RECLAMATION POLICY AND THE WATER SUBSIDY: AN ANALYSIS OF THE DISTRIBUTIONAL CONSEQUENCES OF EMERGING POLICY CHOICES

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Introduction

The goals of the 1902 Reclamation Act have always been the development of irrigated agriculture and enhancement of the "family farm." Although administrative procedures and institutional arrangements have changed over the years, these goals have remained in explicit or implicit form. However, there has been little discussion of the cost of irrigation and rural development policies or of how efficient and equitable they are in their present state. Recent proposals of the Department of the Interior would more strictly enforce the 75 year old 160 acre restriction for recipients of federally subsidized water in order to make farming in Reclamation projects still economically viable while at the same time promoting smaller units of production than now exist. Large farm operators and excess landowners oppose these new regulations as inequitable and destructive of efficient agriculture. Their view is that changing enforcement of the law at this time would be unfair. Land reform groups insist that administrative procedures be reformed to force a strict conformity with acreage and residency provisions and that the subsidy be used to support the development of modest-sized, family farms. The debate over future Reclamation policy revolves around the issues of farm size efficiency and equitable distribution of the water subsidy. Interestingly most of the published research has concentrated on the questions of efficiency and viability (Hall and LeVeen; USDA; Goldman et al.). This paper

examines the water subsidy in Reclamation irrigation projects, its magnitude and distribution under current administration of the law, and under proposed changes.

The Magnitude of the Water Subsidy

Congress originally intended there to be very little subsidy in the Reclamation program. Water users were required to repay full project costs, less interest, within ten years. However, Congress has extended the repayment period to 40 years and permitted the use of hydroelectric power revenues to offset some of the costs allocated to irrigation development, thereby increasing the subsidy substantially. In recent years, inflation has reduced the repayments further by driving up the operation and maintenance costs on projects, thereby reducing the revenues for repayment of construction costs. Water fees are fixed for 40 years in advance and at current repayment rates, only about 10 percent of the construction costs assigned to water users will be repaid. There is an additional subsidy to water users because the Bureau of Reclamation sells power to them for irrigation pumping at a much lower rate than they would have to pay to private firms for this power. In the Westlands for example these power subsidies amount to almost $15 million per year. The magnitude of this subsidy over all projects is unknown.

The importance of these subsidies to water users is illustrated in Table 1 which provides estimated subsidies for the overall USBR program and for its most recent project, the Westlands Water District in the Central Valley Project. The overall subsidy estimate may be interpreted as the difference between what water users actually repay and what they would have to repay, were they required to purchase the complete projects

Table 1

Estimated Subsidies and Their Sources to Water Users

in All Completed Reclamation Projects

and in the Westlands Water District, 1976

	Annual Value of Subsidy 1976		Total Present Value of Subsidy 1976	
	All Projects	Westlands	All Projects	Westlands
	--- Millions of $---		--- Billions of $---	
Total Project Cost[1]	$ 373	$ 74.2	$ 5.13	$ 1.02
Total Estimated Subsidy	368	66.2[7]	5.05	.11[7]
Interest Subsidy[2]	282	61.8	3.88	.85
Power Subsidy[3]	39	-	.53	-
O and M Inflation[4]	47	4.4	.64	.06
Underpriced Power Sales[5]	n.a	(14.5)	n.a	(.20)
Total Subsidy per acre	---------- Dollars ----------			
irrigated	$ 35.04	$161.40[8]	$ 481	$2,200[8]
Total Subsidy per average farm[6]	$2,530	$355,080[8]	$34,148	$4,840,000[8]
Total Subsidy per 160 acre farm	$5,606	$ 25,824[8]	$76,960	$352,000[8]

1/ Westlands data are not included in overall project costs because they are not considered completed. Costs include the value of all subsidies plus repayments anticipated.

2/ For subsidy on overall reclamation projects, interest is calculated at 6.75 percent over 40 year repayment period on $3.63 billion reimbursable construction costs and $1.50 billion interest during construction.

3/ Based on repayment of $1.54 billion of irrigation construction costs by power revenues.

4/ On overall Reclamation program, based on estimated repayments of irrigators, over and above O and M costs, equal to $.22 billion toward construction costs allocated to water users of $2.09 billion. In the Westlands, it is estimated that of total construction costs of $1.1 billion, water users will repay $.43 billion.

5/ For Westlands, based on a power rate of 2.5 mills per kw/hr. and a private commercial rate of 25 mills per kw/hr.

6/ Average farm size in Reclamation projects is 71 acres; in Westlands it is 2,200 acres.

7/ Does not include underpriced power sales subsidy.

8/ Does include underpriced power sales subsidy.

Sources:

For overall project data see

U.S. Department of the Interior, Bureau of Reclamation. Water and Land Accomplishments, 1976, Appendix II. Washington, D.C.: U.S. Government Printing Office, 1978.

For the Westlands Water District data see

U.S. Department of the Interior. Special Task Force Report on San Luis Unit, Central Valley Project, California. Washington, D.C.: U.S. Government Printing Office, 1978, pp. 29-40, 161-174; and LeVeen, E.Philip. "Some Economic Implications of the Current and Possible Future Administration of the Reclamation Act of 1902." Unpublished working paper, Department of Agricultural Economics, University of California, Berkeley, 1978.

today at their book value, plus interest during construction, less past repayments, and to amortize this investment over a 40 year period at 6.75 percent interest. This procedure understates the full subsidy in that it does not require users to repay interest on the unpaid balance of construction costs accrued since the first delivery of water. Since many projects have had the use of interest free construction revenues for several decades, the true subsidy could be two or three times that estimated for the overall USBR program. The Westlands subsidy calculations, on the other hand, include all accrued interest costs, although these subsidy estimmates are also probably understated because the project is incomplete and the future costs of some of its facilities are likely to be considerably higher than now anticipated.

The subsidy estimates indicate that only a small fraction of all irrigation costs are born by water users, largely because of the interest subsidy. Were water users to repay the full costs of water, fees would rise to 17 times their present levels on average throughout the program, and to about 6 times in the Westlands (LeVeen).

The Benefits of the Water Subsidy

Seventy five years of administering and amending the Reclamation Act of 1902 have substantially increased the subsidy to water users. Nevertheless such large subsidies might be defended on the grounds that they create even larger economic benefits or that they are used to promote widespread economic opportunity and a desirable form of agricultural development.

Irrigation projects increase the productivity of land and hence its economic value, but there is no necessary dollar for dollar relationship

between the increased economic value and the public costs of a project. In some projects the economic benefit may be considerably greater than the public investment, and the provision of a public subsidy simple increases landowner benefits by transferring income to them from taxpayers. In other projects, the public costs may exceed the benefits of increased land productivity and were it not for the transfer of income from taxpayers to landowners, such projects would not be economically and politically feasible.

From the great difficulty water users had repaying project costs during the first 40 years of this century, when they were liable for full repayment less interest (Swain, pp. 73-95), it might be concluded that few Reclamation projects are efficient. However, judging from the differences in the values of rents of irrigated and nonirrigated Western land, the average $490 per acre public investment has produced benefits in excess of costs. Nevertheless, looking at the Westlands Water District which provides water to 545,000 acres, we find that a public investment of over $2,200 per acre creates benefits of less than $1,000 per acre (LeVeen, pp. 9-11). More than half the public cost is lost to inefficiency.

It could be argued that even though Reclamation projects may not meet the standard investment criterion of profitability, they may still be justified in terms of other policy goals related to the promotion of rural development, based on family farm agriculture. However, in many instances these broad social goals are not being met. The example of the distribution of the benefits created by the subsidy in the Westlands Water District underscores this point.

The development of any water project creates windfall benefits. The

question is: how are these benefits captured and used? Benefits are usually captured by any landowner who purchased land for a price not reflecting the increased productivity of the land with project water. If the landowner is allowed to sell the land for its full, unconstrained market value, he will capture the entire windfall benefit, since any new buyer will take the additional productivity into account in making an offer to buy. The new owner will receive no windfall benefit to his income or wealth as a result of the project and if the subsidy were to be withdrawn would incur an uncompensated windfall loss. The original owner receives a windfall benefit even if he continues to own the land, for his annual income will rise as a consequence of greater productivity. Therefore the only way the original owner can be prevented from capturing any windfall project benefits is to force him to sell his land prior to water deliveries at a price not reflecting project benefits. This was not done in the Westlands, nor in any other recent Reclamation project.

At the time of first water deliveries to the Westlands in 1968, there were 2,500 parcels of land under separate ownership (Jamieson, p.243, 247). In some cases the same individual or corporation owned different parcels, so the actual number of owners was probably less than 2,500. Of the 545,000 acres in the District, about 109,000 acres, owned in parcels of 320 acres or less by about 2,220 individuals and corporations, were classified as "non excess" land. The remaining 435,000 acres, owned by 280 or fewer individuals and corporations, were classified as "excess" land, and owners of this land who wanted project water were required to sign "recordable contracts" with the federal government agreeing to sell their holdings in excess of 160 acres (320 acres for a husband and wife) within

ten years at a price set by the Secretary of the Interior not to include project benefits. Approximately 365,000 excess acres were entered under such contracts. Owners of the remaining 70,000 excess acres continued to rely on more expensive groundwater and remained free of all regulations even though they received project benefits indirectly through the effects of surface water deliveries on increased groundwater supplies.

Sale of non excess land is not required but is permitted under current administrative practices at full market price. Therefore it is assumed that these owners captured the full windfall benefits which amounted to about $49,000 per owner (expressed in 1976 present value). It is important to note that most of these owners should be classified as "absentee investors" rather than as family farmers. There were virtually no small family farms in the District in 1968. Instead there were a total of 97 farms, averaging 4,500 acres each (San Luis Task Force Report, p. 196). Most of the land in small holdings was leased to these large units, an arrangement made possible by the long-standing administrative decision not to enforce any kind of residency requirement (still on the books) which requires water recipients to live on or near their land.

About 63 percent of the excess land under recordable contract will be held for the complete ten year grace period allowed by the contracts. Landowners therefore receive windfall benefits for ten years. Moreover, because of an administrative procedure which allows construction cost repayments to be deferred until final project completion, the present water charges do not include repayment contributions for about two thirds of the project, even though the project is fully operable. This deferral increases the windfall benefits during the initial years of the project and

increases the share of the windfall benefits available to the original owners. At the end of 10 years the land is sold at prices averaging about $750 per acre. The true land price without project water is believed to be closer to $350 per acre (San Luis Task Force Report, pp. 203-205). Therefore the lenient assessment procedures, combined with ten years of project benefits, augmented by deferral of repayment assure that the original landowners will receive virtually the entire windfall benefit of about $1,000 per acre (LeVeen).

About 37 percent of the excess land under recordable contract was sold prior to the expiration of the ten year period. The owners of this land did not give up their share of the benefits of the project, for it appears likely that they evaded land price controls and captured the full benefits by selling their holdings at unconstrained market value (Weiman; San Luis Task Force Report, p. 193). In some cases, land was sold to employees of landowners and later, after employees defaulted, the original owner foreclosed on his loan and retained ownership and control over his land (San Luis Task Force Report, p. 200).

In summary, owners of excess land captured most, if not all of the windfall project benefits. The value of this benefit averaged approximately $1.45 million per owner. Excess landowners who did not sign recordable contracts realized smaller benefits from better groundwater supplies.

In 1977 half of the Westlands was classified as non excess land and there were 216 farms in the District, 119 more than in 1968. The new farms averaged more than 1,400 acres each, and if the remaining excess land is similarly subdivided, no more than 350 to 400 farms will be located in the District when the last of the recordable contracts expire in the early

1980's. In short, the public has spent over one billion dollars to create at most 300 to 350 farms. Not only have the windfall benefits accrued to a very few individuals, but also the subsidy will have been used to create economic opportunities for a very few new farmers.

The example of the Westlands is extreme. The benefits of other projects in regions of the West where initial landownership patterns were not as concentrated as in the Westlands were doubtless more equitably distributed. Nevertheless, the Westlands is an appropriate example because it illustrates the weaknesses of many of the current procedures used to allocate subsidy benefits. Moreover, almost all of the 1.1 million acres still classified as excess land is in California under similar concentration of ownership as in the Westlands.

Proposed Changes in Reclamation Policy

In the current session of Congress, bills have been introduced to repeal and amend the acreage and residency requirements, and within the last year the Department of the Interior has twice recommended major revisions of current policy. The proposed changes would affect the distribution of benefits in the Westlands in the following ways:

Strict Enforcement of the Existing Law: Following the key provisions of two U.S. Senate bills (S.1812, S.2925), we assessed the effect of eliminating many of the administrative practices adopted in the past 50 years. Under these bills, all excess land would be sold prior to water deliveries at the true non project price. Such a provision would effectively limit the ability of the original owners to capture project benefits. Since residency would be required, leasing arrangements would be eliminated, so absentee investors could not continue to own land, even if they presently

own 160 acres or less. Families would be permitted to own no more than 320 acres so the maximum windfall benefit allowed anyone would be $320,000 or about $20,000 per farm per year, in addition to normal return on management and labor of about $20,000 per year (LeVeen, p. 24; Goldman et al.; USDA). Land prices would be restricted indefinitely, so these benefits would remain within the project and could not be captured by any single family in one generation. Under such regulations, the Westlands could have been broken up into at least 1,500 family farms. Provision of a random mechanism to allocate excess land would have ensured would-be farmers a more equal chance to obtain subsidy benefits.

U.S. Department of the Interior Proposals: The proposed regulations of August 1977 (U.S. Department of the Interior, 1977a) and the modifications proposed in May 1978 would enlarge the acreage restriction to 640 acres per family, and allow an additional 320 acres of leased land per farm. Residency would be required of all landowners. The period for disposing of excess land would be shortened from 10 to 5 years, new standards to ensure better land value assessments would be employed, and buyers would be determined by some random method. Non excess land could not be sold for market value until at least ten years after purchase.

These regulations would reduce the capture of windfall benefits by the original owners by at least 50 percent. Restricting leasing and imposing residency would effect a profound change in the structure of farming in areas like the Westlands. The increased access to land would be further aided by the proposed lottery and the number of resident family farm operators would be perhaps as many as 500. However, the benefits would still be relatively concentrated since the purchaser of a typical

640 acre parcel of excess land would be able to capture $332,00 in windfall benefits, in addition to about $81,000 annual return for labor and management (USDA, p. 18; U.S. Department of the Interior, 1977b).

Final Comments

Of the various proposals examined, only strict enforcement of the existing laws would provide a substantially wider distribution of the subsidy benefits. Yet the benefits associated with a 320 acre farm in the Westlands, assuming the land purchase price of $350 per acre, would still be over $20,000 per year in addition to the usual return on family labor and management. Considering the one billion dollar public expenditure involved, the fortunate families who received such farms would be relatively few in number - less than 1,400 in a region the size of Rhode Island, Though such an expenditure might change the present agricultural system, it is unlikely that it would stimulate substantial rural development or make significant reductions in rural poverty.

It might be argued that making the acreage restriction smaller would provide more economic opportunities and distribute the subsidy to a larger group. Yet if farm size were restricted much below the 320 acre limit, additional subsidy would be needed simply to offset rising production costs (Hall and LeVeen). Greater coordination between farmers to reduce the impact of diseconomies of small size has been suggested, but such a solution, while theoretically feasible, would require a major shift in the orientation of agricultural support systems and in the attitudes and expectations of farmers. It would raise legal questions concerning the right of the landowner, especially those who do not want to participate in cooperative schemes. Finally it would imply a very costly administrative

planning mechanism to set up and maintain such a system. These obstacles would appear to be larger than most proponents of land reform would be willing to admit.

Thus future Reclamation policy faces an important dilemma. For existing projects, the majority of subsidy benefits have been captured and capitalized into land values and could not, even under the strictest regulation proposals, be totally recaptured and made available to new settlers. Imposition of new regulations which force the sale of land at pre-project value would impose significant and uncompensated welfare losses on many who purchased the land at prices which included project benefits. Imposing residency requirements and restricting leasing could bring about a major change in the nature of farming in many districts, increasing the number of owner-operator units and diminishing farm size. However, changing a 75 year old administrative practice would impose economic costs on those who purchased land under the expectation that these regulations would continue, and this raises an issue of fairness.

In conclusion, the linking of water resource development with rural development has not led to a wide distribution of project benefits to new farmers. Even if the new regulations prevented most of the project benefits being captured by current landowners, and even if they were written so as to achieve the widest possible distribution consistent with efficient technology, the number of beneficiaries would be relatively small. There may well be alternative policies, using the same amount of public expenditure, which could more effectively promote family farming and rural development.

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