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THE U.S. BUREAU OF RECLAMATION AND ITS PROBLEMS

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CONTENTS

- I. WHAT IS THE BUREAU OF RECLAMATION
- II. FROM PRIVATE TO FEDERAL
 - Irrigation before the Reclamation Act
 - Movement toward Federal Action
- III. METHOD OF FINANCING AND REPAYMENT
 - Revolving Fund
 - Water Users' Association
 - Amendatory Enactments
- IV. EXCESS-LAND REGULATION
- V. INTER-AGENCY PROBLEMS
 - Co-ordination with Other Agencies
 - The Corps of Engineers
- VI. EVALUATION AND CONCLUDING REMARKS

I. WHAT IS THE U.S. BUREAU OF RECLAMATION

The Bureau of Reclamation is a civil engineering organization in the Department of the Interior of the United States of America. It began with the Act of June 17, 1902, commonly called the National Reclamation Act, or the Newlands Act in honor of its author, Representative Francis G. Newlands of Nevada. President Theodor Roosevelt entrusted the administration of the Reclamation Act to the "Reclamation Service," a newly-created branch of the Geological Survey. Its functions were defined as to examine, survey, construct and maintain irrigation works for the storage, diversion and distribution of water for the reclamation of arid and semi-arid lands in the western part of the United States.¹ Its first staff was made up of the personnel of the division of hydrography of the Geological Survey.

In 1907, the Reclamation Service became a separate bureau, under a director, reporting directly to the Secretary of the Interior. In 1923, it was renamed the "Bureau of Reclamation," and headed by a commissioner with two assistant commissioners who were later made presidential appointees. Because the work of this new agency was confined to the seventeen western states, its center of administration was at Denver, Colorado.²

Under subsequent enactments, its responsibilities were enlarged to include the Territory (now State) of Alaska and to embrace the development of multiple-purpose water resource use, including the generation of hydroelectric power, domestic and industrial water supplies, irrigation, recreational facilities, flood and sedimentation control, fish and wildlife protection, and other permanent national benefit on a river-

¹ Institute for Government Research, *The U. S. Reclamation Service*, Service Monographs of the U. S. Government, No. 2 (New York and London: Appleton and Co., 1919), p. 1.

² Charles McKinley, *Uncle Sam in the Pacific Northwest* (Berkeley and Los Angeles: Univ. of California Press, 1952), p. 118.

basin-wide scale.³

Today, the Bureau of Reclamation organization includes a commissioner, three assistant commissioners and four branches. The commissioner, assistant commissioners, and the directors of three branches⁴ are located in Washington, D. C. The Reclamation Engineering Center at Denver is under the supervision of the chief engineer, who is also director of the branch of Design and Construction. The field organization is divided into seven regions, each headed by a director.⁵

The Reclamation Act and the establishment of the Reclamation Service was to mark a step forwarded by the people and the government of the United States in the long history of the public land policy on the one hand, and of the conservation movement on the other.⁶ Also, it was a step among the series of the administrative re-organization of the federal governmental agencies carried out especially in the Department of Agriculture and in the Department of the Interior, since the early

³ "Reclamation," *Encyclopedia Americana*, Vol. 23 (New York: American Corporation, 1959), p. 270.

⁴ The three branches are: the Branch of Project Planning, the Branch of Power Utilization, and the Branch of Operation and Maintenance.

⁵ The regional headquarters are located at Boise, Idaho, Sacramento, Calif., Boulder City, Nev., Salt Lake City, Utah, Amarillo, Texas, Billings, Mont., and Denver, Colo.

⁶ Some writers emphasize the conservation aspect of the Act more than the homesteading aspect. For example, Hibbard says, "the greatest interest in the Reclamation Act centers around the fact that it is clearly a conscious and salutary step in the direction of a national policy of conservation. It was passed soon after the conservation principles were first prominently expounded, and embodies unmistakably the essence of those principles as applied to the use of water on the western arid lands. The purpose of the act is broad and fundamental, providing for the use of natural resources, a wide diffusion in ownership, and in consequence opportunity to a larger number of people." B. H. Hibbard, *A History of the Public Land Policies* (New York: MacMillan, 1924), p. 443.

In a recent publication, however, a question has been raised as to whether the conservation movement in T. R. 's era was for resources conservation or resources development. Samuel P. Hays, "The Mythology of Conservation," in *Perspective on Conservation*, ed. Henry Jarrett (Baltimore: The Johns Hopkins Press, 1958), p. 40~45.

days of the century.⁷

The original purpose of the Reclamation Act of 1902 was to provide larger number of settlers with farming land over the arid and semi-arid land of the western part of the United States. The Act has four main features explicitly stated in its provisions. They are :

(1) "The activity is federal." The Act authorized the federal government to withdraw the land to construct and maintain the irrigation works when and where deemed necessary.

(2) "Method of financing and repayment." The Act provided that the revenue from sales of lands in the arid states⁸ should constitute a revolving fund for the development of irrigation projects, and the settlers were to make repayment for the cost of construction in not more than ten installments, with interest free.

(3) "Excxs-land regulation." The Act limited the use of water by a private landowner to not over 160 acres of land.

(4) "The job is irrigation." The Act defined the works to be done as construction of irrigation works and related activities.⁹

These four are not only the major provisions in the original Act, but also the problems the Bureau was to face in its history seem to have centered around them. In this paper, sections are divided in such manner that some aspects of the problems the Bureau has faced will be described following these four issues.

⁷ Marion Clawson and Burnell Held, *The Federal Lands: Their Use and Management* (Baltimore, The Johns Hopkins Press, 1957), p. 365.

⁸ The states (and territories) listed in the Act were: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. Extended to Texas by the Act of June 12, 1906.

⁹ In order to receive a patent for the land made irrigable by the works of the Reclamation Service, the settler was required (1) to make the cost of construction repayments, (2) to reclaim at least one-half of the total irrigable area of his entry, and (3) to meet the requirements of the Homestead Act as to the residence, which under those circumstances was three years. Hibbard, p. 443.

II. FROM PRIVATE TO FEDERAL

Irrigation before the Reclamation Act

Although the irrigation of agricultural land has a long record in human history, modern irrigation in the United States started with the Mormon pioneers settled in the Great Salt Lake Valley in 1847.¹⁰ Other co-operative undertakings followed in some parts of the western states. The most well-known among them are the Los Angeles Vineyard Society formed in 1857,¹¹ and the co-operative colonizations in Northeastern Colorado in 1870's of which the Union Colony at Greeley was the first and the most famous.¹²

Since the federal government had realized that the public lands west of the 100 th meridian were arid and semi-arid land, two legislative actions were taken with regard to irrigation. One was the Desert Land Act of 1877, another the Carey Act of 1894. The former was concerned with irrigation works by private persons, the latter with those by state governments.

The Desert Land Act¹³ allowed settler to purchase one section, i.e., 640 acres, of land if he would irrigate it within three years after filing.¹⁴ The causes for the failure of the Desert Land Act was meager resources that the homesteaders had so that they could not finance and install an irrigation system.¹⁵ Also, the abuse of the law by the speculative companies which had no intention for reclamation, made

¹⁰ Institute for Government Research, p.2. Also, Roy E. Huffman, *Irrigation Development and Public Water Policy* (New York: The Ronald Press Co., 1953), p.15~16.

¹¹ *Ibid.*

¹² Institute for Government Research, p.3.

¹³ Applicable to Calif., Oregon, Nev., Wash., Idaho, Mont., Utah, Wyo., Ariz., N. Mex., and Dak. Extended to Colo. in 1891.

¹⁴ Roy M. Robbins, *Our Landed Heritage* (Princeton Univ. Press, 1942), p.219.

¹⁵ Robbins, p.326.

possible by the revision of the Act in 1891,¹⁶ was another aspect of the Act that contributed to the failure in realizing the purpose of the law.

The Carey Act of August 18, 1894, permitted the federal government to grant to certain states one million acres of arid land upon condition that the state guarantee the reclamation of such lands.¹⁷ In this case again, however, due to the lack of technical capacity and financial inability of the states, efficient construction of the irrigation works was not successful.¹⁸

Robbins mentions three outstanding items among the facts which constituted the state of affairs in the late 19th century agriculture in the western part of the United States: Homesteaders' lack of financial resources, water monopoly by cattle interest and speculators, and the state riparian laws which protected only the original appropriator of the water.¹⁹ These were the factors which prevented the proper development of the irrigation agriculture, and also were to make repeatedly-disputed issues in later years. In the late 'eighties, there came a series of crop failures due to the lack of sufficient rainfall and to insufficient irrigation. This, together with the nation-wide agricultural depression, put reclamation work in a plight. The panic of 1893 increased the suffering in the arid West. "Irrigation projects folded up over-night and individual settlers, faced with starvation, had no other recourse than to wend their way back to the East."²⁰

These were the events which eventually compelled the federal government to reconsider the problem of agriculture in the West, together with the movement carried on by interested people who were more or less related with the western states.

¹⁶ Institute for Government Research, p.4. and Ross M. Robertson, *History of the American Economy* (New York: Harcourt, Brace and Co., 1955), p.216.

¹⁷ Milton Conover, *The General Land Office*, Service Monographs of the U. S. Government, No. 13 (Baltimore: Johns Hopkins Press, 1923), p. 30.

¹⁸ Clawson and Held, p. 234~5.

¹⁹ Robbins, p.327.

²⁰ *Ibid.*

Movement toward Federal Action

While reclamation works were covered by private enterprises, state legislations, and the Carey Act, there had been carried on, by members of Congress, by officials of the government, and by private citizens, individually and in associations, a movement for the more direct treatment of the problem of reclamation by the national government through the actual construction by it of reclamation works on a large scale.²¹ Among the persons who pushed on the movement, there were several conspicuous figures such as Major Powell, Newell, George Maxwell, Senator Newlands, and Theodore Roosevelt.

Powell.—Major John Wesley Powell was an authority on the then-relatively-unknown western part of the United States. He made an extensive study on the arid and semi-arid regions and submitted reports in 1879, and in the following years, to Congress. His report in 1879 contained recommendations on the federal public land policy with regard to the classification of land and suggested that the landholding of a homesteader should be not less than 2,560 acres. His report also advocated that the system of rectangular survey should be replaced by irregular one according to topographic features so that every homestead could have an access to water and thus avoid water monopoly. Although this recommendations were not enacted in Congress, his view that the federal government must directly deal with the irrigation question, which was more frequently and definitely expressed during the period he was the director of the Geological Survey, i. e., 1881 to 1894, attracted people's attention, invited discussions, and was acquiring larger support by the members of Congress year by year.²²

By the Act of 1888, Congress authorized the first water resources investigation of the arid land, a measure which Major Powell had encouraged for over a decade. Under this law the hydrographic branch of the Geological Survey set out to measure water supplies, locate reservoirs and canals, and map areas susceptible of irrigation. On the basis of the information thus obtained, the federal officials planned western

²¹ Institute for Government Research, p. 8.

²² Robbins, p. 327.

irrigation works. Private corporations interested in irrigation, water power, and domestic water supply also drew upon these new data.²³

Newell.—Frederick Haynes Newell was the first man assigned to carry out the Act of 1888. From the start of his official career, he took an active interest in the dissemination of scientific information. He also promoted federal water development program, at first for irrigation, but later for power, navigation, and flood control as well. He became the first man in charge of the Reclamation Service and continued to be one of the architects of water policy and of the entire conservation movement under the Roosevelt administration.²⁴

Maxwell.—George H. Maxwell was a lawyer, a specialist in California water law. In the late 1890's he became convinced that irrigation could solve national social problems by decentralizing population from urban centers back to the land. He also became the major irrigation propagandist in the country, and led the educational campaign for federal financing. Having achieved this goal, he vigorously entered the fight for multiple-purpose river development. What impelled him to the movement was his sheer conviction that homes on the land would save the country from a great peril.²⁵

Newlands.—Francis G. Newlands was also a lawyer. From the time he moved to Nevada in 1889, he became deeply involved in the state's economic and political affairs. In 1892, he was elected to Congress, where he served in the House until 1903, and then in the Senate until his death in 1919. Here he played a leading role in the fight for federal irrigation and for over a decade labored unsuccessfully to persuade Congress to adopt a multiple-purpose river development program for the entire nation.²⁶

While Newell and his field forces carried on their hydrographic studies, western leaders undertook a search for capital for reservoir

²³ Samuel P. Hays, *Conservation and the Gospel of Efficiency* (Cambridge: Harvard Univ. Press, 1959), p. 6.

²⁴ *Ibid.*, p. 7.

²⁵ *Ibid.*, p. 10.

²⁶ *Ibid.*, p. 11.

construction which was to bring the federal government directly into the task of water development. As already mentioned, after the depression following 1893, private investment turned away from the West and the people in the West began to look to the federal government for aid.²⁷ There were many groups organized for this purpose, on the local, state, or regional level. These in turn developed into national organizations and played a significant role in pushing ahead the movement toward federal action. Both Maxwell and Newlands played leading roles in these national organizations.

National Irrigation Congress.—In 1891, first annual convention of an national organization called the National Irrigation Congress²⁸ was held at Salt Lake City. While this gathering had resolved in favor of the grant to the states of irrigable lands, there was a strong sentiment in favor of a thoroughly national treatment. Newlands' activities in this meeting were a significant factor responsible for such sentiment.²⁹ At the second meeting of the National Irrigation Congress, held at Los Angeles in 1893, necessity of the federal control over streams flowing through more than one states was recognized.³⁰ At the third meeting, held at Denver in 1894, construction and maintenance of irrigation works by the national government were expressly advocated.³¹

The National Irrigation Congress became a battleground in the struggle between private and public promoters of irrigation works, after the passing of the Reclamation Act as well as before. Generally speaking, however, it more or less supported the federal irrigation program, favoring, for example, such proposal as the development of a national water law to supersede state statutes, and provided the major organizational backing for the Roosevelt resource policies.³² The effec-

²⁷ *Ibid.*

²⁸ "This was a genuine citizens' movement, animated less by special interests than by those of the whole community. Membership was inclusive, not exclusive." Paul S. Taylor, "Central Valley Project: Water and Land," *Western Political Quarterly*, II (June, 1949), p. 238.

²⁹ Institute for Government Research, p. 16.

³⁰ *Ibid.*, p. 14

³¹ *Ibid.*

³² Hays, p. 178, 245, 250.

tiveness of the National Irrigation Congress, however, was destroyed during 1910's when a congressional committee revealed that most of its operating funds came from western railroad.³³

National Irrigation Association.—In the 1896 annual convention of the National Irrigation Congress, held at Phoenix, Maxwell led the advocates of federal financing to victory and persuaded the organization to back their proposal. But it was more difficult for him to arouse the enthusiasm of the rest of the nation for his plan. In 1899, he organized the National Irrigation Association, located at Chicago. From here, he disseminated literature to newspapers and to the general public.³⁴ Together with the annual resolutions of National Irrigation Congress, this campaign aroused sufficient public sentiment to persuade both major parties in 1900 to adopt platform planks which called for federal construction of irrigation works.³⁵

National Reclamation Association.—In 1912, Senator Newlands advocated the river-basin-wide program in connection with the flood control in the lower Mississippi Valley. Maxwell also was for it and began to organize agitation in New Orleans for the multiple-purpose development bill, which led to the organization of the Louisiana Reclamation Club including the businessmen of the manufacturing concerns with market in the lower valley. This group, in turn, became the nucleus of a nation-wide organization, the National Reclamation Association, which spearheaded the fight for the Newlands measure.³⁶ The National Reclamation Association, with headquarters at Denver, later developed into the strongest pressure group closely allied with the Bureau of Reclamation, though it has sometimes contacts with the Corps of

³³ *Ibid.*, p. 178. In this connection, it is interesting to know that one of the objects held in mind of the advocates of federal participation was "to settle the vast arid region in order to reduce costs of transportation through increased tonnage." Huffman, p. 24.

³⁴ He also published monthly periodicals of his own, "Maxwell's Talisman." Hays, p. 10.

³⁵ *Ibid.*, pp. 10~11. Robbins, p. 330.

³⁶ Hays, pp. 228~229.

Army Engineers, too.³⁷

Newlands' Proposal.—Newlands was convinced that irrigation farming would provide the only remedy for Nevada's declining population; the growing farm population would provide the best hope for the economic progress of not only Nevada but also the entire West. Thus, the proposal he made to Congress in 1901 contained, among others, the following two items: (1) Family, rather than corporation farmers, should benefit from federal irrigation, with acreage limitation of 80 acres. (2) The Secretary of the Interior should prevent speculation by having the authority to withdraw from all forms of entry land which might be included in the program.³⁸ The reclamation fund to be financed by the revenue of the land sale of the western states was also in his proposal.

Another interesting point in his proposal was that the Secretary of the Interior should have complete discretion in selecting projects for construction and in apportioning funds to each. He argued that the congressional control of annual appropriations would produce the same inefficiency, confusion, and delay already prevalent in rivers and harbors work. This provision for considerable executive discretion in resource development and management became a central feature of the later multiple-purpose program and of the entire conservation movement.³⁹

Newlands' proposal faced strong oppositions both inside and outside of Congress, and Newlands had to make several concessions. Some Western people, although desiring the aid of the federal government, feared the acreage limitation; some were against the withdrawal of land in any form. There was also opposition from the Eastern Republicans on the theory that the federal irrigation would create unfair competition for Eastern farmers, or that the United States had no constitutional right to go into the business of irrigation of land, or that the expense would be enormous and would rest ultimately on the whole people of the

³⁷ Huffman, p 181. McKinley, pp.619~626. Also, Arthur Maass, *Muddy Waters: The Army Engineers and the Nation's Rivers* (Cambridge: Harvard Univ. Press, 1951), p.45.

³⁸ Hays, pp.11~12

³⁹ *Ibid.*

country. The division of opinion was not clearly on party lines. The Congress was Republican, and the bill was recognized as Republican, yet the opposition was mainly from members of that party, also.⁴⁰ President McKinley refused to push the measure in the face of Republican opposition.⁴¹

Theodore Roosevelt.—It was President Roosevelt who gave the greatest impetus to the pressure for federal action, to such an extent that the Bureau of Reclamation has been called “child of Theodore Roosevelt.”⁴² From the first, he took a keen interest in all conservation matters and identified the entire movement as “my policy.”⁴³ In his first presidential message to the Congress of December 3, 1901, he declared that “the forest and water problems are perhaps the most vital internal problems in the United States,”⁴⁴ and defined the problem and policy of reclamation by the national government in comprehensive and concrete terms.⁴⁵ He thus made clear that he personally supported the irrigation measure and disagreed strongly with the hostile Republican leaders. Though he could not increase Republican votes for the Newlands’ measure, he persuaded the party leaders to permit the House to consider it, and finally made it pass,⁴⁶ by 144 to 55 votes, with 150 abstentions.⁴⁷

To what extent the federal government should take the responsibility for direct participation in the reclamation works has been, and is, a constantly-disputed problem. Whatever the extent should be, however, the passing of the Reclamation Act was an epoch-making event in the sense that the decision was made and approved that the federal government must take up the job.

⁴⁰ Hibbard, p. 441.

⁴¹ Hays, p. 14. In the preceding year, eleven reclamation bills had been presented, but none passed. Hibbard, p. 440.

⁴² Robert de Roos, *The Thirsty Land* (Stanford Univ. Press, 1948), p. 47.

⁴³ Hays, p. 15.

⁴⁴ Judson King, *The Conservation Fight* (Washington, D. C.: Public Affairs Press, 1959), p. 10.

⁴⁵ Institute for Government Research, pp. 17~21.

⁴⁶ Hays, p. 14.

⁴⁷ Hibbard, p. 442.

III. METHOD OF FINANCING AND REPAYMENT

Revolving Fund

The Act of 1902 established a reclamation fund from the sale and disposal of public lands. The fund was to be used in the developing of irrigation projects with expenditures during each ten-year period to be apportioned among the several states on the basis of income from public land sales within the states. It was assumed that repayments by settlers on the irrigation projects would make the fund a "revolving" one and provide a permanent and sufficient source of money for a substantial program of irrigation development.⁴⁸

This was a result of a political compromise which enabled the federal reclamation program to set forth. It had been argued whether the taxes raised from all the people should be spent to benefit only one part of the country. That provision in the Reclamation Act made it possible for the reclamation programs in the West to be financed with the money raised in the West.⁴⁹

Although, from the time the act was passed until the present, 95 percent of the revenues from sale of public land has gone into the reclamation fund, the program encountered serious difficulties in the decades following its initiation, largely because construction costs were greatly underestimated.⁵⁰ These financial difficulties have been such that the revolving fund failed to revolve. In addition to the underestimated construction costs, land speculation, poor selection of projects, political interference and heavy ripening costs all contributed to the inability of the settlers to meet their obligations.⁵¹

In 1910, Congress authorized the Secretary of the Treasury to transfer up to \$20,000,000 to the reclamation fund for irrigation develop-

⁴⁸ Huffman, p. 83

⁴⁹ Clawson and Held, pp. 234~235.

⁵⁰ *Ibid.*

⁵¹ *Ibid.* Also, Huffman, p. 83.

ment. Aided by these additional funds directed toward the reclamation fund, the reclamation program was, until 1928, financed almost exclusively out of the reclamation fund, which also received repayments from irrigation contracts and revenues from power sales.⁵² In 1928, Hoover Dam was authorized to be built from general appropriations. From then on, all pretense of carrying on irrigation construction within an established fund was abandoned and Congress has since made specific appropriations for proposed projects.⁵³

Water Users' Association

Section 4 of the Reclamation Act states that the charges made against any farm unit shall be estimated with a view of returning to the reclamation fund the estimated cost of the construction of the works and shall be apportioned equitably. This equitable apportionment can be secured if the holder of the farm unit presents to the Secretary of the Interior certain rights of property. By accepting this right of interest the Secretary is enabled to reduce equitably the charges against a particular parcel of land.⁵⁴

When the reclamation work started, it was found out that a large portion of the irrigable area was already in private ownership, and it was considered indispensable that proper security be obtained for the payment of construction charges by such settlers as should desire the

⁵² The first electric power generation plant built by the Bureau of Reclamation was installed, in 1906, solely for the purpose of aiding in the construction of the irrigation works on the Salt River Project in Arizona. Later in the Black Canyon Project in Idaho, completed in 1925, electric power was furnished by the Bureau to be used for pumping water on to the lands to be irrigated. Henceforth, power generation became a regular part of many projects. In addition to using the power for pumping requirements of irrigation, surplus energy was available for the farm and town population in the neighborhood and the agricultural processing industries which grew up in the irrigated area. This is how it started, but today the Bureau is the greatest producer of electric power in the world. McKinley, p. 118.

⁵³ Clawson and Held, pp. 234~235. Huffman, p. 83

⁵⁴ Institute for Government Research, p. 29.

inclusion of their lands in the project. Under the conditions such would naturally take the form of a mortgage on the lands.⁵⁵

The number of such settlers included in a project, however, were usually very large, from several hundred to several thousand; widely scattered, and many of them were non-resident. This difficulty was solved by organization of the landholders within the boundaries of a project into a water users' association, which should give to the government a collective mortgage on the private land to be benefited by the project as security for the payment of the construction charges. This organization was developed by the Bureau of Reclamation in co-operation with citizens' organization in the arid regions. The development of the principle of water users' association has made possible the application of the Reclamation Act to large areas which must otherwise have been denied its benefit.⁵⁶

Amendatory Enactments

Today, the repayment contracts which schedule annual payments on construction charges are written and executed in accord with the laws that govern the particular project or unit, and contain various types of repayment plans covering different period of time.⁵⁷ The expenditures on the construction of irrigation project are divided into two portions: reimbursable and non-reimbursable. That portion of costs of construction for irrigation purpose is generally reimbursable and collected by the Bureau of Reclamation in terms and method to be specified in the law. The non-reimbursable portion of costs include allocations for such beneficial purposes as flood control, navigation, fish and wildlife conservation, and salinity control.⁵⁸

The original Reclamation Act of 1902 provided that the repayment should be made by not over ten annual installments. The terms of repayment have been amended several times by the following enactments.⁵⁹

⁵⁵ *Ibid.*, p. 28

⁵⁶ *Ibid.*

⁵⁷ U. S., Bureau of Reclamation, *How Reclamation Pays*, 1948, pp. iv~v.

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*, pp. v~vi. Huffman, pp. 28~29.

The Act of Feb. 21, 1911, commonly known as the Warren Act, provided for the disposition of surplus water to individuals or irrigation enterprises outside government reclamation projects, for which the terms of payment run from 10 to 40 years.

The Reclamation Extension Act of August 13, 1914, extended the repayment period from 10 to 20 years. The settler on lands already under the Reclamation Act at the time the Extension Act was passed, were to pay the construction charge remaining unpaid in 20 annual payments.

By the Act of May 15, 1922, the Secretary of the Interior was authorized to contract with legally organized irrigation districts, and to dispense with water right applications on the part of landowners and entrymen.

In spite of the legislation passed in the interests of federal irrigation development, a generally unsatisfactory situation prevailed, which led the Secretary of the Interior to appoint a commission to study the problems involved in federal irrigation programs and make recommendations as to changes needed. The commission, called the Fact Finders' Commission (or Committee), held hearings in Washington as well as in the West, and sent a report to the Secretary on April 10, 1924. This report contained sixty-six recommendations, based on which a new act was passed on December 5, 1924, known as the Fact Finders' Act.⁶⁰ With respect to the terms of repayment, the Fact Finders' Report recommended that the productivity of the land should be the basis for the annual repayments of construction costs and that the annual per acre repayment charge should be 5 percent of the average annual gross income per acre.⁶¹ The Fact Finders' Act accepted this recommendation and provided for a plan of payment based on 5 percent of the average gross crop value in a district for a 10 year period. Many irrigation districts entered into this type of contract with the federal government. Authority for contract of this type, however, was repealed in 1926.⁶²

⁶⁰ Huffman, p. 29.

⁶¹ *Ibid.*, p. 85.

⁶² U. S., Bureau of Reclamation., p. v.

In the Act of May 25, 1926, called the Omnibus Adjustment Act, adjustment of water-right charges on specified projects scattered throughout the western states was provided for. For example, deductions from total costs were permitted in the case of construction charges on lands judged permanently unproductive.⁶³ It provided that formation of irrigation district is required to act as the agent of the water users in entering into a contract with the government.⁶⁴ It also authorized a 40-year repayment period in place of the crop repayment plan.⁶⁵

During the depression of the 1930's, the financial difficulty of farmers on federal irrigation projects was intensified. Several legislative measures were passed for the relief to water users. The most important one was the Act of August 4, 1939, called the Reclamation Project Act. It provided for flexibility in determining the annual rate of repayment for new contracts, with the terms of years at the discretion of the Secretary of the Interior, again on a crop-income basis, but total repayment must be made in 40 years for distribution systems. A development period not to exceed ten years may be established, from the time water is delivered to a block of land, before payment of construction charges commences. It also authorized the negotiation of amendatory contracts for old projects in distress, or for submission of the most practical amendatory plan to Congress for its approval.⁶⁶ Another important provisions in the Reclamation Project Act authorized the federal government to allocate portions of the total cost of a project to be repaid from power revenues on a non-reimbursable basis, thus making feasible for construction of many projects where the water users could not be reasonably expected to repay the entire amounts.⁶⁷

In addition to above, a number of special acts controlling the terms of repayment of individual projects have been passed.⁶⁸

⁶³ Huffman, p. 85.

⁶⁴ *Ibid.*, p. 74 Also, de Roos, pp. 76~77.

⁶⁵ U. S., Bureau of Reclamation., p. v.

⁶⁶ *Ibid.*

⁶⁷ *Ibid.*, p. vi.

⁶⁸ Notable among these was the Columbia Basin Project Act of 1943. *Ibid.*

Today, the repayment by the irrigation beneficiaries actually yields only a small portion of the total income of the Bureau of Reclamation. The Reclamation Fund on June 30, 1954, shows that over 26 percent was derived from royalties from oil leases, 28 percent from power revenues. Proceeds from the sale of public lands and receipts from construction repayments provided only 8 percent of the total funds which have been made available to the Bureau of Reclamation.⁶⁹

IV. EXCESS-LAND REGULATION

The Reclamation Act of 1902 placed a limit of 160 acres on the amount of land in one ownership for which water could be secured. The fundamental policy was to provide opportunities for the maximum number of actual settlers on the land by limiting acreage to which water would be supplied to that sufficient for the support of a family. In other words, it was aimed directly at absentee landlords, land speculators, and land monopolies.⁷⁰ It is a limitation not on land but on water.⁷¹ It limits the amount of water a farmer can receive from a public reclamation project built with public money provided without interest.⁷²

In 1911, the law was amended by the Warren Act which provided that water from reclamation projects could be sold to lands in private ownership which needed supplemental irrigation water. The Act limited the water which could be sold to any single owner to that amount necessary to irrigate a maximum of 160 acres.⁷³

The Reclamation Extension Act of 1914 reduced the size of indi-

⁶⁹ Ben Moreell, *Our Nation's Water Resources—Policies and Politics* (Univ. of Chicago, 1956), p. 123.

⁷⁰ Huffman, pp. 57~59. de Roos, p. 81.

⁷¹ de Roos, p. 75.

⁷² The 1902 Act provided for delivery of water both to public lands, which were to be opened to homesteaders, and to private land.

⁷³ de Roos, pp. 75~76.

vidual holdings to a "farm unit" to be determined for each project by the Department of the Interior, which meant that homestead on public lands on federal irrigation projects may be of any acreage determined to be sufficient for a farm unit up to a maximum of 160 acres.⁷⁴

As long as the excess-land regulation is applied to the irrigation works on the public domain, there was not much problem, but when it was carried into the area where large part of it had been already owned by private owners, the problem of land speculation occurred. Frequently, speculators who aquired the land before it was irrigated made fortunes. Moreover, as soon as preliminary surveys were made for a federal irrigation project, speculators would begin filing on the available public lands or purchasing tracts of privately owned land. Land speculation reached such alarming proportions, as the study made by the Bureau of Reclamation showed, that as of 1913 the average price of unimproved land had increased by 759 percent on the twenty-five projects studied.⁷⁵ It became a common thing for the original settler on the land to find it impossible to carry the heavy financial burden.⁷⁶

The recommendation by the Fact Finders' Commission of 1924 recognized the excessive burden of high land prices and the need of anti-speculation measures. The Fact Finders' Report was embodied in the Omnibus Adjustment Act of 1926. It provided that excess lands should be appraised in a manner prescribed by the Secretary of the Interior and evaluated without reference to the proposed construction of the irrigation works and that sale prices should not exceed the appraised value, and that no excess land shall receive water from any project if the owners refuse to execute the contract for the sale of such lands under terms and prices satisfactory to the Secretary of the Interior.⁷⁷

⁷⁴ Huffman, p. 28.

⁷⁵ *Ibid.*, p. 62.

⁷⁶ "It became a common saying that 'it takes three settlers to make a go of it on an irrigated farm.' The third settler to make the venture had been subsidized by the money and labor of his two predecessors." *Ibid.*

⁷⁷ *Ibid.* Also, de Roos, p. 77.

Many attempts have been made to break down the acreage limitation on federal irrigation projects. Four projects have been exempt by congressional action.⁷⁸

In 1938, the excess land provisions were made inapplicable to lands which receive a supplemental water supply from the Colorado-Big Thompson project and which have a primary source of irrigation water other than a federal irrigation project.

In 1940, two projects in Nevada were exempted from the excess land provisions by Congress. It was held that 160 acres were not sufficient for a successful farm operation because the high altitude and early frosts necessitate an economy based largely on hay production.

In 1951, the size of family farm units on the Eden Water Conservation Project in Wyoming was set at from 180 to 220 acres, depending on the class of land. The high elevation of the land, extremes in temperature, short growing season, and only moderately productive soils were mentioned as justification for the size of the units. This project is not a regular reclamation project, however, having been authorized under the Water Conservation and Utilization Act of 1940 which gives a broader discretion than the Reclamation Act.

In 1952, the San Luis Valley project was exempted by direct action of Congress. Provision was made for supplemental water necessary to irrigate a maximum of 480 acres per farm unit.

The subject of relaxing acreage limitation on federal irrigation project has been a highly controversial one. It involves the basic philosophy in national agricultural policy. Most argument against the acreage limitation seek the justification in the appropriate economic size of a farm, and not as an attack against the basic philosophy of family farm. In so far as this is the case, the acreage per se will not constitute the real problem. The four cases cited above established the precedent for this argument. It is doubtful, however, if the "economic size" has always been the real contention of the opponents to the acreage limitation. It may be questioned, also, whether the lifting of limitation

⁷⁸ Huffman, pp. 58~59.

does not lead to disintegration of the whole family farm policy.⁷⁹

According to Huffman, the most determined opposition to the acreage limitation of federal irrigation law has come from three areas where, from a climatic standpoint, there is the least justification for larger acreages. The economic feasibility of small farms on these three projects should be good in view of the wide variety of crops which can be grown.⁸⁰

Some writers attribute the opposition to the acreage limitation to a sheer desire to secure a greater proportion of the publicly created benefit for private gain.⁸¹ This view may be supported by the fact that the bitterest opposition does not come from owners with a few more acres than the limitation allows to be watered but from those with thousands of acres.⁸²

It does not seem that the 160 acre limitation unduly restricted the farm land on private lands within reclamation projects. Some loopholes have been reported, mostly as a problem of enforcement of the reclamation law. There has been some administrative laxity or lack of sympathy with the reclamation law, especially when the project was undertaken by the Corps of Engineers.⁸³ Sometimes, distinction was made between what may be called "technical compliance" and "compliance with the spirit of the law," a distinction to justify the avoidance

⁷⁹ Taylor is serious about this point. "The acreage limitation embodies the nation's high policy on land and water resources, and the maintenance of its integrity—not merely the question whether in a particular instance, the proper acreage figure is 80, 160, or 480—is at stake." Paul S. Taylor, "The 160-Acre Water Limitation and the Water Resource Commission," *Western Political Quarterly*, III (Sept. 1950), p. 435.

⁸⁰ These three areas which sought to be exempt from acreage limitation are the Central Valley Project in California, the San Luis Valley Project in Colorado, which was eventually exempted in 1952, and the Valley Gravity Project in Texas at the mouth of the Rio Grande River. Huffman, p. 59.

⁸¹ Marion Clawson, *Uncle Sam's Acres* (New York: Dodd, Mead and Co., Inc., 1951), pp. 165~167.

⁸² Taylor, *Western Political Quarterly*, III, p. 449.

⁸³ The Reclamation Act does not apply to the works of Corps of Engineers. There is no excess-land regulation, no prescribed repayment requirements.

of strict application of the provision.⁸⁴ Even when the law was strictly enforced, it was still possible to find some loopholes in the interpretation of it. For example, husband and wife may have 160 acres each, and have a farm of 320 acres.⁸⁵ Corporate devices were also used to circumvent the reclamation law. Taylor cites the following examples: Landowners to organize a tract of 8,000 acres owned as separate parcels by 50 individuals. A corporation to be composed of joint tenants or tenants in common. A corporate farm to sell its land in parcels to its stockholders and take these parcels back on lease for operations.⁸⁶

There is another loophole for evasion, also mentioned by Taylor. Under the present legislation, enforcement of acreage limitation terminates when construction charges have been paid in full. This can shorten greatly the period of the law's effectiveness. Also, when the contract for water delivery and repayment was not done before the construction starts, as was the case in the Kings River project in California, big landholders would seek to pay out with initial payment in lump sum as means of avoiding acreage limitation entirely.⁸⁷

Despite these loopholes mentioned, the acreage limitation on the irrigation project of the nation as a whole has been fairly well administered, according to the Land Ownership Survey made by the Bureau of Reclamation in 1946. This survey shows that 98 percent of the farms on projects then receiving water, containing 70 percent of the total irrigable area, were family farm with 160 acres or less. Only one-eighth of 1 percent of the ownership on projects receiving water in 1946 contain excess land which appeared to be in violation of the reclamation law. These ownership contained only 3.8 percent of the entire irrigable area on the projects.⁸⁸

⁸⁴ Taylor, *W. P. Q.*, III, p. 442.

⁸⁵ Mont H. Saunderson, *Western Land and Water Use* (Univ. of Oklahoma Press, 1950), p. 159.

⁸⁶ Taylor, *W. P. Q.*, III, p. 443.

⁸⁷ *Ibid.*, p. 448

⁸⁸ U. S., Department of the Interior, *Annual Report of the Secretary*, 1946, p. 63.

As a concluding remark for this section, Huffman's statement seems adequate to quote: "Serious questions may be raised as to whether or not the acreage limitation is too rigid a regulation in view of technological progress in American agriculture. Consideration can be given to what constitutes an adequate farm unit under varying conditions of irrigation agriculture without abandoning the long-standing philosophy of the family farm as the basic objective of public development. In many types of farming, the acreage which comprised a family farm in 1902 is inadequate in 1952. This may be particularly true in irrigation areas where extensive agriculture predominates. The fact remains, however, that providing opportunities for family farming is the justification for use of interest-free public funds," and if it must remain so, "a more flexible measure of what constitutes a family farm than the arbitrary limitation of 160 acres of irrigable land may be in order."⁸⁹

V. INTER-AGENCY PROBLEMS

Co-ordination with Other Agencies

The Bureau of Reclamation is related in many ways with other agencies of the federal government in connection with the nation's water resources development activities. There have sometimes been well-co-ordinated co-operations, sometimes seemingly insolvable conflicts.⁹⁰

The Bureau of Reclamation started essentially as an engineering

⁸⁹ Huffman, pp. 60~61.

⁹⁰ The followings are some of the major federal agencies which are closely related to the works of the Bureau of Reclamation: Soil Conservation Service, General Land Office, Grazing Service, Fish and Wildlife Service, National Park Service, Indian Service, and Corps of Engineers. The National Park Service is often in conflict with the Bureau of Reclamation as to the plan of a project on a particular site, since the former is mainly concerned with the scenery and recreational value of the site, whereas the latter tends to neglect such things. Needless to say the Bureau of Reclamation has to be in constant co-ordination with such agencies as the Bonneville Power Administration, the Southwestern Power Administration, and TVA.

agency. However, the purpose being construction of "irrigation" works, it has been necessarily involved in the general administration of agriculture of the country. Since the repayment plan came to be based on the productivity of the lands, the Bureau came to realize that it must pay attention to the problems of farmers on its projects, that it must select good soil, that it must encourage production for which there is a market, and that, in general, it must work toward the success of the project farmers. In this way, it entered into some jurisdictional conflicts with the Department of Agriculture.⁹¹

This jurisdictional conflict had been recognized and a solution through administrative agreement was suggested for projects, based on the report to the president by the Northern Great Plain Subcommittee of the National Resource Committee. This agreement is called the Wheeler-Case program. Under this program, the Bureau of Reclamation was restricted essentially to the engineering and construction tasks. The Department of Agriculture took over practically all responsibilities for the projects' agricultural success and acted as the collecting agency for farmers' repayment of the reimbursable cost.⁹²

For the efficient water resources development on the national scale, the need of "intra-departmental integration" and "inter-departmental co-ordination"⁹³ has long been realized, in theory if not in practice, and efforts have been made which resulted in the establishment of organizations such as the Federal Inter-Agency River Basin Committee, the Hoover Commission, the National Water Policy Commission, etc. The TVA was one of the results of such efforts, which is still regarded as the trial horse for other nine similar valley authority projects covering the nation.⁹⁴

With the development of the large multiple-purpose river projects,

⁹¹ McKinley, p. 146.

⁹² *Ibid.*, p. 148.

⁹³ *Ibid.*, pp. 411~479.

⁹⁴ Arthur H. Carhart, *Water—or Your Life* (Philadelphia: J. B. Lippincott Co., 1959), pp. 184~195. The nine other basins proposed are: Columbia, Central Valley, Missouri, Rio Grande, Colorado, Connecticut, Alabama-Coosa, Potomac, and Ohio. U. S., *The Report of the Water Resource Policy Commission*, Vol. II.

it is inevitable that the control and administration of such projects would carry a large measure of authority in planning and direction of the economy of an entire region, and would be a dominant force in its economic development.⁹⁵ For this reason, a new administration in the Department of the Interior has been suggested, which is called the National River Development and Management Administration. According to McKinley, all the following functions of the agencies should be fused into this new administration: The civil functions of the Corps of Engineers; the river planning, cost allocation, and federal hydroelectric rate-fixing duties of the Federal Power Commission; the hydroelectric transmission functions of the Bonneville Power Administration and of the Southwestern Power Administration; and all the engineering-construction functions of the Bureau of Reclamation.⁹⁶

The Corps of Engineers

The Corps of Engineers of the United States Army was the first federal agency to engage in river improvement activities. Before the Civil War it performed a great many diverse civilian engineering functions, including such tasks as road, canal, and lighthouse construction, harbor improvement, land surveys and mapping, that have long since been discontinued. But during the Civil War period it began to concentrate attention on river problems connected with navigation. The Act of 1879 which established the Mississippi River Commission within the Corps of Engineers for work on that stream, mentioned flood control as one of the river improvement functions which might be undertaken, but it was not until 1917 that Congress gave flood control equal status with river and harbor work in the duties of the Engineers. This act, which is still in effect, extended to the flood control examinations, surveys, and construction the same legal provisions already applied to river and harbor activities.⁹⁷

The Bureau of Reclamation's inter-agency conflict which has been

⁹⁵ Saunderson, pp. 155~156.

⁹⁶ McKinley, p. 583. Moreell, PP. 78~82.

⁹⁷ McKinley, p. 65.

most difficult to resolve occurred with the Corps of Engineers. The division of labor between these two federal agencies existed, that is, the responsibilities assigned by Congress to the Corps was flood control, and that to the Bureau was irrigation. However, there was no geographical division of jurisdiction assigned to them. It frequently happened that both agencies worked on the same stream and the same water. Moreover, since the emergence of the river-basin development program, the division in their field of works has been blurred.

It was in 1907 that Senator Newlands first proposed the multiple-purpose river project. From the first, the Corps of Engineers was deadly set against it.⁹⁸ The first truly multiple-purpose river-basin project, specifically authorized and designed as such, to be built by the Bureau of Reclamation was the Boulder Canyon Project (Hoover Dam Act). Congress authorized comprehensive river-basin investigation for the entire country in 1927. In the following year, the Boulder Dam Act was enacted, in which the legislation recognized flood control, navigation, water storage for irrigation, and hydroelectric power generation as purposes of the project.⁹⁹ Since the Bureau had been authorized the flood control as a part of its work, conflict with the Corps was inevitable.

Some legislative efforts were made to bring about co-ordination between these two federal agencies. The Flood Control Act of 1944 was to provide for the co-ordinated plan of the Bureau and the Corps with regard to development of the Missouri River Basin. It established the principle that the use of water for navigation shall not adversely affect the use of water for domestic irrigation or industrial purposes. It provided that the use of irrigation water stored in reservoirs constructed by the Corps shall be in accordance with the reclamation law. It also provided that electric power produced at dams constructed by the Corps shall be marketed by the Secretary of the Interior.¹⁰⁰

⁹⁸ Hays, pp. 199~218. Hays attributes the Corps' hostility to three sources: Its interest in navigation alone, its unwillingness to defer to Congress, and its desire for complete autonomy in administration. *Ibid.*, p. 208.

⁹⁹ Huffffman, p. 150. Hays, p. 199.

¹⁰⁰ U. S., Department of the Interior, *Annual Report*, 1945, p. 35.

For the Folsom Dam construction in the Central Valley in California, a law passed in Congress in 1942 providing for transfer of the works to the Bureau upon completion of construction by the Corps, and thus for integrating the development with the Central Valley Project.¹⁰¹ With this law, the so-called Folsom formula was recognized. This formula was to provide that all multiple-purpose projects are the responsibility of the Bureau and dams and other work exclusively for flood control are the responsibility of the Corps.¹⁰²

According to Maass,¹⁰³ the Folsom formula was not applied to the Kings Valley project, of which, after a long conflict and disputes, the construction was authorized to both the Bureau and the Corps. Appropriation was, however, finally made to the Corps. Administration of the project is taken care of in accordance with the Flood Control Act.

Maass lists the following items as the result of failure to resolve the conflict between the Bureau and the Corps in the Kings River project: (1) Questionable position of the Kings River project in the Central Valley Project as to the most economic and beneficial use of water resources and the economic development of the area, since the Kings River project lacks the co-ordination with other projects in the Valley. (2) Unnecessary cost incurred to the federal government because

¹⁰¹ The Central Valley Project was first authorized in the California Legislature in 1933, with passing of the Central Valley Project Act. But due to the financial difficulties in the depression, and the financial advantages available under the federal law, actual works have been undertaken as a federal project. The first construction started in 1937. Both the Bureau and the Corps had long been engaging in their respective field in California, and both took up the Central Valley Project according to their own survey and plan. President and Congress often received two different reports submitted by two agencies on the same river. Though the Dept. of the Interior was authorized for the comprehensive administration of the Central Valley Project, there has been no enactment that would allow the project to be exclusively carried out by the Bureau. The authorization of, and the appropriation of money for, each unit project in the Valley is given, case by case, either to the Bureau or to the Corps at the Congressional discretion.

¹⁰² Maass, p. 251.

¹⁰³ *Ibid.*, chap. v, pp. 208~259. He describes the problem of the Kings Valley project, a unit project in the Central Valley Project, in detail as an example of the conflict between the Bureau and the Corps.

of the duplication of planning. Great loss of time and energy of all the people involved. (3) Unreasonable delay of the actual construction. (4) Probable avoidance by the beneficiaries of the project of acreage, land speculation, and full repayment provisions of the federal law.¹⁰⁴ (5) Pressure on the federal government, as the result of easing of repayment, speculation, and acreage requirements with respect to the Kings River project, to make equivalent concession to other irrigation development.¹⁰⁵

The basic cause of trouble lies in the fact that the two federal water resource agencies are operating in the same river basin, each planning multiple-purpose projects of its own. Maass also mentions as the main causes such matters as the different philosophies held by the two agencies, different law under which they operate, conflicting concepts held of administrative responsibilities, etc.¹⁰⁶

The real nature of the conflict, however, is not only a race by two agencies, but the conflict between different interests among people, reflected as political conflicts in Congress also. The two agencies have been engaged in a continual contest for the favor of local pressure groups and for Congressional sponsorship. This race for favor and funds is likely to be won by the agency which can offer the most in terms of the largest local benefits for the least local contribution.¹⁰⁷ That the construction of the Kings River project was entrusted to the Corps was a victory for the people in that local area who had been trying to avoid the strict application of the reclamation law on the lands they own.¹⁰⁸

¹⁰⁴ For example, the Bureau was not given a sufficient period of time in which to negotiate repayment contracts before any construction was begun. Then, there would be no effective means of denying irrigation benefit to those who failed to comply, since, in the Kings River area, the very construction of reservoir yields irrigation benefit without any supplemental water-delivery works. *Ibid.*, p. 240.

¹⁰⁵ *Ibid.*, pp. 252~254.

¹⁰⁶ *Ibid.*, pp. 254~258.

¹⁰⁷ McKinley, p. 571.

¹⁰⁸ Most of the lands in the area are owned by big landowners, individual or corporate. Taylor, *W. P. Q.*, II, pp. 247~249. Also, Taylor, *W. P. Q.*, III, p. 440.

Private power companies also contributed in their efforts to the movement against the water development by the reclamation law.¹⁰⁹

The true solution of the inter-agency problems, then, must be accompanied by the consensus by all classes of people as to the norm of what constitute the public interest for the community as a whole, and their willingness to conform to this norm, which may call for a strong leadership on the part of the government so that it may be possible to adjust the differences among people. Otherwise, meddling in the governmental re-organization can, at any time, turn into just a maneuvering tool to win over a political struggle, with conflicting economic interests in its background.

VI. EVALUATION AND CONCLUDING REMARKS

To evaluate how much the Bureau of Reclamation has contributed to the economic development of the West and, in turn, of the whole country is beyond the scope of this paper. The magnitude of its present activities is certainly great,¹¹⁰ but, qualitatively speaking, its major contributions seem to lie in the fact that it demonstrated the role of a federal agency in regional planning with special reference to the use and conservation of water, including the great potentialities of hydro-

¹⁰⁹ Maass, p.252.

¹¹⁰ As of June 30, 1960, the Bureau of Reclamation owned 155 reservoirs capable of storing 87.7 million acre-feet of water, providing water supplies for irrigation, power generation, industries, municipal use, recreation, fish and wildlife conservation, and other uses, and also as storage space for flood control and salinity control. It was operating 83 projects covering 8 million acres, comprising 129,000 farms, of which 6.8 million acres were irrigated. It delivered 290 billion gallons for municipal and industrial use. It was serving more than 200 municipalities and other non-farm entities, with a population of 8 million persons. It was operating 41 power plants with capacity of more than 5 million kilowatts. During the year 1959, it sold 27 billion kilowatt-hours with the revenues from sale totaling 69 million dollars. The 129,000 farms on reclamation projects in 1959 produced crops valued at more than 1 billion dollars. The cumulative value of crops grown on reclamation projects since 1906 amounts to more than 15 billion dollars. U. S., Department of the Interior, *Annual Report*, 1960, pp. 4-5.

electric power, and in the planning of agricultural communities for better production and better living.¹¹¹

The economic evaluation of a project in terms of benefit-cost analysis, economic in the sense of measurement in dollar value, may be possible to a certain extent and is actually being done by the Bureau. It includes the primary and secondary benefits and costs identified by the Federal Inter-Agency River Basin Committee.¹¹²

The primary benefits of a project are the value of the products or services resulting directly from the project. The secondary benefits includes (1) the "stemming-from" effects that are attributed to the industries that supply the project area with goods and services, and (2) the "induced" effects that are attributed to the industries that process, distribute, or consume the products of the projects. The primary and secondary costs are those costs incurred in realizing these benefits.

There are three other categories of benefits for which no method of measurement is available but which seem to have more significant implications. That is, (1) benefits due to external economies, such as location advantages obtained by agglomeration of productive capacities, more efficient division of labor, and fuller use of social overhead capital, (2) benefits which might be termed developmental or dynamic, such as those based on the development of more skilled labor and introduction of advanced techniques and capital, which will convert the underutilized resources of the area to optimal employment, and (3) so-called intangible benefits which include such things as stabilization of a regional economy or aid in improving the national diet in the cases of irrigation projects, and providing a great feeling of security to the people or providing recreational opportunities in the cases of flood control projects. The intangible benefits are, however, accompanied by intangible costs such as destruction of scenic value, or uprooting of families as a consequence of the creation of reservoir.¹¹³

¹¹¹ George Soule, *Economic Forces in American History* (New York: William Sloane Associates, Inc., 1952), p. 386.

¹¹² Allen V. Kneese, *Water Resources: Development and Use* (Federal Reserve Bank of Kansas City, 1959), p. 23.

¹¹³ *Ibid.*, pp. 19~29.

It is these last three kinds of benefits that are important in evaluating the significance of the role of the works done by the Bureau for the economic development in a region.¹¹⁴

The evaluation of the Bureau of Reclamation for the future in such broad perspective as the economic development of the United States calls for reconsideration of the whole body of the economic policy of the country. Underlying philosophy, not only economic but social and political, is involved.

The original Reclamation Act was designed essentially as a measure of agricultural policy. We have already seen, however, that the nature and extent of the duties of the Bureau have been substantially changed by the legislative actions in the efforts to adjust itself to, and to meet the need of, the changing economic and social conditions. The works assigned to the Bureau was extended to the comprehensive water development of the river-basin-wide scale, for not only agricultural purposes but for any other uses as well. The reclamation fund now consists of components entirely different from those originally intended. The excess-land regulation still remains as the guardian of the family farm philosophy, but, as has been pointed out, this fundamental philosophy of the American agricultural policy, too, must be reconsidered in view of the technological development occurring in that field. The past history seems to indicate that tendency has been for more integrated, co-ordinated, stronger leadership on the part of the federal government, and it will remain so in the future, which seems to be the right direction.

Hays points out the danger of regarding the conservation movement in such moral terms as "people versus interest."¹¹⁵ Certainly, we would be misled by such words as "public interest, which is good, in conflict with private interest, which is bad or vice versa." What con-

¹¹⁴ In this respect, the simple financial statement showing the amount of money spent by the federal government and the revenues received, not only has minor significance but rather is a misleading medium in evaluating the projects.

¹¹⁵ Hays, "The Mythology...." in *Perspective on Conservation*, p. 44.

stitute public interest must be constantly re-examined, together with the relevancy of such conception that public interest is represented by government and private interest by individual's economic activity. The question is, by whom and for whom the decision is made as to the choice of policy among alternative ways of resource development and conservation, and who receive, and pays, what. This leads us to the problem of democracy and the governmental organization in a highly industrialized country as the United States. The history of the Bureau of Reclamation may throw some light on the question.

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