

IRRIGATION DISTRICTS ASSOCIATION
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**ECONOMICS OF A STATE WATER
RESOURCES PROGRAM**

**Prepared by
Legislative Analyst**

July 9, 1957

Joint sub-
Presented to the Committee on Financial
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California has a tradition of water resources development by local interests which have constructed many projects to furnish hydroelectric power, irrigation water and municipal water supplies. As early as 1872 the California Legislature authorized the formation of irrigation districts and thereby initiated local construction of irrigation projects by public units. Thus, of the 6,438,324 acres (1950 data) of irrigated land in California, only 1,132,602 acres (1952 data) were irrigated with water from federal projects. In addition, local interests, whether private or public, have developed virtually all the municipal water supplies and hydroelectric energy of California.

In contrast, not until 1907 did the Federal Government initiate irrigation construction in California, at which time the Orland Irrigation Project was authorized. Since then the Federal Government has constructed almost all the major projects built in California and its activities have become of great importance to California's economy. Today the policies of the Federal Government are critical to present and future water resources development in California even though local construction continues at a high rate and the State is undertaking a construction program.

Patterns of Federal Interest

The Federal Government constitutionally has responsibility for water resources development related to navigation and national defense. The U. S. Corps of Engineers has assumed major responsibility for flood control work, starting first on the Mississippi and Sacramento Rivers when problems of flood control became too expensive and geographically widespread for local interests to handle. Except for

local contributions covering the costs of rights of way for channel improvements in flood protection projects, the Federal Government pays all costs of the flood control work. Any costs for power installations or conserved water associated with these projects is repaid by local interests. (See Appendix A)

Federal flood control policy shows signs of shifting back to more local responsibility for payment of project costs. The House appropriations committee stated in its FY 1957-58 appropriation report that the committee is "seriously concerned about the lack of local contributions on many of the local flood protection and harbor projects. On projects that are intrastate and often of a strictly local origin and benefit, the local interests should rightfully provide a substantial portion of the costs of the project. It is the intent of this committee to give more consideration to those projects where local interests are willing and able to make the proper contributions, regardless of whether or not the authorization requires it."

Federal construction of irrigation projects, acting through the Bureau of Reclamation, was originally intended to develop and enhance the federal domain. In due time this policy was changed to permit the Bureau of Reclamation to construct projects which watered private lands, authority for which was found in the welfare clause of the Constitution. The Federal Government over the years has tended to provide increasing assistance to irrigation projects because those projects remaining for construction generally are either too large for local interests to finance or assistance to irrigation is required.

The Reclamation Laws, which govern the Bureau of Reclamation, authorize that agency to construct multiple-purpose projects in which irrigation is a primary purpose. Irrigation water users are required to repay all or a portion of the construction costs of irrigation features of the project without interest being charged. Construction costs of municipal or industrial water as well as hydroelectric power developed by the project are required to be fully repaid by the beneficiaries with interest. These beneficiaries may also be required to repay

part of the irrigation construction cost which is beyond the ability of the irrigators to repay. Construction costs for flood control features, and certain costs of fish, wildlife, and recreation features need not be repaid, that is, they are non-reimbursable.

Although federal reclamation policies have been subject to considerable criticism and serious deficiencies have been pointed out in them from time to time, such policies constitute the most reliable method presently available for project evaluation and determination of service rates. These policies have been established over a period of 50 years and have been repeatedly subjected to close scrutiny and extensive study by such groups as committees of Congress, the Commissions on Organization of the Executive Branch of the Government, the Subcommittee on Benefits and Costs of the Federal Inter-Agency River Basin Commission, the National Reclamation Association, and others. Even though there have been substantial criticisms of such policies, the critics have been unable either to develop improved policies or to secure general acceptance of their recommendations. One of the fundamental considerations in reclamation policy is that the only effective measure of the economic worth of a project is the degree to which beneficiaries are willing to repay project construction costs. This consideration keeps the federal government from being committed to the construction of many economically unsound projects, which is an important problem in any public works program. The frequent references to reclamation policy in this document are more for the purposes of explanation and guidance than endorsement.

The Soil Conservation Service of the Department of Agriculture is also authorized to cooperate with local interests in the construction of small projects in small watersheds. Projects which qualify under this program must be associated with soil conservation activities.

Water resources projects constructed by the Corps of Engineers or the Bureau of Reclamation may be either very large projects which are clearly beyond the capability of local interests to construct or they may be smaller projects which the Federal Government constructs in behalf of the local interests because

the latter lack the assessed valuation to finance construction or otherwise are unable to construct the projects themselves. The general pattern for repayment of federal project investments is the same in either case and may be summarized as follows: flood control, navigation, recreation, and fish and wildlife are non-reimbursable, while investments for power, irrigation, municipal and industrial water are reimbursable.

Essentially, the Federal Government when constructing projects in behalf of local interests is performing the planning, design, construction, operation and maintenance work for them. In many cases it will eventually turn over the projects to the local interests when all reimbursable costs have been paid. Supplementing this basic policy, the 84th Congress authorized the Bureau of Reclamation and the Department of Agriculture to lend or grant most of the construction costs of small projects to local interests so that they might construct, own and operate these small projects instead of the Federal Government.

Patterns of State Interest

If the State of California is to undertake a program of water resources development, its role must be carefully fitted into this existing local-federal relationship. Many elements of the State's role are already reasonably clear.

(1) The State has no direct interest in national defense and navigation. (2) The State's water problems are basically intra-state; in most cases there is no overriding interstate interest. (3) The State is interested in flood control, recreation and fish and wildlife on somewhat the same basis as the Federal Government because these factors usually concern more people and larger areas than are encompassed by the jurisdiction and financial capacity of local interests. (4) The interest of the State in irrigation, municipal and industrial water supplies is much the same as the Federal Government; that is, to assure abundant supplies and to provide assistance where local interests cannot cope with the problem. (5) The State has developed no interest in hydroelectric power except to provide revenues for project repayment.

(6) The Federal Government has not directly entered the field of water pollution control so the State retains the primary responsibility to act in such matters.

(7) In the absence of any federal legislation related to irrigation drainage problems in the Central Valley, the State may assume a special interest in this field.

Three reasons are generally advanced in public discussion to support an active role by the State in project construction: (1) inherent characteristics of remaining sites for project construction require large multiple-purpose projects or widespread facilities which are beyond the capacity of local interests; (2) more financial resources than the Federal Government can furnish is needed to speed project construction; and (3) most water resources development enhances the general economy and welfare of the entire State, regardless of the geographic location of the projects. These reasons also tend to cast the State in a role which is parallel and similar to that of the Federal Government.

Certain specific actions of the last three sessions of the State Legislature have already substantially committed the State to a role in water resources development which is similar to many elements of the federal program, i.e. construction of flood control works on the San Joaquin River; authorization for State construction and initial appropriation for site acquisition of five recreational, fisheries and irrigation projects on the Upper Feather River; construction of the Feather River Project for irrigation, flood control, municipal water and power purposes and authorization of the North Bay Aqueduct for State construction.

These project authorizations show evidence of a state interest in water resources development which goes beyond existing federal policy in several particulars. The State appears to have concluded that the federal program for the construction of flood control reservoirs and channel works is not sufficient and that the State must supply additional financial resources to assist in construction. The same may be said for augmentation of the federal reclamation program to supply municipal, industrial and irrigation water. The State also appears to be concluding that it has

a special interest in constructing projects with recreational, wildlife and fisheries features.

There is an element of apparent illogic resulting from the State's constructing major projects comparable to the federal water resources development program. Normally, the Federal Government has built water resources projects because local interests and the states were unable to finance the work. In the case of the original Central Valley Project, the State of California determined that it could not finance the \$170,000,000 required for the project and therefore its construction was undertaken by the Federal Government. In noticeable contrast now is the State's program to build the Feather River Project, the largest undertaking of its kind in history, which the State proposes to finance and construct by itself with certain federal assistance. This is a surprising reversal of the traditional positions of the Federal and State Governments, and it may easily be misrepresented by persons both inside and outside the State to mean that the State has a capacity to finance project construction which makes federal assistance unnecessary. Such an interpretation might undermine the basis for continued federal assistance to water resources development in California. Federal expenditures for water resources development are now under great pressures from the private vs. public power controversy, demands for greater local financial contributions, requests for curtailed expenditures because of large federal budgets, and promises of federal tax reductions. In such circumstances, caution is in order to assure that the State's program supplements and does not supplant federal assistance.

In choosing a role for the State in water resources development, it is important to recognize the interests of the nation as expressed by established patterns of federal assistance; the special interests of the State in helping develop ample supplies of water for its industry, agriculture and municipalities, as well as recognizing the needs for recreational development; and the interests of the local people and the contributions they can make. As long as the State recognizes

and honors these various interests, there may be no serious conflicts with federal policy which cannot be resolved.

The hearings held during September, 1956, by the Department of Water Resources on the California Water Plan brought repeated emphasis from all concerned that the State should not and did not intend to construct all the projects outlined in the Plan. (See Appendix B,) The master system for transferring water from the northern part of the State to the southern part of the State, known as the California Aqueduct System, is the only portion of the Plan clearly beyond the capability of local construction. The hearings also indicated that some local interests will need federal or state assistance to finance local projects and that in certain instances the local interests will be unable to finance a project on the basis of the optimum development proposed in the California Water Plan. An over-all state financing plan for state water resources development, therefore, involves three elements: (1) financing the California Aqueduct System, of which the Feather River Project is the initial step, (2) financial assistance to speed local interests in their construction of projects, and (3) financial assistance to assure construction of multiple-purpose projects in accordance with the optimized development envisioned in the California Water Plan.

It has already been pointed out that federal financing policy is no different for federal construction of projects than for federal assistance to local construction of projects. This same policy would relieve pressures on the State to construct projects for local interests which they might otherwise construct themselves. It would also prevent confusion and actual delay in construction of local projects while local interests gained an understanding of state policies and evaluated them against federal policies.

Increasing Emphasis on Multiple-Purpose Projects

The changing nature of project development in California and the west has had a profound effect on the capability of local interests to finance projects. (See Appendix C.) Many early projects in California merely utilized the natural flow of a

stream and, if required, transported it to the area of use. The problems of high cost construction and complex engineering arose after it became necessary to construct dams to conserve water from periods of high flow to be used during periods of low flow. This storage or conservation of streamflows has emphasized the need for multiple-purpose project development to secure maximum use of the reservoir space provided.

Irrigation projects are intended to provide only a supply of irrigation water. The high costs of developing irrigation water supplies does not permit local interests to spend any appreciable amount of money for development of other project purposes. Because irrigators have been unable to afford the increasing costs of single-purpose irrigation projects they have turned to federal construction to finance power features so that power revenues might repay a portion of irrigation investment costs.

The development of hydroelectric power has also been by single-purpose projects with but few exceptions, whether constructed by privately or publicly owned electric utilities. The rigid limitations on the cost of developing power which is competitive with other energy sources does not allow expenditures for other project purposes. As a result, many multiple-purpose sites throughout the country have been developed for power which foreclosed future multiple-purpose uses of the sites. This was inevitable under the existing system of development and it can be expected to continue until the public interest in the multiple-purpose development of project sites is fully implemented. A case in point recently was the inability of the Sacramento Municipal Utility District to finance the optimum development on the Upper American River which the Department of Water Resources feels is desirable because power costs would be too high.

The floods of December, 1955, dramatically emphasized the need for more flood control storage projects. However, local interests are building or planning

several single-purpose projects in the State which could be enlarged to achieve some flood control storage benefits. Naturally these local interests cannot afford to construct and pay for flood control storage which will bring in no revenues.

It can be concluded that local interests cannot finance multiple-purpose development of many of the remaining project sites without some form of state or federal assistance. Nor should they be expected to finance multiple-purpose projects which provide benefits for others. A broader reflection of the general public interest as represented by the State and Federal Government is required to finance a multiple-purpose project. In particular is this true for project purposes which do not bring any monetary returns.

The future of California promises continued and increasing demands for multiple-purpose projects with fish, wildlife and recreational features because of the increasing standards of living and additional leisure time available to California citizens. At the same time, increasing populations and decentralization of urban centers is constantly encroaching on the natural flood plains of the rivers to secure new space for housing and industrial developments. This urban encroachment is removing irrigated land from production and creating a need for new irrigation projects to replace urbanized farm lands at the same time that expanding population requires new supplies of food and fiber.

The significance of multiple-purpose development also shows up in other ways. Currently a number of rivers in the State are the scene of disagreement over plans for their development with local interests contending for available sites and limited streamflows. In many cases the contestants propose to construct a single-purpose project to satisfy their needs to the exclusion of other purposes and interested parties. Actually a larger project or a multiple-purpose project constructed jointly by several local interests might well develop sufficient additional supplies of water at no substantial increase in costs per unit of project water. It is logical, therefore, to consider each site for its maximum development both with

respect to amounts of water conserved and to all purposes which might be served. Any state program for water resources development should reflect this principle.

The situation confronting the State of California as a result of the increasing need for multiple-purpose projects appears, therefore, to be somewhat as follows: When local interests can finance the construction of a single-purpose project and such factors as the market for water, site location and streamflow runoff justify a single-purpose project, there is no need for state assistance. When a multiple-purpose project can be financed and constructed by local interests on the basis of a tie-in with local power or municipal water users, there may be a need for state assistance to permit adding recreation, flood control and fish and wildlife features in the public interest. But when local interests have a need for only one purpose of a project or when the project is vital but has economic defects which may require some state financial assistance, or when the maximum benefits from the site development require a multiple-purpose project or an optimum size project as outlined in the California Water Plan, a serious problem exists and substantial state or federal assistance may be needed.

Under the latter two circumstances the State has one of two choices, (1) let the project be constructed as a single-purpose project, or (2) determine how much assistance it will render to the project in the public interest. If assistance is to be rendered, the problem is to determine the State's role in providing that assistance and the best form for that assistance to take.

The Nature of a Multiple-Purpose Project

An understanding of several basic aspects of the planning and construction of multiple-purpose projects is essential to a consideration of the most effective and economical methods of state financial assistance. The essence of multiple-purpose project development is concisely stated by Brig. Gen. W. E. Potter, U. S. Corps of Engineers. (Also see Appendix D.)

"There are a number of advantages inherent in multiple-purpose planning and development. One is economy, for it is usually cheaper to provide for several water uses in a single project than to build several single-use projects. Another is conservation of project sites. Favorable damsites are rare, and it is essential that the potentialities of each site be utilized as fully as is practicable. Multiple-purpose construction may permit development of water uses which could not be justified individually, helping us not only by protecting our fertile river valleys against floods, but by storing supplies of water for domestic use, irrigation, industrial, and other uses, permitting production of hydroelectric power, helping to abate the pollution of our streams, enhancing fish and wildlife habitat, and providing recreation on reservoirs and streams. And perhaps most important, multiple-purpose construction provides for future flexibility in the use of water."¹

A water storage project requires certain basic structural features. Thus, a structure to impound water, a spillway to bypass excess flows which cannot be stored, and reservoir space for the impounded water are all essential, no matter what the intended use of the project. These are joint-use features which serve all purposes of the project irrespective of the number of project purposes. Naturally the size of these joint-use features will vary with the number of purposes served, the quantity of water devoted to each purpose, and the physical characteristics of each project site, but these joint-use features vary only in size and not in number. This factor is fundamental to the economics of multiple-purpose projects. Thus the use of one set of joint-use features for more than one purpose allows each purpose to be served at less cost per purpose than the use of separate structures for each purpose. In addition, multiple-purpose development also may permit using certain reservoir space at times for flood control which is normally used for irrigation or power storage. This multiple use of reservoir space is a further saving.

¹National Water and Power Policy, Chamber of Commerce of the United States, Water Policy Conference, January 24-25, 1956, Page 16. Also see Appendix D.

It is a result of compromise and must be based on careful planning and operation.

The addition of a power plant, diversion works or pumping facilities may be required at a multiple-purpose project, but these are single-purpose features which can clearly be related to the purpose being benefited. Normally these single-purpose features will not serve any other purpose and can easily be identified and their costs charged to the proper purpose.

A single-purpose project is designed to be operated to serve only its intended purpose. Occasionally another purpose is served because of requirements in the Federal Power Commission permit, the coincidence of hydrologic events or the generosity of the project owners. Thus, it may happen that a project built for power or irrigation purposes may fortunately have empty reservoir space to catch some flood waters at a time of great need. This occurred at many power projects during the floods of December, 1955. Unfortunately, there is no assurance that this reservoir space will be available during a period of greatest flood peril -- the project reservoir could just as easily be full at the flood peak as partially empty.

Planning a multiple-purpose project requires that sufficient reservoir space be provided on a basis calculated to permit the maximum economically justifiable retention of flood waters, as well as the maximum conservation of water during wet seasons for later release for power, irrigation and municipal water supplies, maintenance of navigation, fish life, recreational benefits, salinity repulsion or similar purposes. Reservoir space must be allocated both as to annual cycle of use and quantity of water and must be guaranteed available whenever needed, otherwise a portion of the project construction costs cannot properly be charged to the purpose. Only by these allocations of cost and operating limitations can the financial and operating integrity of each project purpose be preserved.

Although no generalization can completely apply to each project, in general the addition of flood control features or power features to a project ordinarily designed for irrigation can be highly advantageous to the project and vice versa. Although the total project costs will be increased, that portion of the total costs which is properly chargeable to irrigation will normally be smaller than the costs of an equivalent single-purpose project. As has been shown above, this results from dividing the costs of joint-use facilities among several project purposes. In the end, flood control, power, irrigation or other benefits are all achieved at less cost than would be involved in building separate single-purpose projects.

The operation of this principle of project economics means that should the State choose to pay the costs of adding multiple-purpose features to a single-purpose local project, the addition of these features automatically benefits the local project. The exact amount of this benefit, which can be considered a form of assistance to the local project, will vary with each project and cannot be stated as a generalization. In some instances it may be sufficient to permit local construction of a project which otherwise would be uneconomic, because the full costs of a single-purpose project would otherwise exceed the financial capacity of the local interests or because only a multiple-purpose project is economically feasible at the particular site.

Feasibility

The problems involved in either financial or economic feasibility determinations are complex and broad in scope. As a policy matter, careful specification of the methods, assumptions and policies of project evaluation are far more important for a sound program than the end result of determining the financial feasibility of a particular project. The success of the State's projected water resources development program will depend largely on the wisdom and propriety of the policies which control the actual findings of individual project feasibility. It is not difficult to formulate methods for evaluating economic and financial feasibility which would make any project feasible, irrespective of the best interests

of the State. The problem is to select methods and policies for project evaluation which will differentiate between the feasibility of various projects but still consider the social and political wishes of the Legislature, the best interests of the State and fundamentals of engineering, law and economics.

The problem is not restricted to the Feather River Project, but also applies to Department of Water Resources Bulletin No. 59 on the Upper Feather River Service Area, the North Bay Aqueduct and any other projects which the State may consider for construction. The financial and economic feasibility studies contained in Bulletin No. 59 are the most comprehensive and thorough yet made by a California state agency, but they are based upon assumptions made by the Department of Water Resources as to policies and methods of determining feasibility and these assumptions have no legislative backing. Most of these assumptions are set forth on page 108 of Bulletin No. 59.

The U. S. Congress has recognized somewhat belatedly the importance of legislative control over policies and methods for evaluation of economic and financial feasibility of federal water resources development projects. In general, federal policies have been established by the executive branch of the Federal Government to fill the legislative void resulting from the unwillingness or inability of Congress to establish such policy. Whenever congressional views have differed from executive policies, difficulties have developed, because the policies and methods for evaluation used by the executive branch control the feasibility of planned projects, and thus determine which projects are submitted to Congress for authorization or construction. This is precisely the situation developing in California. Congress has sought to take specific corrective action by the passage of U. S. Senate Resolution 281, Eighty-fourth Congress, Second Session. This resolution is the initial effort in congressional determination of policies and methods to evaluate economic and financial feasibility of federal projects.

For the present purposes, engineering, economic and financial feasibility can be defined as follows (definitions adapted from page 15 of Bulletin No. 59):

A project meets the test of engineering feasibility if it can be built with available materials and techniques; sites for the dam, reservoir, and other facilities are geologically suitable; the proposed structures serve all possible multiple-purposes, are sound and functionally sufficient; the water supply is adequate in quantity and quality and is put to its maximum use; and the soil and climate are suitable for irrigated agriculture, when this is a project function.

A project is economically feasible if the benefits derived from its construction exceed the costs to be incurred in its design, construction, operation, and maintenance.

For a project to be financially feasible, it must be demonstrated that there is reasonable assurance that the necessary funds to finance construction of the project can be obtained and that the project beneficiaries are willing and able to repay costs assigned to them. Project costs must be allocated to individual purposes and a decision made on the amount of project costs to be repaid by each purpose before it is possible to compute the significant aspect of financial feasibility, that is, the ability of project beneficiaries to repay their assigned project construction costs within the prescribed payout period.

It should be noted that economic and financial feasibility are considerations of economics, policy and management rather than engineering determinations. In general, the range of problems involved in determining financial and economic feasibility of multiple-purpose projects is peculiar to water resources development. Only the Corps of Engineers and the Bureau of Reclamation have had extensive previous experience in these problems, although the Department of Water Resources is now acquiring such experience in its present work.

Before economic and financial feasibility of the Feather River Project can be finally determined, further extensive field work must be undertaken by the Department of Water Resources. Soils in the areas to be irrigated by the Feather River Project must be classified to determine in detail the nature and quantity of the water supply required. This work is only getting started. Until it is completed, the determination of financial feasibility of the project cannot be based upon the actual repayment capacity of the project lands. The first results of these field studies will be published in the report on alternative aqueduct routes into San Diego County, Bulletin No. 61.

The most comprehensive and thorough evaluation of economic and financial feasibility yet prepared by the State is contained in Bulletin No. 59. However, economic and financial feasibility studies, as defined by the Department of Water Resources in its Bulletin No. 59, have not been made for the Feather River Project by the Department, its predecessor agencies, or the Bechtel Corporation. The Corps of Engineers have ^{only recently} ~~just~~ started its evaluation of flood control benefits at Oroville. The Feather River Project has substantial power subsidy to water users but it is not clear how this subsidy is fitted into the project repayment schedule.

The Bechtel Corporation's report on the Feather River Project includes in Appendix A the report of the Stanford Research Institute which Bechtel engaged to make its economic studies. A pertinent comment from that appendix on page 13 may be quoted.

"For use in an economic analysis of the Feather River Project, the data and procedures just described have two serious deficiencies. First, the basic data on water needs in the service areas relate to "ultimate" requirements rather than to the actual rate at which the need may be expected to develop in the years of immediate concern to the Feather River Project. Second, the "revenue" figures are really cost allocations rather than estimates of the actual amounts which could be obtained from the sale of water."

A careful reading of the Bechtel Corporation's report and the State's report of February, 1955, will show that the engineers preparing these two reports were not so conscious of the economic deficiencies in planning of the Feather River Project as was the Stanford Research Institute, and that Bechtel did not highlight

the above statements by the Institute. As a result, the State is now committed to the Feather River Project although only its engineering feasibility has been fully evaluated. There is no evidence that the Feather River Project is not economically and financially feasible, but such feasibility has not been demonstrated.

Considerable confusion exists over the definition of financial feasibility. Frequently engineers view financial feasibility the same as the State's report of February, 1955, and the Bechtel Report on the Feather River Project -- if the required money can be found someplace, the project is financially feasible. Thus, it is possible to assume, as those reports did, that the deficiency of from \$200,000,000 to \$400,000,000 in Feather River Project revenues to meet project annual costs over a 40-year payout period would be made up by the General Fund. A similar assumption is also made for the recreational features of projects in Bulletin No. 59 ~~and 60~~. Under such assumptions, any project has financial feasibility. However, financial feasibility has no real meaning unless it is limited by a clear legislative policy which defines both those project costs the General Fund or any other state fund will pay as a recognition of state-wide interest and those costs project beneficiaries must pay in full.

The interest rate on money borrowed for project construction costs may have appreciable effect on financial feasibility, particularly on small projects which are financed by one bond issue. In the case of the Feather River Project, the effect of the currently rising interest rates is not at all clear. However, a general obligation bond issue for the Feather River Project would be placed on the bond market over a project construction period of 10 or 15 years in blocks of perhaps \$50,000,000 to \$100,000,000 per year. During this long period the interest rate may rise and fall several times or a gradually rising interest rate may be compensated for by adjustments in the value of project services. The long-term construction period of the Feather River Project provides an element of built-in

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protection against any drastic effect on project feasibility by fluctuating interest rates, but these fluctuations cannot necessarily be foreseen or evaluated in computing economic and financial feasibility.

The results of economic and financial feasibility investigations are normally published in the project planning report. This report serves three purposes; first to acquaint the public with the design, purposes, costs and repayment of the project; secondly, to serve as a basis for construction authorization by the Legislature; and finally, to initiate appropriations for the project. Logical procedure is for the project report to be presented to the Legislature sufficiently in advance to permit Members of the Legislature to study the report and to decide on the basis of the report whether the project should be authorized. Thus, data on the economic and financial feasibility of a project are to assist the Legislature in determining whether it should authorize the project for construction. No more reliable or factual basis has been developed for presenting the essentials of a project to the Legislature.

Project Benefits and Costs

The construction of any water resources project results in certain economic benefits attributed to the project. The term "benefits" means all identifiable gains, assets, or values, whether in goods, services, or intangibles, which result from the construction, operation or maintenance of the project. These benefits are divided into primary benefits measured in dollars which are directly attributable to the project, or secondary benefits which are gains, assets or values other than primary benefits.

Economic costs include all identifiable expenses, losses, and liabilities, whether in goods, services, or intangibles which are incurred as a result of constructing, operating or maintaining the project. In general it is federal practice to require that primary benefits equal or exceed primary economic costs before the project will be authorized for federal construction. This relationship of benefits to costs is known as the benefit-cost ratio and is the measure of economic feasibility.

The purpose of determining the benefit-cost ratio is to assure that the capital investment proposed to be made in the project will be sound and will return more to the nation's economy in goods and services than the total cost in goods and services required for its construction. Because units of government do not operate to secure a profit under normal circumstances, as does a business, the benefit-cost ratio serves a purpose somewhat equivalent to a determination by a business that a proposed investment will return capital costs, operating expenses and a profit. In this sense it ensures that the project to be constructed is worthy of construction.

Failure of the project to show a favorable benefit-cost ratio is interpreted to mean that the project, if constructed, will probably result in a reduction of the total available national goods and services. A favorable benefit-cost ratio is a showing of economic feasibility for the whole project and not for each purpose. Obviously this principle can have the same validity for state projects as it has for federal projects.

Project benefits are the sum of the individual benefits to be derived from each of the individual purposes to be included in the project. The determination of benefits derived from each purpose of the project is the basis for establishing the proper or optimum size of the project, that is, the size at which the net benefits from all project purposes are at a maximum. At this size the total project benefits will necessarily exceed the total project costs by the maximum amount. ✓

The computation of project benefits and costs involves many difficult problems. The period of time, frequently 50 years, to be used as a base for measuring project benefits and costs must be determined along with the long term interest rate to be applied to the project investment during this period. In recent years considerable sentiment has arisen for the inclusion of in lieu taxes in the economic costs. Placing a net dollar value on project services involves many special economic and technical problems such as forecasting irrigation crop patterns, population ✓

growth, project revenues, etc. In the end the distinction between direct and indirect benefits and costs must consider the practicability of computing them in terms of dollars. The present tendency is to enlarge the area of direct benefits by allocating project costs to recreation and involves the need to find methods of computing recreation costs and benefits. This is a new and difficult field of work in which the State has pioneered with its work on the economic feasibility of the recreational features of the Upper Feather River Projects.

Normally, the benefit-cost ratio includes only direct costs and benefits, i.e., those measurable in monetary terms. However, indirect costs and benefits can be of great significance and warrant consideration during the process of legislative authorization of a project. This does not automatically mean, as is sometimes argued, that indirect benefits warrant the construction of an otherwise uneconomic project.

Cost Allocation

Preceding sections considered the scope of multiple-purpose project development and its effect on project benefits, but did not consider one of the chief problems; how to allocate the construction costs of multiple-purpose projects among the beneficiaries. Cost allocation would become a critical problem if the State of California is to construct projects or to assist local project construction by supplying funds for the addition of certain purposes to a project. State assistance need not subsidize good projects by contributions for fictional state-wide benefits, nor should local interests be required to stand costs of benefits which are state-wide. A fair and equitable method of allocating project costs to each purpose is no simple problem.

Many different techniques have been developed and tried by the Federal Government in past years for allocating project costs, but most have been faulty in some respects. In May, 1950, the Subcommittee on Benefits and Costs of the Federal Inter-Agency River Basin Committee after extensive study recommended the

separable costs-remaining benefits method for allocating construction costs to the various purposes of a project. This method is now widely accepted throughout the Federal Government. It is standard in all project planning by the Corps of Engineers, the Bureau of Reclamation and the Soil Conservation Service.

Essentially the separable costs-remaining benefits method of cost allocation for multiple-purpose projects is an attempt to develop an equitable and easily administered method of charging the construction costs of joint-use features of a project to each of the purposes served by the project. It is based upon general agreement that each purpose of the project should share equitably in the savings resulting from multiple-purpose construction and that the cost of joint-use features should be charged to each purpose of the project without regard to the repayment of that purpose.

The separable cost for a particular purpose is computed by deducting the cost of the project without the particular purpose from the total cost of the multiple-purpose project. It is not the cost of a separate single-purpose project, rather it is the cost of adding the purpose to the project, as closely as can be computed.

The separable cost for each purpose of the project is limited by a floor and a ceiling. The separable cost, itself, is the floor or minimum portion of the cost of the multiple-purpose project which may be assigned to the purpose. The ceiling or maximum cost allocated to the purpose is the alternative justifiable investment, that is, the largest alternative investment which can be justifiably expended for the purpose. After separable costs have been computed, the remaining costs are apportioned among the project purposes. These remaining costs are a portion of the costs of joint-use features of the project. No remaining costs are added to a purpose which would cause the total of separable and joint costs to exceed the ceiling for the purpose.

Remaining costs, being a residual attributable to all of the purposes included in the project are apportioned among the purposes of the multiple-purpose project in proportion to the excess of benefits over separable costs. By distributing project remaining costs in direct proportion to the benefits of each purpose, these costs are fairly and reasonably related to those purposes which enjoy the most advantage from multiple-purpose construction and which are best able to repay construction costs. The total cost allocation for each purpose is the sum of the separable cost for this purpose and its share of remaining costs. Initial cost allocations for a project are made from preliminary designs during the project planning stage. After the project is constructed, a final allocation is made from the accounting records of construction costs and is the basis for final repayment contracts covering project construction costs.

A second method of allocating project costs is known as the alternative justifiable expenditure method. It differs from the separable costs-remaining benefits method only in that actual or specific costs of single-purpose features of a project are used instead of the separable costs. This results in a larger figure to be distributed as joint costs. It is considered desirable to keep joint costs at a minimum since they are the source of difficulty in cost allocation. However, the two methods are fundamentally similar and the alternative justifiable expenditure method is considered acceptable whenever separable costs cannot be computed. Since the separable costs-remaining benefits method is the best available method for allocation of costs to each purpose, it should be as acceptable for state use as at the federal level.

The separable costs-remaining benefits method of cost allocation has several distinct advantages for the State if it is to encourage construction of multiple-purpose projects by local interests. First, the method is legally meaningful in California where the Water Code declares that the unappropriated waters of the State belong to the people. Since the method is based on the premise that the

comprehensive development of water resources will benefit not only the local interests but many other citizens of the state as well, and the savings of multiple-purpose construction are to be shared by the local interests and the people of the State in proportion to the benefits, it provides a framework for equitably apportioning the savings from multiple-purpose project construction between the State and local interests. Second, under this method of cost allocation, the local interests must normally receive some financial assistance in multiple-purpose project construction from the State at no extra burden to the State, because a ceiling on costs for each purpose is automatically provided which cannot exceed the cost of equivalent alternative sources. (This ceiling could well be a single-purpose project on the same site.) Because the actual cost allocation to each purpose is normally less than this ceiling, each purpose of the project should achieve some monetary saving. Third, the method inherently stimulates full analysis of multiple-purpose projects of maximum economic size. Fourth, the separable costs-remaining benefits method of cost allocation has equal validity irrespective of whether the State or local interests build a particular project. The allocation is the same irrespective of who builds the project.

The method is not completely detailed and precise -- it is open to some variation in its computation as almost any method would be. It cannot be assumed, therefore, that every application of it to each project would result in full agreement on the results. The theory, however, has received wide acceptance, and reasonableness will solve the difficulties which may arise during its application.

Repayment

The allocation of project costs divides the construction costs equitably among the different project purposes to arrive at the amount of construction costs chargeable to each purpose. However, not all project purposes may be fully reimbursable, some may be subsidized. Therefore, a schedule for repayment of project

costs by project beneficiaries may not be the same as the cost allocation. Actual repayment is a matter of social, economic and political policy determined by the Legislature through general policy legislation and the specific project authorization. The difference between the cost allocation and the repayment schedule represents subsidy when the state or federal government builds the project. When a local interest or private party builds the project for its own use, there can be no subsidy to itself and the repayment and cost allocation are the same.

Irrigation Subsidy

The Feather River Project, and the two other projects already authorized for state construction, appear to require some subsidy to irrigation if the projects are to be built. The State has already proposed that the Bureau of Reclamation construct the San Luis Unit and operate it under provisions of Reclamation Law. This has the effect of providing large subsidies to irrigation water users for the San Luis portion of the Feather River Project service area. Therefore, a difficult problem will arise in other parts of the State to be served by the Feather River Project, particularly in Kern County. In Kern County there are no local interests which support a Reclamation project. Instead, the State will have to formulate its own policies with respect to subsidy for irrigation.

It is already clear that the Feather River Project will need all the revenues it can secure if its construction costs are to be repaid. It follows, therefore, that a state policy which denies water to large land holdings may decrease the demand for water, decrease project revenues, and thus may increase the need for state subsidy from non-project sources. The present plans for the Feather River Project provide sufficient aqueduct capacity to serve all lands in the project service areas. If, however, the owners of large acreages are not interested in developing them, and keep their land holdings outside of irrigation districts, the ability of the project to repay its costs will be seriously impaired. Conversely, if the State were to subsidize irrigation water users, it would also require large sources of non-project revenue to pay for the subsidies.

Irrigation subsidies provide large unearned increments in land values and shifting of project costs of several hundred dollars per acre without equivalent cost to the beneficiary. Therefore, subsidies to more than 160 acres in a single ownership have been considered objectionable by certain farm and labor organizations and are prohibited by Reclamation Law because the total benefits to a few persons with large land holdings are felt to be excessive. In California, where large farms are prevalent and efficient to operate, an acreage limitation higher than 160 acres is frequently urged. Recently, federal Reclamation Law has been liberalized in certain instances to allow land owners to receive water on lands in excess of 160 acres provided that full costs of the water are paid. Thus the authorization for the Washoe Project provides that "the pro rata share of the irrigation allocation which is attributable to furnishing irrigation benefits, in each particular year, to land held in private ownership by any one owner in excess of one hundred and sixty irrigated acres, shall be returned with interest....except that such payment for the excess lands shall not exceed an amount equal to the increased payment capacity of the excess lands, as determined by the Secretary of the Interior, resulting from the supplemental water supply." Congress has considered this reasonable, but its acceptability to large landowners and its ultimate effect are unknown.

The size and extent of any acreage limitations is an important consideration of public policy. If the state subsidy is too large, it can become burdensome upon the state fiscal structure, or more significant, any state policy which is substantially more liberal than Reclamation Law may remove the Bureau of Reclamation from the irrigation construction picture in California and transfer the burden of federal reclamation to the State. Irrigation water users naturally will not favor construction of projects by the Bureau of Reclamation if state construction contains more subsidy or greater benefits. Without the support of local interests for a Bureau project and their willingness to repay its reimbursable costs, there is no basis under

Reclamation Law for the Bureau to build a project.

The Southern Pacific Railroad has suggested that land owners in the western San Joaquin Valley who wish to pay in advance their fair portion of the irrigation investment be permitted to do so. This is the formula negotiated between the Bureau of Reclamation and the Kings River Water Users Association which has been recently rejected by the Secretary of Interior. Any reasonable method of irrigation repayment or prepayment in which a fair portion of the costs of bringing water to lands in excess of a reasonable acreage would, of course, be beneficial to project revenues, but does not fully solve the problem. The foregoing of irrigation interest is not the only form of subsidy to irrigation water users in reclamation projects. In the CVP, for example, there is also subsidy from the application of the interest paid by power users to repayment of irrigation construction costs and the use of power and municipal water sales revenues to repay irrigation construction costs after power and municipal water construction costs have been repaid. Thus the total federal subsidy to irrigation water users in this and many instances is considerably more than merely foregoing interest on the irrigation investment.

Recreation Subsidies

The method used by the Department of Water Resources in evaluating the recreational benefits of the Upper Feather River Projects represents new and pioneering work. The Department utilized the services of Harold F. Wise and Associates to develop a monetary measure of the recreational benefits which an individual would derive per day from the use of these recreation projects. The figure of two dollars, which has been adopted for this purpose, is not a measure of funds expended in the area or the areawide recreational benefits, but rather is an attempt to measure in dollars the intangible physical and psychological value added to the life of the recreationist per day of visiting at the project. Although the two dollar per day figure may be reasonable on its face, the total benefit of course, is dependent upon the validity of the estimate

of project recreational visitor-days. It remains to be determined by experience whether the favorable estimates of project visitor-days used by Wise and Associates will be realized.

If the recreational potential of the Upper Feather River Projects is as great as appears from present data, there is not only a justification for the State to construct these projects, but also a valid economic base from which these projects could repay a significant portion of construction costs allocated to recreation. Bulletin No. 59 contemplates that the State would buy all useful recreational lands immediately surrounding the project reservoirs. If this were done, the State would control all access to the project and its recreational environs. Under such circumstances the right to construct private cabins, motels, lodges, and other facilities could be subject to a leasing arrangement which could provide revenues. Further, it is probable that private buildings constructed on the project premises would be subject to personal property taxes of the counties involved. Such incremental local taxes could also be ear-marked for repayment of project costs. In addition, the recreationists who utilize public facilities at the projects could be charged a fee sufficient not only to repay the costs of the camping facilities, but also to provide a contribution to repay the recreation allocation or to pay operation and maintenance costs in a manner similar to the present operation of camping facilities around Lake Tahoe by the County of El Dorado.

With such an arrangement the beneficiaries of recreational features of the project would contribute towards its cost. The collection of fees for use of the project would cover visitors from all parts of the State and from other states, while the ear-marking of local taxes on private personal property at the reservoir would provide for contributions from the at-site recreational industry. Although a major part of the recreational benefits are attributable to downstream fishing, there is presently no machinery for assessing these benefits to the beneficiaries except through the General Fund or fishing license fees.

The Upper Feather River projects raise a fundamental question of state policy towards recreation. It is difficult to see justification for assigning high priority to these projects merely because they will provide recreation on a public use basis. Normally such recreation is of a lower priority than expenditures for education, police activities and other water resources projects which directly increase or enhance the State's economy and welfare. The major justification for projects such as these lies in their commercial value to replace existing but declining forms of commerce in the northern portions of the State. However, state subsidy to a recreational industry is not the same as state assistance in behalf of the general recreational needs of the public. As a result, there would appear to be no more basis for 100 percent subsidy to the recreation industry than there is for 100 percent subsidy to power, agricultural water users, or municipal and industrial water users. This point would seem to indicate that some portion of the costs of recreational features of water resources development projects should be repaid at least by the recreational industry, if not by the recreationists themselves. This is being done by the Corps of Engineers at their Russian River Project, which is the only known federal project with specific costs allocated to recreation. (See Appendix E for a new bill which would substantially revise present federal policy towards recreation.)

Existing Federal Assistance to Local Projects

The 84th Congress passed Public Law 984, the Small Reclamation Projects Act, which augments the historic reclamation program by providing for federal loans and grants to local interests so that they might construct, own and operate small projects whose main purpose is irrigation, with other purposes incidental. (See Appendix E) Projects which cost as much as \$5,000,000 or projects which cost up to \$10,000,000, provided federal assistance does not exceed \$5,000,000, are eligible for assistance. The local interests must sign a contract for the repayment of reimbursable costs with interest (except irrigation interest). The Federal Government provides non-reimbursable

grants for flood control, fish and wildlife and recreational features, but these features must be operated by the local interests in accordance with regulations of the appropriate federal agency having jurisdiction. Local interests must provide and finance the land and water rights for the project in an amount up to 25 percent of the project's reimbursable costs. Repayment of the reimbursable costs for power, irrigation, etc., must be made within 50 years with interest on the irrigation investment for any lands in a single ownership in excess of 160 acres.

Congress also passed Public Law 1018 which amends Public Law 566, 83rd Session, the Watershed Protection and Flood Prevention Act to permit the Soil Conservation Service of the Department of Agriculture to assist small projects on a basis somewhat similar to the Small Reclamation Projects Act.

The long established provisions of Reclamation Law provide several important advantages for federal construction of projects whether large or small. Chief among these advantages is interest free money for the irrigation features of a project. This is a major attraction to irrigation districts because a 40 to 50 year investment repayment period can result in interest costs equaling the investment cost of these features. In addition, Reclamation Law also permits revenues from power, municipal and industrial water and interest on power investment in certain cases to be used to repay irrigation investment beyond the repayment ability of water users. These subsidies frequently are large and make many projects economically feasible which could not otherwise be considered for construction. The justification advanced for such subsidies is that they assist the family size farm and expand the agricultural base of the nation. Because there are large subsidies per acre of irrigated land in reclamation projects, Reclamation Law restricts the acreage under one ownership which may receive project water (generally 160 acres).

Existing Forms of State Assistance to Local Projects

At the present time the Department of Water Resources is offering substantial assistance to local interests through its planning activities. These project investiga-

tions may generally be divided into three broad categories as follows:

A Category 1 investigation is primarily an office study to determine whether further investigation and expenditure of funds is warranted. The investigation is supported by cursory field examination. The report of the investigation briefly sets forth the readily available data concerning the water resources of the area, the general geologic conditions, the classification of lands and their utilization to show water requirements of either the local area or area of export, preliminary definition of the apparent water problems, and finally, available information on projects.

Example: Preliminary examination reports of the State Water Resources Board.

A Category 2 investigation determines engineering feasibility of a project. A preliminary project design of structures is prepared sufficient to permit estimating costs. Extensive field activities are carried out, including topographic mapping; land classification; water use surveys; and collection and study of stream flow, ground water, and other hydrologic data. Also included are studies of multipurpose reservoir operations, delivery of water to areas to be served, and consideration of existing uses of water. In general, geologic examination is surficial, but a moderate amount of drilling might be included of proposed dam sites, conduit routes and other works. Economic studies are preliminary in nature but sufficient to enable selection of the best project and to indicate whether further and more detailed study is warranted. Need for the project is indicated. The report includes consideration of all project purposes as well as the possible nature and extent of a state-wide interest in the project. The primary purpose of a Category 2 report is to guide the State and other interests in deciding upon further steps in the development of the project. To that end the report sets forth sufficient information to enable any agency to continue studies to determine economic and financial feasibility of the project. Example: Best example to date is the American River Basin Investigation.

A Category 3 investigation establishes engineering, economic and financial feasibility of a proposed project with a view to authorizing the project for construction

The investigation includes design of all important structures sufficient to accurately determine construction costs; definite delineation of areas to be served with studies of their ability to receive, distribute and pay for the water; benefit-cost ratios; cost allocations and repayment plans; and detailed delineation of necessary lands, easements and rights of way, including the relocation of roads and utilities.

Example: Report on the Upper Feather River Investigation, Bulletin No. 59. (Under the above category system, the 1955 report on the Feather River Project was not a complete Category 3 report.)

While it is anticipated that the investigations of the Department in the future can be generally categorized as above, many in the past have occupied, and perhaps some in the future will occupy an intermediate position as prescribed by the legislation which directed the study. In considering the time relationship of the three categories of reports, it should be noted that several years or even decades may elapse between the three categories of project planning reports and that many years may elapse between a Category 3 report and actual construction of the project, depending upon need for the project and market conditions.

The Department presently has the following investigations under way:

<u>Project</u>	<u>Category</u>
Stanislaus River Basin	2
Mokelumne River Basin	2
Chowchilla and Fresno River Basins	2
Upper Feather River Investigations	3
Salinity Control Barrier Investigation	3
San Joaquin Valley Drainage Investigation	3
Allen Camp and Round Valley Investigation	3
Lassen and Modoc County Ground Water Investigation	Information
Shasta County Cooperative Investigation	2
San Diego Cooperative Investigation	2
Tulare Lake Basin Investigation	2
North Coastal Project Investigation	2
North Coastal Project Investigation	3
Sacramento Valley Project Investigation	2
Sacramento Valley Project Investigation	3

On the basis of the above system of categories and present state policy, Category 3 studies and investigations appear to be made when (1) the Legislature is considering state construction of a project, or (2) the Legislature determines that

the State should prepare a Category 3 study at state expense in behalf of a third party or (3) a cooperative investigation is proposed by some other agency. This planning work represents the furtherance of the California Water Plan and its logical application to specific projects. As such it has great value to local interests and relieves them of substantial project planning costs.

Project Financing

There are two concepts now being considered for financing the Feather River Project and state water resources development in general: the pay-as-you-go and the general obligation bond issue. The latter concept is generally well understood since it is frequently used for public financing.

The exact principles which might be used for general obligation bond financing have not been worked out. However, by borrowing the reimbursable investment costs for irrigation, power, and municipal and industrial water supply features of state constructed projects, the State could conserve its available cash funds to pay for the non-reimbursable features or grants for both state and local projects. There is no other apparent source of money to pay for these non-reimbursable costs except the Federal Government, and in some cases, federal assistance may be limited by federal policy to such an extent that it will not fully cover the costs which the State may wish to allocate to non-reimbursable purposes.

There is at least one important disadvantage to the use of state loans for reimbursable features of a project. The extensions of state credit would tend to raise the interest rates which the State would have to pay, not only for water resources development bond issues but also for other issues, such as veterans' loans, schools, etc. There are already indications that the bond market may not support large new state issues with acceptable interest rates. An additional state indebtedness, perhaps as large as \$1,200,000,000, over the next few years is required to pay for the reimbursable features of the Feather River Project (assuming federal assistance at Oroville and San Luis Units). This represents a significant item for consideration, even though ostensibly this indebtedness is to be paid from project revenues and is not a direct charge against the General Fund or the taxpayers of the State.

The concept of pay-as-you-go arises because of the high cost of developing water supplies. This high cost is reflected both in the original investment cost and in the large annual interest payments which can accumulate over a pay-out period of 40 to 50

years to an amount equaling the principal. The declaration of certain project features as being non-reimbursable is one way to reduce the amount of capital investment which water users or other project beneficiaries must repay. An alternative method of securing cheaper water is to eliminate or forego state or federal interest payments. But there is more appeal in the pay-as-you-go approach because it has the appearance of eliminating the interest payment on the project investment.

The elimination of interest payments by project beneficiaries does not, however, reduce the overall cost of the project to the State and its citizens during the project repayment period. Considered broadly, in terms of all state expenditure programs, the actual effect is to shift the interest burden from project beneficiaries to the general taxpayers of the State. This results because the diversion of present financial resources to pay for future benefits must be compensated for either by curtailment of other current state expenditures, borrowing for other state expenditures, or increasing taxes. In any of these events, the net effect is that the taxpayers either pay interest on money borrowed for other programs, are deprived of interest accruing to the State's surplus funds or finally, are deprived of the productive capacity or enjoyment of their own funds which are collected in the form of taxes by the State before otherwise needed. This is the operation of the economic principle of interest which basically equates present and future values. It is not true that the federal water resources development program or any similar state program which is financed on a pay-as-you-go basis will result in any overall saving to the economy of the nation or the State. It is true that the construction of such projects will stimulate and enhance the economy, but this is true irrespective of the type of financing. In the end, pay-as-you-go financing merely shifts a part of the burden of project repayment from project beneficiaries to the taxpayers of the State as a whole.

The pay-as-you-go method of financing is intended, as noted above, to provide low cost water to the project beneficiaries. This is also an objective of federal projects, and therefore, state projects must provide services at a rate which is technically competitive with federal financing and construction. Desirably, the State's program of

water resources development should be roughly equivalent to federal practice in the end economic result. If it is not, one of two events can occur -- either there is no support for state projects from water users willing to sign repayment contracts for project services, or there is no support for federal projects. Pay-as-you-go financing makes it possible for the State to offer contracts to project beneficiaries for very low rates. To the extent that these rates are lower than comparable federal development, there will be no support for federal project construction and whether intentional or not, federal construction will be eliminated from California.

Pay-as-you-go financing is generally coupled with a construction fund so that surplus project revenues and repayment of principal will be returned to the construction fund to finance further project construction. To the extent that pay-as-you-go financing eliminates the need for project beneficiaries to repay actual project costs, there is no firm basis upon which to develop fees charged beneficiaries of project services. Since a primary objective of pay-as-you-go financing is to reduce water costs to the minimum, there will be great pressures from water users for nominal or minimum fees for project services. These pressures will be difficult for the State to withstand. To the extent they are not withstood, the charging of nominal fees for project services will eliminate the source of repayment funds flowing back into any fund for use in constructing additional projects in the future. Thus, in the long run, the pay-as-you-go approach can be considered as tending to place all available cash resources of the State in one project constructed for the benefit of present water users without providing for the needs of future generations by returning capital adequate for the construction of future projects.

A revolving fund similar to the reclamation revolving fund of the Federal Government has frequently been proposed for use by the State of California. A revolving fund is an accounting device. Its principal feature in this case is that repayments of principal from the fund, plus interest on such funds, and any surplus project revenues are returned to the fund for future investment in other projects. A revolving fund ap-

appears at first glance to have more merit as a method of securing funds for project construction than it actually has. Such a fund will revolve completely in no less than 50 years, which includes a 40-year project pay-out period plus a construction and development period of ten years. Federal experience with the Reclamation Fund shows that the fund can not finance the federal construction program. For example, the President's Budget for Fiscal Year 1957 shows appropriations for the Bureau of Reclamation from the following sources:

General Fund	\$90,206,300
Reclamation Fund	94,967,700
Other Sources	<u>2,615,000</u>
Total Appropriation	\$187,789,000

The Reclamation Fund can finance only about 50 percent of the Bureau of Reclamation program after being in existence more than 50 years and after approximately \$3,000,000,000 in project investment. While these figures may not be exactly comparable to the State's problem, they illustrate the limitations involved.

Surplus state project revenues have also been proposed as a source of funds for future project construction. However, the Feather River Project develops a General Fund requirement rather than any surplus revenues during its pay-out period as shown by the Bechtel Corporation's and the State's reports, and there are no foreseeable surplus Feather River Project revenues to go into a revolving fund. Another source of revenue proposed for a revolving fund is tidelands oil revenues. Based upon existing state law and rather conservative estimates of the State Lands Commission, during the next ten years an average of less than ten million dollars per year is expected to be available for water resources development from tidelands oil revenues. It is apparent that, for the present, the source of any significant funds for water resources development will be transfers from present surplus funds, from taxes or a general obligation bond issue.

Any revolving fund, and particularly one based upon a pay-as-you-go concept, is vulnerable to the difficulties now besetting the beaches and parks program. In that

program, as yet unearned state revenues are already earmarked for future beaches and parks. As a result, the number of beaches and parks already authorized exceeds the revenues now allocated for the future acquisition of such facilities. There are already substantial similar pressures building up for state construction of numerous water resources projects. Their financing is subject to the same difficulties already experienced in beaches and parks, with two fundamental differences: (a) the State will initially commit all reserve funds and (b) the cost of each water project is many times greater than the cost of each beaches and parks project.

Very little data is available yet to determine the actual dollar requirements which will be needed for a state construction program. Assuming a cost of \$1,500,000,000 for the Feather River Project, from which may be deducted federal contributions of approximately \$75,000,000 for flood control benefits at Oroville Dam and \$225,000,000 for the San Luis Project, a total of \$1,200,000,000 remains for the State to bear. In addition, the State is presently committed to a further expenditure of \$6,000,000 for five projects in the Upper Feather River Service Area and \$27,000,000 for state construction of the North Bay Aqueduct. Many other projects are being proposed for state planning and construction. The minimum continuing construction cost for the Feather River Project will be from \$75,000,000 to \$100,000,000 per year. The ultimate construction costs which the State might assume if the features of the California Aqueduct System of the California Water Plan are authorized for state construction are approximately \$8,576,000,000 (including the Feather River Project).

The primary financial responsibility of the State in water resources development is the Feather River Project. The State's financial resources will be heavily burdened to accomplish that undertaking. Because substantial federal assistance is now available to local projects on terms more favorable than previously, the Feather River Project would appear properly to have first priority on the State's credit and financial resources available for water development.

Possible Forms of State Assistance to Projects

A bill passed by the California Legislature at the last General Session, SB 306, provides policy for grants and low cost loans to local interests for project construction. While loans with low interest rates may be helpful, perhaps saving one or two percent in interest charges for the local interests, such loans are not particularly favorable when contrasted with the federal Small Reclamation Projects Act which provides low cost loans, no-interest loans for irrigation features, and grants for non-reimbursable features.

SB 306 also contains a provision to protect the State's investment in a project by retaining title to the project in the State until the loan is repaid. In contrast, the Small Reclamation Projects Act provides for local ownership, operation and maintenance. When the State retains title to a project, the State is bearing the risks of project construction and repayment, rather than the local interests, because the State is virtually obligated to continue operating the project at a loss should the local interests default on their repayment obligations. (See Appendix G for a copy of SB 306)

Since federal legislation provides greater assistance to local projects than is included in SB 306, a pattern is set which the State must consider. SB 2174, a Department of Water Resources bill, which was also passed by the Legislature during the last General Session (see Appendix H) is patterned somewhat after the Small Reclamation Projects Act. It establishes state policy "to provide financial assistance to public agencies for the construction of projects for water development in which there is a state-wide interest by making grants or loans, or both, and by participating in the construction and operation of such projects...." Grants may be made for costs allocated to fish and wildlife, state-wide recreation benefits incidental to the primary functions of the project and in special circumstances for other construction costs where there is a state-wide interest. Loans, repayable over 50 years, may be made on that portion of the project cost certified by the District Securities Commission to be beyond the reasonable financial ability of the local agency and for which it cannot obtain funds from other sources. If the California Water Plan shows need for a project with capacity beyond the requirements of the local agency, the bill authorizes the State to participate in

financing the excess costs.

Another policy bill rejected by the Legislature in the last General Session would have established policy whereby the State would have assumed the costs of providing lands, easements and rights of way for local and state constructed projects. Costs of these lands would not be repaid but would be considered as a state grant to the project. This practice was used by the Department of Water Resources in Bulletins No. 59 and 60. However, Bulletin 60 considered lands for canals and aqueducts to be included within the grant, but Bulletin 59 did not. The two bulletins are not consistent in this respect. The bill containing this policy was refused passage by the Legislature presumably on the basis that the financial commitment of the State was unknown and because the policy provided indiscriminate subsidy to all project purposes whether justified or not.

As previously discussed, the State may wish to provide greater recognition than the federal government to fishery, wildlife and recreational problems in view of the special interest these matters have to the people of California. While the Federal Government has recognized these purposes as non-reimbursable, generally only non-profit costs for fish ladders, fish screens, picnic facilities, boat launching ramps, swimming areas, etc., have been allocated to these purposes. In a number of cases, local interests have paid for additional features of this type beyond those included in federal non-reimbursable allocations. The State may wish to go further than federal practice and actually provide project capacity for these purposes by allocating both separable and joint costs to them. This could occur, of course, only if project water is to be used beneficially for recreation, fisheries and wildlife, and a water right for such purposes is secured. Such an allocation of both separable and joint costs to these non-reimbursable purposes would provide a further powerful stimulus to project construction and would further assist certain local interests in financing and constructing projects.

Allocation of separable and joint costs to fisheries, wildlife and recreation is practical because recognition of the recreational interests in the northern part of the State is necessary to secure a state-wide program. It is also socially

and economically sound because recreation in all its forms related to water resources is not only an integral part of a highly valued way of life in the State, but is also a substantial source of earned income in many areas. These project purposes are particularly difficult to evaluate in relation to the location of beneficiaries. People who utilize these facilities come from distant points and do not reside in the project area. It is established policy for the State to contribute funds to beaches and parks in behalf of these people. Financing for this purpose is already established which may be broadened to include development of campsites and beaches at recreational projects. At the same time the proprietors and employees of local resorts, restaurants, hotels, etc., profit considerably from the business brought in, and should expect to contribute some costs to projects which enhance their business. It may be appropriate, therefore, when separable and joint costs of a project are allocated to fisheries, wildlife and recreation that the State contribute only a part of the allocation as a non-reimbursable cost and the local beneficiaries pay the remainder.

Further assistance may be offered by the State to local and state projects, as broadly authorized in SB 2174, whenever the Department of Water Resources feels it is imperative that a needed project should conform to the California Water Plan but a project of such size and scope is beyond the present project needs or investment warranted for local interests. Such assistance would be intended to assure that the immediate construction of a smaller project will not impair the future optimum development of an irreplaceable site if such optimum development is essential to the future needs of the State or is an essential feature of the California Water Plan. In such cases the State might lend that increment of reimbursable project costs required to construct the project foundations to optimum size even though payment of interest and repayment of investment costs is not possible from project revenues in the immediate future. These advances to the project are normally reimbursable; therefore, the State would have to pay the interest on such advances until the project's

markets increase sufficiently to produce revenues from the capacity thus provided. At that time, the project should begin repayment of the full investment costs and assume responsibility for the full interest payments. There would thus be no repayment charge against either a local project or a state constructed project for the additional cost of constructing the project to optimum size. The interest foregone would in effect be paid from available state funds as a payment from today's generation to preserve values for the future generations who would actually repay the investment costs as they benefit from the project.

It may be helpful to review two examples which illustrate various aspects of the financing problems discussed above.

1. Cougar Dam, Oregon. The Cougar Dam on the McKenzie River is primarily a federal flood control dam with a height of 430 feet and a gross storage capacity of 210,000 acre-feet. The City of Eugene proposes to develop the dam's hydroelectric power facilities. Anticipated benefits from the project are flood control 63 percent, power 23 percent, irrigation 10 percent and other, 4 percent. The cost of both the project and its power are relatively high. The cost of developing such power will be approximately equivalent to an alternative single-purpose project. However, because project sites are limited, the construction of a multiple-purpose project on the site is a substantial gain for the region.

2. Cherry Valley, California. The United States, the Turlock and Modesto Irrigation Districts and the City and County of San Francisco have signed an agreement for the latter to construct the Cherry Creek Dam with a storage capacity of 268,000 acre-feet on the Tuolumne River. The City of San Francisco and the two irrigation districts will both revise their existing projects on the river and change their operation to provide additional flood control storage. By 1959 they will complete the construction of the new Don Pedro Reservoir to a capacity of 1,200,000 acre-feet with a flood control reservation of 340,000 acre-feet. The Federal Government is achieving a higher degree of flood control than was possible under its original plan at no

additional cost, while the water conservation interests will be served and fully coordinated with flood control.

3. Russian River, California. The United States is now constructing the Coyote Dam on the East Fork of the Russian River. This dam is part of a plan by the U. S. Corps of Engineers for ultimate development of the waters of the Russian River at an estimated cost of \$42,460,000. The present construction, based on current needs, will include channel stabilization works and the Coyote Reservoir with a capacity of 122,000 acre-feet, of which 48,000 acre-feet will be reserved for flood control, 4,000 acre-feet for siltation and 70,000 acre-feet for conservation storage to provide releases for domestic, industrial and agricultural uses and to augment summer flows for fisheries and recreational purposes. The method used by the Corps of Engineers in allocating costs is not revealed in available data, but the estimated first cost will be \$17,150,000 of which the federal portion will be \$11,522,000 and the local portion \$5,598,000. The Corps of Engineers and Congress determined that the federal interest in the conservation of water in addition to flood control features of the project justified an assumption of 40 percent of the water conservation investment by the Federal Government, leaving the remaining 60 percent or \$5,598,000 to be prepaid by the local interests through a bond issue. Sonoma County has authorized a second \$8,500,000 bond issue for the necessary local water distribution system. Of special interest is the fact that the recreational industry along the Russian River will be one of the principal beneficiaries of the project and is contributing substantially to the local payment.

APPENDIX A

STATE ADMINISTRATION OF FLOOD CONTROL FUND

Prepared by
Legislative Analyst

July 9, 1957

The Flood Control Fund of 1946 is authorized by Sections 12800 and 12830 of the Water Code. As originally established by the Legislature, the Fund was a repository for surplus monies of the State accumulated during World War II to implement the State's flood control policy contained in the State Water Resources Act of 1945. In recent years General Fund money has been transferred to the Flood Control Fund because allocations to projects by the Legislature used up the original \$25,000,000 provided by the Legislature, Chapter 196, Statutes of 1953, codified both the State Water Resources Act of 1945 and the Flood Control Fund Act of 1946, and added a procedure to be followed by the State Water Resources Board in reviewing flood control projects preliminary to legislative authorization. From time to time additional flood control projects have been added to those initially authorized by the Legislature in the State Water Resources Act of 1945.

Under the Federal Flood Control Act of 1936, Congress established the policy that the Federal Government, acting through the U. S. Corps of Engineers, will plan and construct those flood control projects authorized by Congress which have a favorable benefit-cost ratio (i.e., annual amortization charges plus operation and maintenance costs are exceeded by the annual flood control benefits from the project) if the local interests benefiting from construction of the project will assume certain costs and responsibilities as follows:

1. Secure and pay all costs for lands, easements and rights of way required for the project.
2. Relocate or reconstruct all bridges, structures and utilities.
3. Assume full responsibility for operation and maintenance of the completed project (except for large reservoirs).
4. Hold the Federal Government free from all damages resulting from the project.

The State Legislature, through the Flood Control Fund Act of 1946, committed the State to reimburse local interests, usually county flood control districts, for all costs of rights of way and relocation (1 and 2 above) required by federal law for local cooperation in federal flood control projects, but required the local interests to assume responsibility for items 3 and 4. The State costs for items 1 and 2 are financed through the Flood Control Fund of 1946. In relocating or reconstructing bridges and utilities, these structures frequently are widened or otherwise improved. These additional costs, or betterments, the State will not assume; they must be paid by local interests.

The State Water Resources Act of 1945 authorizes the Department of Water Resources upon request of local interests, to review and recommend federal flood control projects to the Legislature for authorization. When the Corps

of Engineers prepares its detailed investigation report on the project for Congress, as prescribed by federal law, it sends the proposed project plan to the Governor for official state comment. The Governor's comments are furnished to the Corps of Engineers and the Congress several years before the project is eventually presented by local interests to the Department of Water Resources and the Legislature for state authorization. The project analysis and the Governor's official comments are prepared by the Department of Water Resources. A revision of this project review is used by the Department of Water Resources as its recommendation to the Legislature for state authorization and appropriation.

When providing money in the Flood Control Fund for a project, the Legislature transfers money from the General Fund into the Flood Control Fund and then in a separate action appropriates the project requirements to the Department of Water Resources for it to allocate to local interests. This appropriation by the Legislature is by budget line item.

The Legislature makes state money available in the Fund to reimburse costs of local cooperation, on the basis of which local interests may give the necessary legal assurances to the U. S. Corps of Engineers that money required to pay costs of local cooperation is available. Without these local assurances the Corps of Engineers will not award a construction contract. Local interests must secure necessary rights of way, contract for the relocation of structures, or advance money to the Corps of Engineers for the relocation work. In the past, local interests have generally spent their own money for rights of way and relocation then submitted claims to the Department of Water Resources for reimbursement. Such reimbursement is made by the Department after the claims have been duly reviewed. In several instances the Department has advanced money to the local interests, but it discourages this practice because it relieves local interests of any financial participation or responsibility.

For most projects the local interests are represented by county flood control and water conservation districts. In the case of the Sacramento-San Joaquin river valleys, however, the local interests are represented by a state agency, the Reclamation Board, and this has complicated the usual pattern of appropriations from the Fund. The Legislature has appropriated money from the Fund for the Sacramento River Project, the Calaveras and Littlejohn Creek Project, and since 1953 for the Merced County Stream Group, directly to the Reclamation Board without any control or review by the former State Water Resources Board and currently the Department of Water Resources. For the Fresno County Stream Group and the San Joaquin Flood Control Project the former State Water Resources Board allocated the money to the Reclamation Board but did not review or control the project work.

Acting under authorization contained in Water Code Section 8621, the state is constructing the upper portion of the San Joaquin River Flood Control Project. This project, for which the State is paying all costs through the Fund, reaches from Friant Dam to the mouth of the Merced River and is similar in concept and execution to a customary federal levee and channel project. Estimated cost is \$6,500,000. This particular project is an exception to the more traditional state policy in the paragraphs above, but was approved by the Legislature in 1955 with the knowledge that it was an exception.

The two major flood control projects financed through the Fund are the Sacramento River Project and the Los Angeles and San Gabriel Rivers and Ballona Creek Project. These projects have been under construction for years, have cost many millions of dollars, and will continue for some time in the future. A number of other smaller projects are scattered throughout the State, principally in the southern and midwestern parts.

APPENDIX B

CALIFORNIA WATER PLAN AND CENTRAL VALLEY PROJECT

Prepared by
Legislative Analyst

July 9, 1957

Inherent in many of the water problems confronting the Legislature is an understanding of the nature of the California Water Plan and the Central Valley Project. These phrases are frequently used but their meaning is not always clear. As a result, confusion has arisen regarding the actual status of certain water resources projects.

The original California Water Plan appears in the Water Code in Section 10,000 under the title of "State Water Plan". Section 10002 states that the approval and adoption of the State Water Plan does not repeal any of the provisions of the Central Valley Project Act of 1933 and to the extent that there may be any inconsistency or conflict, the provisions of the Central Valley Project shall prevail over the provisions of the State Water Plan. The original State Water Plan, however, is not incorporated in the Water Code as any specific projects, but is merely incorporated in the Water Code by reference as the coordinated plan for the conservation, development, and utilization of the water resources of the State as set forth in a report transmitted to the 49th Session of the Legislature.

The Federal Government in the 1930's initiated the construction of the Central Valley Project and to date has constructed or is constructing all those features currently set forth in the Water Code plus Trinity, Folsom, and Sly Park Projects. Thus, the Federal Government has constructed the Central Valley Project which was originally authorized and still is authorized for state construction by the Water Project Authority and its successor, the Department of Water Resources.

The original State Water Plan covered only the Central Valley. The new California Water Plan, just presented to the General Session of the Legislature in Bulletin No. 3, covers all portions of the State. Its most significant feature is the mass transfer of water from the northwestern counties to the San Joaquin Valley and to southern California.

Legislative acceptance of the California Water Plan would serve to designate it as a guide, first for the Department of Water Resources to use in its assignment and release of state filings on unappropriated water of the State and secondarily for the Water Rights Board to use in its issuance of permits and licenses to appropriate water. In view of the fact that the Department of Water Resources is preparing to file on virtually all of the unappropriated water of the State involved in the California Water Plan, irrespective of whether the projects are constructed by state, local, or private agencies, the California Water Plan will become a powerful vehicle for the Department of Water Resources in guiding and controlling future water development in the State of California.

There is no particular significance or meaning which can be attached to a project which has status in the California Water Plan. The California Water Plan does not represent completed feasibility analyses of each project it contains. Category 3 studies are required of each project before that project can be known to be economically feasible for construction by the State or any other agency.

The origin of many projects contained in the California Water Plan is diverse. Some are taken directly from project investigations made in past years by the Bureau of Reclamation and the Corps of Engineers, without any further investigation by the State. Other projects are included in the plan on the basis of planning work done by local agencies or by the State. It is not clear whether the same standards of multiple-purpose development have been equally applied to all projects included in the California Water Plan. Therefore, to characterize a project as being included in the California Water Plan does not mean much and does not indicate any need for either immediate construction of the project or for immediate appropriation of funds for a Category 3 investigation. Even though the California Water Plan is in published form and even though it may be accepted by the Legislature, each project must still be considered on its own merits with respect to every aspect of project planning, construction and operation.

The data published in Bulletin #3 is largely engineering material. The principles, policies, and premises upon which the Plan has been formulated have not been made available. More of this information will be contained in the appendices of the California Water Plan which will be printed in the future.

The inclusion of a project in the Central Valley Project has a very definite meaning. The portions of the Water Code which specify the authority of the former Water Project Authority authorize that agency to construct those features of the California Water Plan enumerated in Sections 11200 through 11260. In addition, Section 11290 provides that the Central Valley Project may include such other units as may be added from time to time by the Department of Water Resources to the units specifically enumerated in the code and that the Department may add additional units which are consistent with and which may be constructed, maintained, and operated as a part of the Central Valley Project. It is clear that the inclusion of any project in the Central Valley Project fully and completely authorizes that project for state construction and, in fact, since the Water Code provides for revenue bond financing, it is theoretically possible, though not actually feasible, for the State to construct such a project without further legislative action or appropriation. The principal value of placing a project within the Central Valley Project is that the watersheds of origin law applies to the project as stated in Sections 11460 to 11465 and thereby grants that protection to the areas of origin. It can be concluded that there is a vast difference between characterizing a project as being included in the California Water Plan on the one hand, or as being included in the Central Valley Project on the other hand and thereby authorized for state construction.

The provisions of the Water Code relating to the authority of the Department of Water Resources to construct projects and the anachronism whereby the federal Central Valley Project is also a state project authorized for state construction while the Feather River Project is a portion of the Central Valley Project authorized for State construction can lead to much confusion and difficulty. It would be desirable if these sections of the Water Code could be re-written in their entirety to correspond to current conditions.

APPENDIX C

Excerpts from Competition for the Use of Water By William G. Hoyt

As a Nation we probably use water in greater abundance than any other people. We demand that water for domestic and municipal use be pure in quality and almost unlimited in quantity, that all of our arid and semiarid lands be irrigated, that the growing needs of industry be satisfied, that waterpower be developed in abundance, and that the navigable capacity of navigable waters be maintained--all evidence of an enlightened and prosperous people. At the same time we also demand that our streams be not polluted, that fish and wildlife habitat be preserved, that scenic features be retained, and that the inalienable rights of individuals, States, and adjacent nations be respected. These uses and demands conflict even in areas of unlimited water supplies. With waters limited in many areas and with demands thereon increasing, competition is bound to develop. Moreover, we are prone to look into the future and wonder if decisions and dedications made today concerning the use of water will prove sound tomorrow, consequently, we are interested not only with today's conflicts, we also endeavor to minimize those of tomorrow.

As of 1950 the United States Geological Survey estimated that between 170 and 180 billion gallons of water was being withdrawn from the ground, lakes, and streams each day for use on farms, and in homes, factories, and business establishments of the United States. Roughly, this amount of water would fully meet the daily requirements of 180 cities each the size of New York City.

Of these withdrawals, 17 billion gallons were used in cities and rural communities (5 billion gallons in the West and 12 billion gallons in the East), some 83 billion gallons were for industry (3 in the West and 80 in the East), and 80 billion gallons were being used for irrigation of which the greater part by far was being used in the Western States. Approximately one-sixth of the total, or between 30 and 40 billion gallons came from ground-water sources.

Since 1950 there has been a normal increase in municipal and rural use corresponding to our growth in population; an accelerated use of ground water in the East and Southeast as a result of increased demands due to persistent high temperatures and drought conditions; and probably an above normal increase in water used by industry resulting largely from increases in the field of nuclear energy.

In addition to the use of water through actual withdrawals for municipalities, industry, and for irrigation, much of which is a consumptive use, some 1,100 billion gallons pass daily through hydropower plants; 28,000 miles of inland waterways are used as highways for transportation of 300 million tons of commerce annually; millions of pounds of fish, shrimp, oysters, and other aquatic products are taken from our lakes, streams, and coastal waters into which we also discharge sewage and industrial wastes equivalent to that from a population of 150 million people, with fully half that number using the same streams, lakes, and coastal waters for recreation. As between the various uses present competition is keen and in some areas critical. The extent of the critical areas is bound to increase if the overall use of water is doubled by 1975, a condition thought possible by President Truman's Materials Policy Commission and partly confirmed by the National Association of Manufacturers.

We have reached a point in our economy when only rarely can use be made of water for some particular purpose without adversely affecting its use for some other purpose. Also we have reached a point where water stringencies are becoming more frequent and numerous.

Because it is a consumptive use, water diverted from streams for irrigation is a maximum competitor with other uses. Diversions of water for irrigation result in lower navigable depths, lower power potentials, limit the ability of streams to dilute and carry away industrial and human wastes, decrease recreational values, destroy fish and wildlife habitats, permits intrusion of salt water into bays and estuaries, and may modify the chemical composition of coastal waters and thus affect the character and amount of aquatic life. Such waters as do return to streams after irrigation use often contain accumulations of salts which frequently limit other beneficial uses. Withdrawals of water from the ground along coastal areas may permit salt-water intrusion into ground-water aquifers and thus destroy their future value as sources of usable water.

Construction of reservoirs, stock tanks, ponds, or other water-holding devices increases evaporation and thus has the same effect as actual withdrawals. Land-use practices such as terracing and strip-cropping delays passage of water and thus tends to increase evaporation and decrease surface runoff, although at the same time these practices tend to increase soil moisture and may under certain conditions increase ground-water supplies. Use of lands for reservoir sites competes directly with their use for agriculture. Use of streamflow for hydropower development changes flow characteristics but does not deplete its quantity or change its quality greatly. Dams and related structures, however, seriously interfere with the upstream and downstream migration of fish, destroy spawning grounds, and may conflict with scenic and recreational values and uses. Competition for use of storage as between power, irrigation, navigation, and flood control is prevalent in many multiple purpose projects. Except as there may be pollution, use of streams for navigation does not normally conflict with other uses. Construction of navigable channels near coastal waters may, however, permit salt water intrusion. Use of streamflow for purposes of condensation may not only deplete the flow it may also raise temperatures to a point injurious to fish. Use of streamflow in industry almost invariably results in contamination as does also the discharge into streams of sewage or effluents of sewage disposal works.

Although not discussed herein, all developments on flood plains are in direct competition with their use as natural conduits to carry flood flows to the oceans. Over and above these problems relating to competition as between uses of water, there are also problems of ownerships or rights as between water users on the same stream, rights on the same stream as between States, and rights on international waters. While these are largely matters of law, compacts, and treaties, they are all indirectly related to problems of competition and the source of many of our conflicts.

SOURCE: COMMISSION ON ORGANIZATION OF THE EXECUTIVE BRANCH OF THE GOVERNMENT
TASK FORCE REPORT ON WATER RESOURCES AND POWER - VOLUME 3

APPENDIX D

Excerpts from
A POLICY FOR MULTI-PURPOSE PLANNING
Brig. Gen. W. E. Potter
Division Engineer, Missouri River Division, Corps of Engineers
Omaha, Nebraska

SOURCE: NATIONAL WATER AND POWER POLICY

Let us start with a definition of multiple-purpose planning in connection with water resources development. Multiple-purpose planning means simply the planning of a single project or program to serve a number of needed water uses rather than relying upon several individual projects or programs each to serve a single use. In the case of reservoirs, for example, storage allocations adequate for each of several water uses often can be provided above a single dam. The multiple-purpose project is analogous in some respects to the department store in which we may purchase in one place a number of products we would otherwise have to visit several stores to obtain.

There are a number of advantages inherent in multiple-purpose planning and development. One is economy, for it is usually cheaper to provide for several water uses in a single project than to build several single-use projects. Another is conservation of project sites. Favorable damsites are rare, and it is essential that the potentialities of each site be utilized as fully as is practicable. Multiple-purpose construction may permit development of water uses which could not be justified individually, helping us not only by protecting our fertile river valleys against floods but by storing supplies of water for domestic use, irrigation, industrial, and other uses, permitting production of hydroelectric power, helping to abate the pollution of our streams, enhancing fish and wildlife habitat, and providing recreation on reservoirs and streams. And, perhaps most important, multiple-purpose construction provides for future flexibility in the use of water.

Any revision of our existing water resources policy should emphasize the concept of comprehensive, basin-wide, multiple-purpose planning and development. We have seen enough of the advantages of comprehensive basin-wide development to recognize that our water resources needs are not separate and divisible, but rather are so closely related that their optimum and most economical development requires that they be accomplished as elements of a unified project or program. We should not, therefore, permit our water resources requirements to be developed separately and on a piecemeal basis as expediency and pressures dictate.

Basin-wide planning requires participation by all agencies, state and federal, which have responsibilities and interests in water and related land resources development. This does not mean that all types of improvements need to be definitely planned and built at once. The initial objective should be the formulation of a sound framework of basic projects most needed now rather than a mere inventory of problems and possibilities. Additional projects can be planned as additional needs become apparent.

Our water resources policy should make provision for a nation-wide inventory, by river basins, of water resources and water resources development needs;

for if there is to be sound basin-wide planning, water resources must be defined and needs recognized. This means a comprehensive program of investigation of current and future development possibilities and a comprehensive program of basic data collection, involving substantial expansion and acceleration of the current programs. To a large extent, the programs of investigation and basic data collection must go hand-in-hand.

Our analysis of water resources development needs should encompass all potential water needs. It should be guided, of course, by the several problems now existing in each river basin. It should recognize, however, that these problems probably did not exist or were not apparent 20 years ago--a normal duration for the period of study, project formulation, and project construction--and that additional problems, not of major significance now may be of major significance 20 years from now. To this extent, I feel that our analysis of development needs, on which program formulation must rest to a large extent, must contain strong elements of imagination and foresight.

Any changes in our water resources policy should recognize the importance of program formulation and evaluation, for the real wealth which the nation will derive from its water resources will depend upon these basic steps. To a great extent these factors are inseparable, for economic evaluation is one of the major tools used in project formulation.

Our basic objective in program formulation should be to provide, to the best of our ability, the fullest justifiable development of our water resources. Here, the viewpoint we adopt will be of major importance--we must look to the future.

With regard to program evaluation, I believe we all agree that cost estimates should be realistic and that benefits should be realistically estimated. Benefits can be realistic, however, without neglecting consideration of future economic development and expansion.

APPENDIX E

85TH CONGRESS - 1st SESSION

February 11, 1957

A BILL

To make the evaluation of recreational benefits resulting from the construction of any flood control, navigation, or reclamation project an integral part of project planning, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it is the policy of the Congress that reservoir areas developed as the result of any flood control or navigation project undertaken by, and under the control of, the Secretary of the Army, acting through the Chief of Engineers, or any reclamation project undertaken by, and under the control of, the Secretary of the Interior should be made available in the interest of the national welfare for recreational purposes, insofar as use for such purposes does not impede or conflict with the major purposes of the project. Consistent with this policy it is further the policy of the Congress (1) that as an integral part of the planning of any new flood control or navigation project, or reclamation project, or the modification or expansion of any such project now existing or hereafter undertaken, there should be included, along with the evaluation of other proper objectives to be served thereby, an evaluation of the public recreational benefits to be derived therefrom, and (2) that the planning with respect to the development of the recreational potential of any such project should contemplate the coordination of the use of the project area for recreational purposes with the use of existing or planned Federal, State, or local recreational developments in such manner as to achieve maximum public benefit.

Sec. 2. As used in this Act--

(1) The term "flood control or navigation project" means any project prosecuted by the Department of the Army, under the direction of the Secretary of the Army and the supervision of the Chief of Engineers, for flood control and navigation, including channel and major drainage improvements, and investigations and improvements of rivers and waterways for flood control, navigation, and allied purposes.

(2) The term "reclamation project" means any project under the direction of the Secretary of the Interior for reclamation or irrigation purposes, including incidental features thereof, authorized by the Federal reclamation laws.

Sec. 3. (a) In addition to such other data as may be prescribed by law, or may be pertinent, there shall be included in any report submitted to the Congress by the Secretary of the Army or the Secretary of the Interior with respect to the undertaking of any new flood control or navigation project, or reclamation project (including any new division of such project or new supplemental works on such project), an evaluation of the annual recreational benefits to be derived therefrom.

(b) The evaluation of the recreational benefits, as provided in this section, shall be made upon the assumption that the annual value of such benefits is the product of (1) the estimated average number of persons which may reasonably be expected on any day to enjoy the recreational benefits of the project area, (2) 365, and (3) \$1.

Sec. 4. Any part of the total estimated cost of any such project allocated hereunder to recreational benefits shall be nonreimbursable and nonreturnable. Such nonreimbursable costs shall not exceed 15 per centum of the total project cost.

Sec. 5. (a) In connection with the development of any flood control or navigation project, or any reclamation project, the Secretary of the Army or the Secretary of the Interior, as the case may be, is authorized (1) to construct, operate and maintain minimum basic facilities for access to, and for the maintenance of public health and safety and the protection of public property on, lands withdrawn or acquired for the development of the project, and to conserve the scenery and natural, historic and archeologic objects, and (2) to cooperate with interested State and local governmental agencies and others in the investigation and planning of any such project, and (3) to permit the construction, maintenance, and operation of public park and recreational facilities on project lands. The facilities referred to in clause (1) of this subsection shall include, but shall not be limited to, sanitary facilities, parking area, boat anchorage and launching sites, and access roads to the project area.

(b) Nothing contained herein shall be construed to authorize a use of any project area in conflict with the major purposes for which the project was authorized.

(c) In the implementation of the policy set forth in section 1, the Secretary of the Army or the Secretary of the Interior is authorized to permit the construction, maintenance, and operation of such additional facilities as may be necessary and desirable for the full development of the recreational potential of any reservoir area, developed as the result of any such project, in accordance with the provisions of section 4 of the Act of December 22, 1944, as amended (16 U.S.C. 460d), and the provisions of such section are hereby made expressly applicable to reservoir areas under the control of the Department of the Interior. With respect to any such reservoir area under the control of the Department of the Interior, any reference in such section to the Chief of Engineers or the Secretary of the Army shall be deemed to refer to the Secretary of the Interior.

Sec. 6. (a) The second sentence of section 9 (a) of the Reclamation Project Act of 1939 (43 U.S.C. 485h (a)) is amended by striking out "or navigation made under subsection (b) of this section", and inserting in lieu thereof the following: "navigation, or recreational benefits made under subsection (b) of this section, or as may be otherwise authorized by law".

(b) The first sentence of section 9 (b) of such Act (43 U.S.C. 485h (b)) is amended by inserting before the period a comma and the following: "and to the extent authorized by law part of said total estimated cost may be allocated to recreational benefits".

APPENDIX F

PUBLIC LAW 984 - 84TH CONGRESS

CHAPTER 972 - 2D SESSION

H. R. 5881

AN ACT

To supplement the Federal reclamation laws by providing for Federal cooperation in non-Federal projects and for participation by non-Federal agencies in Federal projects.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the purpose of this Act is to encourage State and local participation in the development of projects under the Federal reclamation laws and to provide for Federal assistance in the development of similar projects in the seventeen western reclamation States by non-Federal organizations.

Sec. 2. As used in this Act-

(a) The term "construction" shall include rehabilitation and betterment.

(b) The term "Federal reclamation laws" shall mean the Act of June 17, 1902 (32 Stat. 388), and Acts amendatory thereof or supplementary thereto.

(c) The term "organization" shall mean a State or a department, agency, or political subdivision thereof or a conservancy district, irrigation district, water users' association, an agency created by interstate compact, or similar organization which has capacity to contract with the United States under the Federal reclamation laws.

(d) The term "project" shall mean (i) any complete irrigation undertaking, including incidental features thereof, or distinct unit of such an undertaking or a rehabilitation and betterment program for an existing irrigation project, authorized to be constructed pursuant to the Federal reclamation laws and (ii) any similar undertaking proposed to be constructed by an organization. The term "project" shall not include any such undertaking, unit, or program the cost of which exceeds \$5,000,000: Provided, That any project, the estimated cost of which is more than \$5,000,000 but less than \$10,000,000, may qualify under this Act if the applicant organization is ready, able, and willing to finance otherwise than by loan or grant under this Act all costs in excess of the amount of the loan or grant which would be made under this Act if the estimated construction cost were \$5,000,000: Provided further, That nothing contained in this definition shall preclude the making of a grant not in excess of \$5,000,000 in accordance with the provisions of sections 4 and 5 of this Act, to organizations whose proposed projects qualify for the same but which are not applicants for a loan under this Act: And provided further, That nothing contained in this Act shall preclude the making of more than one loan or grant, or combined loan and grant, to an organization so long as no two such loans or grants, or combinations thereof, are for the same project, as herein defined.

(e) The term "Secretary" shall mean the Secretary of the Interior.

Sec. 3. Any organization desiring to avail itself of the benefits provided in this Act shall submit a proposal therefor to the Secretary in such form and manner as he shall prescribe. Each such proposal shall be accompanied by a payment of \$1,000 to defray, in part, the cost of examining the proposal.

Sec. 4. (a) Any proposal with respect to the construction of a project which has not theretofore been authorized for construction under the Federal reclamation laws shall set forth, among other things, a plan and estimated cost in detail comparable to those included in preauthorization reports required for a Federal reclamation project; shall have been submitted for review by the States of the drainage basin in which the project is located in like manner as provided in subsection (c), section 1 of the Act of December 22, 1944 (58 Stat. 887), except that the review may be limited to the State or States in which the project is located if the proposal is one solely for rehabilitation and betterment of an existing project; and shall include a proposed allocation of capital costs to functions such that costs for facilities used for a single purpose shall be allocated to that purpose and costs for facilities used for more than one purpose shall be so allocated among the purposes served that each purpose will share equitably in the costs of such joint facilities.

(b) Every such proposal shall include a showing that the organization already holds or can acquire all lands and interests in land (except public and other lands and interests in land owned by the United States which are within the administrative jurisdiction of the Secretary and subject to disposition by him) and rights, pursuant to applicable State law, to the use of water necessary for the successful construction, operation, and maintenance of the project and that it is ready, able, and willing to finance otherwise than by loan and grant under this Act such portion of the cost of construction (which portion shall include all costs of acquiring lands, interests in land, and rights to the use of water) as the Secretary shall have advised is proper in the circumstances: Provided, That the contribution of any applicant organization shall not be required to be in excess of 25 per centum of the costs of the project which, if it were being constructed as a Federal reclamation project, would be properly allocable to reimbursable functions under general provisions of law applicable to such projects.

(c) If the project is found by the Secretary and the Governor of the State in which it is located (or an appropriate State agency designated by him) to be financially feasible and upon determination by the Secretary that the requested project constitutes a reasonable risk under the provisions of this Act, the Secretary is hereby authorized to negotiate a contract with the applicant organization as provided in section 5; but no such contract shall be executed by the Secretary prior to sixty calendar days (which sixty days, however, shall not include days on which either the House of Representatives or the Senate is not in session because of an adjournment of more than three days to a day certain) from the date on which the project proposal has been submitted to both branches of the Congress for consideration by the appropriate committees thereof, and then only if neither such committee, by committee resolution and notification in writing to the Secretary, disapproves the project proposal within such period: Provided, That if both such committees, in the same manner and prior to the expiration of such period, approve the project proposal, then the Secretary may proceed to execute the contract: Provided further, That in the event either committee disapproves the project proposal, the Secretary shall not proceed further unless the Congress has approved the same. The Secretary at the time of submitting the project proposal to Congress or at the time of his determination that the requested project constitutes a reasonable risk under the provisions of this Act, may reserve from use or disposition inimical to the project any lands and interests in land owned by the United

States which are within his administrative jurisdiction and subject to the disposition by him and which are required for use by the project. Any such reservation shall expire at the end of two years unless the repayment contract provided for in section 5 of this Act shall have been executed.

(d) The Secretary shall give due consideration to financial feasibility, emergency, or urgent need for the project, whether the proposal involves furnishing supplemental irrigation water for an existing irrigation project, whether the proposal involves rehabilitation of existing irrigation project works, and whether the proposed project is primarily for irrigation. All project works and facilities constructed under this Act shall remain under the jurisdiction and control of the local contracting organization subject to the terms of the repayment contract.

Sec. 5. Any contract authorized to be negotiated under the provisions of subsection (c) of section 4 of this Act shall set out, among other things--

(a) the maximum amount of any loan to be made to the organization and the time and method of making the same available to the organization. said loan shall not exceed that portion of the estimated cost of constructing the project which, if it were being constructed as a Federal reclamation project, would be properly allocable to reimbursable functions under general provisions of law applicable to such projects;

(b) the maximum amount of any grant to be accorded the organization and the time and method of paying the same to the organization. Said grant shall not exceed that portion of the estimated cost of constructing the project which, if it were being constructed as a Federal reclamation project, would be properly allocable to nonreimbursable functions under general provisions of law applicable to such projects;

(c) a plan of repayment by the organization of (1) the sums lent to it in not more than fifty years from the date when the principal benefits of the project first become available; (2) interest, as determined by the Secretary of the Treasury, by estimating the average annual yield to maturity, on the basis of daily closing market bid quotations or prices during the month of May preceding the fiscal year in which the loan is made, on all outstanding marketable obligations of the United States having a maturity date of fifteen or more years from the first day of such month of May, and by adjusting such estimated average annual yield to the nearest one-eighth of 1 per centum at the beginning of the fiscal year preceding the date on which the contract is executed, on that pro rata share of the loan which is attributable to furnishing irrigation benefits in each particular year to land held in private ownership by any one owner in excess of one hundred and sixty irrigable acres; and (3) in the case of any project involving an allocation to domestic, industrial, or municipal water supply, or commercial power produced as an element of the project and incidental to its full development, interest on the unamortized balance of an appropriate portion of the loan at a rate as determined in (2) above;

(d) provision for operation of the project, if a grant predicated upon its performance of nonreimbursable functions is made, in accordance with regulations with respect thereto prescribed by the head of the Federal department or agency primarily concerned with those functions and, in the event of noncompliance with such regulations, for operation by the United States or for repayment to the United States of the amount of any such grant;

(e) such provisions as the Secretary shall deem necessary or proper to provide assurance of and security for prompt repayment of the loan and interest as aforesaid. The liability of the United States under any contract entered into pursuant to this Act shall be contingent upon the availability of appropriations to carry out the same, and every such contract shall so recite; and

(f) provisions conforming to the preference requirements contained in the proviso to section 9 (c) of the Act of August 4, 1939 (53 Stat. 1193), if the project produces electric power for sale.

Sec. 6. Any proposal with respect to the construction of a project which has theretofore been authorized for construction under the Federal reclamation laws shall be made in like manner as a proposal under section 4 of this Act, but the Secretary may waive such requirements of subsections (a) and (b) of that section as he finds to be duplicative of, or rendered unnecessary or impossible by, action already taken by the United States. Upon approval of any such proposal by the Secretary he may negotiate and execute a contract which conforms, as nearly as may be, to the provisions of section 5 of this Act.

Sec. 7. Upon request of an organization which has made or intends to make a proposal under this Act, the head of any Federal department or agency may make available to the organization any existing engineering, economic, or hydrologic information and printed material that it may have and that will be useful in connection with the planning, design, construction, or operation and maintenance of the project concerned. The reasonable cost of any plans, specifications, and other unpublished material furnished by the Secretary pursuant to this section and the cost of making and administering any loan under this Act shall, to the extent that they would not be nonreimbursable in the case of a project constructed under the Federal reclamation laws, be treated as a loan and covered in the provisions of the contract entered into under section 5 of this Act unless they are otherwise paid for by the organization.

Sec. 8. The planning and construction of projects undertaken pursuant to this Act shall be subject to all procedural requirements and other provisions of the Act of August 14, 1946 (60 Stat. 1080).

Sec. 9. The Secretary is authorized to perform any and all acts and to make such rules and regulations as may be necessary or proper in carrying out the provisions of this Act.

Sec. 10. There are hereby authorized to be appropriated, such sums as may be necessary, but not to exceed \$100,000,000 to carry out the provisions of this Act: Provided, That the Secretary shall advise the Congress promptly on the receipt of each proposal referred to in section 3, and no contract shall become effective until appropriated funds are available to initiate the specific proposal covered by each contract. All such appropriations shall remain available until expended and shall, insofar as they are used to finance loans made under this Act, be reimbursable in the manner hereinabove provided.

Sec. 11. This Act shall be a supplement to the Federal reclamation laws and may be cited as the Small Reclamation Projects Act of 1956.

Sec. 12. If any provision of this Act or the application of such provision to any person, organization, or circumstance shall be held invalid, the remainder of the Act and the application of such provision to persons, organizations, or circumstances other than those as to which it is held invalid shall not be affected thereby.

Approved August 6, 1956.

APPENDIX G

SENATE BILL NO. 306

An act to add Part 7 (commencing at Section 12880) to Division 6 of the Water Code, relating to the planning, construction, and operation of water development projects for cities, counties, and districts throughout the State.

The people of the State of California do enact as follows:

SECTION 1. Part 7 is added to Division 6 of the Water Code, to read:

PART 7. WATER DEVELOPMENT ACT

Chapter 1. General Provisions

Article 1. Purpose

12880. In furtherance of the public interest in the development, control, conservation, and beneficial use of water resources of the State to the fullest possible extent, including stream regulation and flood control, preventing waste of water, protection of the quality of water, it is hereby declared that the construction, operation and maintenance of water development projects as provided in this part in order that local public agencies may have an adequate supply of water for domestic, industrial, and irrigation uses is a matter of state interest and concern, and that the State, acting either directly or through local public agencies and districts, should prepare plans and construct the necessary works, dams, structures, conduits, storage reservoirs, and other facilities necessary for the development of such water uses.

Article 2. Definitions

12883. The definitions in this article govern the construction of this part.

12884. "Department" means the Department of Water Resources.

12885. "Director" means the Director of Finance.

12886. "Controller" means the State Controller.

12887. "Agency" means any city, city and county, county, or district of the State.

12888. "Project" means any work of construction, improvement, operation or maintenance by an agency of any facilities for obtaining, storing, furnishing or distributing water for domestic, municipal, agricultural or industrial uses.

APPENDIX G (Continued)

12889. "Fund" means the Water Development Fund.

Article 3. Short Title

12892. This part shall be known and may be cited as "The Davis-Arnold Water Development Act."

Article 4. Water Development Fund

12895. There is hereby created in the State Treasury the Water Development Fund, the money in which fund shall be available, when appropriated by the Legislature, for allocation and expenditure for projects pursuant to this part.

Chapter 2. Allocation

Article 1, Applications

12900. After receipt of an application from an agency, the department may determine that a sum be allocated from the fund for expenditure for a project.

12901. Application shall be made to the department, and shall include:

(a) A description of the proposed works and facilities, an engineering report, plans, an estimate of the total project cost, and such other reports and data as may be required by the department.

(b) The proposed plan for paying the project cost.

12902. The department may enter into cooperative contracts with any agency to furnish, or contract for, the necessary services for the preliminary investigation and preparation of reports, plans, and specifications of projects contemplated by this part.

12903. The department may make rules and regulations to carry out this part.

Article 2. Investigations

12905. The department may make an investigation and report on the engineering feasibility of the proposed project and a recommendation as to financial feasibility of the proposed project.

12906. For the purpose of investigating and determining the feasibility of proposed projects, the department may enter into contracts with state or federal agencies and may contract for engineering and other technical services and may employ such engineering, technical, and other employees as may be necessary.

APPENDIX G (Continued)

12907. The department may require, and the agency shall submit, such other plans and specifications for the project as the department deems necessary to the proper consideration of the application.

Article 3. Action by Department

12915. The department shall take no action with respect to an application for an allocation of funds for a project unless and until it has determined:

- (a) The engineering feasibility of the proposed project;
- (b) The estimated cost of the proposed project;
- (c) The part of the estimated cost which would be expended for irrigation features of the project and what portion of that cost it is estimated could be repaid with interest by the project;
- (d) The part of the estimated cost which would be expended for municipal or industrial water supply or other miscellaneous purposes which could be repaid with interest;
- (e) The part of the estimated cost which might properly be paid from sources other than the fund, including, but not limited to, funds which might be available for the project, either as a grant or a loan, from the Federal Government;
- (f) That the project is necessary in the public interest;
- (g) That the project cannot be financed by the local agency.

12916. If the department determines that the proposed project has engineering feasibility, and if it determines further that the estimated repayments together with payments from other sources equal the total estimated cost of the project, the department shall make an allocation for the project.

12917. Subject to the provisions of this part, the department may make an allocation for a project which is to be financed in part by a grant or loan received from the Federal Government, which allocation shall remain available for expenditure for a period of three years from the date of the allocation. No money shall be paid from such allocation to the agency under an agreement with the agency unless and until the director is satisfied that the federal funds are committed or encumbered for expenditure on the project.

12918. The department shall make no allocation in excess of the unallocated balance in the fund nor in excess of three million dollars (\$3,000,000) for any one project.

12919. The findings and determinations of the department in all matters relating to the making of an allocation for a project under this part shall be contained in a resolution adopted by the department. A copy of the resolution shall be transmitted to the agency making the application, and a copy shall be filed with the Controller and the director.

APPENDIX G (Continued)

12920. If any determination of the department is unfavorable, or material amendments to the proposed project are recommended, the department may in its discretion deny the application without prejudice to the filing of an amended application, and shall so inform the agency stating its reasons therefor.

12921. The determinations and findings of the department with respect to all matters relating to the administration of this part shall be final and conclusive for all purposes.

Chapter 3. Administration of the Fund

Article 1. Construction, Maintenance and Operation
of Projects

12930. After the department has made an allocation to an agency for a project, the director shall enter into appropriate agreements with the agency, which agreements shall provide, among other things:

(a) That the money allocated shall be paid to the agency at such times and under such conditions as is required by law and the terms of the agreement. If money is or will be available for the project from sources other than the fund, the agreement may contain provisions for its payment either through the fund or to the agency directly. If such money is to be paid through the fund it shall be paid into and expended from the fund as provided in the agreement (such expenditure to be made only when the money in the fund is appropriated for expenditure for projects).

(b) That if the project is to be constructed, operated, and maintained by the agency, it may be under the general supervision of the department until the repayment obligation to the board is fulfilled in order to protect the State's investment.

(c) That the title to all works and facilities shall remain in the State until the repayment obligation to the department is fulfilled, when title shall vest in the agency.

(d) That the agency shall pay into the fund the amount determined by the department to be the agency's repayment obligation to the department, together with interest at a rate not to exceed 2 percent on the unpaid balance thereof, within a period not to exceed 50 years, commencing not later than 10 years after the funds have been allocated.

(e) That the agency shall pay all expenses of operation and maintenance commencing not later than 10 years after the date of the allocation.

APPENDIX G (Continued)

12931. The agreement entered into between the agency and the director may contain other provisions necessary or convenient to carry out the purposes of this part and which are not inconsistent with law; provided, that where the project is to be financed in part by a grant or loan received from the Federal Government, the agreement may also contain such provisions which are inconsistent with the provisions of this part as are necessary in order for the project to be eligible for such federal grant or loan.

12932. The terms and provisions of any agreement entered into by the director with an agency pursuant to this part may be changed and modified by agreement of the parties.

12933. Upon the demand of the director pursuant to an agreement with an agency, the Controller shall draw warrants to the agency or as otherwise may be provided in the agreement, and the State Treasurer shall pay such warrants.

12934. It shall be the duty of the State Controller to make such audit or audits of the books and records of agencies receiving money pursuant to allocations made under this act, as he may deem necessary from time to time, for the purpose of determining that the money received by agencies hereunder has been expended for the purposes and within the period authorized by the allocation.

Whenever the Controller determines that any money so paid to an agency has been expended by the agency for purposes not authorized by the allocation made pursuant to this act, or exceeds the final cost of the project which is authorized by such allocation to be paid therefrom the Controller shall furnish written notice to the agency, the department, and the director, directing the agency to pay into the State Treasury, as soon as practicable, the amount of such unauthorized expenditures, or the amount in excess of the final authorized cost of the project, as the case may be. Upon receipt of such notice, such agency shall, at the time specified therein, pay to the State Treasurer the amount set forth in such notice. Such amount shall, upon order of the State Controller, be deposited in the State Treasury to the credit of the Water Development Fund.

It shall be the duty of such agencies to make the payments to the State Treasurer as provided in this chapter, and it shall be the duty of the State Controller to enforce such collection on behalf of the State.

Article 2. Repayment

12940. All money received by the State in repayment of an allocation, together with the interest thereon, and all money received pursuant to Section 12934 shall be paid to the State Treasurer and credited to the fund and shall, upon such repayment or such receipt, be available for allocation by the department pursuant to this part when appropriated for such purpose by the Legislature.

APPENDIX H

SENATE BILL NO. 2174

CHAPTER 2052

An act to add Chapter 5 to Part 6 of Division 6 (commencing at Section 12880) of the Water Code, declaring the policy of the State, relating to financial assistance to public agencies in the construction of water development projects.

The people of the State of California do enact as follows:

SECTION 1. Chapter 5 is added to Part 6 of Division 6 of the Water Code, to read:

CHAPTER 5. STATE FINANCIAL ASSISTANCE
FOR LOCAL PROJECTS

12880. In furtherance of the development, control and conservation of the water resources of the State it is the policy of the State to provide financial assistance to public agencies for the construction of projects for water development in which there is a state-wide interest by making grants or loans, or both, and by participating in the construction and operation of such projects, in accordance with this section.

(a) As used in this section, "project" means any construction or improvement by a public agency for flood control, for the diversion, storage, distribution or other use of water primarily for domestic, municipal, agricultural, or industrial purposes, and for the production of power. "Public agency" means any city, county, district or other political subdivision of the State.

(b) The proposed project may be approved for assistance only if it is determined that the project substantially conforms to The California Water Plan, is engineeringly feasible, economically justified, and, if a loan is proposed, that there is reasonable assurance that the public agency can repay it.

(c) Grants in furtherance of a project may be made for the following purposes:

(1) For the part of the construction cost properly allocated to the preservation and enhancement of fish and wildlife incidental to the primary functions of the project.

(2) For the part of the construction cost properly allocated to recreational benefits of state-wide interest that are incidental to the primary functions of the project.

(3) In special circumstances, grants may be made for other parts of the construction cost in which there is determined to be a state-wide interest.

APPENDIX H (Continued)

(d) Loans in furtherance of a project may be made only for that portion of the cost of a project which the Districts Securities Commission certified to be beyond the reasonable financial ability of the public agency and for which funds cannot be obtained from other sources.

(e) Loans shall be repayable over a period not to exceed 50 years, excluding a limited period of development in special instances. Loans shall be made upon such terms as may be prescribed by the Legislature.

(f) If in order to accomplish the objectives of The California Water Plan it is necessary to construct a project that is beyond the requirements of the public agency constructing the project, the State may participate in financing those costs of the project in excess of the costs necessary to meet the requirements of the public agency, on terms agreed upon with the agency, to the end that the project to be constructed and operated shall accomplish the maximum water development objectives at a minimum total expenditure.

(g) Applications for loans or grants or financial participation by the State shall be made to the Department of Water Resources in such form and with such supporting material as may be prescribed by the department. A report on each application shall be prepared by the department and filed with the Legislature. In such reports the department shall make findings as to the nature and extent of the state-wide interest in the project, the public necessity for the project, the urgency of the need, and the engineering feasibility, economic justification, and financial feasibility of the project.

(h) State grants or loans for a proposed project may be made only upon specific authorization by the Legislature.

(i) Nothing contained in this chapter shall be construed to expand the powers of any public agency otherwise granted by law.