by a state agency, but enforced by both state and local units.[166] Under the Michigan Soil Erosion and Sedimentation Control Act of 1972,[167] activities involving "earth changes," except normal plowing and tilling of soil for crop production, must submit plans reflecting soil erosion and sediment control.[168]

The problem with these approaches, even in states like Iowa and Michigan which mandate certain measures, is that they are restricted to soil erosion. If Soil Conservation Districts are to be the regulatory authority for the control of non-point source pollution, enabling legislation will have to be broadened to provide for land use regulations covering the range of management practices related to non-point source pollution and, particularly, groundwater quality. Additionally, practices relating to water management, fertilizer and pesticide application, land disturbing activities, vegetation maintenance and animal wastes need to be covered.[169] Agricultural practices, as has been repeated, must be the focus of any BMP's for addressing non-point source pollution. Even the Michigan approach which mandates certain measures regarding land disturbing activities does not touch normal farming activities. The Iowa statute, based on soil loss limits, only comes into play if those limits are exceeded and a complaint has been filed.[170]

If Soil Conservation Districts are to be the agencies with authority to deal with these problems, their authority will have to be expanded along the lines of the legislation in New South Wales and Western Australia. Through conservation orders, the Australian districts may require the adoption of particular measures and require landowners to refrain from practices or methods. The orders are binding on landowners and on successors in interest.[171] This approach, does not require the "trigger" of a complaint, as do the Iowa soil loss limits, but is applicable when the agency believes land degradation is occurring, or is likely to occur as a result of agricultural or pastoral practices. It is important to note that in these Australian programs the degradation may be on the specific

165. *Id.*; BATIE, *supra* note 11, at 105-107.
166. BATIE, *supra* note 11, at 65-66.
167. MICH. COMP. LAWS §§ 282.101-.117 (1979 & Supp. 1992).
168. *See* Massey, *supra* note 67, at 80.
169. *Id.* at 74-75.
170. *Id.* at 90.
171. *See supra* text and accompanying notes 104-07, 114-16.

property *or elsewhere.*[172]

C. *Which Governmental Units Are Most Appropriate for the Task?*

The state's role will not end with development of plans. Some agency must be authorized to carry out the plans. Typically, these duties have fallen to local soil conservation districts. However, these districts have traditionally been most involved in voluntary efforts and have seen their role as solely advisory and educational. For that reason, they have generally rejected any type of mandatory programs. Consequently, soil conservation districts may not be the proper agency for non-point pollution control programs for three reasons: One, soil conservation districts either have no land use management authority or, if available, have failed to exercise it even when obviously necessary to program goals; second, soil conservation district committees are usually composed of farmers. Self regulation is a remote possibility when dealing with problems of this nature, especially where comprehensive planning and control is necessary to address environmental concerns; last, soil conservation districts are organized along political boundaries, usually by county, and a watershed by watershed planning is desirable.

A number of these districts were given no land use control authority when formed. Others were given authority, but it has seldom been used.[173] Thus, state delegation to such agencies to implement BMP's will have to be reconsidered in light of the history of reluctance to adopt mandatory programs related to soil erosion. When the original soil conservation legislation was enacted, the federal government agreed to provide the services of the SCS if the states enacted legislation to establish local districts to supervise soil conservation programs. The Standard State Soil Conservation Districts Law suggested broad powers for those districts with the power to adopt land use regulations.[174] Some state statutes include the authority; others dropped it from the version enacted.[175] Even where the authority exists, the statutes typically include a referendum for adoption of any regulations.[176]

One of the ongoing criticisms of the existing soil conservation districts is the composition of the governing bodies, most are composed of farmers who are, of course, reluctant to exercise any land management regulatory authority. This has been referred to as a "closed system" and

172. *Id.*
173. *See* Massey, *supra* note 67, at 55; Arts & Church, *supra* note 34, at 604-08.
174. Arts & Church, *supra* note 34, at 589, 592; Massey, *supra* note 67, at 52-53.
175. Massey, *supra* note 67, at 55.
176. *Id.* at 60.

"outside the mainstream of general public interest, participation and involvement."[177] Perhaps, soil conservation districts will be replaced with another governmental agency with authority to address the problems of soil conservation as well as other related problems. Wisconsin has made a move in this direction with its placement of authority in the hands of local governing boards rather than in special soil conservation districts.[178] The composition of such an authority will, no doubt, be broadened beyond landowners in the area and could potentially create a procedure for representation of the general public interest.

If soil conservation districts are not delegated the authority to deal with these issues, the responsibility may fall to local planning authorities. In those states with county-wide zoning, these bodies may be the natural governmental units to exercise land use control authority. However, enabling legislation for local action will have to be broadened in many cases to assure adequate authority to deal with non-point pollution and groundwater quality. Some enabling acts do not even mention environmental protection as a legitimate purpose of zoning and planning authority.[179]

As indicated earlier, several questions have been raised as to the suitability of Soil Conservation Districts as the appropriate body to deal with non-point source pollution and groundwater protection. At the time of creation of special districts to carry out soil conservation responsibilities, few, if any, general purpose units of local government possessed jurisdiction to deal with such issues.[180] Thus, all states opted to create special districts but only Wisconsin diverged from the general model and required the districts to be governed by county governmental units. Wisconsin required governance by committees on agriculture and extension education.[181]

Additionally, Wisconsin recently moved another step away from the practice in other states by abolishing the soil and water conservation districts altogether and placing the responsibility for soil conservation in land conservation committees (LCC) of county boards.[182] In this way, the LCC is more broadly representative than the narrow constituency

177. Arts & Church, *supra* note 34, at 594.

178. *See id.* at 614; Massey, *supra* note 67, at 59.

179. *See supra* text and accompanying notes 138-53. However, enabling legislation in the Australian states usually specified this purpose, thereby allowing local planning authorities to exercise broad powers in dealing with environmental issues.

180. Arts & Church, *supra* note 34, at 590.

181. *Id.* at 590.

182. *Id.* at 611.

typical of the local soil conservation districts. Provisions allow for appointment of LCC members who are not on the county board, and, public participation in planning and evaluating programs is specifically required.[183] This approach also is designed to ensure better coordination of the county governments' various functions relating to resources. For example, since the county board also is authorized to create a planning and zoning committee, consolidation of functions may be more easily achieved.[184]

Nebraska, on the other hand, uses an approach which requires existing local districts, called natural resource districts (NRD's), to conduct studies and to designate areas where management is necessary to control contamination of groundwater from non-point pollution sources. Farmers in these special protection areas could then be subject to controls on farming practices, including limits on pesticides or fertilizers. These NRD's could be mandated to accept state guidelines should they fail to act. Penalties attach for failure to abide by any plans developed by the NRD's.[185]

Whatever local agency is given the responsibility to deal with issues such as non-point source pollution and groundwater protection, it must necessarily be more representative of the general public interest than has been the case for soil and water conservation districts. Again, an Australian example is instructive. The South Australia Native Vegetation Management Act[186] places responsibility in the hands of a special authority which represents both agricultural and environmental interests, with nominees for positions equally divided between the two groups. Interestingly, the authority is chaired by the chair of the State Planning Board which allows for program coordination similar to what could be achieved in the local committee approach in Wisconsin.

### D. *What Intergovernmental Constraints Exist to Effectively Control Harmful Practices?*

The 1987 Water Quality Act calls for planning to the extent practicable on a watershed by watershed basis.[187] The original soil conservation legislation allowed for creation of special purpose districts.

183. *Id.* at 614-15.

184. *Id.* at 617. Wisconsin was the first state to adopt a rural zoning law. *Id.* at 590.

185. For an excellent examination of the Nebraska approach, see Susan A. Schneider, *The Regulation of Agricultural Practices to Protect Groundwater Quality: The Nebraska Model for Controlling Nitrate Contamination*, 10 VA. ENVTL. L.J. 1 (1990).

186. *See supra* text accompanying notes 127-37.

187. 33 U.S.C. § 1329(b)(4).

Watershed boundaries were one possibility for limits of districts. However, most often the districts follow county boundaries but this is mandated in only eight states.[188]

It is recognized that much land management activity must be local in nature and adapted to local conditions. Local governmental bodies are probably best suited to deal with such land use regulation, even if the effects of farming practices are broader in scope, often affecting an entire watershed or an entire aquifer. But, watersheds are logically and conceptually attractive units for dealing with the broader problems. Unfortunately, given the county political structure familiar through the entire county, a regional unit with any real authority may not be realistic.[189]

While much of the regulatory activity must be local in nature, there remains a role for state action in mandating certain approaches or in prohibiting certain activities. The state soil erosion legislation in Iowa, for example, is built around state mandated soil loss limits adapted to local land classes. But, statewide management programs must recognize the variability in situations and local conditions[190] and provide flexibility with regard to appropriate management practices.

However, some practices may be regulated on a statewide basis. For example, at least twelve states possess legislation relating to chemigation, the applying of chemicals through irrigation systems.[191] New York regulates pesticide applications, in part, with a notification requirement for adjacent residents.[192] Maine approaches the problem through the use of enforcement of a buffer zone provision around agricultural land, in part to reduce development and in part to protect adjacent property from pesticide applications.[193] Florida, for example, developed a "zones of discharge" system which is designed to identify areas most affected by farming practices and to control the surface location of discharge into an aquifer or water system.[194]

States could also identify some watercourses in which specific statewide action is appropriate to control non-point source pollution and especially soil erosion. For instance, restrictions on vegetation removal

188. Arts & Church, *supra* note 34, at 592.

189. *Id.* at 615-16; *see also* John H. Davidson, *Commentary: Using Special Water Districts to Control Nonpoint Sources of Water Pollution*," 65 CHI-KENT L.REV. 503, 507-15 (1989).

190. *See* Massey, *supra* note 67, at 72.

191. Noel Gollehon, *Chemigation: A Technology for the Future?* AGRIC. INFO. BULL. No. 608 (Econ. Res. Serv., U.S, Dep't of Agric., Rockville, Md.), July 1990, at 12.

192. *See* N.Y. ENVTL. CONSERV. LAW § 33-1003 (McKinney 1992).

193. *See generally* ME. REV. STAT. ANN. tit. 19, § 11 (West 1991).

194. Booker Creek Preservation, Inc. v. Mobil Chemical Co., 481 So. 2d 10 (Fla. Dist. Ct. App. 1985).

near streams or lakes, similar to that authorized by Australian legislation, might be appropriate to protect some streams where non-point pollution from land disturbing activities is a particular problem.[195]

The difficulty in coordinating the various authorities, both statutory and governmental, has been addressed in Australia in the New South Wales "Total Catchment Management" program. Since catchments or watersheds provide natural units for implementing co-ordinated use and management of land, water, vegetation and other physical resources and activities, the New South Wales effort has been to establish a committee to develop strategies for each of the major watersheds in the state. These committees include representatives from all state agencies involved in resource management. But, importantly, local governmental bodies are brought into the process to assure cooperation. The existing statutory authority in New South Wales is considered adequate to deal with planning, management, and use of resources on a total catchment basis.[196]

### E. *Realistically, What Level of Regulation Will Gain Political Acceptability?*

The greatest impediment to the use of land use management programs is not the structuring of the programs nor their constitutionality. Instead, the greatest problem is the reluctance of landowners to accept any infringement on what they perceive as sacrosanct property rights. This significant problem is illustrated by the controversy in Wisconsin over changing the structure of the institutions involved in the soil conservation programs.[197] In that situation, the changes were in no way drastic because any land use ordinance still needed approval by a countywide referendum.[198]

The key is, of course, greater public participation in decision making. The "closed society" approaches of the soil conservation establishment of the past cannot continue. As the public becomes more aware of the nature of the problems, acceptance of restrictions on activities is much greater. For example, a 1986 poll indicated that concern over groundwater contamination had reached a level where regulatory limits on farm chemicals was politically acceptable, even in Iowa where ground water quality was found to be of equal importance *to farmers* as was

195. *See* Mandelker, *supra* note 160, at 484.

196. *See* G.M. Cunningham, *Total Catchment Management: Resource Management for the Future*, 42 J. SOIL & WATER CONSERVATION N. S. W. 4-5 (1986).

197. *See* Arts & Church, *supra* note 34, at 610-11.

198. *Id.* at 623. By contrast, many soil conservation district referenda procedures restrict voting to landowners affected by the regulations. *See* Massey, *supra* note 67, at 57-58.

profitability.[199]

### F. *Can Soil Stewardship Be Encouraged Without Regulation?*

There is some evidence to suggest that the new approaches in the U.S., with regard to soil conservation, are having some effect on farmers' attitudes.[200] Perhaps, the regulatory approaches embodied in the Australian legislation, and in some U.S. approaches, indicate a fundamental shift in the relationship between farmers and the environment, one that might be described as one which relies on "laws and legal duties as a substitute for a land ethic."[201] However, this substitution of a regulatory approach for an accepted duty of soil stewardship is not one that sits well with farmers in the U.S. or in Australia.[202] In fact, the modern property rights system in both countries has developed in such a way that individual property rights are a sacrosanct institution especially when vested in land. Any change must be subjected to close scrutiny.

In evaluating changes in the institution of property, the balancing of the restriction of the individual versus the contribution to society is complicated by special values that have been historically associated with land ownership. These values may be economic or merely psychic. Various scholars have identified some of these values as: social prestige, political significance, hereditary passion (intense desire for land), power over things closely associated with land, conserving force, and stabilizing force in society.[203] Economists would no doubt tend to associate a wealth value with property rights in land. However, this is too restrictive a view in that there are numerous other traditional values that may be associated with land. Summarized, these values include the welfare values of wealth, security, knowledge and skill and the deference values of power, respect, rectitude and affection.[204] Most issues involving conflicts of public versus private use derive from conflicts of wealth and security values. These also may involve the related value of power.[205] At the

199. Sandra S. Batie, *Institutions and Ground Water Quality, in* [MARCH 1987] SYMPOSIUM ON AGRIC. CHEM. & GROUND WATER POLLUTION CONTROL 22, 31 (conducted by the Univ. of Okla. and sponsored by Office of Ground Water Protection, U.S. Envtl. Protection Agency) (copy available at *Tulsa Law Journal*).

200. *See* HAMILTON, *supra* note 14, at 18.

201. *Id.* at 14.

202. Roy E. Rickson et al., *Farmer Ambivalence to Rural Land Conversion in Australia and America: Regulatory Implications*, 45 J. SOIL & WATER CONSERVATION. 489, 489-90 (1990).

203. R. ELY & G. WEHRWEIN, LAND ECONOMICS 104 (1964).

204. Gene Wunderlich, *Perspectives of Property: An Introduction, in* PERSPECTIVES OF PROPERTY 1, 7-8 (Gene Wunderlich & W.L. Gibson, Jr. eds, 1972).

205. Warren J. Samuels, *Welfare Economics, Power and Property, in* PERSPECTIVES OF PROPERTY 61, 67, 140 (Gene Wunderlich & W.L Gibson, Jr. eds., 1972).

same time, land ownership always implies certain values of rectitude.[206]

Any changes in the institution of property rights would involve a reassessment of the values traditionally associated with land use. If the use of land implies a duty of stewardship, then ownership of property carries with it responsibilities and obligations. The environmental movement has re-emphasized the obligations of ownership and stewardship. This re-emphasis has its roots in the "conservation movement" which began early in this century. Avoiding waste became the by-word of many in that era. At the same time there emerged a sense of the "interrelatedness of things" or "wholeness of nature" and a move for protection of aesthetic values. This concern re-emerged in the 1960's along with concerns for the general deterioration of the environment. Along with the concern has come a reassessment of the emphasis on material values: "But the trend is evident; while the emphasis of American society upon material values is unlikely to disappear, it may well be progressively curtailed as a search for alternative values becomes increasingly prominent."[207] In this alternative search for values, the re-emergence of "stewardship," and similar values connected with obligations of land ownership, has led to proposals for new developments in the law relating to agricultural land use controls.

A legal response reflects the values society associates with the use of certain private property. Obviously, through legislation society has determined that the protection of values connected with agricultural property use is in the public interest. Although the enactment of some legislation brings into conflict public interest and the interest of individual landowners, those of the landowner must, within constitutional limitations, become subservient. In order to successfully implement the public interest it is not only necessary to subvert some individual values, but to redefine certain traditional property law concepts. As society's values change with regard to environmental protection, more pressure will likely be exerted on individual property owners to share some of their rights in specific property. As a legal response to legitimate public concerns, these demands will undoubtedly bring into focus additional conflicts between "property rights" and "personal rights." The resolution of these conflicts may well result in dramatic changes in the institution of private property. The success of any such response will depend

206. *See* HAMILTON, *supra* note 14, at 11-12 (pointing out that a duty of stewardship finds its roots in religious and ethical principles and suggesting that environmental law plays a role in establishing that duty).

207. Grant McConnell, *The Environmental Movement: Ambiguities and Meanings*, 11 NAT. RESOURCES J. 427, 435 (1971).

on how well it reflects the values of society and the consciousness underlying and embedded in the response. "Given the most perfectly fashioned and functioning system of environmental protection, its mainspring must be a new consciousness of concern and respect for the natural world—a new land ethic!"[208]

This concern is at the forefront of discussion regarding the appropriate approaches to soil and land conservation needs in Australia as well as the United States. Professor John Bradsen, perhaps the leading authority on land degradation and soil conservation in Australia, suggests that a land conservation ethic was well established in Australia forty to fifty years ago and may be reemerging.[209] However, general ethic alone cannot deal with the land degradation problem. He captures the essence of the problem as follows: "Rather than use the law to establish the ethic, the ethic should be used to establish effective law. It is time to shift the focus from ethics to behaviour and in this the law is essential."[210]

## VI. THE EFFECT OF GATT ON ENVIRONMENTAL GOALS AND SOIL EROSION CONTROL

One of the goals at the forefront in the GATT negotiations is to eliminate governmental agricultural measures having a trade distorting effect but, at the same time, allowing those agricultural policies that meet non-trade social objectives, such as food security, rural employment or environmental quality. All parties have agreed that domestic support measures, export subsidies and import barriers must be eliminated or reduced.[211] The question is which types of intervention actually produce trade distortion. Clearly, any domestic production policy has a trade effect and an output affect. The goal is to either reduce output and trade distortions or at least move toward policies that have the net effect of liberalization.[212]

One approach is to "decouple" agricultural policies by separating income support from production decisions. Such decoupling would allow income support through direct payments or some other income assurance scheme. Farmers generally oppose such schemes, but they can

208. Andrew R. Thompson, *Legal Responses to Pollution Problems - Their Strengths and Weaknesses*, 12 NAT. RESOURCES J. 226, 241 (1972).

209. John Bradsen, *Perspectives on Land Conservation*, 8 ENVTL. & PLANNING. L.J. 16, 23-27 (1991).

210. *Id.* at 23.

211. C. Ford Runge & Steven J. Taff, *Changing the Rules for Agricultural Trade*, MINN. AGRIC. ECONOMIST (Minn. Extension Serv., Univ. of Minn., St. Paul, Minn.), Feb. 1989, at 1.

212. *Id.* at 2.

be acceptable if some obligations accompany the payments such as requirements for soil conservation or land protection. Thus, non-trade social objectives may be accomplished while, at the same time, providing income support to farmers that is decoupled from production and has no trade distorting effect.[213]

Article XX(g) of the existing GATT allows an exception to quantitative export restrictions by permitting measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption."[214] In addition, the U.S. proposals in the current negotiating round suggest that environmental and conservation programs would continue to be permitted, as would programs to remove land or other resources from agriculture.[215]

However, the lack of attention to environmental protection in the overall GATT discussion raises concerns. Congressman James Scheuer (D-NY) introduced a resolution in Congress addressing the potential concerns and calling for an environmental assessment prior to adoption of the final GATT agreement.[216] The *Small Farm Advocate* summarized the concern as follows:

> If GATT is to be a positive force for the environment it must address the competitive disadvantage inherent in environmental regulation and the sustainable use of natural resources. It must also address the need for responsible government intervention in the market to overcome those forces which dictate the unwise use of natural resources.[217]

The potential conflict between export growth and maintenance of the soil is at the heart of the issue.

The existing Subsidies Code of GATT provides that domestic subsidies for the purpose of promoting social and economic policies, such as those dealing with environmental problems, are permissible. The adoption of such subsidies does not create a basis for retaliation by other GATT signatories.[218]

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213. *Id.*

214. GATT, *supra* note 17, at 38.

215. *See* MULTILATERAL TRADE POLICY AFFAIRS DIV., FOREIGN AGRIC. SERVICE, U.S. DEP'T OF AGRIC., SUBMISSION OF THE UNITED STATES ON COMPREHENSIVE LONG-TERM AGRICULTURAL REFORM (submitted to the Uruguay Round, Agricultural Negotiating Group), Oct. 25, 1989; photocopy on file at *Tulsa Law Journal*).

216. *Environment and G.A.T.T.*, SMALL FARM ADVOCATE, Spring 1990, at 11.

217. *Id.* at 14.

218. GATT Subsidies Code, art. 11, *reprinted in* 1 BASIC DOCUMENTS OF INTERNATIONAL ECONOMIC LAW 97-98 (Stephen Zamora & Ronald A. Brand eds., 1990); *See* Robert L. McGeorge, *Accommodating Food Security Concerns in a World of Comparative Advantage: A Challenge for GATT's International Trade System*, 71 NEB. L.REV. 368, 410-11 (1992).

Assuming that this provision will remain intact as the GATT round concludes, a basis exists for governments concerned with soil erosion and land degradation, such as the United States and Australia, to combine the use of regulatory programs with appropriate subsidies to producers to combat the problems. While direct income support payments to farmers may not be politically acceptable, by either the general public or farmers themselves, programs tied to environmental goals may be, especially in light of likely increases in the costs of environmental compliance with an enhanced regulatory focus. However, the use of subsidy programs that have as their sole objective increased production will be called into question. For example, the policy of subsidizing water for irrigation purposes may be open for reconsideration.[219]

If because of the GATT agreement it becomes necessary to revamp both price and income support policies and environmental policies affecting agriculture, one area certain to receive significant attention will be soil conservation. This will be especially true if soil conservation programs are seen as a non-trade distorting way of enhancing producer incomes. This is not a new concept, due to evidence indicating that the past operation of these programs served as much as an income support mechanism as for soil erosion control.[220] But the requirements for participation may change due to the new focus on agriculture and the environment.

## VII. CONCLUSION

The existing legislation at the federal level in the United States provides the starting point for a program to strengthen soil erosion control. The provisions of the 1985 Food Security Act and the 1990 Act coinciding with the 1987 Water Quality Act, used in conjunction with state efforts to develop best management practices and modification of local land management authority along the lines of the Australian approaches, can provide a framework for a program to address the problem.

The 1987 Water Quality Act mandates that states prepare a management program for controlling non-point source pollution,[221] and measures identified must take into account the impact of the practice on

219. Wayne D. Angell, *Agricultural Trade Policy and the World Economy*, Address Before the National Grain Trade Council at 11 (Sept. 12, 1991) (photocopy on file at *Tulsa Law Journal*).

220. *See* Randell A. Kramer & Sandra S. Batie, *Cross Compliance Concepts in Agricultural Programs: The New Deal to the Present*, 59 AGRIC. HISTORY 307, 310 (1985).

221. 33 U.S.C. § 1329(b)(1).

groundwater quality.[222] The implementation of a comprehensive program of BMP's, which *mandates* particular farming practices and restricts some agricultural activities, would be difficult. Voluntary programs of the past have been generally ineffective. Yet, billions of dollars have been spent in efforts to educate, to demonstrate and to encourage better management practices.[223] The track record for soil erosion control, essentially voluntary, is dismal.[224] Only through cost-sharing (with the majority coming from the federal government) has any progress been made, and once cost-sharing funds are no longer available, farmers "are quick to abandon non-compulsory cost-sharing programs when other approaches (such as intensive production) yield[ing] higher short term profits."[225]

Under the allowable provisions of GATT such assistance could, presumably, continue. The real question is whether voluntary programs combined with incentives, absent regulatory threat, will be sufficient to address the continuing problem. One suggestion has been to "recouple" farm income support programs with efforts toward environmental protection by paying farmers by "how they farm" not by "what they farm."[226] So long as such efforts are not perceived as a subtle method to avoid GATT restrictions, they should not be subject to challenge.[227] In the end, such programs may have to be combined with regulatory programs, similar to those of Australia, to effectively reduce soil erosion and other non-point pollution from agricultural sources.

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222. 33 U.S.C. § 1329(b)(2)(A).

223. John H. Davidson, *Thinking About Nonpoint Sources of Water Pollution and South Dakota Agriculture*, 34 S.D. L. REV. 20, 53 (1989).

224. Sivas, *supra* note 65, at 169.

225. Davidson, *supra* note 43, at 268.

226. Hamilton, *supra* note 14, at 23.

227. *Id.* Apparently, similar programs are already evolving in the EC under the Common Agricultural Policy.