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INTEGRATING RESOURCE AND ENVIRONMENTAL PLANNING

by

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ABSTRACT

Resource and environmental planning cannot be separated. Planning for resource use without recognition of the environmental goals or objectives of society may result in resource allocations which are socially suboptimal. Similarly, planning for environmental quality without assessing the suitability, availability and productivity of the resource base may impair economic efficiency and the distribution of output.

INTRODUCTION[1/]

Domestic and international aggregate demand for agricultural commodities continuing at relatively high levels has resulted in increases in U.S. cropland in production. In addition, the continued growth in population and the general economy have increased the nonagricultural demand for land. Due to these and other forces, land is receiving increasing attention as a potentially binding constraint on the productive capacity of agriculture. These concerns were brought into sharp focus by the recent world food crisis. Beginning in 1973, the crisis was precipitated by adverse weather conditions in major agricultural production regions of the world, by production control programs within the developed nations of the West and by high demand levels within developed countries (University of California Food Task Force). More recently, attention has been focused upon rising energy prices and the role of agricultural exports in offsetting trade deficits.

Other public concerns focused upon land relate to the quality of the environment - open space, recreation opportunities and wildlife habitat. Concern for social well-being is expressed by public interest in the continued viability of rural agricultural communities faced with land competition from nonagricultural users, higher property taxes and increased public service costs associated with urban sprawl. These collective concerns have elicited several legislative proposals for agricultural land use planning at the State and Federal level.

STATE LAND USE PLANNING EFFORTS

Recently, the Associated Press billed the preservation of farmland as California's newest hot issue. However, the state has had legislation

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since 1965 which is designed to protect designated farmlands from development. The California Land Conservation Act (CLCA or Williamson Act) employs a use-value assessment mechanism to base property taxes upon income rather than market value. This is accomplished within the framework of a 10-year contract for lands located in designated agricultural preserves.

Hansen describes the objectives of the Act as the preservation of agricultural lands, the deterrence of urban sprawl and the maintenance of open space. He argues that the Act has been successful with respect to the preservation objective, but has had uncertain impacts in deterring urban sprawl. In a study of CLCA contract adoption rates, Carman and Smith found adoption inversely related to the opportunities for conversion at a profit. Within the San Joaquin Valley, Gustafson found that land quality was not a significant factor in CLCA contract adoption, that the percentage of land under contract increased with distance from incorporated areas, that tax benefits were concentrated among the very large landowners and that a state level review of cancellations should be required. Schwartz, Hansen and Foin found that contracts were not economically rational in situations where the owner's time horizon is short or his target rate-of-return high for the period planned.

These inadequacies or imperfections in the existing legislation have prompted the introduction of several competing proposals designed to augment the CLCA, but none of the introduced Bills have been passed into law. Two key issues emerged among Bills submitted and killed in the last legislative session: (1) the issue of home-rule and (2) the issue of defining precisely what it is that is being saved. These proposals are sure to be reintroduced this session. While the issue of home-rule is best determined by the political process, the issue of defining prime

agricultural land requires more substantive multi-disciplinary research. Current proposed definitions of prime land have not been precise in parameter specification and this hinders comparability. Some proposals include the requirement of an adequate supply of irrigation water in 8 out of 10 years, others do not. Short and long-run analyses of the consequences of alternative prime land definitions which include the consequences of any redistributional or production effects are needed to improve the quality of information provided to the political process.

While legislation, such as the CLCA, may have achieved some limited success in the maintenance of open space, the effects upon overall environmental quality are much less certain. Such laws do not contribute toward an integrated approach for resource and environmental planning, particularly with respect to the critical interrelationships of water, air and land.

FEDERAL LAND USE PLANNING EFFORTS

Congress is concerned about these same issues. As early as 1970, national land use planning legislation was proposed. While none of the legislative proposals tendered during this period became law, a surprising number of the suggested concerns and approaches have become a reality under current Federal policy through the administrative interpretation of existing legislation. For example in 1976, the Council on Environmental Quality (CEQ) interpreted paragraph 101(b)(4) of the National Environmental Policy Act (NEPA) which "established a Federal policy to preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice" (CEQ, p. 1) to include highly productive farmlands. Consequently, Federal agencies must evaluate agency impact on prime and unique farmland in the preparation of an EIS. This policy was justified on the basis that:

> Efforts should be made to assure that such farmlands are not irreversibily converted to other uses unless other national interests override the importance of preservation or otherwise outweigh the environmental benefits derived from their protection. These benefits stem from the capacity of such farmland to produce relatively more food with less erosion and with lower demands for fertilizer, energy, and other resources. In addition, the preservation of farmland in general provides the benefits of open space, protection of scenery, wildlife habitat and, in some cases, recreation opportunities and controls on urban sprawl. (CEQ. pp. 1-2)

In November of 1978, Agriculture Secretary Bergland signed into effect a new statement on land use policy, a prime facet is the assumption of an adovacy position by USDA with respect to the retention of prime farmlands and the identification of the EIS as a primary policy tool in this advocacy.

In September of 1978, the Environmental Protection Agency (EPA) issued its Agricultural Lands Protection Policy. Its intent is to guide agency actions, regulations, program guidance and technical assistance to reduce or mitigate adverse impacts, and to encourage farmland protection efforts which are consistent with environmental quality goals (U.S. Government Accounting Office, 1979). Since the EPA administers a wide range of Federal programs involving the distribution of substantial funds, the agency is in a strategic position to provide such protection. Significantly, EPA has recognized that patterns of land use are important determinants of the type and extent of pollution and conversely that programs aimed at residuals management can affect the pattern of land use.

Despite the lack of any national land use planning legislation, there is a viable and potentially potent array of Federal policies, programs and funds to control the use of agricultural land by altering property rights. Other programs impacting land use are:

> --a new program authorized by the soil and water Resources Conservation Act (Public Law 95-192, November 18, 1977) and administered by the Soil Conservation Service provides for establishing long range policy to encourage wise and orderly development of the Nation's soil and water resources. It requires the appraisal of land, water and related resources

every 5 years and the development of a national land and water conservation program which is to be updated every 5 years;

--the national flood insurance program, administered by HUD, requires, as a condition of Federal assistance, that local communities develop flood plain control ordinances;

--the Corps of Engineers dredge and fill permit program under Section 404 of the Federal Water Pollution Control Act Amendments of 1972, requires a permit from the Corps for the dredging and fill of wetlands, regardless of ownership;

--Section 208 requirements of the Federal Water Pollution Control Act Amendments of 1972 for the establishment of State and areawide plans and programs to control local government and industrial wastewater storm and sewer run-off, nonpoint sources of pollution, and land use as it relates to water quality;

--State prepared implementation plans under the Clean Air Act of 1970, as amended, to control the use of land for activities ranging from public transportation modes to siting considerations for new industrial and public facilities;

--EPA assistance to local governments in planning for solid waste disposal activities to preserve and enhance the quality of air, water and land resources under the Solid Waste Disposal Act of 1965, as amended;

--the control of noise, including aircraft noise, through land use planning as well as other means, under the Noise Control Act of 1972;

--the HUD 701 comprehensive planning assistance program;

--comprehensive water and related land resource planning activities authorized by the Water Resources Planning Act of 1965 and administered by the Water Resources Council;

--Federal Aviation Administration grants to localities for airport planning (as well as construction) under the Airport and Airway Development Act, as amended;

--Federal Highway Administration financial and technical assistance to State and local governments for comprehensive transportation planning under the Federal Aid Highway Act, as amended. (U.S. Government Accounting Office, 1978)

While many Federal planning and assistance programs exist, the one with the most potential for widespread effect on land use is the

Areawide Waste Treatment Planning and Management program of PL 92-500, the Federal Water Pollution Control Act Amendments of 1972. Public Law 92-500 was enacted with an overall objective to restore and maintain the chemical, physical and biological integrity of the Nation's waters. It sets forth goals, requirements and deadlines for achieving this objective and calls for eliminating discharge of all pollutants into navigable waters by 1985. An interim goal was established for attaining, wherever possible, water quality suitable for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the Nation's waters. This interim goal is to be achieved by July 1, 1983.

Public Law 92-500 requires that water resource development, land use planning and environmental policies be coordinated, integrated and updated in a continuing planning process. This requirement will be accomplished within the structure of Section 208 which requires each state to formulate an areawide waste treatment management plan. Each plan will include; (1) the identification of agriculturally related nonpoint sources of pollution and (2) the specification of procedures and methods to control, to the extent feasible, such sources. These control procedures are termed, "Best Management Practices." Under Section 305 of this same Act, each state is required to develop estimates of the environmental impact and the economic and social cost and benefits associated with attainment of the law's objectives. In addition, each state must maintain a continuing planning process consistent with the provisions of the Act.

CONFLICTS IN PLANNING

Owing to the complexity of the socio-economic issues, to differences in the objectives of the planning agencies and to the existence of contradictory legislation, the integrated objectives of comprehensive legislation like PL 92-500 may not be met. In particular, water resource

development and land use plans within a region could be substantially affected by the nature of nonpoint source controls. Alternatively, the development of marginal lands for agricultural production, or the provision of water at subsidized prices increase the difficulty and cost of achieving reasonable environmental goals. The environmental impact from changes in the quantity of unused cropland will be significant. In particular, such land is important in wildlife production and in satisfying recreation and open space demands. In addition, further environmental damage may be caused by utilizing unused cropland with generally high erosion potential.

A report assessing national land and water resources through the year 2000 concluded that the "consideration of adverse environmental impacts from agricultural production activities may ultimately prove to be the major constraint on resource development in the next 24 years" (Economic Research Service, 1976, p. 8). Researchers associated with Resources for the Future have classified the technological alternatives that may be exploited to generate increased agricultural production as either land-using or land-conserving (Crosson). Land-using technologies may cause loss of wildlife habitat and soil. Soil erosion increases turbidity and phosphate fertilizer transport. The environmental damages associated with land-conserving technologies are increased fertilizers and pesticides pollution of water. This classification represents a valuable perspective for policy. Environmental quality is usually regarded as a factor impinging on production possibilities, however, increasing production may acutally generate significant environmental impacts.

Preserving agricultural land is often cited as a requirement to meet future food demands. However, pursuing such a goal may have profound effects on water quality. For example, the creation of agricultural preserves

could concentrate production and thus compound nonpoint source pollution. Nonpoint controls for the production of sediment requiring changes in cultural practices may call for different forms of insect and pest control and fertilizer applications. Such efforts could complicate attaining desired reductions in pesticide and plant nutrient levels in receiving waters. Further, as the demand for water resources increases, the issues of water supply and water quality become increasingly interrelated. The loss of water from inefficient irrigation systems not only wastes water but the water that is returned may be polluted by sediments, salts and agricultural chemicals.

The interaction between water quality and quantity is clear. As water use continues to increase, return flows and sewage effluents will increase. For example, groundwater contamination is increasingly regarded as a serious problem. Since aquifers typically recover very slowly from such contamination, groundwater degradation may be considered semipermanent. Such contamination, whether real or potential, poses a health threat to the populations deriving municipal supplies from groundwater. Continued degradation of groundwater can also affect municipal, industrial or agricultural uses of such supplies. This could have significant implications in the economies of the affected communities and result in substantial changes in land use.

If agricultural income enhancement and stability of income is a policy objective, nonpoint control measures may have a counteracting effect if they impact on those least able to pay or reduce income to a negative level. There could be large regional disparities in impacts upon agricultural income depending on how controls are costed and administered. Nonpoint pollution controls are expected to take the form of a set of performance expectations. Certain actions may be taken by public agencies to achieve the

performance levels through uniformly employed "best management practices," treatment methods, or physical structures that have no assurance of being least-cost options. Recall that tax reductions have been employed as one mechanism for the preservation of agricultural lands in the rural-urban fringe. These benefits could be offset by the costs associated with non-point source pollution control. Thus, these potential conflicts have implications for the viability of agricultural communities.

CONCLUSIONS

Resource and environmental planning cannot be separated. Planning for resource use without recognition of the environmental goals or objectives of society may result in resource allocations which are socially suboptimal. Similarly, planning for environmental quality without assessing the suitability, availability and productivity of the resource base may impair economic efficiency and the distribution of output and income. Legislation such as PL 92-500 provides us with the institutional structure and mandate to integrate resource and environmental planning. In particular, "the very essence of 208 is to ensure that land use decisions and policies be integrated into planning and management for attaining water quality standards" (Wise, et al.). Thus we find that Section 208 provides us with an institutional vehicle to plan comprehensively and an opportunity to practice what we preach.

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