

By

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Introduction

Perhaps for no greater reasons than for religious purpose or for sheer power has the desire for land or for land reform been the cause of wars throughout the development of civilization. Mexican citizens were so oppressed and starved for land that in the late 1850's the great social revolution known in Mexican history as the Reform was undertaken. The protagonists of the Reform proposed among other things to stimulate economic progress by putting into circulation the properties of the Church. It was their hope that they could create a nation of small property owners.

In biblical history the desire to settle down from a nomadic life to an agrarian one was strong in the hearts of the Hebrews. The patriarch Abraham set out to find "The Promised Land", finally settling in Palestine.

For the first time in history environmental concerns have so stirred the people and their government that the policies that formulated the present land use patterns are being questioned, and new ones proposed.

The purpose of this paper is to explore some of the activity in California that is occurring in this field of land reform. My comments will be limited to those programs developing at state and local government levels, although it is recognized that the influence of federal policies will in many ways be as significant as the efforts of state government.

Evolution of Land Ownership

To provide some background for discussions to follow, a brief review of the evolution of land ownership in California would be appropriate and of interest.

In 1848 two significant events occurred that shaped California's destiny. The treaty of Guadalupe Hidalgo which ended the war with Mexico made large tracts of new land the property of the United States. Secondly, gold was discovered in California.

Upon California's admission to the Union in 1850, various grants and acts started the disbursement of public land to the states, individuals, and corporations. Grants for swamp and overflow land, for the support of common schools, and for colleges of agriculture and the mechanical arts made available to the new State in excess of 8,800,000 acres, a figure that also approximated the area included in confirmed Spanish and Mexican land grants that were respected by the United States.

Other federal acts, such as the homestead act, the timber and stone act, railroad grants, and a number of minor acts were further means by which the public domain became available for settlement and development. Total disposal of the public domain amounted to slightly more than 56½ million acres. This is about 57 percent of California's land area in that the total area is only slightly greater than 100 million acres.

A change from the policy of disposing of public land by grants and sale began in 1890 with the establishment of three national parks--Sequoia, Yosemite and General Grant. Lassen was established in 1916, and Kings Canyon was created in 1940 by combining General Grant National Park and portions of Sequoia and Sierra National Forests.

From the viewpoint of the area involved, a more drastic departure from the disposal policy came in 1891 when Congress authorized the President to set aside as forest preserves public land covered with timber or undergrowth. Withdrawals began immediately and by the end of 1899 California had nine forest reserves with a total acreage of nearly 9 million acres. Five million was in the Sierra Nevada. With Theodore Roosevelt in the White House

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forest reserves became National Forests and their creation accelerated. By 1909, a peak of nearly 28 million acres was in National Forests. In the years that have followed adjustments in boundaries have taken place until at present 25 million acres of California land are National Forests.

Numerous other land policies reserved the remaining public land for such purposes as minerals, range, or military. The Taylor Grazing Act in 1934 set aside about 8 million acres, and military lands amounted about 2½ million acres.

From the beginning, California followed the policy of selling the land granted to it by the Federal Government as rapidly as purchasers could be found. Of the original grants of nearly 9 million acres less than 1 million acres are now left, mostly in school land. In recent years California has acquired by purchase lands for highways, parks, forest and wildlife, and has acquired numerous beach properties.

Present Use of Land

A broad look at California tells us that one-third of the State can be classified as valley and mesa and two-thirds mountains and foothills.

It is interesting to note as well that two-thirds of the water of the State originates north of a line through San Francisco Bay Area while two-thirds of the water requirements occur south of that line, thus, the development of the two major water transfer systems--the Federal-Central Valley Project and the State Water Project.

California has been the Nations leading agricultural State for more than 20 years, but urban pressures have become one of the foremost problems facing the industry. During these past two decades, 30,000 to 40,000 acres a year have been required to accommodate California's growth in populated and commercial development. Generally, about one-half of this growth has occurred on highly productive agricultural lands. Table III presents the areas occupied by irrigated agriculture and urban development at the close of the 1960's.

Various projections have been made of the future trends in irrigated land and urban use. A Department of Water Resources' report which had as its objective the evaluation of water requirements provided the projections presented in Table IV. The projections are based on the concepts that in the major agricultural regions of the State much of the best agricultural land will have been put to some use by the year 2020, and that in the highly urbanized regions--San Francisco Bay and Los Angeles to San Diego--agriculture will be virtually eliminated by urban encroachment.

Classification of Land for Environmental Goals and Policies

There are many ways of classifying land areas depending upon the frame of interest. The California Office of Planning and Research in its studies toward a land use policy has developed a classification system using eight resource categories.

Prior to a discussion of this agency's objectives, we should look at California land classified from this point of view. Precise boundaries have not been placed on these lands, but the kind and nature of resource are identified by word and map. A quote from the report will help in defining the basis of this identifying task.

"The environment includes the total surroundings; the physical, biological, and cultural factors, both natural and man-made, which affect health, senses and intellect. Major physical factors of the environment which must be considered are land, water, air, climate, sound, odors, tastes and man-made structures. Biological factors of the environment are animals and plants, both wild and domestic, native and introduced. Man himself is part of the biological environment. Cultural environmental factors are the characteristic features of a given stage of civilization, the architectural styles, human activities and the available services and amenities."

For each of the eight categories, significant areas are named as areas of critical concern. My comments are added only to clarify the category title.

TABLE I
Disposal of California Public Land

	Percent
Initial grants in 1850	16
Grants to Railroads	20
Spanish and Mexican land grants	16
Cash sales	15
Homestead entries	20
Desert land	2
Timber, stone, and mineral entries	6
Indian, military and others	5
Total acres	56,568,000

Source: California Lands

TABLE II
Topographic Classification of California Lands

	Square Miles	Acres
Mountains and foothills	106,025	68,000,000
Valley and mesa	52,270	33,500,000
Total	158,295	101,500,000

Source: Bulletin 1

TABLE III

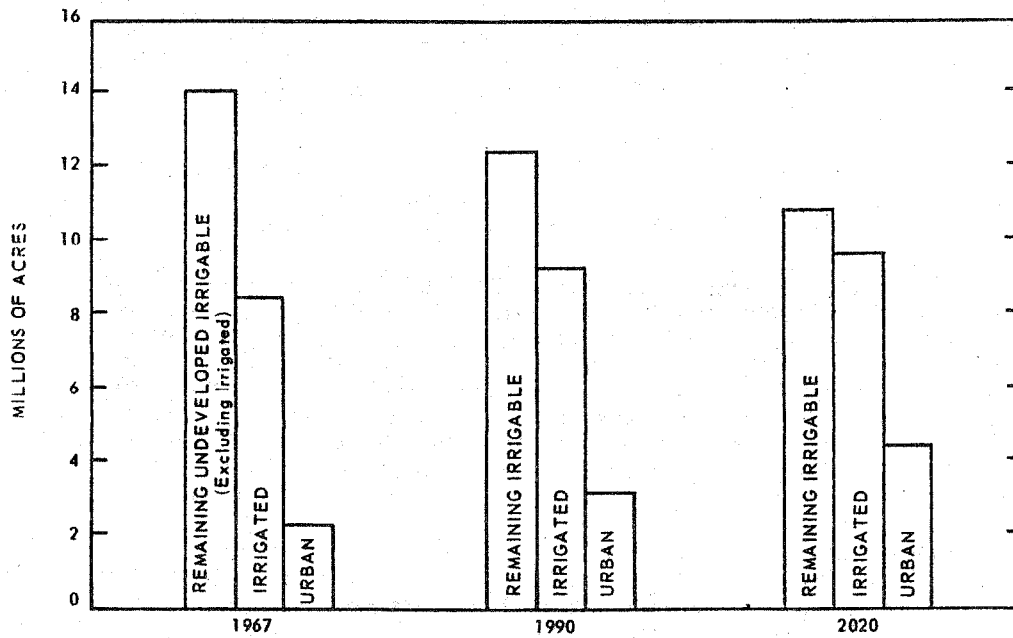
Present Use of Irrigable and Urban Land in California

	Central Valley	San Francisco and Central Coast	Los Angeles and South Coast	Remaining	Total
Irrigated	6,410,000	480,000	480,000	1,110,000	8,480,000
Urban	480,000	580,000	1,050,000	190,000	2,300,000
Remaining Irrigable Lands					14,000,000
All Other Land					76,720,000
Total					101,500,000

Source: Bulletin 160-70

TABLE IV

Present and Projected Land Use of California Land



Source: Bulletin 160-70

1. Scientific, Scenic and Educational Resource. Included within this category are: 59 extraordinary scenic, fishing, wildlife and recreation waterways; Coastal Redwoods; coastal areas; desert landscape; plants listed as rare and endangered; and some specific recreational areas.

2. Wildlife Habitats. Significant areas in this grouping are the habitats of all rare and endangered species of fish and game, and such areas as coastal wetland, marshland habitat for waterfowl and water-associated wildlife, salmon and steelhead spawning areas, deer winter range and Bighorn sheep range.

3. Forest and Agriculture. These lands provide the primary economic base for California yet at the same time have secondary values for recreation, open space, wilderness, wildlife habitat, and scientific purposes. Areas of critical concern within this class are prime and potential prime agricultural lands within a 40-mile radius of metropolitan areas.

4. Open Space Surrounding Metropolitan Areas. Immense amounts of land for shelter, transportation, and private and public services are absorbed each year. Critical for many reasons are open spaces in and around separate towns.

5. Beaches, Lakes, and Riverbank Access. Access to these areas is now and has been for some time a statewide concern. Of critical concern are areas of the coastline that provide potential recreational resources.

6. Connecting Links for Recreation. Highways serve as the primary links between the major scenic and recreation areas of the State. These regional corridors could be greatly enhanced through the establishment of multiple-purpose trail systems for hiking, equestrian use and bicycling. Utility easements provide connecting links. The California Water Aqueduct which traverses the length of the State will serve as a major recreation corridor with associated reservoirs, parks and fishing areas.

7. Historic, Archaeological and Cultural Resources. This classification includes those lands that provide the people of the State an appreciation for their cultural heritage and pride in their State.

8. Lands of Hazardous Concern. California has its share of natural hazards. Included in this classification are lands subject to earthquake, flooding, volcanic eruption, tsunami, landslides, subsidence, and erosion activity. The average economic loss over the last 15 years by flooding for example was \$107 million per year.

Specific Programs in Land Use Management

California is making progress in solutions to specific land use problems. Some of the major efforts, but certainly not all, are discussed briefly as follows:

San Francisco Bay Conservation and Development Commission was established by legislative enactment in 1965 (McAteer-Petris Act). This Commission has developed a set of policies and a guiding plan for the San Francisco Bay. The stated objectives of the plan are to protect and to develop the Bay and its shoreline for future and present generations. In addition to a planning function the Commission regulates filling and dredging, and has limited jurisdiction over development along the shoreline. The ramifications of this plan and the effects of the Commission are many. For example, the matter of solid waste disposal although not directly related to land use is a matter of study and potential regulation by the Commission.

Coastal Zone Conservation Act is a further example of Californians' concern for an adequately planned development of the coastline. This initiative measure was approved by the voters in 1972. The measure establishes a limited term commission whose function is to set criteria and prepare a plan for submission to the Legislature for the preservation of a coastal zone, defined as 1,000 yards landward for the entire coastal strip from Oregon to Mexico.

The practical effect is a mandate from the people to the Legislature to recognize their concern that much coastal development of the past has not been in the public interest.

Wild and Scenic Rivers. The strong public interest to preserve portions of California in its natural state culminated in a legislative enactment (Behr Senate Bill 107) that establishes the California Wild and Scenic Rivers system. The essence of the act prevents for a limited period of years impoundment structures on the Eel River and indefinitely on the other major rivers of northcoastal California as the Klamath, Trinity, and Smith. It also provides for the development of a management plan for the rivers. This plan presumably would provide a means for regulating other developments or activities conceived by man.

Flood Plain Management. Two California programs are designed to institute land use control in lands set aside for floodways, The Colby Alquist Act and the Reclamation Board's designated Floodway program.

The first program encourages local government to plan, adopt, and enforce land use regulation in the flood plain by withholding monies for land, easement, and right-of-ways required for Federal flood control projects until the local government adopts suitable regulations. The second is more direct in that state government itself designates the floodways, determines allowable uses of land within the boundaries set, holds hearings, and then issues permits for encroachments into the floodway.

Lake Tahoe and surrounding area is a unique and distinctive responsibility for California and only recently have steps been taken to guide the development of this region. The California Tahoe Regional Planning Agency was created by the State Legislature in 1967 with the stated objectives to adopt and to enforce a regional plan of resource conservation and orderly development. Although this agency is a governmental entity, it has limited functions designed to supplement and coordinate but not to displace the local governments of the region.

Urban Encroachment on Agricultural Lands. To counter the pressure of increasing taxation that forces owners of land to seek a more profitable use, the Legislature enacted in 1965 the Land Conservation Act (The Williamson Act). Under this Act a farmer may restrict the use of his land to agriculture. Thus he is taxed on the income-producing capability in farming rather than upon a value established by invading urbanization. To determine the effectiveness of the Act a map prepared for Fresno County in 1971 showed that little of the prime agricultural land surrounding the City of Fresno, the principal city in that county, and within the urban growth area is under California Land Conservation Act contract. Conversely, much of the land outside the influence of speculation is in the program. Thus, the Act seems to have missed its target.

Land Use Goals

It is apparent from the emphasis being placed both in the planning area and in legislation that the protection of the natural environment will hold a high priority when considering future uses of land. It seems also apparent from attitudes being expressed by the public, Legislature and the courts that governmental policies and regulations in the last quarter of the 20th Century will be somewhat different than in the formative years of California development and growth. No longer does it appear that the public domain will be in the hands of individuals and corporations for exploitation as was the need and practice in those years immediately after California land left Spanish rule to become a State. Nor does it appear that priorities will again be on attracting industry, business, and subdividers into communities by lenient zoning regulations, and favorable tax policies. Efforts for the future seem now to be toward a better understanding of the environment yet with the realization that its capacity is limited. Government too will assume a new role as a monitor of accumulating effects of actions by agencies, districts, corporations and individuals.

In January of 1970 an Assembly Select Committee on Environmental Quality ushered into the state political system a new era of ecological consciousness. Its purpose was to establish goals and direction for environmental legislation. Major emphasis was to be placed upon establishing a system to improve government's ability to identify damages from development before they happen, rather than after they happen.

Two major accomplishments resulted from the Select Committee's endeavor--one, the Environmental Quality Act of 1970 and, two, the creation of the Office of Planning and Research within the Executive Office of the Governor.

The State Environmental Quality Act is very similar to and patterned after the Federal National Environmental Protection Act. Although it has minor differences, its underlying purposes are the same (1) to present full disclosure of environmental issues in governmental decision-making, and (2) to bring environmental concerns to the forefront of governmental decision-making.

The California Office of Planning and Research also established in 1970 has the planning responsibility for shaping statewide development patterns. Work of this agency is in progress, and to date major emphasis has been on land use policies. Progress is admittedly slow and the steps are cautious ones. The present policies are broad and philosophical, and probably will be the forerunners to more specific and directed policies of land use.

In summary four land use goals appear to be formulating:

1. That significant consideration be given to environmental resources as the need and desire for land for public works, for homes, and for industry continues.
2. That extensive areas be set aside for recreation and for individual enjoyment primarily because of their native and natural characteristics.
3. That methods be devised to reduce the pressure on agricultural lands for conversion to urban and industrial use.
4. That more effective ways be developed by which governmental agencies may provide leadership or control of land use development toward acceptable plans.

Wrap Up

My stated purpose for this paper was to explore some of the efforts being made toward more desirable land management principles. Now, in light of this information, we might look briefly at some of the effects this trend will have on water resource managers.

The first and most obvious effect is that water resource planners and builders of projects must look closely at environmental values. Water resource development will not necessarily have first priority in the public mind. The need for water resources must be evident and joined with an educational program to explain and justify the objectives of the development. Ingenuity will be required and necessary to put together programs that satisfy the environmental concerns of many, yet meet the requirements for progress.

Implementation of land use policies that place a high value on environmental resources will necessarily be slow, so rather than struggling in opposition to these policies so that they tend to impede and restrict water programs, a more enlightened approach would be to use advance planning as a tool so that future water projects can be adapted to help implement desirable and compatible policies.

It seems at this time that water resource development for the next decade or so will be slower than that of the era following World War II. It will likely be a leveling off period that will demand more effective use of the already developed resource. Water operations will no doubt become more complex and integrated. Surplus water will be put to as effective use as possible through conjunctive ground and surface water storage, and transfer facilities requiring as accurate a forecast of water availability as possible. The value of energy is increasing rapidly furthering the significance and importance of stored water. Those of us involved in forecasting water supplies will be asked to provide higher quality forecasts with greater timeliness. In some basins of California monthly forecasts were adequate, but now the project operators are asking for forecasts each week. Continuous flow models for each watershed will be a necessary tool for efficient and well-managed operations.

The policies and programs that have led to setting aside vast areas of land for their native and natural characteristics have posed some perplexing problems to managers in our field of interest. In California 12 percent of the State's total land area is a snow zone, and from this area the snow-fed streams produce about one-half of the State's 71,000,000 acre-feet of annual runoff. Significant portions of this land are now being set aside for inclusion in the National Wilderness Preservation System. This spring the U. S. Forest Service announced it will study 14 new areas in California comprising more than one-half million acres for addition to the already 3½ million acres in or proposed for inclusion in the wilderness system.

Management is going to be the name of the game as we move toward greater control of land and its use. Management's principal tool is information so that it knows what is going on. California's watersheds provide an important resource that is placed there by nature in a variable and to date in an unpredictable manner. To effectively use the water resource it must be measured and planned for as it leaves the watershed to enter the stream channels, reservoirs and ground water basins.

In concluding this paper, the following quotation expresses a practical and logical viewpoint toward land use reform.

"California has demonstrated an unparalleled capacity to build and develop the economic resources needed to provide its citizens with a high standard of living. However, it is becoming increasingly obvious that a greater effort must be directed toward protecting and enhancing the natural resources and environment. While the state's resources must be shepherded more effectively in the future if it is to improve the quality of life for all Californians, care must be taken to ensure that perspective is maintained and that traditional freedoms are not subject to unnecessary restriction. A completely controlled economy, a totally planned and regimented environment, will be as strongly disliked by the citizens of this state as a completely unregulated and chaotic society."

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