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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

COASTAL ZONE
INFORMATION CENTER

Preserving America's Farmland-- A Goal The Federal Government Should Support

Concern is growing about the amount of farmland being converted to urban and other nonagricultural uses. Estimates of the loss range from 3 to 5 million acres a year, of which roughly half is considered to be prime farmland particularly suitable for cultivation.

Available evidence suggests that agricultural technology and resources--such as new crop varieties, irrigation, fertilizer, and energy--have limitations and cannot indefinitely compensate for farmland losses.

Governmental control of our Nation's land use traditionally rests at the State and local levels, but the Federal Government can be more supportive of efforts to preserve farmland, especially prime farmland,

- through its own programs,
- by formulating a national policy and goals for preserving farmland, and
- by delineating what the Federal role should be in guiding and assisting State and local efforts to retain farmland.

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To the President of the Senate and the
Speaker of the House of Representatives

This report discusses an issue of growing concern--the conversion of this Nation's farmland, especially our best or prime farmland, to nonagricultural uses. It recommends that the Congress formulate a national policy on the retention and protection of prime and other farmland which could

- serve as an effective basis for guiding and supporting land-use decisions by Federal agencies and land-use planning and decisions by State and local governments,
- encourage intergovernmental cooperation and coordination in managing one of our Nation's most important resources, and
- promote public investment patterns that will minimize adverse impacts on prime farmland.

We are sending copies of this report to the Director, Office of Management and Budget; the Secretaries of Agriculture, Defense, Transportation, and Housing and Urban Development; the Chairman, Council on Environmental Quality; and the Administrator, Environmental Protection Agency.

James R. Smith
Comptroller General
of the United States

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COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

PRESERVING AMERICA'S FARMLAND--
A GOAL THE FEDERAL GOVERNMENT
SHOULD SUPPORT

D I G E S T

One of our Nation's major natural resources is farmland--especially prime farmland having soils particularly suitable for cultivation. An accurate measure of the amount of existing prime farmland is not available but an estimate of this amount can be obtained from the estimated acreage included in the Department of Agriculture's top two land capability classes. In 1975 about 338 million acres of all types of rural land, including 221 million acres of cropland, were in these classes. (See p. 2.)

Farmland is essential to our abundant agricultural production which has not only made U.S. citizens among the best fed in the world, but has been a positive contributor to our balance of payments and to our humanitarian commitments to developing countries.

Each year, however, an estimated 3 to 5 million acres of U.S. farmlands are urbanized or used for other nonfarming purposes. About half of these lands are those having soils particularly suitable for cultivation. These land losses, coupled with the leveling off of agricultural productivity rates, pose tough and unsettling questions about the Nation's long-term ability to maintain its roles as an economical food and feed producer and the major competitive exporter of farm products to the world. (See p. 5.)

CONCERN ABOUT FARMLAND LOSSES IS
GROWING, BUT IS NOT UNIVERSALLY SHARED

Until the mid-1970s, the loss of farmland to nonfarming uses was not a major national issue. The Government paid large sums of money to purchase commodities and keep farmland out of production.

Following the 1973-74 grain purchases by the Soviet Union and some crop failures in the

world, commodity prices increased sharply and surpluses disappeared. This led to a growing awareness that good farmland is limited and should be protected. Although surpluses have again surfaced, the concern about the loss of farmland has continued. (See p. 5.)

The Department of Agriculture, which until about the mid-1970s had minimized the importance of losing farmland, has become an advocate of its protection and retention. Agriculture has directed its agencies to step up assistance to local agencies and residents who are trying to retain prime lands. (See pp. 5 to 9.)

This concern, however, is not universally shared. Opinions vary on how much farmland is being lost to other uses and the impact this loss could have on our Nation and the world in the future. There is also a lack of consensus on what role, if any, the Federal Government should play. (See pp. 9 to 13.)

IMPACT OF TECHNOLOGICAL AND RESOURCE LIMITATIONS ON AGRICULTURAL PRODUCTION

Emerging evidence suggests that technology--which has brought about the intensive use of improved plant varieties, fertilizer, pesticides, herbicides, and farm machinery and the extensive use of irrigation--may not continue to increase productivity at past levels and, hence, compensate for the constant loss of prime and other farmland.

The proportion of agricultural production dependent on energy- and cost-intensive irrigation systems, rather than natural rainfall on fertile soils, is rapidly increasing. This growing dependence could quickly increase commodity production costs or disrupt production if energy supplies tighten further or if significant ground water depletions occur.

For example, more than half of Nebraska's corn acreage was irrigated in 1976, including an estimated 350,000 acres added

that year. A University of Nebraska extension official estimated that half of the irrigation projects in western Nebraska would have water supply problems in 20 to 25 years. (See pp. 14 to 19.)

Also, according to an Agriculture study, fuel consumption costs for irrigation farming are nearly twice as much as for dryland or nonirrigation farming. (See pp. 19 to 21.)

Losses of prime farmland also can result in shifts in agricultural production to less productive and more erosive soils. This involves significant tradeoffs on water, energy, environment, and cost. For example, soil erosion losses on 8.9 million acres brought into crop production in 1973-74 were estimated to average 2-1/2 times the highest acceptable rate. Also, the additional nitrogen fertilizer that may be needed to compensate for cropping land having less fertile soil places additional demands on our supplies of natural gas--the raw material used to produce nitrogen fertilizer. (See p. 21.)

There is insufficient data with which to assess the significance of how losses of farmland would affect these and other related considerations, such as food production and food prices, in the future.

STATE AND LOCAL GOVERNMENT EFFORTS TO PRESERVE FARMLAND

Governmental control of land use traditionally rests with State and local governments which have, in general, viewed the loss of farmland with more alarm than the Federal Government.

During the past 15 to 20 years, some State and local governments have adopted or considered various approaches to curtail farmland conversions, including preferential tax assessments, zoning, variable capital gains taxes, and sales and transfers of development rights. These methods have had limited impact on the loss of farmland, and none of the methods proposed or in use are

likely to insure that land will be kept in agricultural production.

For example, despite a State land-use zoning control law in Hawaii, a statewide total of 37,279 acres of agricultural land was reclassified urban during the period 1962-76, including 13,986 acres on Oahu, where the most pressure for urban development exists and where the reclassified agricultural lands were highly productive. (See pp. 23 to 34.)

FARMLAND PRESERVATION OFTEN CONFLICTS
WITH OTHER FEDERAL OBJECTIVES

Although the 1969 National Environmental Policy Act, an August 1976 statement by the President's Council on Environmental Quality, and Agriculture's current land-use policy all call for Federal agencies to consider prime farmland in planning and approving projects, GAO's review of environmental impact statements and other environmental review documents for 25 projects of 5 Federal agencies indicated that preserving prime and other farmland was given little consideration or low priority and was usually outweighed by other interests.

For example, the Corps of Engineers proposed a project to create a lake in Oklahoma which would take 3,300 acres of farmland. The environmental impact statement, which did not identify how much of the land was prime, recognized that agricultural productivity of project lands would be foregone, but said that the lake would cause property values to appreciably increase upstream because of the proximity to Oklahoma City. GAO was told that the area was primarily concerned with attracting additional industrial development and not the loss of prime farmland. (See pp. 35 to 40.)

No uniform criteria exist to help Federal agencies evaluate the impact of losing prime and other farmland and to balance this loss against other national interests. (See pp. 40 to 44.)

WHAT SHOULD THE NATIONAL POLICY
AND FEDERAL ROLE BE?

The Federal Government's role in retaining farmland is still evolving. In some laws dealing with the environment and various land-use issues, such as surface mining and soil conservation, the Congress has recognized the importance of prime farmland. It has not yet, however, enacted a comprehensive policy (1) defining the national importance of retaining prime and other farmland within the context of our economy and society, (2) setting goals for its retention, and (3) delineating the Federal role. (See pp. 48 and 49.)

Nine bills introduced in the 95th Congress, but not enacted, would have established a national farmland policy and described Federal responsibilities in advancing that policy, including Federal support for State and local farmland preservation efforts. Similar bills have been introduced in the 96th Congress. (See pp. 49 to 52.)

States' responses to GAO's inquiries make clear that they believe the Federal role should be to guide and help State and local government efforts--not control them. The States suggested, among other things, that Federal agencies reexamine their programs and activities that take farmland, continue providing data and information on the quality of farmland, and formulate a national policy or guidelines on retaining farmland. (See pp. 52 to 55.)

GAO believes that a widely publicized national policy identifying the national interest in and national goals for protecting and retaining prime and other farmland could

--serve as an effective basis for guiding and supporting land-use decisions by Federal agencies and land-use planning and decisions by State and local governments,

- encourage intergovernmental cooperation and coordination in managing one of our Nation's most important resources, and
- promote public investment patterns that will minimize adverse impacts on farmland. (See p. 55.)

RECOMMENDATIONS

The Congress should (1) formulate a national policy on protecting and retaining farmland, (2) set a national goal as to the amount and class of farmland that should be preserved, (3) periodically assess the impact of farmland losses on the established goal, and (4) delineate the Federal Government's role in guiding and helping State and local efforts to retain farmland.

If the Congress decides to provide Federal support to States and political subdivisions to carry out farmland preservation programs as proposed in bills now before the Congress, it should specifically set out the criteria which such programs have to meet. This criteria should provide, among other things, that (1) agricultural areas be geographically defined and preferably correspond to areas that contain the most prime farmland and (2) agricultural use and prime farmland be clearly and specifically defined. (See p. 56.)

The Secretary of Agriculture should:

- Develop additional data on, and make analyses of, the significance of losing prime and other farmland. (See p. 21.)
- Insure, through periodic reviews, that all Agriculture agencies evaluate the loss of prime and other farmland in their project approval processes in consonance with the Secretary's October 1978 land-use policy statement. (See p. 45.)
- Require that additional analyses be made of the Department's potential cropland estimates in terms of how much land is likely to be converted considering current

land use, production tradeoffs, development problems and costs, and other economic values, such as changes in the relationship of production and development costs to commodity prices, and that the results be published. (See p. 64.)

The Secretary of Agriculture and the Chairman of the Council on Environmental Quality should undertake a joint effort to develop criteria to guide Federal departments and agencies in determining and evaluating the impact of their proposed projects and actions that affect prime and other farmland, and in balancing farmland losses with other national interests. (See p. 44.)

The Chairman of the Council on Environmental Quality should instruct Federal departments and agencies to include in their environmental impact statements and other environmental review documents a discussion of their analyses relating to the criteria recommended above. (See p. 45.)

AGENCY COMMENTS

The Department of Agriculture said that the report clearly identifies the need for actions by all levels of government and that it

--agreed with GAO's recommendations;

--shared GAO's view on the need for further, more detailed analysis of land potentially available for crop production; and

--was joining with the Council on Environmental Quality in the leadership of an interagency study of agricultural lands. (See app. I and pp. 22, 45, and 64.)

The Council agreed that there was a need to develop and evaluate comprehensive information on the impact of Federal programs and actions on agricultural lands and that the interagency study would address or consider GAO's recommendations. (See p. 45.)

In addition,

- the Department of Transportation said it supported the recommendations related to developing criteria for determining and evaluating the impact of Federal projects and actions that affect farmland and would like to be included as a lead agency in the effort;
- the Department of Housing and Urban Development said that criteria was needed to guide agency assessments of prime farmland and that the criteria should be (1) clear, specific, and firmly based on the national urban policy and (2) developed in consultation with other Federal agencies; and
- the Army Corps of Engineers said that it was giving increased consideration to the taking of prime farmland for water resources projects. (See p. 45 and apps. II, III, and IV.)

In June 1979 Agriculture and the Council announced an 18-month interagency study to investigate the extent and causes of converting agricultural land to nonagricultural uses. The study will, among other things, evaluate the role of Federal agencies in agricultural land conversion, assess State and local government efforts to retain agricultural lands, and identify ways in which these efforts could be made more effective. Federal agencies whose programs and actions affect agricultural land are to be represented on the study's interagency coordinating committee. (See p. 46.)

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ABBREVIATIONS

CEQ	Council on Environmental Quality
CNI	conservation needs inventory
DOT	Department of Transportation
EIS	environmental impact statement
EPA	Environmental Protection Agency
ESCS	Economics, Statistics, and Cooperatives Service
FmHA	Farmers Home Administration
HUD	Department of Housing and Urban Development
SCS	Soil Conservation Service
USDA	Department of Agriculture

CHAPTER 1

INTRODUCTION

One of our Nation's major natural resources is farmland. Our farmland, especially our best or prime farmland that is particularly suitable for cultivation, is an essential factor in the Nation's abundant agricultural production. This agricultural production has not only made U.S. citizens among the best fed in the world, but has been a positive contributor to our balance of payments and to our humanitarian commitments to developing countries. In fiscal year 1978 a record net agricultural trade surplus of \$13.4 billion helped offset the deficit in nonfarm trade. Our agricultural production will likely become more important as world population continues to grow. Farmland also provides aesthetically pleasing open space, especially near urban areas.

Until the 1970s, the loss of farmland to nonagricultural uses was not a major issue in the United States. The country had large surpluses of agricultural commodities, and the Government paid large sums of money to purchase commodities and keep farmland out of production. In recent years there has been a growing awareness at all levels of government that our farmland--especially our prime farmland--is limited and should be protected. This awareness has led to some concern in the Congress about the irreversible loss of prime and other farmland to nonagricultural uses. As yet, however, no national policy on retaining farmland exists.

We made this review to

- determine whether the conversion of farmland to nonagricultural uses is perceived to be a problem by authoritative sources at the national, State, and local levels;
- identify and evaluate the results of Federal, State, and local actions that affect farmland conversion, including attempts to gather information on and/or deal with the issue; and
- suggest courses of action that would help address the issue from the Federal level.

WHAT IS PRIME FARMLAND?

The Department of Agriculture's (USDA's) Soil Conservation Service (SCS) has generally defined prime farmland as:

"land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops * * *. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season * * * and few or no rocks. * * * Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding."

SCS is currently involved in a nationwide program to identify and map prime farmlands. We are hopeful that, when this effort is completed (expected in 1986), an accurate measure of the amount of existing prime farmland used for cropping and other purposes will be available. At the present time, SCS classifies rural land, except Federal land not cropped, into eight land capability classes that reflect the degree of soil limitations for growing field crops and provide a general idea of the amount of prime farmland we have. Generally, classes I and II, plus some class III land, correspond closely to prime farmland. The rest of class III land and all of class IV land is considered marginal for crop production, and classes V through VIII land is unsuitable for ordinary field crops.

According to a 1977 SCS report, ^{1/} about 221 million acres, or 55 percent, of the Nation's 400 million acres of cropland were in classes I and II in 1975, the year on which the report was based. The following table, adapted from SCS's report, summarizes 1975 rural land uses by capability class.

^{1/}"Potential Cropland Study," Statistical Bulletin No. 578, SCS, USDA, Oct. 1977.

National Summary of U.S. Land Use
by Capability Class (note a)

<u>Class</u>	<u>Cropland</u>	<u>Pasture/ range</u>	<u>Forest</u>	<u>Other lands</u>	<u>Total</u>
----- (millions of acres) -----					
I & II	221.3	62.9	39.8	13.5	337.5
III	122.8	88.0	61.0	14.4	286.2
IV	39.9	70.7	57.7	8.5	176.8
V-VIII	<u>16.4</u>	<u>349.3</u>	<u>216.9</u>	<u>33.5</u>	<u>616.0</u>
Total	<u>400.4</u>	<u>570.9</u>	<u>375.4</u>	<u>69.8</u>	<u>1,416.5</u>

a/Numbers may not add due to rounding.

SCS has estimated that, of the 1,016 million acres in uses other than cropland in 1975, only about 10 percent, or 111 million acres, had high or medium potential for conversion to cropland. This corresponds closely to the total acreage of class I and II land in these categories (116.2 million acres). SCS's potential cropland estimate is discussed in chapter 7.

FARMLAND USE TRENDS

Farmland can be viewed as a limited resource that is being consumed when used for more intensive purposes. SCS's 1977 report showed that, during the 8 years from 1967 to 1975, 16.6 million acres of all types of farmland were converted to urban and built-up uses and 6.7 million acres were submerged by water. About a third (8 million acres) of these 23.3 million acres were in capability classes I and II. About 5.4 million acres of the converted land had previously been in cropland, 4.3 million acres in pasture or rangeland, 6.6 million acres in forestland, and 7 million acres in other land uses. Another 24 million acres were being held in 1975 for future urban use.

Of the 5.4 million acres of former cropland, 4.8 million acres were taken to establish or expand cities, villages, industrial sites, railroad yards, cemeteries, airports, golf courses, public administration sites, and/or other built-up areas of more than 10 acres. The remaining 0.6 million acres were submerged by water. An SCS official has stated that, for every acre reported as being taken for urban uses, an additional acre is idled and isolated by noncontiguous development, called leap-frogging. On this basis, urbanization could actually have resulted in the taking of nearly 10 million acres of

cropland from 1967 to 1975. It is unlikely that this land will revert back to crop production. It is also unlikely that the 0.6 million acres of cropland submerged by water during this period would ever be used again for growing crops, particularly where lakes, ponds, or reservoirs have been built.

CHAPTER 2

A GROWING CONCERN ABOUT THE LOSS

AND FUTURE SUPPLY OF FARMLAND

Each year an estimated 3 to 5 million acres of U.S. farmlands are urbanized or used for other nonfarming purposes. About half consists of lands with soils particularly suitable for cultivation. These land losses, coupled with the leveling off of agricultural productivity rates, pose tough and unsettling questions about the Nation's long-term ability to maintain its roles as (1) an economical producer of food and feed commodities and (2) the major competitive exporter of farm products to the world. These questions need to be considered within the overall context of our economy and society so that all legitimate national concerns receive appropriate consideration.

Farmland which is converted to more intensive uses, such as shopping centers, housing developments, industrial parks, or water impoundments, is unlikely to be farmed again. Thus, its agricultural productive capacity is lost to future generations.

Genuine national concern about the loss of land and productive capacity did not occur until the explosion in commodity prices in 1973-74 following a series of grain sales to the Soviet Union. This induced the introduction of nearly 9 million acres of new farmland in 1973-74. At about the same time, questions began to be raised about our ability to maintain a high level of agricultural exports and to keep commodity supplies abundant to consumers. These questions are still being asked--even though production surpluses have again surfaced and some cropland acreage has been set aside (taken out of production) under the Food and Agriculture Act of 1977 (Public Law 95-113, 91 Stat. 913).

TURNABOUT IN USDA VIEWS ON THE LOSS OF FARMLAND

Although past USDA studies have generally minimized the importance of farmland losses, there has been a major shift in USDA views on the significance of such losses.

A 1974 USDA study 1/ of agricultural production near urban areas concluded, "The amount of agricultural land taken each year for urban uses has had little impact on the total supply of U.S. cropland." It added:

"Probably the main reason that urbanization of cropland has had so little effect on overall agricultural production has been the continuing increase in yields. If productivity continues to increase, there will likely be adequate land to meet the needs of the country's growing population."

Another 1974 USDA study 2/ concluded that

"Although thousands of acres of farmland are converted annually to other uses--urbanization, roads, wildlife, and recreation--and population has risen a third in 20 years, we are in no danger of running out of farmland."

However, in 1975 a USDA-sponsored seminar on the retention of prime lands reached conclusions and proposed recommendations that did not completely agree with previous USDA study conclusions. The consensus of the participants, representing Federal and State Governments, universities, natural resource interest groups, and private industry, was that the Nation's production of food could continue but would expand more slowly than in the past and that dependence on highly productive land would increase. One of the seminar's policy recommendations was

"USDA should take a major, defined, and well promoted role in the national questions of utilization, enhancement and retention of agricultural lands as an advocate of retaining the maximum possible base for the production of food, fiber, and timber products, and minimizing actions that will diminish the Nation's capacity to produce these essential commodities."

In June 1976 the Secretary announced an expanded USDA land-use policy directed specifically at protecting prime

1/"Farming in the City's Shadow," USDA-ERS, Agricultural Economics Report No. 250.

2/"Our Land and Water Resources," USDA-ERS, Miscellaneous Publication No. 1290.

lands, including crop, forest, and range lands. He said that the loss of prime lands well-suited to the production of food, forage, and timber was a matter of growing concern to the Nation and that major consideration must be given to prime lands and the long-term needs to retain the productive capability and environmental values of American agriculture and forestry.

The expanded policy specifically provided that:

"USDA will urge all agencies to adopt the policy that Federal activities that take prime agricultural land should be initiated only when there are no suitable alternative sites and when the action is in response to an overriding public need."

The policy also stipulated that USDA would work with State and local committees and concerned agencies, groups, and organizations to advocate the protection of prime lands from premature or unnecessary conversion to nonagricultural land use and to assure that environmental impact statement (EIS) procedures and review processes would thoroughly consider and evaluate the impact of major Federal actions on prime lands. The policy did not set forth the quantities and locations of land essential for the Nation to maintain specified commodity production levels. It only urged Federal agencies to minimize acts that result in the taking of prime lands and provided for outreach to those outside the Federal Government who have an interest in preserving these lands.

In testifying on the proposed National Agricultural Land Policy Act (H.R. 4569) in June 1977, ^{1/} USDA's Assistant Secretary for Conservation, Research, and Education said that prime farmland was a topic of major interest to the Secretary of Agriculture, to himself, and to the entire Department. He said that there is "a staggering total of over 5,000 acres each day that is taken out of the producing and potential agricultural land base," but that

"At the same time, we are aware that not all of our acres are needed today to produce the crops

^{1/}Hearings before the Subcommittee on Family Farms, Rural Development, and Special Studies, House Committee on Agriculture, 95th Cong., 1st Sess., June 15 and 16, 1977, Serial No. 95-L, pp. 49-62.

we consume or sell abroad. Assuming normal climatic conditions, technological improvements, marketing conditions, and input and energy prices, there should be no absolute shortage of land before the turn of the century, and perhaps for some years afterwards."

He added:

"But we don't find that fact comforting. There are too many 'ifs' in that equation. World climates are unstable right now, and scientists don't agree fully on the reasons or what this may lead to in the future. Yield increases seem to be dampening off, and USDA scientists expect the rate of increase to continue to slow down somewhat. International demands for food will rise as world population grows and diets change to reflect increasing affluence. The cost and availability of energy seems certain to be a factor of growing importance to the maintenance of high agricultural production.

"Thus, a combination of events could occur that would put pressure on our ability to produce the agricultural abundance that is so vital to our Nation's strength. For the first time in our history, we must begin to develop national policies that recognize certain types of land--particularly those lands that merit the classification of prime or unique farmland--as a limited national resource that must be provided special attention and protection."

* * * * *

"The retention of America's prime farmlands in production may well be the most important land resource issue to face this Nation now and in the future. The basic and irreplaceable role of food in achieving the type of society we desire in the United States and providing the products we must send abroad for both humanitarian and economic reasons cannot be avoided. We can no longer dream of a 'quick fix' from technology or a limitless supply of energy or capital to replace the land as the essential foundation of that food supply. For many reasons--economic, social, environmental--we must place our

concern for the future of the Nation's prime farmlands at the top of our priority list."

On October 30, 1978, the Secretary issued a revised policy statement which directed USDA agencies to step up their assistance to local agencies and residents in their efforts to retain prime lands. It also directed USDA agencies to:

- Review their programs and actions that may cause or encourage irreversible conversions of prime lands and make changes as needed to minimize their impacts on reducing the amount of prime lands.
- Intercede in decisionmaking by other Federal agencies where conversions of prime lands are caused or enabled by the agencies' programs or actions. Such intercession is to be through participation in planning projects when invited and through review and comment on draft EISs or proposals for actions of Federal agencies.

Thus, USDA, which had earlier minimized the importance of losing farmland, has become an advocate of its protection and retention.

STATE VIEWS ON FARMLAND CONVERSION ARE MIXED

The U.S. Domestic Council's 1976 Report on National Growth and Development ^{1/} stated that, between 1950 and 1972, 17 States lost more than 20 percent of their taxable farmland, 9 States more than 30 percent, 4 States more than 40 percent, and 2 States more than 50 percent. Many States wish to preserve their farmland because it is important to their economies. They also wish to control urban growth and preserve open space for its aesthetic value and to enhance the quality of life. Some States, however, are less concerned over losses of farmland.

We solicited the views of all 50 States as to the seriousness of farmland conversions. Of the 43 States that responded, 25 characterized the conversions as a serious problem, 13 believed the conversions posed a less serious problem, and 5 said the losses were not a problem. Some representative responses were:

^{1/}The White House, "1976 Report on National Growth and Development, The Changing Issues for National Growth," Feb. 1976.

Illinois--The State Department of Agriculture estimates that the State has lost 100,000 acres of farmland a year since 1960. A State agriculture official expressed concern about this shift since the State's farmland is predominantly prime.

Michigan--Many State officials believe that the conversion of farmland is a serious problem. During the past 30 years, almost 200,000 acres have been lost each year to nonagricultural uses.

Delaware--State officials are particularly concerned about the loss of prime agricultural lands to low density housing developments, many of which are financially assisted by USDA's Farmers Home Administration (FmHA).

Alabama--State officials believe that demands for conversion of land from agricultural uses have not presented serious problems except near a city undergoing a rather rapid population growth.

Oklahoma--On the basis of data provided by SCS, conversion of farmland is not yet considered a problem.

Concerns about farmland losses have led to the enactment of various State and local laws providing a variety of tax, zoning, and development control methods designed to curtail the losses. Some of these are discussed in chapter 4.

OTHERS' VIEWS ON LAND-USE TRENDS

Various officials representing government at all levels, agriculture, academia, environmental concerns, and other interests have expressed differing views on the seriousness of farmland losses and on whether we need an effective national policy to retain prime and other farmland.

Some believe the losses of farmland to other uses are small relative to total land and conclude the issue should be of low priority concern to the Federal Government. Others have said that the situation should be more closely monitored and studied before changes in Federal policy are adopted. Still others, who argue that continuing farmland conversions could hinder the achievement of future national agricultural production goals, believe the Federal Government should establish and implement a national policy aimed at retaining agricultural land in production.

There are few published studies other than those of USDA which address the loss of farmland on a national basis. In a 1976 article, 1/ a well-known geographer asserted that no more than 4 percent of the Nation's land area will be in urban uses by the year 2000, assuming the present rates of conversion continue. He concluded that land is now, and will be in the future, more than abundant to accommodate the growth of our cities.

A 1977 Regional Science Research Institute study 2/ estimated that the conversion rate of rural land to urban and built-up uses in the United States was 1.1 million acres a year. In discussing the significance of this loss, the study concluded:

"At the national level, the major problem associated with conversion of rural land to urban uses appears to be the long-term loss of future agricultural potential under conditions of poorer climate or great pressure on American agriculture to supply foreign food needs."

Another 1977 Regional Science Research Institute study 3/ investigated the possibility that land lost to urbanization might be predominantly land that is ideal for agriculture--that is, prime farmland--which unlike rural land in general, is relatively limited in supply. This study concluded that there is a moderate but significant bias in the location of urban populations in the vicinity of our prime farmland. As our cities expand, all other things being equal, prime farmland will be more likely urbanized than other lands.

The concern that urbanization might be disproportionately concentrated on former croplands was also cited

1/Hart, John Fraser, "Urban Encroachment on Rural Areas," Geographical Review, vol. 66, 1976, pp. 1-17.

2/Coughlin, Robert E., and others, "Saving the Garden: The Preservation of Farmland and Other Environmentally Valuable Land," a preliminary report to the National Science Foundation (RANN) by the Regional Science Research Institute, Aug. 1977.

3/"Urbanization of Prime Agricultural Land in the United States," a statistical analysis, Aug. 1977.

in a 1974 report 1/ to the Citizens' Advisory Committee on Environmental Quality. The report stated that a study of urbanization of land in eight Western States specifically showed that a high proportion of the land urbanized was previously used for crop production.

Preserving land may be cost effective

We identified two studies showing increased food costs to consumers when farmland is lost. Each study concluded that it would be cost effective for State residents to fund a land preservation program that would result in retaining the State's farmland.

--A Rutgers University study 2/ examined the effects of losing acreage for growing tomatoes in New Jersey. It found that a 100-acre reduction would result in a 25-carlot reduction in quantity supplied and a retail price increase of 18.3 to 27.25 cents a hundredweight in the New Jersey market area. The increased price was due to tomatoes having to come from California and Florida. The study estimated that a one-time cost of \$800 to \$4,000 an acre would be needed to fund development easement purchases, but that New Jersey consumers would realize benefits in the range of \$10,800 to \$15,200 for each acre of fresh tomato production it preserved.

--In Massachusetts, 1951 farmland acreage of 350,000 acres decreased to about 293,000 acres by 1971, a 57,000 acre loss. A Tufts University study 3/ completed in 1976 found it economically feasible for Massachusetts residents to invest public moneys of an estimated \$150 million to purchase agricultural restrictions on the State's remaining farmland. Recaptured capital gains taxes of an

1/Blobaum, Roger, "The Loss of Agricultural Land," a study report to the Citizens' Advisory Committee on Environmental Quality, 1974.

2/"The Impact of Local Production on Consumer Welfare in the New York-New Jersey-Philadelphia Megapolis--A Case Study for Fresh Tomatoes," Department of Agricultural Economics and Marketing, Rutgers--The State University, New Brunswick, New Jersey, Oct. 1976.

3/"The Economics of Saving Massachusetts Farmland," Tufts University, Medford, Massachusetts, Feb. 1976.

estimated \$35 million would reduce public investment to about \$115 million. Annual public benefits expected to accrue totaled \$43 million, consisting of \$20 million from transportation savings and \$23 million of Federal, State, and local tax receipts derived from individuals farming the land. Hence, the net public investment would be refunded in about 3 years (\$115 million divided by \$43 million). The study also concluded that the preservation of farmland would not impede other economic growth if wise land-use planning and new growth guide techniques were adopted.

CONCLUSIONS

The irreversible loss of farmland to urbanization and other nonfarming uses is of increasing concern to many officials at all levels of government and to others. However, opinions vary on how much farmland is being lost to urbanization and other uses--and the impact such losses might have on our Nation and the world in the future. As world population increases, total food production must also increase. We would be better able to meet future food requirements if this Nation's best farmland is preserved for agricultural use.

CHAPTER 3

TECHNOLOGICAL AND RESOURCE LIMITATIONS

ON AGRICULTURAL PRODUCTION

Over the years technology has dramatically increased crop productivity by influencing and compensating for the requirements of agricultural supply factors--namely, land, water, and energy. A scarcity of any of these elements will interact with the others to operate as an important drag on production. While technology can intervene, for example, by pumping and moving dwindling water supplies farther to new lands, it is more costly, uses more energy, and its effect is ultimately higher product prices. We believe a need exists to develop better data on the significance of losing prime and other farmland--taking into account the interrelationships of land, water, and energy.

TECHNOLOGY'S DOUBTFUL ABILITY TO INDEFINITELY COMPENSATE FOR GROWING SCARCITIES

Emerging indications suggest that technology may not continue to increase production at past levels and, hence, compensate for losses of productive farmland. Also, the proportion of agricultural production dependent on high-cost energy and cost-intensive irrigation systems, rather than natural rainfall on fertile soils, is rapidly increasing. This growing dependence on technology could quickly increase commodity production costs or disrupt production if energy supplies tighten further or if significant ground water depletions occur.

Future increase in productivity yields uncertain

Despite worldwide research in agricultural production and continuous adoption of improved agricultural production practices and technologies, there does not appear to be any production development in the offing comparable to the revolution in U.S. agricultural production started in the late 1930s and early 1940s. The introduction of nitrogen fertilizer and the development of hybrid seeds contributed greatly to increased crop productivity. Corn yields, for example, went from 28.4 bushels an acre in 1940 to 97 bushels an acre in 1972. During part of this period (1950-72), energy-derived nitrogen fertilizer consumption increased about 600 percent. From 1973 through 1977, however, average

corn yields per harvested acre went down somewhat, averaging 86 bushels an acre. 1/

In a 1975 report 2/ the National Academy of Sciences said that there was enough evidence to doubt our national ability to produce all the food demanded domestically and worldwide at the then current relative price levels. A major reason supporting this conclusion was that the rate of crop yield increases from additional applications of fertilizer had been declining. The Academy's report concluded also that no significant technological breakthroughs of the magnitude of hybrid corn can be reasonably predicted for the next two decades. Similarly, a 1976 Congressional Research Service report 3/ concluded that:

"It is generally conceded that past levels of agricultural research and development will not be adequate for America's future long-term needs."

During our review several technological developments affecting agricultural production were brought to our attention. These developments, discussed below, appear to be refinements to, rather than major new breakthroughs in, present technologies.

--Development of hybrid wheat which could increase yields as much as 20 percent according to one authority. Hybrid wheat is now being marketed by major seed firms.

--Double cropping; that is, obtaining two crops in one growing season. Double cropping is now feasible and used in the Southeastern United States. It has also been demonstrated on test plots with pea/corn rotations as far north as southern Minnesota. The process requires intensive use of chemicals and fertilizers and a high degree of management skill.

--Grain varieties having greater stress tolerances for disease and cold weather. New quicker maturing

1/For 1978 USDA has reported a corn yield per acre figure of 101.2 bushels.

2/"Agricultural Production Efficiency," National Academy of Sciences, 1975.

3/"U.S. Agricultural Policy," Congressional Research Service, Nov. 23, 1976.

corn varieties with cold stress tolerances have produced yields on western North Dakota test plots as high as those experienced in principal parts of the Midwest Corn Belt.

--No-tillage techniques which allow corn to be grown on lower class sloping soils. For example, a University of Kentucky survey revealed that a large portion of the more than 5 million acres of class IV rotational hay and pasture land is now available for feed grain production without fear of soil deterioration. One estimate indicates that about 200,000 acres of no-tillage corn is grown annually in Kentucky. This process also requires intensive use of chemicals and fertilizers and a high degree of management skill.

In some areas long-term availability of water for irrigation is questionable

Irrigation technology has made possible major expansions of commodity production in the Great Plains and Western States. While the amount of irrigated acreage nationwide can still be increased, evidence indicates that in some areas present water supplies are diminishing and that the cost of water will increase, resulting in higher product costs. This condition is most acute in the Great Plains and could cause a regional shift in crop production. The retention of existing productive farmland in areas where rainfall is abundant could help to minimize the effects of these changes.

As of 1974 about 41.2 million acres were irrigated in the United States. USDA projects an additional 5.3 million new acres for irrigation expansion by the year 2000. While conceding that irrigation water depletions will offset some of the projected increases, USDA has concluded that the United States has an adequate freshwater supply for future growth of agricultural and other uses to the year 2000. USDA based this conclusion on the U.S. Water Resources Council's "benchmark-trend" future projection prepared for the 1975 National Water Assessment.

In March 1977 we reported ^{1/} that significant differences existed between the Council's benchmark projection and State/regional viewpoints on future water needs (demands). Authorities in the Western States seriously questioned the Assessment's usefulness because simple comparisons of aggregate

^{1/}"Problems Affecting Usefulness of the National Water Assessment," CED-77-50, Mar. 23. 1977.

data did not reveal actual water shortages in particular study areas and because the projection ignored the crucial issue of water rights and other institutional factors. In a report issued in June 1977, ^{1/} we discussed major problems regarding the future availability of ground water supplies for agriculture, particularly for irrigated areas depending on water from the Ogallala aquifer, which provided water for about 11 million irrigated acres in 1974.

Ogallala aquifer

The Ogallala aquifer, considered one of the Nation's most important aquifers, underlies a major portion of the Great Plains. (See map on next page.) It extends about 800 miles from southern South Dakota to west-central Texas.

A precise and comprehensive analysis of water usage and availability for the aquifer is not available. However, on the basis of fragmented information and selected studies, water withdrawals for several areas that overlie the aquifer far exceed the recharge rates. This is known as overdrafting. So significant is the overdrafting that the Internal Revenue Service has recognized Ogallala water in Texas as a wasting asset subject to a depletion allowance credit like that of mining.

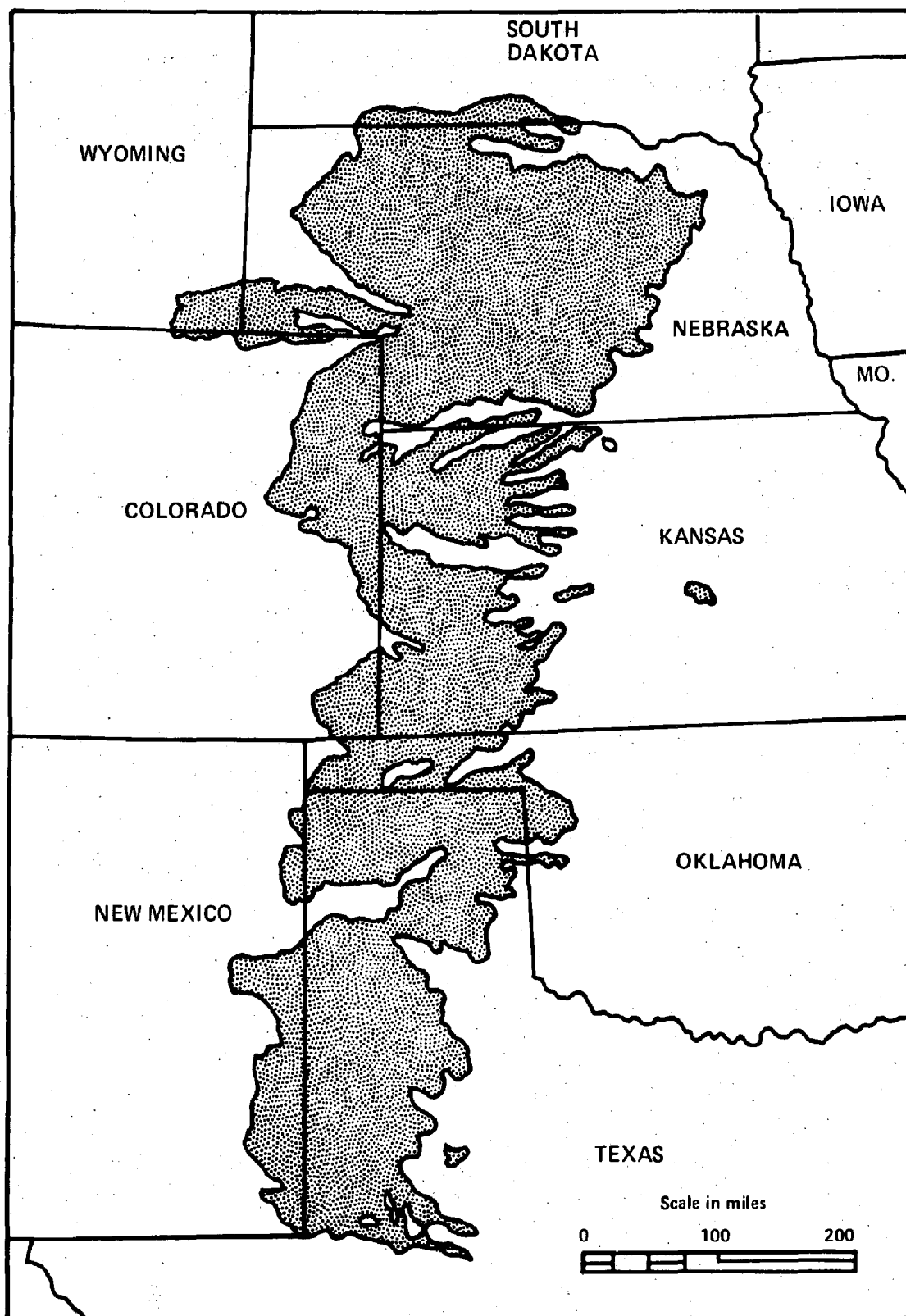
When ground water levels decline significantly, irrigators have to use more fuel to pump or lift the ground water. If the decline becomes severe enough, or fuel prices rise high enough, it will become uneconomical to irrigate and the land would likely revert to less productive uses.

In our review we identified studies and developed data to show some of the near-term problems associated with the aquifer.

--For the 1975 National Water Assessment, the Missouri River Basin Commission classified the Ogallala ground water depletions as a severe and urgent problem in parts of some States.

--In Lubbock County, Texas, the number of irrigation wells increased from 20 in 1935 to 6,700 in 1977. The 1977 estimated irrigation acreage of 300,000 acres is projected to decline to 200,000 acres by 1990, due chiefly to the exhaustion of ground water supplies.

^{1/}"Ground Water: An Overview," CED-77-69, June 21, 1977.



Source: "Mining the Ogallala Aquifer: State and Local Efforts in Groundwater Management,"
Agricultural Experiment Station-USDA, Oklahoma State University, Nov. 1977.

--The number of irrigation wells in west-central Kansas increased from about 250 in 1950 to 2,850 in 1977. The saturated thickness, which is the area of the aquifer saturated with water, had declined from 58 feet to 8 feet from 1930 to 1977.

--In 1976 an estimated 350,000 acres of irrigated land were added for corn production in Nebraska. As of 1976 total acreage for corn in Nebraska was estimated at 6.2 million acres of which 3.7 million acres were irrigated. A University of Nebraska extension official told us he estimated that half of all the existing irrigation projects in the western part of the State would have water supply problems in 20 to 25 years.

--According to the U.S. Geological Survey, present rates of irrigation development in some parts of southwestern Nebraska will cause water level declines of almost 50 percent by the year 2000.

Three Federal agencies are studying various aspects of the Ogallala. The Geological Survey is involved in a 5-year study to be completed in 1982 to gather data on pumping effects for the whole aquifer. A study by the Department of Commerce's Economic Development Administration is to determine the economic impacts for the area overlying the Ogallala in light of the declining water levels. The third study, by the Department of the Interior's Bureau of Reclamation, is focused on the high plains region to identify water supply problems and needs.

PRIME FARMLAND LOSSES MAY RESULT IN INCREASED ENERGY NEEDS

Production losses from converting prime farmland to other uses have been compensated for in part by the development and expansion of energy-consuming irrigation farming in the Great Plains. For example, an average of over 300,000 acres of irrigated corn (for grain) lands have been established in Nebraska annually since 1973. A USDA study ^{1/} showed the following significantly increased energy consumption when irrigation farming occurs.

^{1/}"Farmer Adjustments to Higher Energy Prices," USDA-ERS, ERS-663, Nov. 1977.

Energy Costs to Produce Corn on
Irrigated Versus Nonirrigated (Dryland) Acreages--1975

	Dollars per acre	
	Irrigated-- southwestern <u>Nebraska</u>	Dryland-- western <u>Illinois</u>
Fertilizer, herbicides, and insecticides	\$37.62	\$37.95
Fuel and lubricants:		
Tractor	2.08	3.15
Equipment	1.66	2.77
Irrigation	<u>37.92</u>	<u>-</u>
Energy-related costs	<u>\$79.28</u>	<u>\$43.87</u>
Yield per acre (bushels)	109	116
Energy costs per bushel	\$.73	\$.38

The University of Nebraska also studied dryland farming and irrigated farming on an energy equivalent basis. The study showed that dryland farming required 40.57 gallons of diesel fuel per acre of corn, while irrigated farming required 90.3 gallons per acre. The ratio of crop energy output to energy inputs was higher for dryland farming than for irrigated farming.

U.S. agriculture is highly dependent on energy and particularly petroleum for its present abundant production. A 1974 USDA report 1/ for the Subcommittee on Agricultural Credit and Rural Electrification of the Senate Committee on Agriculture and Forestry pointed out that in 1971, when petroleum accounted for 40.8 percent of the energy consumed by the total economy, it accounted for 88.3 percent of the energy consumed in farm production. Any significant change in the supply or price of energy could have a serious effect on production. An Iowa State University study, 2/ which

1/"The U.S. Food and Fiber Sector: Energy Use and Outlook, A Study of the Energy Needs of the Food Industry," USDA-ERS, Sept. 1974.

2/"U.S. Agricultural Production Under Limited Energy Supplies, High Energy Prices, and Expanding Agricultural Exports," Center for Agricultural and Rural Development, Iowa State University, Nov. 1976.

examined the effects of reduced energy supplies, concluded that a 10-percent energy supply reduction could result in a 41-percent reduction in irrigated acres. In terms of commodity price increases, the 10-percent energy reduction was projected to result in a 42-percent increase.

A further major energy consideration has to do with the additional fertilizer that would be needed to obtain high crop production on less fertile land brought into production to replace fertile farmland converted to other uses. Because natural gas is the raw material used in producing ammonia and ultimately in producing nitrogen fertilizer, greater use of nitrogen fertilizer to compensate for cropping land having less fertile soil places additional demands on our natural gas supplies.

Even if the availability of energy supplies was assured, most signs point to future increase in energy costs.

ENVIRONMENTAL CONSIDERATIONS

Because losses of prime farmland can result in shifting agricultural production to less productive land in the same or other regions, the introduction of less productive land and more erosive soils will likely add additional stress on the environment. According to USDA, for example, of the 8.9 million acres brought into crop production in 1973-74 (a period of high commodity prices), 5.1 million acres had inadequate conservation treatment (erosion control) and water management. USDA estimated that soil erosion losses for the entire 8.9 million acres averaged 12 tons an acre a year, or about 2-1/2 times the highest acceptable rate. Soil scientists estimate that, to maintain productivity over time, annual soil losses must be limited to no more than 5 tons an acre in deep soils and 1 ton an acre in shallow soils.

CONCLUSIONS

Indications are that crop productivity gains derived from technology cannot continue to compensate for the constant loss of prime and other farmland. Replacement or expansion of land in our farmland base involves significant tradeoffs and limitations on water, energy, environment, and cost. Insufficient data exists with which to assess the significance of how losses of farmland would affect these and other related considerations in the future.

RECOMMENDATION TO THE SECRETARY OF AGRICULTURE

We recommend that the Secretary direct the Economics, Statistics, and Cooperatives Service to develop additional

data on, and analyses of, the significance of replacing lost prime and other farmland as it relates to (1) additional energy, water, and financial requirements for crop production, (2) food prices, and (3) erosion and other environmental considerations. Such information would provide a better understanding of the significance of losing our farmland.

USDA COMMENTS

USDA said that it agreed with our recommendation.
(See app. I.)

CHAPTER 4

STATE AND LOCAL METHODS TO PRESERVE FARMLAND

HAVE NOT BEEN VERY EFFECTIVE

Several State and local governments have become increasingly concerned about losing farmland to other uses, particularly urban uses. These losses have adversely affected some local agricultural economies and at the same time decreased the availability of open space near urban areas. Over the past 15 to 20 years, some States and localities have adopted or considered various tax, zoning, and development control methods intended to help reduce farmland losses. These methods have had limited impact on the loss of farmland and none of the methods proposed or in use seem likely to insure that land will be kept in agricultural production.

Several bills introduced in the 95th Congress, but not enacted, proposed technical and financial assistance to States and political subdivisions to encourage them to experiment with methods for protecting farmland in areas where land was being converted to nonagricultural uses at a high rate. Similar bills have been introduced in the 96th Congress. The following discussion of present and potential problems with some of the farmland retention methods should be useful to the Congress in its deliberations on these proposals.

REDUCED PROPERTY TAXES--THE MOST COMMON METHOD USED BY STATE AND LOCAL GOVERNMENTS

Many State and local governments have tried to reduce farmland losses by reducing property taxes on farmland. Theoretically, this reduction induces the owner to keep the land in agricultural production. However, the capital gains which can be obtained from selling the land usually outweigh any tax benefits.

The tax reduction is achieved by assessing land at a rate reflecting its agricultural use rather than its potential for urban or other development. This is generally called preferential or differential assessment. According to a 1976 report prepared for the Council on Environmental Quality (CEQ), 1/ 42 States have adopted some type

1/"Untaxing Open Space," a study prepared under contract with the Council on Environmental Quality by the Regional Science Research Institute, Philadelphia, Pa., Apr. 1976.

of differential assessment law. These laws' main objectives, according to the report, are to provide tax relief for farmers and to preserve open space, particularly farmland. In some States other land uses besides agriculture qualify for differential assessment because the laws of these States are simply intended to preserve open space.

How effective is differential assessment in retaining farmland? In Illinois and California, where we reviewed this method in detail, it has had limited success.

Illinois differential assessment law

In 1976 Illinois ranked first among the States in corn and soybean production. It produced 20 percent of the Nation's corn and 19 percent of its soybeans. Also, 11 percent of U.S agricultural exports in 1976 came from Illinois.

Of the State's total land area of about 36 million acres, most--81 percent in 1976--is farmland, with about 90 percent of the cropland classified as prime agricultural land. Between 1960 and 1976, the State lost 1.6 million acres of farmland, much of which was converted to residential and recreational uses.

Before 1971 one of the forces that helped the conversion of farmland to urban uses in Illinois was high property taxes. Farmland near urban areas was assessed at a higher rate than other farmland because of its potential value for other uses. Consequently, many owners found that the returns from this land were inadequate to justify its use for farming.

In 1972 Illinois enacted a differential assessment law (Ill. Rev. Stat., ch. 120, secs. 501a-1 through 501a-3, 1974 Supp.) to give owners using their land for agricultural purposes a tax break by limiting the tax assessment to the land's agricultural use value instead of its fair market value. However, if the land was transferred to a nonagricultural use, the owner was liable for the deferred market-value taxes for the prior 3 years plus a 5-percent annual interest penalty. This feature is referred to as a rollback tax. ^{1/}

^{1/}A developer who objected to the rollback tax challenged the law in the State Supreme Court. Although the Court upheld the law, the Illinois legislature passed another differential assessment law in December 1977 which does not contain a rollback tax provision.

The law's primary purposes were to (1) give bona fide farmers near urban areas property tax relief and (2) prevent the premature sale of farmland and control urban growth. On both aspects, the law has been less than successful.

For example, a Northwestern University professor, who studied the effects of differential assessment in five Chicago-area counties--Cook, Du Page, Kane, Lake, and Will, noted that, in the four counties where there was participation, about 32 percent of the participating landowners were nonfarmers. Nonfarmer participation ranged from 65 percent in Cook County to 25 percent in the more rural Kane County. He also concluded that differential assessment did not seem to have retarded the loss of farmland.

A working group of the Illinois natural resources subcabinet said that the law has had limited impact on keeping land in farm use. It said such measures protect a farmer from being forced to sell prematurely, but do not prevent the conversion of farmland. Also, SCS's State Conservationist for Illinois reported in 1977 that "There is nothing on the horizon to indicate that Illinois will not lose the equivalent of another five or six counties [of farmland] by the turn of the century."

An example of how quickly the loss of farmland can occur and the limited success of differential assessment is found in Naperville Township in Du Page County, which is immediately west of Chicago. The township lost 17 percent of its farmland from 1970 to 1976, and a total of 10,941 acres, or over 80 percent of the township's farmland in 1976, was slated for development or was being developed. Of this development acreage, 92 percent is prime land with some of the Nation's most productive corn-growing soil.

County records showed that, of the acreage under differential assessment in Naperville Township in 1975, 62 percent was owned by developers, 4 percent by railroads or utilities, and only about one-third by bona fide farm operators. Because the lower agricultural assessment is based not on ownership but on existing land use, developers, railroads, and utilities can secure tenants to retain an agricultural use and benefit from the differential assessment. A member of the County Regional Planning Commission and the County Supervisor of Assessments have both concluded that the law has not acted as a deterrent to urbanizing farmland.

How do developers view the law? A spokesperson for one company that had 565 acres under differential assessment in 1977 in Naperville Township told us that, when the

demand for land is strong enough, the land will shift out of agriculture into more intensive uses. A local bank executive who manages farmland for developers felt that the rollback tax had been somewhat of a deterrent to conversion, but that developers would simply pass on the cost of the rollback tax to lot purchasers. He added, however, that some developers would like to have the dual assessment eliminated because some farmers do not want to sell their land and will continue to farm under the protection of the differential assessment law. The bank executive and another corporate landowner pointed out that the differential assessment law allows a more orderly transition from agriculture to development and, because of the tax break, land is held in agriculture longer before it is developed.

Therefore, although the Illinois law may help keep some land in agricultural production longer, it is doubtful that it can stem the conversion of farmland that is under development pressure.

The Williamson Act--California

The California Land Conservation Act of 1965, known as the Williamson Act, allows local governments--city and county--to contract with landowners to keep land in agricultural production. The act is intended, in part, to discourage premature and unnecessary conversion of farmland to urban uses as well as to discourage noncontiguous urban development patterns.

In 1966 the State Constitution was amended to allow local assessors to assess the land under such contracts according to its use value rather than its market value. This use-value assessment is similar to a differential assessment. According to a study done for CEQ (see p. 23), the act's primary objective was to lessen the income squeeze on those seriously committed to farming in areas experiencing developmental pressures. It was not conceived as a way of preserving land that was ripe for development. Participation of both local governments and landowners is voluntary.

In areas where urban development pressures exist, use-value assessment generally results in lower property taxes for landowners. It was anticipated that this would act as an incentive for landowners to put their land under contract. Originally the act covered only prime agricultural lands, but it was later amended to cover other lands or areas, such as recreational lands, open space lands, wildlife habitat areas, and managed wetlands.

Once a contract is entered into, the landowner agrees to use the property only for the purposes set forth in the contract for at least 10 years. The contract is also binding on successor owners. Contracts are automatically renewed each year, unless a notice of nonrenewal is given by either the landowner or the local government. With the automatic renewal, the contract's termination date is also automatically extended 1 year, in effect maintaining a running contract of the original length.

The contract can be cancelled only at the landowner's request and only if approved by the local government. The local government can approve cancellation only if it finds that cancellation is not inconsistent with the Williamson Act and is in the public interest. An opportunity to use the land for another purpose is not a sufficient reason to cancel the contract. If cancellation is approved, the landowner is assessed a penalty fee amounting to 50 percent of the land's cancellation valuation (equivalent to 12-1/2 percent of the full cash value). The local government may, with the approval of the Secretary of the California Resources Agency, waive all or part of the penalty fee. At the time of our review, the Secretary had not approved the waiver of any penalty fees.

According to a California Department of Conservation report, the State has about 100 million acres of land, including 45 million acres of privately owned nonurban land. About 12.6 million of these 45 million acres are prime land. As of October 31, 1976, about 15 million acres in 46 of the State's 58 counties were under Williamson Act contracts. Of this acreage, about 6 percent was prime farmland in rural/urban transitional zones, 24 percent was prime farmland in rural areas, and 70 percent was forested and nonprime open space land.

A survey of local officials in the counties which had implemented the act revealed that most saw the act as favoring very large holdings of remote rural land. Three other studies of land under contract in 1968-69, 1971-72, and 1973 concluded that the level of participation near urban areas had been too low to have an impact on the preservation of agricultural and open space lands. They also found that program participation had been concentrated in remote areas with minimal potential for conversion to urban uses.

According to a USDA study, ^{1/} there are two basic reasons why the Williamson Act has not been more effective. First, the incentive of use-value assessment has not been strong enough, especially in urban fringe areas. A State official said that many landowners do not want to limit their options by placing their land under restriction for a long period. Secondly, although the State intended local governments to designate areas as agricultural preserves eligible for use-value assessment, it is the individual landowners who seek agricultural preserve designation and use-value assessment for their land. This situation results in random and unsystematic patterns of land under contract, which may actually stimulate, rather than prevent, non-contiguous urban growth in expanding areas.

Overall results of differential assessment

The study done for CEQ (see p. 23), which included detailed studies of differential assessment in nine States, including California, concluded:

"Except for a few specific situations, which account for a small fraction of potential sales of farmland, differential assessment is not likely to be effective in achieving land use objectives."

A desired objective of retaining prime farmland through differential assessment is not achieved because of the following general features.

- The tax incentives to keep land in agriculture are not strong enough to prevent conversion to urban uses.
- Differential assessment does not distinguish between prime farmland and other land. In California, 70 percent of the land under Williamson Act contracts was forested or nonprime open space land.
- Differential assessment does not consider ownership. Developers and speculators can benefit from its provisions.

^{1/}Greg C. Gustafson, "California's Use-Value Assessment Program: Participation and Performance Through 1975-76," Mar. 1977.

Despite these features, differential assessment provides some desirable benefits. It provides tax relief for agricultural operators near urban areas where normal property taxes might otherwise make it uneconomical to farm. Also, in some cases it has helped prolong the time land has been kept in agricultural production.

EXCLUSIVE STATEWIDE ZONING

Hawaii is the only State to adopt statewide zoning for land-use control. The State's Land Use Law of 1961 provides for a land-use commission plus a petition process and boundary review to regulate and act on requests for reclassifying property use or lines. The importance of agriculture, the pressure for development, and the threat of urban sprawl led to the law's creation. Its purpose is to protect and conserve prime and other lands through zoning within the counties to (1) provide for orderly and compact urban growth with efficient and economical public services and (2) "create a complementary assessment basis according to the contribution of the lands in those uses to which they are best suited." The law as amended in 1963 defines four land-use districts: urban, rural, agricultural, and conservation.

Changes in land-use classification, which are decided by the land-use commission, ^{1/} can be requested through a petition filed by persons with a property interest in the land, by county or State departments or agencies, or by the commission itself. The commission is also required to make a review of land-use classifications every 5 years.

Despite the land-use law, a statewide total of 37,279 acres of agricultural land was reclassified urban during the period 1962-76, including 13,986 acres on Oahu where the most pressure for urban development exists and where the reclassified agricultural lands were highly productive.

Because the State has no definitive criteria as to how agricultural use should be weighed against competing uses, the commission is operating with insufficient guidelines to make decisions and no stated goals to measure against. State representatives indicated that, unless the State

^{1/}Parties to the proceedings may obtain a judicial review of the land-use commission's decision. The court may reverse or modify a commission decision if it is clearly contrary to the preponderance of evidence.

sets and the commission uses meaningful criteria and goals for preserving farmland, the loss of important farmlands will continue.

In addition to statewide zoning, Hawaii has a program where land in agriculturally zoned areas can be pledged or dedicated to agriculture and be taxed at a lower rate. The program allows land to be dedicated for 20 years (10 years in some cases) with the property tax assessment reduced by one-half. The dedication, however, can be cancelled by the landowner with 1-year advance notice. Through 1976, 523,625 acres had been dedicated.

A State Department of Agriculture official, referring to a draft report on the dedication program, pointed out the following weaknesses:

- The program does not define what constitutes agricultural use. Under current procedures the department must determine if the land in question is suitable for the intended use under dedication. No consideration is given to the size of the land or the viability of the intended crop. As a result petitions have had to be granted for land parcels as small as 5,000 to 10,000 square feet with the intended use being flower production or support of one cow or horse. In some communities requests for dedication have been received for backyard gardens or stables. There is no recourse but to certify the land as suitable for the intended use and the request is approved.
- Management and enforcement is an administrative nightmare. Program rules allow owners or lessees the option of dedicating only a portion of their land and they may dedicate several noncontiguous parcels of land in the same or different tracts. The limited number of department personnel precludes adequate field checks to insure that the dedication terms are being met.
- Land is being dedicated that has no potential for urbanization. Areas where urban development is likely to occur are not dedicated and generally only those prime lands where development is unlikely have been dedicated.
- The program is resulting in a tax shelter rather than an effective land-use control mechanism.

Neither the zoning system nor the dedication program has been very successful in stopping farmland conversion.

However, State officials view the zoning system with its associated petition process as having been useful in slowing urban development and allowing local officials necessary time to develop plans and expertise in the land-use area.

CAPITAL GAINS TAX

In 1973 Vermont enacted a capital gains tax on land sales to discourage short-term speculation on undeveloped land, including farmland. The tax depends on the length of time the land is owned and the percentage of realized profit. The tax is highest for land purchased and sold at a high profit in less than 1 year. No tax is assessed for land owned for 6 years or more. To illustrate, if land was held less than 1 year and sold for a profit of under 100 percent, the tax on the profit would be 30 percent. If the land was held between 5 and 6 years and the profit was under 100 percent, the tax drops to 5 percent. If the gains in the above cases were 200 percent or more, the tax rates would be 60 and 10 percent, respectively.

According to State officials, the tax has not been a very effective method for preserving farmland in developing areas because of the large profits which can be obtained in land sales.

DEVELOPMENT RIGHTS

A small number of State and local governments, primarily in the Northeast, have tried to stop farmland conversion by controlling the rights to develop land. These development rights may be sold or transferred without selling the land. If a State or local government can obtain the rights, the continued use of the land for agricultural purposes can be assured without actual ownership of the land. The main drawback to government purchase of development rights is their cost. Also, the legality of development rights has not been thoroughly tested.

One approach involving the transfer of development rights is being used in Buckingham Township in Bucks County, Pennsylvania. From 1967 to 1977 the township lost 1,816 acres (12 percent) of its productive farmland to urban development. To stop the loss of farmland, the township designated certain areas as agricultural districts and others as development districts. Landowners in agricultural districts were assigned development rights which they could hold or sell independent of the land's deed. In development districts, only a specified number of dwellings can be constructed per acre, but landowners in these districts can increase the amount of development

on their land by purchasing development rights from landowners in agricultural districts.

Once agricultural district landowners sell a portion or all of their development rights, the township rezones an equivalent portion of their land to an agricultural preserve where only agricultural and limited residential uses are permitted. If agricultural district owners develop some or all of their land in the district, the corresponding number of development rights is cancelled. From enactment of the ordinance in March 1975 to March 1978, rights to only 328 acres had been cancelled. At the beginning of 1978, a total of 12,474 acres had development rights outstanding.

The purpose of the transfer development rights approach is to compensate landowners who do not want to develop their property but want a return on their land as if it was sold for development. The rights also encourage a more orderly approach to development, as opposed to random growth. Township officials said that, although there had not been a strong market for the development rights and their legality had not yet been tested, the development of land had slowed since the program's adoption.

Under another approach, a State or local government reimburses the landowner for giving up the right to develop his land and places a land-use restriction on the land deed which prevents development of the land. The owner pays property taxes on the land subject to the deed restrictions. The purchase price of the development right is the difference between the land's market value and its farm-use value.

At the time of our review, two States--Massachusetts and New Jersey--had passed laws permitting the States to buy development rights and had funded their programs at \$5 million each. Only New Jersey had taken initial steps to buy the rights.

From 1954 to 1968 New Jersey lost about 620,000 acres of farmland, and a special State commission subsequently recommended that, to help retain agriculture as a New Jersey industry, each municipality designate at least 70 percent of its prime farmland as an open space preserve. Owners of the designated land would be able to sell their development rights to the State which would pay for them out of funds derived from a transfer tax on all real estate transactions.

In 1976 the State authorized \$5 million for a 2-year program to procure development rights to farmland on a voluntary basis in a pilot project in Burlington County. However, the State did not specifically define what a farm

is or what the landowners could do with the land after development rights were purchased. Although the State had received offers from some landowners to sell development rights, none were purchased and the program was allowed to expire in July 1978.

According to a State official, the legislature believed a statewide program of this kind would be too expensive. Some agricultural authorities felt the program would ultimately result in higher farmland assessments and more taxes for farmers. Also, a State official told us that some taxpayers may be opposed to the State's buying development rights from investors, speculators, and developers.

Suffolk County, New York, also was purchasing development rights to farmland from the proceeds of 30-year serial bonds. This county, located in the eastern two-thirds of Long Island, is New York's leading agricultural county in terms of sales--estimated to exceed \$80 million a year. Agricultural production was seriously threatened, however, by a fourfold increase in population during the 1950s and 1960s and a 55-percent decrease in the number of farmland acres from 1950 to 1974.

In 1974 the county adopted a voluntary program for purchasing development rights for 12,000 to 15,000 acres of its prime farmland at an expected cost of about \$60 million. It was hoped that this would encourage other owners to keep their land in agricultural production. Acquisition of development rights for all or most of the farmland was considered ideal but not financially feasible.

In September 1976 the county authorized a \$21 million bond resolution to purchase rights to an initial 3,800 acres. By February 1978 the county had purchased rights to one farm encompassing 131 acres and contracts had been signed with 25 additional landowners.

It is too early to determine whether the county's program will be successful in retaining farmland. The following potential problems could detract from its success.

--Because of the county's fiscal and property tax situation, it is uncertain that the program would be expanded to acquire the planned 12,000 to 15,000 acres.

- The majority of the county's legislature is elected from its western, more highly suburbanized portion. Some persons residing there cannot see a reason for spending tax dollars to buy development rights only in the eastern commercial farming area.
- The program's legality had not been tested in the courts, although a county official believed it would receive a favorable ruling.
- The right to subdivide land on which development rights have been sold is unsettled. Upon the owner's death parcels of land can be willed to several individuals which may result in its subdivision.

In addition to these problems, the land parcels on which rights are to be purchased are generally not adjoining. This situation could mean the virtual end of commercial farming in the area, if heavy urbanizing pressure reaches the area and developed areas are interspersed among the farms.

CONCLUSIONS

Each of the various methods used by State and local governments in an attempt to curb farmland losses has characteristics that detract from its effectiveness. It seems clear that the following elements need to be present if a program to retain farmland is to be successful.

- The agricultural areas should be geographically defined and preferably correspond to areas containing the most prime farmland.
- Excessive subdivision of such defined areas should be prevented.
- There must be some compensation to the landowners if the value of their land developed for some other purpose exceeds the agricultural value.
- What constitutes agricultural use and prime farmland should be clearly and specifically defined.

Other program elements can also be added to make a farmland retention program work effectively; these are just the basics. The above elements are essential to the development of program criteria as referred to in our recommendation to the Congress on page 56.

CHAPTER 5

RETAINING PRIME AND OTHER FARMLAND OFTEN CONFLICTS

WITH FEDERAL AGENCIES' OTHER OBJECTIVES

In testimony in 1977 on the loss of prime farmland, the Secretary of Agriculture concluded, "The best we [USDA] can do is to identify our prime agricultural land and encourage those in decisionmaking positions to maintain that land in agricultural uses." Those in decisionmaking positions are generally individuals or local or State government officials. Federal agencies lack the authority to insure the retention of privately owned farmland, but they can review and revise their own activities which take or encourage the taking of prime and other farmland. Our analysis of environmental impact statements and other environmental review documents for 25 projects of 5 Federal agencies indicated that preserving prime and other farmland was given little consideration or low priority and was usually outweighed by other interests.

PRIME FARMLAND IS TO BE CONSIDERED IN ENVIRONMENTAL REVIEWS

In an August 30, 1976, memorandum, CEQ directed Federal agencies to consider the loss of prime and unique farmland in preparing the EISs required by the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.). It stated:

"Efforts should be made to assure that such farmlands are not irreversibly 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 * * *."

According to a CEQ official, EISs in process at the time the memorandum was issued were exempt from its requirements.

The memorandum also stated that USDA would place a major new emphasis on reviewing EISs with respect to prime farmland. SCS had been responsible for reviewing and commenting on other Federal agencies' EISs since 1974. SCS reviewers were to consider, among other things, the amount of prime farmland irreversibly lost.

The Secretary of Agriculture's June 1976 expanded land-use policy statement (see p. 6) provided that all USDA agencies were to assure that EIS procedures and reviews thoroughly consider the impact of major Federal actions on prime farmland. The agencies were also to review their own programs to insure consistency with the overall policy to retain prime farmland.

FEDERAL PROJECTS AND ACTIONS WHICH CONVERT OR AID IN CONVERTING FARMLAND

Federal projects or programs can directly and indirectly result in the conversion of farmland for other purposes. Federally funded highways, dams, and rural sewer and water systems are examples of projects that can take farmland directly. These types of projects, as well as other activities, such as providing mortgage guarantees or income tax deductions for housing, can also have an indirect or secondary impact by allowing or encouraging industrial and residential growth.

To determine how Federal agencies treated the prime farmland issue and, in cases where prime and other farmland was or would be taken, what national interests outweighed the benefits derived from protecting farmland, we reviewed EISs and other environmental review documents prepared for 25 Federal or federally assisted projects taking farmland in California, Illinois, Minnesota, North Dakota, Oklahoma, and Pennsylvania. Agencies responsible for these projects were the Department of Transportation (DOT), the Department of Housing and Urban Development (HUD), the Army Corps of Engineers (Corps), the Environmental Protection Agency (EPA), and USDA.

For eight of the projects, environmental reviews were initiated before the CEQ memorandum was issued, and they were therefore exempt from its requirements. Also, five were USDA's Farmers Home Administration projects for which FmHA did not require indepth environmental reviews. The 25 projects represented a planned or actual conversion of at least 13,057 acres of farmland, of which at least 1,641 acres were identified as prime land. For some projects, prime land had not been identified.

HUD projects

Among HUD programs which can affect farmland is the title X program under the National Housing Act, as amended (12 U.S.C. 1701 et seq.), which authorizes HUD's Federal Housing Administration to insure mortgages for development

of subdivisions. This program is designed to assist developers to purchase raw land and develop it. Also, under title II of the act, the Federal Housing Administration provides mortgage insurance for construction of housing for low- and moderate-income families. HUD is required to prepare an EIS for any project involving 500 or more living units.

We reviewed nine EISs for HUD projects in California, Illinois, and Pennsylvania. The EISs addressed the farmland issue only superficially, if at all. For example, one of the four projects we reviewed in California--a Solano County residential development--required a total of 953 acres of farmland. HUD did not consider any of the farmland as prime because none was class I land. In commenting on the EIS, SCS's California office pointed out, however, that 20 percent of the land--about 191 acres--was class II land which is also considered prime. The EIS listed the loss of farmland as an adverse environmental impact, but said it could not be avoided if the proposal was implemented. The EIS pointed out that the project developer had already sold some of the land to individual home buyers, and HUD said that the developer would proceed with or without HUD's assistance

Another of the California projects was taking 237 acres. HUD's EIS did not identify the number of prime farmland acres involved. In commenting on the EIS, SCS did not identify prime farmland taken by the project, but said that the area contained some of the county's most productive land. The SCS comments included a somewhat standard phrase about the national concern about prime farmland. The HUD official responsible for the EIS told us he felt that the SCS comments were not significant and no further action was required.

On the Illinois and Pennsylvania projects, HUD's treatment of the farmland issue was similar. The EISs did not show the issue to be significant and the taking of farmland was, for the most part, a foregone conclusion. For example, one Illinois housing project involved conversion of 212 acres of farmland of which 70 acres were identified by SCS as prime. The EIS addressed the farmland issue by stating that conversion from agriculture to housing would have little effect on crop production.

In each of these HUD cases, interest in housing appeared to far outweigh the desire to retain farmland. However, HUD often does not have a choice in selecting alternative sites and must either accept or reject a developer's proposal. Also, HUD projects often are in areas where development is imminent and farmland would be converted anyway.

Without serious consideration of prime and other farmland in environmental reviews, however, the probability of having any impact on retaining farmland, especially prime farmland, is remote.

DOT projects

The EISs for four highway projects in Illinois, which took over 1,600 acres of farmland, showed that the farmland issue was addressed but did not influence the planned taking of such land. In these cases interest in highway construction appeared to outweigh the national interest in retaining farmland.

Illinois Department of Transportation officials said that, for most construction alternatives, prime farmland would be taken because about 90 percent of Illinois cropland is classified as prime. They said the only alternative to not taking prime farmland would be not to construct a project. The officials could not recall any project where prime farmland was the deciding factor in selecting an alternative location.

In Oklahoma one recent highway construction project that took prime farmland involved a 3.2 mile, two-lane highway to connect two other highways. The location and design study report (which was prepared instead of an EIS) discussed the loss of prime cropland but not the number of acres. The report said that "While areas of prime farmland will be required, no limited or food shortage is predicted to result." A representative of the Oklahoma Department of Transportation told us that there had been very little public or other opposition to the taking of prime farmland for highway construction and that he knew of no projects that had been changed or cancelled because prime farmland would be taken.

Corps projects

The Corps had proposed three projects in Oklahoma which would take a total of 8,090 acres of farmland. EISs for two of the projects were in process before the CEQ memorandum. In the EISs, the fact that farmland was being taken was not considered serious. For example, one project involved creation of a lake and a loss of 3,300 acres in crops and pasture. The EIS, which did not identify how much of the land was prime, stated that "Although agricultural productivity of project lands will be foregone, the lake will cause property values to appreciably increase upstream because of the proximity to Oklahoma City." In this case, the concern for creating a recreational lake apparently

outweighed the loss of farmland. A representative of an Oklahoma City area council of governments told us that the area was primarily concerned with attracting additional industrial development and not the loss of prime farmland.

Corps officials in Oklahoma told us that there had been no general public opposition to the taking of farmland for Corps projects, and that SCS had not brought up the subject of prime farmland before the CEQ memorandum was issued. A Pennsylvania Corps official said that the Corps would not likely decide the merits of proceeding or not proceeding on a project solely because of the impact on prime farmland. He said that, if the decision depended only on the issue of preserving prime land, the Corps would probably go ahead with a project.

EPA project

Some projects which may take only a small amount of farmland directly can be a catalyst for activities which take additional land. For example, an EIS filed by EPA for a waste water disposal facility and sewer lines in California showed that, while the facility itself would take only 150 acres of farmland, the resulting urban growth was projected to affect about 2,700 acres of prime land. The project was designed to accommodate a population 85 percent larger than the present one. The EIS stated that "While the project does not induce this growth, it does accommodate such an increase in the sense that the provision of waste water treatment is a necessary condition for the growth to occur." The future urban growth will also affect farmlands not converted because the urbanization will act as a nuisance to adjacent farm areas and rising farmland values will make farming an unprofitable use of the land.

FmHA projects

FmHA furnishes credit and grants to farmers, rural residents, and communities for various purposes. Some of this assistance results in the direct or indirect taking of prime and other farmland. This taking was not considered in processing and approving the FmHA loans and grants which we reviewed on community facility projects in Minnesota, North Dakota, and Pennsylvania. All the projects involved the construction of sewer or water systems or waste treatment facilities. The purpose of such projects is to upgrade the quality of rural life or promote economic development and growth. Achievement of these objectives, however, often result in the taking of prime or other farmland.

For example, one FmHA project involved a loan of \$767,600 and a grant of \$177,200 for constructing a sewage treatment plant in Berks County, Pennsylvania. ^{1/} About 11 acres of prime farmland were taken for the project. The farmer who had owned this land said that it had been the most productive on his farm and that prime farmland was not readily available in this area. He had won a number of awards for corn and alfalfa grown on this land, and he said that, if the local authorities had not exercised their power of eminent domain, he would not have sold it. The FmHA county supervisor predicted that this project would enable the area served to greatly increase its population which previously had been limited by lack of these facilities. Within 15 years, the area's population is expected to triple. The county supervisor said that this growth would use up some of Pennsylvania's best farmland.

At the time of our review, two FmHA water development projects near Sioux Falls, South Dakota, were being challenged in U.S. District Court. The complaint was that they encourage urban sprawl, destroy prime farmland, and pollute existing ground water supplies. The suit alleged that FmHA's actions were inconsistent with USDA policies favoring the protection of farmland, and that a full EIS should have been prepared.

AGENCIES' PROCEDURES IN ADDRESSING THE PRIME FARMLAND ISSUE

The CEQ memorandum to consider the effects on prime farmland requires Federal agencies to address complex issues, such as what importance should be attached to retaining prime farmland and what other national interest or interests should override this importance. Neither CEQ nor USDA has issued any guidelines or interpretations to help Federal agencies further evaluate the impact of the loss of prime farmland.

A CEQ official told us that the Council has a study underway to determine whether EISs for proposed Federal or federally assisted projects are adequately considering and discussing the impact the projects would have on prime farmland. The results of the study are expected to be available in the fall of 1979.

^{1/}EPA also granted this project \$2,163,524. The local share was \$111,712.

The degree of consideration of prime and other farmland varied greatly among the Federal agencies we reviewed. HUD had provisions for considering prime farmland before the CEQ memorandum was issued. However, its 1975 guide for assessing environmental impacts defined only class I land as prime, whereas SCS defines generally all class I and II and some class III land as prime. The HUD guide also provided a rating system for the degree of project effect on prime soils. If a project was on class II through IV land with no adjacent class I land, the project was to be rated as having only a moderate effect on agriculture. At the time of our review, HUD was preparing a training manual which identifies class I and II land as prime farmland. A representative of HUD's Chicago office considered the CEQ memorandum as simply a reminder to address the prime farmland issue since HUD had provisions for considering prime land already.

The Illinois Department of Transportation which prepares EISs for DOT's Federal Highway Administration also had provisions for considering the loss of farmland before the CEQ memorandum was issued. These provisions called for gathering information on (1) the number of acres affected, (2) the types of crops affected, and (3) the percentage of farmland in the county. The guidelines point out that "The taking of only a portion of the farmstead may make it uneconomical and inefficient to farm the remainder." The Illinois Department of Transportation also prepared additional guidelines after the CEQ memorandum was received to help insure appropriate consideration of prime farmland.

In contrast to HUD and the Illinois Department of Transportation, the Oklahoma Department of Transportation, the Corps of Engineers, and EPA did not have any guidelines other than the CEQ memorandum at the time of our fieldwork. The Chief of the Federal Requirements Branch of the Oklahoma Department of Transportation indicated that he had not formulated any guidelines because of the small number of people on his staff and because he thought that he would remember to consider the issue. The Corps incorporated the CEQ memorandum in its directives, but the Corps office responsible for Oklahoma was just starting to formulate an approach to address the prime land issue.

At the time of our fieldwork, EPA had no formal policy for protecting farmland. However, in September 1978 it adopted a new policy to protect prime and other environmentally significant farmland. The policy requires EPA employees to

- support State and local farmland protection efforts and strengthen technical assistance to State and local governments for protecting farmland,
- consider the effect of air and water pollution regulations on farmland,
- consider in agency enforcement actions the local significance and economic value of farmlands to communities,
- encourage regional water quality management and solid waste disposal plans that safeguard fertile soils,
- identify additional areas for research on the environmental roles of farmland, and
- increase public awareness of the environmental value of farmland.

The new EPA policy specifically prohibits locating sewer interceptors and treatment plants on environmentally significant farmland unless they are necessary to eliminate existing discharges and serve existing habitation.

For the FmHA projects we reviewed, the respective FmHA county supervisors were required to prepare a brief FmHA environmental impact assessment form that did not take into account the impact of taking prime and other farmland. Based on the county supervisors' assessments, the FmHA State Directors ruled that EISs were not needed.

FmHA representatives told us in June 1977 that USDA's policy on preserving prime farmland conflicted with FmHA programs. FmHA had not provided written guidelines to its field offices to implement the USDA policy. It was suggested that this was primarily because FmHA was attempting to develop ways of implementing the USDA policy and still carry out its rural area programs. In the March 1, 1977, Federal Register, FmHA had published proposed rule changes stating that locations of FmHA projects

"Shall be in compliance with Secretary's Memorandum No. 1927 concerning preservation of prime agricultural lands. Activities which irrevocably commit prime lands to non-agricultural uses may be approved * * * only when there are no suitable alternative sites and when the action is in response to overriding public need."

FmHA officials told us in March 1979 that the proposed rules never became effective, but that they were working toward incorporating USDA's October 1978 land-use policy statement on the preservation of prime farmland (see p. 9) into the agency's operating procedures. In its comments (see app. I), USDA said that, since our interview with the FmHA representatives in June 1977, FmHA had taken steps to bring operation of its programs into compliance with USDA's land-use policy statement.

We believe the lack of further guidance from CEQ or USDA on how to address the farmland issue in environmental reviews explains, in part, why some environmental reviews have not seriously considered the projects' effects on prime and other farmland. Guidance is needed on how much consideration should be given to the taking of prime and other farmland in making project decisions.

The SCS role in commenting on EISs

In reviewing an EIS, SCS is to determine if the project will convert prime farmland and, if so, whether the subject has been adequately addressed. Federal agencies will sometimes contact SCS before filing EISs and request information as to whether their proposed projects will take prime farmland. The information then can be included in the EISs. In its comments, SCS generally identifies prime soils and often includes a statement similar to that in the CEQ memorandum, such as:

"Every effort should be made to assure prime farmlands are not irreversibly converted to other uses unless other national or local interests override the importance of preservation or otherwise outweigh the environmental benefits derived from their protection. We are concerned with the continued and accumulative effects of using prime farmland and other productive agricultural land for other uses of an irreversible nature."

SCS officials in Illinois, Oklahoma, and Pennsylvania felt that their primary purpose in commenting on EISs was to make public that prime farmland would be taken. They believed that the net effect of the CEQ memorandum was to provide a public forum for the issue. They could not recall any Federal project that was cancelled or altered because it was taking prime farmland.

An SCS headquarters official told us that SCS often is not aware of a proposed project until the draft EIS is prepared and filed for comment. He said that SCS could be more helpful in providing information on prime farmland and the impact that proposed projects could have on prime farmland, if it was notified about such projects while they were still in an early planning stage.

CONCLUSIONS

Federal and federally assisted projects often result in the direct and/or indirect taking of prime and other farmland. While this is sometimes unavoidable, the EISS and other environmental review documents we analyzed indicated that the loss of farmland, particularly prime farmland, is not always recognized as a serious problem or is not given the consideration it warrants.

Although CEQ issued a memorandum in August 1976 directing Federal agencies to consider the loss of prime and unique farmland in preparing EISS, neither CEQ nor USDA has issued further guidelines or interpretations to help Federal agencies deal with the complexities of balancing the preservation of farmland with other national interests. As a result, the consideration given to prime and other farmland after the CEQ memorandum was issued did not appear to be much different than that given previously.

Part of the problem may lie in the conflict between the information regarding the importance of preserving prime farmland which SCS furnishes agencies for their use in preparing EISS and other USDA publications which cite large potential cropland reserves and production capabilities. It is important that USDA agencies provide their field offices with written guidelines for implementing USDA's policy on preserving prime farmland. Control mechanisms need to be included in operating procedures to identify the taking of prime farmland and its consequences.

Government-wide criteria is needed for making meaningful evaluations of the significance of losing prime and other farmland. Such criteria should provide the framework to quantify the direct and indirect farmland losses and the impact of these losses on current and future agricultural production and related issues.

RECOMMENDATIONS TO THE SECRETARY OF AGRICULTURE AND THE CHAIRMAN OF CEQ

We recommend that the Secretary of Agriculture and the Chairman of CEQ undertake a joint effort to develop criteria

to guide Federal departments and agencies in determining and evaluating the impact of their proposed projects and actions that affect prime and other farmland. The criteria should be directed at quantifying the loss of prime and other farmland, determining both the direct impact of such loss and the indirect or secondary impacts on changes in land use that might be induced by the project or action, and balancing such loss with other national interests. Federal departments and agencies that would be affected by such criteria should be invited to participate in the development of the criteria.

We recommend that the Chairman of CEQ instruct Federal departments and agencies to include in their EISS and other environmental review documents a discussion of their analyses relating to the criteria recommended above.

We recommend also that the Secretary of Agriculture insure, through periodic reviews, that all USDA agencies evaluate the loss of prime and other farmland in their project approval processes in consonance with the Secretary's October 1978 land-use policy statement. Agencies' operating procedures should be revised as necessary to provide that, when it comes to deciding where to spend money, low priority classification be given to projects where satisfactory alternatives to losses of prime and other farmland do not exist, unless there are overriding, justified reasons for doing otherwise.

AGENCIES' COMMENTS

USDA said it agreed with our recommendations to the Secretary of Agriculture. (See app I.) It said that it was joining with CEQ in the leadership of a study on the retention and conversion of agricultural lands which would include our recommendations.

CEQ did not provide written comments on the report, but a CEQ official said that the Council agreed with our conclusions and the need to develop and evaluate comprehensive information on the impact of Federal agency programs and actions on agricultural lands. He said that this would be one of the objectives of the forthcoming interagency study. The official said that our recommendation that CEQ issue instructions to Federal departments and agencies would be considered in carrying out the study.

DOT said that it supported our recommendations and would like to be included as a lead agency in the effort to develop criteria for determining and evaluating the impact of Federal projects and actions that affect prime

farmland. (See app. II.) It believes that much can be done in the area of land-use controls, with the cooperation of local governments, to protect prime farmland and to direct development and growth into other more suitable areas. It said that controlling access is one important transportation technique which can be used to supplement these efforts. DOT also said that it was hopeful that the continued shift of national emphasis from the construction of new highway facilities to the upgrading of existing facilities would considerably lessen the conversion of prime farmland for transportation projects.

HUD said that the housing sector's major problem in dealing with prime and unique farmlands is conflicting guidance on what constitutes such farmlands and that a second problem is the lack of established policy on how to treat such farmlands when and if they are identified. (See app. III.) HUD agreed that criteria was needed to guide agency assessments and said the criteria should be clear, specific, and firmly based on the national urban policy. It also agreed that such criteria should be developed in consultation with other Federal agencies.

HUD pointed out that it has provided financial assistance to many States and municipalities through its program for developing comprehensive plans and management processes to anticipate the impacts of development on natural resources, including prime farmland, before specific development decisions are made. It said it also has developed the concept of areawide EISs to help anticipate and assess the cumulative impact of urban development in a specific geographic area rather than on a project-by-project basis. It said that this concept links environmental reviews to local comprehensive plans.

The Corps said that it also is giving increased consideration to the taking of prime farmland for water resource projects. (See app. IV.) It cited two of its projects which were recently deauthorized in part because they would have taken several thousand acres of prime farmland.

EPA did not comment on our conclusions and recommendations.

On June 14, 1979, USDA and CEQ signed a memorandum of agreement to undertake a jointly sponsored national study to determine the availability of the Nation's agricultural lands, the extent and causes of their conversion to other uses, and the ways by which these lands might be retained

for agricultural purposes. Some of the study objectives are to determine and evaluate the

- impacts of industrial, urban, transportation, and energy development, and other competing land uses on the future availability of agricultural lands;
- effects of Federal programs and actions on agricultural land;
- impacts of agricultural land losses on the Nation's capacity to meet future domestic demand for food, fiber, and energy and to develop future foreign policies relating to international trade and humanitarian assistance; and
- economic, social, and environmental effects both of converting additional lands to agricultural use and of alternative methods for preventing or retarding the conversion of agricultural lands to nonagricultural uses.

It is also going to assess State and local governments' efforts to protect and retain agricultural lands and identify and disseminate information on the ways in which these efforts can be made more effective.

Federal agencies whose programs and actions affect agricultural land are going to participate in carrying out the study which is to be completed by January 1, 1981. A report on the results is to be submitted to the President.

CHAPTER 6

NATIONAL POLICY ON, AND FEDERAL ROLE IN, RETAINING

FARMLAND HAVE NOT BEEN FIRMLY ESTABLISHED

While farmland, particularly prime farmland, is a national resource whose retention is of national importance, the Federal Government's role in that retention is still evolving. In some laws dealing with other land-use issues, such as surface mining and soil conservation, the Congress has recognized the importance of prime farmland. However, it has not enacted a comprehensive policy defining the national importance of retaining prime and other farmland, setting goals for its retention, and delineating the Federal role.

Some proposed legislation has been introduced to, among other things, establish a national farmland policy, describe Federal responsibilities in advancing that policy, and authorize Federal technical and financial assistance to States and their political subdivisions to carry out farmland preservation pilot projects. However, such legislation has not yet been enacted.

Because governmental control of land use traditionally rests at the State and local levels, we asked the States for their views as to what the Federal role should be in retaining farmland and what benefits they thought would accrue from a national policy on this matter. Their responses are presented later in this chapter.

FEDERAL EFFORTS ON LAND-USE PROPOSALS

The Congressional Research Service has identified 122 Federal programs affecting various uses of land. Also, several Federal laws deal with the issue of prime and other farmland. These include:

- The National Environmental Policy Act of 1969, which requires that prime farmland be considered in environmental reviews and impact statements prepared for Federal projects.
- Section 302 of the Rural Development Act of 1972 (7 U.S.C. 1010a), which directs the Secretary of Agriculture to carry out a land inventory and monitoring program, including studies and surveys of land-use changes and trends, and to issue at not less than 5-year intervals a land inventory report.

--The Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87, 91 Stat. 445), which contains special provisions for the mining and reclamation of prime agricultural lands.

--The Soil and Water Resources Conservation Act of 1977 (Public Law 95-192, 91 Stat. 1407), which directs the Secretary of Agriculture to continually appraise the Nation's soil resources.

Since 1970 the Congress has also considered, but not passed, various other national land-use legislative proposals which would have affected farmland. Among these was the proposed Land Use Policy and Planning Assistance Act (S. 268, 93d Cong., 1st Sess.), which passed the Senate in 1973 but failed in the House. The purpose of this and other similar bills was to require comprehensive land-use planning and management at the State level and/or to provide assistance to States for land-use planning. This planning would have included the consideration of farmland. Opponents of this legislation felt that private property rights were endangered and the Federal Government might try to indirectly control planning through grants and guidelines to States.

Two bills (S. 984 and H.R. 3510) introduced in the 94th Congress would have established a voluntary system of Federal grants to assist States in developing and implementing land resource and planning programs. Although the bills differed in some matters, both would have required participating States to develop land-use programs which included, among other things, policies and procedures to promote continued use and productivity of prime food- and fiber-producing lands. H.R. 3510 would also have required Federal public land agencies to develop and maintain land-use plans for areas under their jurisdiction. Hearings were held on S. 984 in April and May 1975, but no further action was taken. Hearings on H.R. 3510 were held in March and April 1975. On July 15, 1975, the House Interior Committee voted not to report H.R. 3510 by a vote of 23-19.

Legislative proposals in the 95th Congress

Nine bills ^{1/} introduced in the 95th Congress, but not passed, would have established a national agricultural land policy and delineated the Federal Government's role in

^{1/}House bills 4569, 5882, 5883, 7235, 8789, 11020, and 11122 and Senate bills 1616 and 2757.

advancing that policy. However, none of the bills would have set a national goal as to the amount and classes of land to be preserved as farmland.

The bills, whose language was identical or essentially similar, 1/ proposed a policy generally as follows.

"The Congress, recognizing the importance of high levels of agricultural productivity to the economy, to the quality of the environment, to human health and welfare, and to the position of the United States as an international food-producing leader, declares that it is the policy of the Federal Government, in cooperation with the governments of the States and political subdivisions of States, to use all practicable methods to retain, protect, and improve agricultural land."

To advance that policy, the bills provided that it would be the responsibility of the Federal Government to use all practicable methods consistent with other considerations of national policy to, among other things,

- reduce the amount of land which is annually being converted from agricultural uses to nonagricultural uses;
- limit the encroachment of industrial activities in high-quality agricultural areas if such activities deprive croplands of needed water or produce yield-reducing air pollution;
- include in EISS under the National Environmental Policy Act of 1969 an assessment of the effects of major Federal actions on farmland;
- inventory, assess, and evaluate the Nation's farmland on a continuing basis to assure that public and private decisions are made on an informed basis;
- cooperate with the States and political subdivisions of States in retaining, protecting, and improving farmland; and

1/Senate bill 1616 included range and forest land in its policy statement and objectives.

--require that all activities carried out by Federal departments and agencies which affect farmland be effectively coordinated and improved to protect such land.

The bills called for establishing an agricultural land review commission to (1) study farmland, especially its quantity, quality, location, and financing, (2) study the relationship of farmland as a national concern to other national concerns, such as energy, the economy, urban growth and development, foreign relations and trade, and humanitarian aid, and (3) recommend to the President, the Congress, or the Secretary of Agriculture various methods of accomplishing the national policy.

The bills also proposed a program, to be administered by the Secretary of Agriculture, providing technical and financial assistance to States and their political subdivisions to carry out pilot farmland preservation projects that would demonstrate and test methods of reducing the amount of land annually being converted from agricultural or forestry uses to nonagricultural or nonessential uses. Federal financial assistance was to be limited to 75 percent of project costs as defined in the bills (except for S. 1616 which placed the limit at 60 percent).

The bills provided that nothing therein would authorize the Federal Government to regulate the use of privately owned land; deprive landowners of their rights to property or to income from the sale of property; or diminish the existing authority, rights, and responsibilities of the States and their political subdivisions relating to land use, zoning, taxation, or any other aspect of the regulation, utilization, and disposition of public or private lands within their respective jurisdictions.

The House Agriculture Committee's Subcommittee on Family Farms, Rural Development, and Special Studies held hearings on H.R. 5882 in June 1977 and marked up the bill but never voted on it. The Subcommittee on Environment, Soil Conservation, and Forestry of the Senate Committee on Agriculture, Nutrition, and Forestry held hearings on S. 1616 in August 1977 but took no further action.

All of the bills died at the end of the 95th Congress and, at the present time, there is no specific congressional policy statement on the retention of prime or other farmland. As of June 26, 1979, three farmland protection bills had been introduced in the 96th Congress. Two of these, H.R. 2551 and S. 795, are generally similar to those discussed above. The other bill, H.R. 4227, proposes some

of the same features but would provide for the land grant university and extension system to play a major role in farmland protection efforts.

STATES' VIEWS ON THE FEDERAL ROLE IN RETAINING FARMLAND

Thirty-one States offered views on the Federal role. These ranged from no direct Federal role to advocacy of a national policy on retaining farmland. The central theme of the States' responses was that the Federal role should be to guide and help State and local efforts, not control them.

Federal agencies should reexamine their programs and activities which take farmland

Responses from 16 States indicated that Federal agencies should reexamine their programs and activities which take farmland. For example, Illinois said:

"Many federally provided or supported activities have a direct or indirect impact on the supply of farmland. The first step in an effort to identify the Federal role in farmland retention would be a study to identify and assess what Federal activities affect farmland supply."

Other States suggested that Federal activities related to highways, dams, and housing be examined.

North Dakota pointed out that some Federal programs are in conflict on retaining farmland. It said that HUD programs foster community development that is contiguous to existing cities and that this is beneficial because it saves money and farmland by using existing public facilities and utilities. It contrasted this to FmHA programs which help finance rural housing developments outside existing communities. These developments, it said, are more costly and take more farmland. North Dakota also noted that the best farmland is often taken because it has physical features which make it attractive for development; that is, it is usually relatively level and well drained.

Federal Government should provide data and information on the quality of farmland

State and local governments attempting to retain prime and other farmland need information on soil capabilities and qualities and uses. This soil information is provided primarily by SCS which is currently mapping prime soils

throughout the United States. The soil inventory is not expected to be completed until 1986. Fourteen States indicated that this is a proper Federal role, but several thought that the work should be expedited.

Federal Government should formulate a national policy or guidelines on farmland retention

Fourteen States said that the Federal role should be to provide a national policy or guidelines to States or localities on retaining farmland. According to Pennsylvania, a national policy and program for retaining farmland would benefit that State by

- strengthening State interest in preserving farmland,
- encouraging State policies for retaining farmland and assisting development of strong local farmland retention programs,
- providing an opportunity for funding of State programs to retain farmland, and
- maintaining a viable agricultural economy in Pennsylvania and contributing to better urban/rural land use.

California believed that a Federal policy to preserve land would put focus on the issue and show that the Federal Government is taking a leadership role. It said, however, that implementation of such a policy should occur at the State and local levels. Idaho said:

"The federal government could assist greatly in the development of guidelines which could be used by states and local governments in the planning and implementation of agricultural protection policies and development practices."

An official of Hawaii's Department of Planning and Economic Development could foresee the following benefits:

- States would get better support from other Federal agencies, such as SCS.
- More dollars might be committed for agricultural research with attendant benefits, such as developing new plant varieties.

--Greater emphasis would be placed on rural development and the Rural Development Act of 1972 might be funded and progress made toward achieving its goals.

--It would help stabilize food prices.

--States would act more vigorously in land-use planning.

Hawaii's high economic activity and high growth rate--presently twice the national average--is causing acute pressures toward conversion of much of its prime farmland.

Federal Government should
not play a direct role

Thirteen States, including some which suggested certain Federal roles supportive of State and local efforts, indicated that the Federal Government should not play a direct role in retaining farmland. Land-use controls belong, they believe, to State and local governments. Oklahoma said: "The preservation of farmland is considered a matter of state concern and one in which the State's citizens seem to prefer to express their opinions to local and state elected officials." The theme that the State and local governments rather than the Federal Government should regulate land uses was consistent throughout the States' responses.

Other Federal roles

Seven States said that the Federal Government should provide financial support for planning or conducting farmland retention programs. Kentucky said that, if measures are required to keep farmland in production, the Federal Government should make up the monetary difference for keeping the land in production. New Jersey said that the Federal Government should fund demonstration projects in States which are under intense development pressures. Oregon said there should be financial assistance to State planning programs which are trying to protect farmlands.

Seven States also said that the Federal Government should provide advice to the States, as appropriate. For example, Maine said that the Federal Government and its agencies should play a supportive role in encouraging and making available the resources they have to make certain that the individual States make the best possible judgment.

Four States thought that public education should be provided on the importance of farmland. North Carolina said that a Federal role could be to create an awareness of the need to maintain prime and important farmlands as a

national resource for the Nation's long-term needs. Oregon said that the Federal Government could provide "public education concerning the loss of this nation's important agricultural lands, the need to protect them and their value to us, * * *." Finally, three States suggested that some type of Federal tax incentives be provided for retaining farmland.

CONCLUSIONS

There is not yet a national policy or guidelines on retaining farmland. Nor is there a national goal as to the amount of land, especially prime land, that should be preserved as farmland. A national goal should be established after giving consideration to prospective world food needs, agricultural technology, and the availability of the basic resources needed to produce food, as well as to other national concerns such as the economy and urban growth and development. These considerations need not be incompatible. An overall national goal should be determined through regional analyses by land class or groups of land classes. Once such a goal is established, the Congress should provide for periodic assessments to see if land conversions are eroding regional acreage goals.

A widely publicized national policy identifying the national interest in and national goals for protecting and retaining prime and other farmland could

- serve as an effective basis for guiding and supporting land-use decisions by Federal agencies and land-use planning and decisions by State and local governments,
- encourage intergovernmental cooperation and coordination in managing one of our Nation's most important resources, and
- promote public investment patterns that will minimize adverse impacts on farmland.

Overall, the States believe that the Federal role in retaining farmland should be to guide and help State and local government efforts, not control them. In addition to formulating a national policy and guidelines on retaining farmland, the Federal roles most frequently suggested by the States were that Federal agencies review their programs or activities that take farmland and provide data and information on farmland.

SCS is providing information on farmland and is mapping the Nation's prime soils. There is a need, however, for Federal agencies to better assess the impacts of projects that are federally financed, assisted, or otherwise controlled. Recommendations addressing this need are included at the end of chapter 5.

RECOMMENDATIONS TO THE CONGRESS

We recommend that the Congress (1) formulate a national policy on protecting and retaining prime and other farmland, (2) set a national goal as to the amount and class of farmland that should be preserved to meet current and future needs, (3) periodically assess whether the loss of farmland is eroding the maintenance of established goals, and (4) delineate the role the Federal Government can and should play in guiding and helping State and local efforts to retain farmland.

We further recommend that, if the Congress decides to provide Federal support to States and political subdivisions to carry out farmland preservation programs as proposed in bills now before the Congress, it specifically set out the criteria which such programs have to meet. The elements listed in the conclusions section of chapter 4 should be considered in developing such criteria.

CHAPTER 7

FURTHER ANALYSES NEEDED OF LAND

POTENTIALLY AVAILABLE FOR CROP PRODUCTION

Periodic estimates of how much additional cropland can be brought into production are important because they indicate the Nation's capability to supply future food demands. They are particularly important because of the uncertainty that other factors, such as technology, additional irrigation, and fertilization, can maintain the continued growth of agricultural production. Potential cropland estimates also help put into perspective debate over the amount of cropland being taken for other uses.

USDA's past estimates of potential cropland have resulted from statistically projected aggregate acreage inventories based primarily on the physical or latent capability of land to be cultivated. Other factors, however, can limit the amount of such land that can realistically be expected to be cropped. These include existing commitments of potential cropland to other uses, including other agricultural uses; the probability of conversion, given the economic conditions needed to induce owners to bring additional land into cultivation; and certain physical barriers to conversion.

SCS's 1977 report on its 1975 potential cropland study mentioned some of these factors but they were not further analyzed to quantify the impact they could have on the potential cropland estimates. According to USDA (see app. I), owners' views and varying economic conditions were purposefully not included in the 1975 study because of the statistical sampling nature of the study.

SCS is currently analyzing potential cropland again to fulfill the Department's obligation under the Soil and Water Resources Conservation Act of 1977, which, among other things, requires the Secretary of Agriculture to collect data on the quality and quantity of soil resources.

Our visits to 93 potential cropland sites, which SCS had identified in North Dakota during its current study, and our discussions with the landowners showed that all but three of the sites were already being used for some agricultural purpose and that, for about 90 percent of the sites, the landowners would not convert them to crop production at existing commodity prices. The information we obtained suggests that USDA needs to further analyze potential cropland estimates in terms of the possible impact of ownership and use factors on the land's availability for cropping. Combining potential

cropland estimates with such analyses, as well as with information on technological barriers and irrigation and energy considerations, would present a more complete and realistic picture of land available for crop production.

ESTIMATES OF POTENTIAL CROPLAND

SCS's past estimates of potential cropland have included estimates derived from its 1967 conservation needs inventory (CNI) and its 1975 potential cropland study. The CNI's primary purpose was not to estimate potential cropland, but to identify, based on a random sampling procedure, land use, soil capability, conservation problems, and conservation treatment needs for all land except Federal noncroplands, urban or built-up areas, and water areas. The land included in the CNI--a total of 1,438 million acres, or about 63 percent of the Nation's land area--was then categorized into land capability classes I through VIII.

All class I through III land which was not in cropland--a total of 266 million acres--was assumed to be potential cropland. A later USDA estimate ^{1/} indicated that about 152 of the 266 million acres had high or medium potential for conversion.

The 1975 potential cropland study, based on a relatively small subsample of the 1967 CNI sample points, estimated that a total of 111 million acres had high or medium potential for conversion to cropland. In reporting the results of this study, SCS said that, of the 78 million acres of high potential land, about 35 million acres had no development problems and could be converted to cropland simply by beginning tillage. It described the remaining high potential land (about 43 million acres) as having problems, such as wind and water erosion hazards, that needed to be corrected through installation of relatively inexpensive conservation practices before it could be converted to cropland. It also said that most of the 33 million acres of medium potential land would require significant investments in conservation practices and development measures to make them suitable for growing crops.

In its current study to estimate potential cropland, SCS is using a sampling approach similar to its past procedures.

^{1/}"Farmland: Will There Be Enough?" USDA-ERS, ERS-584, May 1975.

FACTORS OTHER THAN LAND'S PHYSICAL PROPERTIES
CAN AFFECT LIKELIHOOD OF CONVERSION

To get an idea of the extent to which factors other than the land's physical properties--particularly current agricultural use of potential cropland and economic considerations--might affect the likelihood of such land being used for crops, we visited all owner/operators of potential cropland, identified in SCS's current study, in 12 contiguous counties in south-central North Dakota. Almost all of the 93 sample points of potential cropland we visited were used for some agricultural purpose, and owners of nearly 90 percent of the land believed that conversion to crop production would not be practicable under existing economic conditions.

Most land classified as potential cropland
is already in agricultural production

SCS had classified 23 of the 93 North Dakota sample points as having high conversion potential and 70 as having medium conversion potential. In the forthcoming SCS projection, these sample points are expected to represent about 740,000 potential cropland acres. Ninety of the 93 sample point areas were being used for pasture or rangeland and 3 were committed to wildlife habitat use under conservation contracts or easements.

For example, a sample point in Burleigh County was located in a pasture. SCS classified the point as having high conversion potential, although the pasture was the only convenient one for the landowner's dairy operation. The owner had recently improved the pasture by installing a live-stock watering facility.

On a Logan County farm, a sample point classified as having medium conversion potential was located in a 12-acre pasture at one end of a 46-acre field. The owner thought that 4 of the 12 acres could be converted to crops. However, when considering the entire 12-acre area, he believed pasture would provide a better overall economic return even with depressed cattle prices.

Although cropping is generally a more intensive land use than other agricultural uses, the importance and productive value of noncropland uses need to be considered in potential cropland estimates.

In a July 19, 1977, letter, we reported to the Administrator of SCS on similar visits we had made to 44 sample points in 5 Minnesota counties. These points were among those used in the 1975 SCS study of potential cropland. Two of the points had been converted to cropland. Of the other

42 points, which represented about 1.8 million acres, most were being used for other agricultural purposes, such as raising cattle and turkeys. SCS's report on its 1975 study mentioned that there would be tradeoffs between grain production and meat or lumber production, but did not quantify the possible impact of such tradeoffs.

Economic and other considerations can also affect availability of potential cropland

We asked the 60 owner/operators of the 93 North Dakota sample points about the feasibility of converting those areas to cropland and about the conversion effects and development investments that conversion would require. We also asked whether commodity price increases would affect their conversion decisions. The farms averaged 1,735 acres and the owners' median receipts from farming were \$30,000.

Owners of 10 sample point areas were considering converting the land to cropland uses. The principal reasons given were

- higher economic returns from crops,
- need to create more desirable field sizes, and
- less need for pasture.

Owners of the other 83 sample points said it would not be feasible to convert the land at present crop prices. They cited the following more specific reasons.

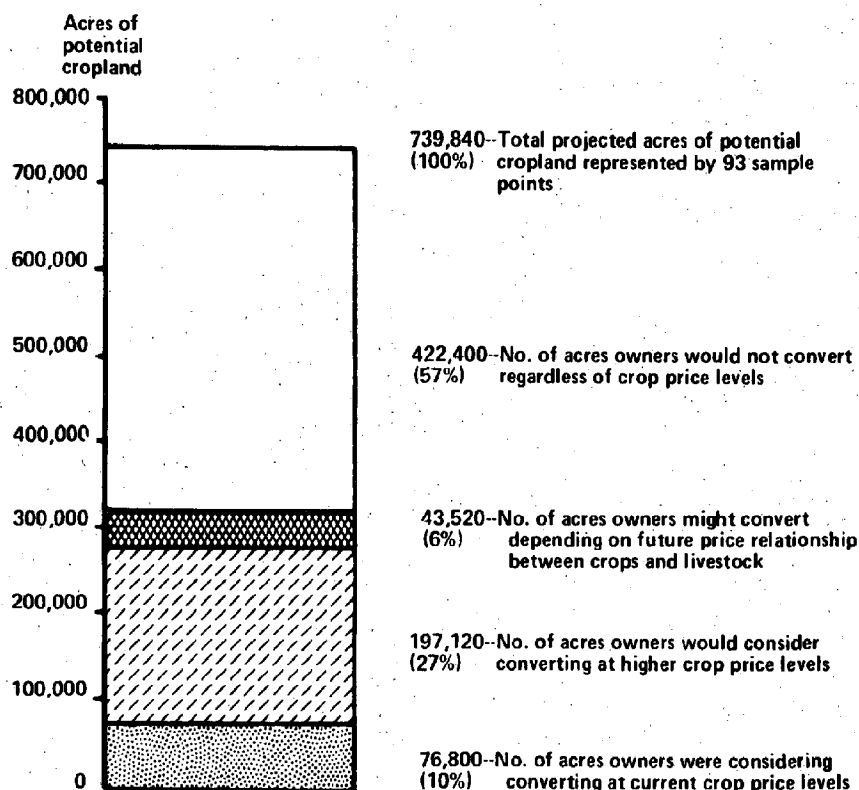
- Cost to convert was too high.
- Area was committed to livestock operations.
- Area was too small or odd sized.
- Flooding problems or excessive wetness existed.
- Soil was unsuitable for cropping (alkalinity, gravel, very low fertility, stoniness, etc.).
- Area was committed to wildlife.
- Current crop prices were too low.

These reasons indicate that high conversion or development costs relative to anticipated economic return, and specific soil and water limitations which would require conservation or development investments, would be major impediments to

conversion. (SCS's 1977 report on its 1975 potential cropland study pointed out that more than two-thirds of the projected high and medium potential cropland identified in that study would require conservation or development investments before it could be used as cropland.)

Owners of 54 of the 83 sample point areas that were not being considered for conversion said that they would not consider conversion regardless of higher commodity prices. Typically, either these sample point areas were committed to pasture use or the owners did not think the areas were practical to farm because of conversion obstacles or other perceived limitations. Owners of 24 sample points said that higher grain prices could induce them to convert one or more of their sample point areas if commodity prices--particularly of wheat, the principal regional crop--were substantially higher and if the higher prices continued for an extended period--2 or more years. The owners of the remaining five sample point areas indicated that their conversion decisions would depend on future price relationships between crops and livestock.

The owner's views are depicted in the following graph.



Although the owners' views may change, demographic and other data obtained from the respondents indicated that, in the aggregate and for the foreseeable future, their views are fairly firm.

USDA SEES VALUE IN FURTHER ANALYSES
OF POTENTIAL CROPLAND ESTIMATES

In responding to our July 1977 letter, the SCS Administrator said that incorporating economic and other owner views and considering the overall agricultural impact of conversion would be of value to USDA. He said that SCS had referred the issue to the Economics, Statistics, and Cooperatives Service (ESCS) because SCS lacked the authority to survey farm operators. ESCS subsequently planned to make a survey but its efforts were suspended because resources for this purpose were not available.

A recent USDA report ^{1/} which analyzed SCS's report on its 1975 potential cropland study concluded that, because the future demand for U.S. crops is uncertain, research is needed to assess those circumstances under which potential cropland might be developed as well as the consequences of that development. The matters said to need further research were

- the cost, both public and private, of converting noncropland to cropland;
- the responsiveness of landowners affected by ownership problems (such as small tracts, isolated tracts, small ownership units, and owner commitment to non-cropland uses) to the price mechanism; that is, shifts in cost-price relationships; and
- the availability of the potential cropland at various stages in the price cycle.

On the last item, the report noted that SCS was making an additional analysis of its 1975 potential cropland study based on 1976 price-cost relationships. The data on potential cropland in the 1975 study reflected 1974 agricultural product/price relationships, which the report noted were one of the most favorable in recent times.

^{1/}"A Perspective on Cropland Availability," USDA-ESCS, Agricultural Economic Report No. 406, July 1978.

DISCREPANCIES BETWEEN OWNERS' VIEWS AND SCS CLASSIFICATIONS

Our interviews with the North Dakota landowners surfaced some disagreements with SCS land classifications:

- Some sample points classified as having potential for conversion to cropland were already in crop production, according to the owners.
- Some sample points classified as having no development or production limitations had such limitations in their owners' views.

To get a good reading on potential cropland, existing cropland obviously should be excluded. However, the distinction between cropland and noncropland usage is sometimes judgmental. For example, hayland is sometimes pastured and pastureland may be cut for hay occasionally. SCS defines the former as a cropland use and the latter as a noncropland use. Owners of 11 of the 93 potential cropland points felt the land already was in cropland, while SCS had classified the use as pasture or rangeland.

Also, SCS had classified 42 of the 93 sample points as not having any development problems. However, in 26 cases, the owners described development problems--most involving rocks or stones--which they felt would hinder conversion. SCS officials said that stoniness was normal to the area and they did not consider it to be a significant deterrent to tillage.

CONCLUSIONS

Periodic estimates of the amount of noncropland having the physical or latent capability of being converted to cropland are needed to help define the priority that should be accorded to preserving prime and other farmland. Such estimates need to be further analyzed, however, because various factors can limit the amount of such land that can realistically be expected to be cropped. Such analyses should include determinations of the (1) price levels and relationships required to induce a significant expansion of cropland, (2) owners' views of the lands' conversion obstacles and perceived limitations, and (3) extent to which conversion would affect other agricultural uses and existing farming operations. These analyses will require gathering information from a suitable national sample of landowners.

RECOMMENDATION TO THE SECRETARY
OF AGRICULTURE

We recommend that the Secretary of Agriculture direct ESCS to analyze the Department's potential cropland estimates in terms of how much land is likely to be converted considering current land use, production tradeoffs, development problems and costs, and other economic values, such as changes in the relationship of production and development costs to commodity prices. Such analyses should be coordinated with SCS's studies of potential cropland and included as part of, or as a supplement to, SCS's report on the subject. The results would be helpful to the Congress in establishing the national land preservation goals recommended in chapter 6.

USDA COMMENTS

USDA agreed with our recommendation. (See app. I.) It said that it shared our view that there is a need for further, more detailed analysis of the land potentially available for crop production. It said that it felt that ESCS needs to provide more detailed studies which include the vagaries of economic conditions and owners' preferences.

CHAPTER 8

SCOPE OF REVIEW

To identify and evaluate the issues pertaining to the loss of prime and other farmland to nonagricultural purposes, we reviewed relevant government and academic studies on the issue and obtained opinions from knowledgeable authorities. We also reviewed environmental assessment documents, policies, and/or procedures (relating to farmland) of USDA, HUD, EPA, DOT, the Corps of Engineers, and CEQ.

We also contacted various State and local governments to obtain information on the methods being used to retain farmland, and reviewed various academic studies and other literature concerning the effectiveness of these methods. In some instances, we analyzed the effectiveness of the preservation methods and evaluated the impact of Federal actions on the conversion of farmland to nonagricultural uses. Our fieldwork was done in California, Hawaii, Illinois, Minnesota, New Jersey, New York, North Dakota, Oklahoma, Pennsylvania, and Vermont. We asked officials of all 50 States for their views on the seriousness of farmland losses and the role the Federal Government should have in preserving farmland.

Dr. Willard W. Cochrane of the Department of Agricultural and Applied Economics, University of Minnesota, was engaged as a consultant to help in our work.



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

JUN 7 1979

Mr. Henry Eschwege
Director, Community and Economic
Development Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in response to your April 10, 1979, request for comments on your proposed report to the Congress entitled "The Taking of Prime Farmland--What Should Be Done About It?"

General Comments

We find this an excellent report that clearly identifies the need for actions by all levels of government.

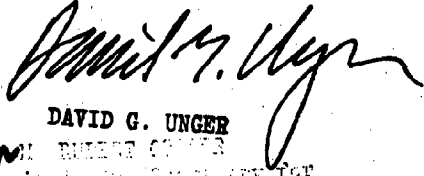
Except as otherwise noted in these comments, we agree with your recommendations to the Secretary of Agriculture. We are joining with the Council on Environmental Quality in the leadership of a study on the retention and conversion of agricultural lands which would include the recommendations contained on page 52 of your draft report.

There are three general areas which we feel need to be modified. The first relates to the several positive statements that agricultural productivity has leveled off since the early seventies. In our view, it is not clear that this is the case. We feel that the heading on page 15, "Productivity yields have leveled off", overstates the case based on the evidence at hand, and ask that it be deleted.

The second area deals with the need for further analysis of land potentially available for crop production. We share the view expressed in your draft report that there is a need for further, more detailed analysis of the land potentially available for crop production. We do not feel, however, that the section of your draft report entitled "Discrepancies Between Owner's Views and SCS Classifications" is appropriate. The USDA study of levels of potential for conversion to cropland use was based on the soil's potential for conversion under 1974 economic conditions. It was not intended or designed to be used in the way that was reported in your draft report. The views of owners or varying economic conditions were purposefully not included in the USDA study because of the statistical sampling nature of the study. We do feel the Economics, Statistics, and Cooperatives Service (ESCS) needs to provide more detailed studies which include the vagaries of economic conditions and owners' preferences.

The third area of concern deals with the comments of the Farmers Home Administration's (FmHA) representative. Since that interview, steps have been taken by FmHA to bring operation of its programs into compliance with USDA's statement on land use policy. The Department of Agriculture, in its revised statement on land use, (Secretary's Memo 1827, Revised, October 30, 1978), directed all of its agencies to modify their programs to conform with that policy. The policy provides for all of USDA's actions to be evaluated as to their potential adverse impact on important farmlands and to avoid or minimize those impacts where possible.

Sincerely,



DAVID G. UNGER

for DIRECTOR
Assistant Secretary for
Conservation, Research, & Education



ASSISTANT SECRETARY
FOR ADMINISTRATION

OFFICE OF THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

May 22, 1979

Mr. Henry Eschwege
Director, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This is in response to your letter dated April 10, 1979, requesting our comments on Chapter 5 of the General Accounting Office (GAO) draft report, "The Taking of Prime Farmland--What Should Be Done About It?"

Since highways are critical to the continued vitality of our rural economy, the loss of prime farmland to build highway projects on new location is often an unfortunate but necessary consequence. We believe that most of these losses have been acceptable when weighed against the economic and social benefits which such highways bring rural America. In the future, we are hopeful that the continued shift of national emphasis from the construction of new highway facilities to the upgrading of existing facilities will significantly lessen the conversion of prime farmland for transportation projects.

This is not to say, however, that we should not increase our efforts to identify and evaluate the adverse impacts of federal construction projects on prime farmland and to determine ways to minimize this effect. We believe that much can be done in the area of land use controls, with the cooperation of local governments, to protect prime farmland and to direct development and growth into other more suitable areas. Controlling access is one important transportation technique which can be used to supplement these efforts.

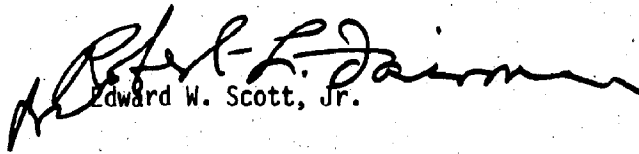
We therefore support the recommendations on pages 52 and 53. We recommend however, that DOT be included as a lead agency in the "effort to develop criteria to guide Federal departments and agencies in determining and evaluating the impact of their proposed projects and actions that adversely affect prime farmland." We believe this



is justified since: (1) highways are a major consumer of land; (2) highways cause major land use changes; and (3) DOT has the expertise and interest to assist in such an endeavor.

If we can further assist you, please let us know.

Sincerely,


Edward W. Scott, Jr.

Copy

June 12, 1979

Mr. Henry Eschwege
Director, Community and Economic
Development Division
General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This is in response to your April 10 request for our comments on Chapter 5 of the GAO draft report to Congress entitled "The Taking of Prime Farmland--What Should Be Done About It?"

We have reviewed the report, particularly pages 42-44 which deal with a number of actions by HUD's Federal Housing Administration in the development of land, especially for low and moderate income housing. The report correctly states (page 43) that HUD often does not have a choice in selecting alternative sites and must either accept or reject a developer's proposal. When such projects are located where development is imminent, HUD's disapproval of a project for mortgage insurance may not always prevent the conversion of prime farmland, as other financing is usually available. Under the Section 203(b) mortgage insurance program, Federal involvement by HUD occurs only when a developer chooses to submit an application for subdivision analysis. This may be done early, but more frequently the developer comes to HUD after construction has begun. Our ability to influence development of farmland directly through housing approval actions is, therefore, limited.

The major problem for Housing in dealing with prime and unique farmlands is conflicting guidance with respect to what constitutes prime and unique farmlands. The second problem is the lack of established policy as to how to treat such farmlands when and if they are identified.

As you know, HUD has no authority to control land usage at the local level. However, we have provided financial assistance to many States and municipalities through our 701 program for the development of comprehensive plans and management processes to anticipate the impacts of development on natural resources, including prime farmland, before

Copy

specific development decisions are made. The A-95 process also affords opportunity for review of actions which would consume farmland. The urban impact analysis criteria which we hope will soon be added to A-95 will extend the capacity of A-95 to address the issues of sprawl and farmland consumption.

We have developed and advocate the concept of "Areawide Environmental Impact Statements." It will help anticipate and assess the cumulative impact of urban development in a specific geographic area rather than on a project-by-project basis. As relevant, it links the environmental reviews to local comprehensive plans.

Unfortunately, effective tools except for costly fee simple purchase, are seldom at the disposal of those who seek to preserve prime farmlands or other open space. Many States have enacted preferential farm assessment regulations and some have the authority to purchase development rights. In a similar vein, many cities have policies of withholding the construction of urban infrastructure in order to avoid fragmented development. Properly coordinated with a comprehensive plan, these efforts have beneficial effects in shaping areas to be urbanized. Standing alone zoning will rarely be effective. It is only when a combination of all available land use and development strategies are marshalled in support of a comprehensive plan with strong public backing that the various goals of a community are attainable. We believe a coordinated State and local approach is necessary, and consistent with the President's urban policy.

Prime farmland is often also the most desirable land for housing development and the economic and political pressures in favor of development are very strong. Criteria to guide agency assessments therefore should be clear, specific, and firmly based on the national urban policy. Such criteria should be developed in consultation with other Federal agencies.

Sincerely,

(signed)
Robert C. Embry, Jr.
Assistant Secretary



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314

REPLY TO
ATTENTION OF:

4 MAY 1979

DAEN-CWR-P

Mr. Henry Eschwege
Director
Community and Economic
Development Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in reply to your letter of 10 April 1979 to the Chief of Engineers regarding Chapter 5 of your draft report on "The Taking of Prime Farmland--What Should be Done About It?"

The statements in your report attributed to U. S. Army Corps of Engineer field personnel are probably correct. However, I would like to point out that the taking of prime farmland for water resource projects has received more consideration than indicated in the report.

At the request of the President the Corps of Engineers, Interior Department and Tennessee Valley Authority, with assistance from the Office of Management and Budget and the Council On Environment Quality, conducted a major review of ongoing water resources projects in early 1977. One of the environmental criteria considered in the review was the taking of prime farmland.

This subject was a factor in the President's recommendation to deauthorize two Corps projects. One of the five factors of decision, listed by the President in recommending deletion of the Grove Lake, Kansas project was, "The project would take 10,000 acres of prime farmland." Of three factors listed for deauthorizing the Meramec Park Lake, Missouri project, one was, "Lake will inundate 12,600 acres, about half of which is prime farmland, to fully protect only 11,900 downstream acres of land."

We appreciate the opportunity to review your draft report.

Sincerely,

A handwritten signature in dark ink, appearing to read "Maximilian Imhoff", written over a horizontal line.

MAXIMILIAN IMHOFF
Colonel, Corps of Engineers
Executive Director of Civil Works

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