Local Consequences of Reclamation Overkill

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Respectively: Prof. of Resource Economics, Utah State University; Economist, Marketing and Trade Division, Econ. Branch, Agriculture Canada. The tables and Figure 2 were prepared especially for this paper, otherwise all the supporting arguments are condensed from Chapters 2, 5, and 6 of Dr. Wilde's unpublished Ph.D. Dissertation on file in Utah State Univ. Library, Logan: Defining Efficient Water Resource Management in the Weber Drainage Basin, Utah (1976).
ABSTRACT

"Local Consequences of Reclamation Overkill"

A nine-year intermittent study of promotion group records, planning and operational documents, plus dozens of conversations with "watermen" familiar with the Weber Basin Project, Utah, has led us to conclude that considerable mis-allocation of scarce resources has occurred. Expensive, planned reclamation features have been a complete failure; a great regional imbalance in benefits and costs exists; development of a continuously recharged underground aquifer could have been made at a fraction of the surface feature cost. The fact that the project is in no financial difficulty is beside the point, the truth is that a lot of unnecessary costs must still be borne by someone. This situation is the direct result of the actions of the U. S. Bureau of Reclamation and Utah water development leaders.
INTRODUCTION

Contrary to a persistently promoted idea, not all parts of the West live under the imminent threat of water shortage. Utah's Weber Basin is a striking example of overreaction to the generally arid conditions of the intermountain region. It is so well endowed with dams, reservoirs, diversion and treatment facilities that they are a financial, political, administrative and economic embarrassment.

The most recent, and largest, accretion of such works is the Weber Basin Project (WBP) built by the U. S. Bureau of Reclamation in the 1950's and 1960's; it is this project that is at the root of the embarrassment. Facilities of the WBP are operated by the Weber Basin Water Conservancy District (WBWCD) which also acts as a collection agent for the Bureau. Residents of the Basin are committed to pay for construction costs of the WBP and the Conservancy District is an agency of state government with power both to tax and to make contracts with the Federal government. Except for the southern portion of Davis County, the Basin was generally well
endowed with irrigation and municipal water works before the WBP was built. As a consequence, construction of the WBP and subsequent management of the facilities is marked by a number of ironies: extraordinary benefits are concentrated in one part of the Basin while the repayment burden is concentrated on a quite different section; the additional water supplies could have been provided, as needed, at much lower cost through alternative means; a great deal more water was developed than is used; a key element in the decision to build the whole project was desire for more irrigation water in one limited area of the Basin; and even before construction was completed, certain facilities were being duplicated by cities and towns within the project service area.

These observations are the outcome of an intensive examination over several years, of published and unpublished documents of the Bureau of Reclamation, Weber Basin Water Conservancy District, Office of Utah State Engineer, Utah Division of Natural Resources, correspondence, and minutes of promotional groups, plus the solicited
testimony of persons intimate with the history and affairs of the WBP and WBWCD.

The map (Figure 1) shows principal features of the WBP, which included new dams or enlargements, new aqueducts, and interconnections with the extensive water control system already in place before the WBP was initiated. Scattered, small locations planned for supplemental irrigation service in mountain valleys are not shown on the map. It's main purpose is to provide some geographical references and contrast the already irrigated area with those proposed for the main region: foothills east of Great Salt Lake and lowlands adjacent to the lake itself. In addition, a project objective was provision of some water for municipal and industrial (M&I) purposes that is treated in WBWCD plants.

Referring to the map, the only part of the proposed irrigation area over which a real concern for more irrigation water was evident in pre-project days, was the high bench lands of South Davis County. This is the lower third of the foothills area on the map from
Fig. 1. Location of principal features of Weber Basin Project, Utah
Farmington south. But it was also clear, almost from the start, that the cost of a high line aqueduct system for a part of Davis County would be very high relative to potential irrigation benefits and repayment capacity. That fact appears to have called forth the other features: calculated benefits to irrigation were extended by addition of the reclamation component (represented by the extensive lake plain area), and repayment capacity was jacked up by a plan to sell high-priced municipal and industrial water. The reclamation features were a high proportion of the total cost of the project, but have never been used. Except for initial contracts, M&I water has encountered stiff sales resistance.

FAILURE OF THE RECLAMATION PHASE

The Weber River drains a larger watershed than does the Ogden, and is also more fully used to irrigate patches of land along its upper courses. The Ogden serves only one valley before reaching the East Shore area, whereas the Weber and tributaries serve five major and several smaller developments above the mouth of Weber Canyon.
By means of the old Davis and Weber Canal, a major portion of the lands in Northwestern Davis County and southwest of Ogden City are also served by prior rights to the Weber River. So are lands under the new Davis and Weber aqueducts, built as part of the WBP. Lands in the Hooper area and others to the north can be supplied from the Ogden River or the combined Ogden and Weber. Some lands in Box Elder County and those North and East of Ogden City receive water from the Ogden River Project constructed in the 1940's. They are the only good lands of the East Shore area that could be served more efficiently by the Ogden than by the Weber.

The Ogden or the combined Weber-Ogden could water poorer lands or the lower delta (lake plain), but this had never been done because such lands require extensive rehabilitation by drainage and leaching. The relatively under-used Ogden therefore represented a means whereby these low lands could be reclaimed. Proposed WBP facilities were designed to exploit this reclamation possibility and lead to greater equity in relative use of the two rivers.
In the form that won congressional approval, the WBP plan report identified about 218,000 acres of potential lands in the project area and proposed to provide full or supplemental irrigation to about 113,000 acres or slightly over half the total. Of the latter, almost half (48,300 acres) were lake plain lands to be serviced by the proposed Willard and Layton canals linked to the Ogden River source. When 23,000 acres situated in high valleys are also subtracted, only 41,200 acres actually lie along the higher benches of the East Shore and less than 16,000 comprise the South Davis area mentioned.

Proposed average annual project water supply was similarly divided: 16,000 acre feet to the mountain valleys, 82,000 acre feet to the Lake Plains and 80,100 acre feet to the foothills area.

Constructed conveyance capacity is considerably less than this. As a consequence, there is no existing way of delivering water from WBP reservoirs to most of the intended reclamation lands. The WBP, therefore, has not augmented Ogden River use very much, while use
of the Weber has definitely increased. At the same time, almost all the planned storage capacity has been built—the result is a big divergence between supplies and deliveries.

Willard Reservoir is the most obviously redundant feature of the WBP because everyone can see that there is no place for the water to go. Originally the idea was for water in the reservoir to be pumped backwards in the Willard Canal, to reach reclaimed lands of the lake plains. But these lands have not been drained, and the Layton Canal was not completed. Water from Pineview Reservoir was also destined for the lake plains lands, without any need for pumping, via the diversion at Slaterville and the Layton Canal (see schematic, Figure 2). As it is, there is also no place for Pineview storage to go except down the Ogden River into Great Salt Lake or over into Willard Reservoir.

In short, despite all the economic forecasting that preceded actual construction and after spending enormous sums to put the water in place, the Bureau discovered that reclamation farming had virtually no appeal.
STORAGE CAPACITY, CONVEYANCE CAPACITY AND REDUNDANCY

Overcapacity in the system is fairly obvious to residents of the Basin who are interested enough to take a look around Willard Reservoir. Nevertheless, it is not simple to discern the full extent and location of redundancy from official reports. This and the next section, including Table 1 and the schematic diagram, are an exposition of detective work in documents published by the Bureau and the WBWCD.

The schematic diagram (Figure 2) locates both Pineview and Willard reservoirs on the Ogden system. These are the storage facilities that make the active storage figure for the Ogden system in Table 1 so large. When this amount (256,000 a.f.) is compared to planned delivery capacity, the ratio is much larger than for the Weber side. In fact the constructed capacity on the Weber system is roughly the same as planned so that the ratio of constructed delivery capacity to active storage only moved from 1:1.14 to 1:1.2, whereas on the Ogden side the ratio fell from 1:2.8 to 1:10.0 as a
Table 1. Planned and constructed capacities and sales of WBP water (1974, in acre feet)

<table>
<thead>
<tr>
<th></th>
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<td><strong>Weber System</strong></td>
<td>99,000</td>
<td>86,700</td>
<td>82,325</td>
<td>81,449</td>
<td>76,199.2</td>
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<td>Upper valleys</td>
<td>9,600</td>
<td>8,800</td>
<td>7,800</td>
<td>7,407.2</td>
<td>392.8</td>
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<tr>
<td>East Shore Foothills</td>
<td>77,100</td>
<td>73,525</td>
<td>73,649</td>
<td>68,792</td>
<td>4,857</td>
</tr>
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<td><strong>Ogden System</strong></td>
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<td>25,605</td>
<td>18,965</td>
<td>14,989.6</td>
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<tr>
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<td>6,900</td>
<td>7,900</td>
<td>7,289.5</td>
<td>610.5</td>
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<tr>
<td>East Shore Foothills</td>
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<td>4,705</td>
<td>4,705</td>
<td>4,705</td>
<td>---</td>
</tr>
<tr>
<td>Lake Plains</td>
<td>82,100</td>
<td>14,000</td>
<td>6,360</td>
<td>2,995.1</td>
<td>3,364.9</td>
</tr>
<tr>
<td>(Layton Block)</td>
<td>(39,100)</td>
<td>(6,000)</td>
<td>(700)</td>
<td>---</td>
<td>(700.0)</td>
</tr>
<tr>
<td>(Willard-Warren Block)</td>
<td>(43,000)</td>
<td>(8,000)</td>
<td>(5,660)</td>
<td>(2,995.1)</td>
<td>(2,664.9)</td>
</tr>
<tr>
<td><strong>TOTAL Project</strong></td>
<td>355,000</td>
<td>178,200</td>
<td>107,980</td>
<td>100,414</td>
<td>91,188.8</td>
</tr>
</tbody>
</table>

*DPR = Definite Plan Report.
result of conveyance facility cutbacks. Except for a little over 2,000 a.f. increase in constructed facilities for the Upper Valleys and the East Shore Foothills, all the delivery capacity cutbacks on the Ogden side are accounted for, as expected, in the Lake Plains figures.

Even if the lake plains had been reclaimed as intended, the water storage developed to serve them was 2.8 times their estimated maximum requirement (compare this to 1.4 on the Weber side). Furthermore, there is little prospect of ever using the whole excess since the region is becoming more and more urban, and urban land use takes less water per acre than agricultural use.

Delivery capacity is really conveyance capacity; that is what controls the size of the operation. Bureau repayment requirements are based on unit notices issued and these in turn are based on delivery capacity. (By means of unit notices the Bureau tells the Conservancy District what water is available and must be paid for.) From the standpoint of "system size" therefore, in 1974, the Bureau
and the WBWCD could say that the delivery contracts (sales) as a percentage of "capacity" looked pretty good (about 91%). This reportorial tactic helps mask the extent of storage redundancy.

OVER CAPACITY AND UNIT NOTICES

There is gross over capacity in the Ogden system, while the Weber is running about as planned. The Pineview storage capacity, which cost a little over one-half as much to develop as that of Wanship is hardly used and the Willard Reservoir capacity currently estimated at about 170,000 acre feet "active" is not used for irrigation at all. A glance at Table 1 will confirm that in 1974 only about 5,000 a.f. under unit notice was unsold on the Weber side, and this is gradually being taken up in "class D" contracts to residential users who pay an above average irrigation water price. However, since Table 1 also shows there is only about 4,000 acre feet in the Ogden system under unit notice and unsold, it is necessary to make inferences about some missing figures.

Table 1 shows constructed capacity in the lake plains blocks to be 14,000 a.f. in contrast to 1959 plans for 82,100 a.f. This
means that only enough conveyance facilities have been built to handle 14,000 a.f. in a season. In contrast to this constructed capacity, the unit notice is for 6,360 a.f. Actual remunerative, consumptive use out of Willard Reservoir for all purposes appears to be less than 5,000 a.f. per year.\(^1\) In spite of these figures, gleaned from its own publications, Bureau spokesmen were claiming in 1972 that only 56,500 a.f. in Willard sub-system water was regarded as "not under unit notice." But a footnote to one of their tables mentions an additional 56,500 a.f. "available for all purposes."

When asked why the reported supply is so low in comparison to Willard Reservoir capacity, Bureau spokesmen have said that it is due to "exchanges with other parts of the system." According to a 1975 newspaper article it appears that 44,000 a.f. in Willard Reservoir are being reserved for "exchanges" in event of a drought year.\(^2\) This would be accomplished by pumping Willard water back up the canal to serve farmers in Plain City, West Warren and Hooper,
areas which are entitled to upstream (Weber River) water. Their entitlement, in turn, can be delivered to other water-short areas higher up along the Weber. Such an eventuality is remote because the areas mentioned could be served by any available Ogden River flow plus any unused storage in Pineview, even if there were not a trickle left in the Weber by the time it reached the Slaterville Diversion. That is, Pineview could handle the imagined drought, with no help from Willard.

In effect, very little of the Pineview and Willard water is under unit notice and therefore it is not being directly paid for. The cost of this excess capacity is simply covered indirectly by the U. S. public in general picking up a larger share of the tab and by local citizens bearing the remainder.

REDUNDANCY AND PROJECT OPERATION

The WBWCD Annual Report for 1974 registered a supply of 115,000 a.f., disposed of as follows:

| M & I replacement | 2,615 a.f. |
M & I Wasatch Front 29,498 a.f.
Irrigation, operational spills and losses 83,119 a.f.

Figure 2 presents a disaggregation of these totals. The breakdown was achieved by inference after careful comparisons among District and Bureau documents. The reward for making the disaggregation is the discovery of a likely reason for making the location of water deliveries so obscure in the official reports. Following are some notes to assist readers with the schematic, beginning along the top, with sources.

The number of acre feet in the case of the reservoirs is for "active" storage. Active storage is the amount that can actually be delivered from a reservoir, if full. By Bureau figures, the sum for East Canyon, Lost Creek, and Wanship is 99,000 a.f. To this we add their estimate of 4,212 a.f. from small Wasatch Front streams and nearly 10,000 a.f. from wells. This makes about 113,000 a.f. available from the Weber side alone. Comparable figures for the Ogden side are 72,000 a.f. (not including Willard Reservoir).
The combined total shows an average storage potential of considerably more than the 115,232 acre feet reported delivered in the 1974 Report. Since we are treating the active storage as a flow, the difference shows up in the form of "residuals" in the Weber River, Willard Canal and possibly the lower Ogden River. Rectangular areas in Figure 2 mark the various destinations of the waters shifted and controlled by the WBWCD.

On the Ogden side, Causey storage is used to capacity above Pineview, via Eden Canal. Less than 15,000 a.f. is actually sold out of Pineview storage. Ogden City pays for 10,000 a.f. of M & I per year, but would never get over 1,500 a.f. of the total from Pineview (actually only 10 a.f. in 1974) because most of it comes from the Weber system via the Weber Aquaduct. Nothing flows in the Layton Canal. About 6,000 a.f. of irrigation water is sold in Box Elder County and in mountain valleys, and the bulk of about 7,500 a.f. of M & I water deliveries by Willard Canal is sold to two users. Therefore, we may estimate the average Pineview "residual"
going unwanted and unused into Willard Reservoir or Great Salt Lake at about 51,000 a.f. per year.

On the Weber system, in the same fashion, some water is diverted to mountain valleys, but the bulk of delivered WBP water passes through the Gateway Tunnel, and is then transported by aqueduct to the destinations shown. Some of these can be separated, and others (enclosed by dashed lines) are simply the general totals received by groups of users. For example, about 8,773 a.f. of M & I water was delivered by the Davis and Weber aqueducts to all the towns shown in such groups. The total sales of water to each town (a contracted amount, regardless of actual use) are given in parenthesis under the names. Since the sales of M & I water in Davis County plus Roy and "other Weber" total about 18,975 a.f., any deliveries that cannot be made from the Davis aqueduct must (by inference) come from the wells drilled by the WBWCD for this very purpose.

Irrigation sales listed for the various blocks are more than enough to require all of the 48,961 a.f. "residual" shown even
without allowance for all the spills and losses of the whole proj-
ect. That is, irrigation sales in the Davis Aqueduct region are
great enough to require all the residual slack in the entire con-
structed system. Since even a small amount of water cannot be put
into any aqueduct over a period of time unless it is removed, and
since the Gateway tunnel is used to virtual capacity during the
irrigation season, we can draw two significant inferences:
a.) some WBP water may go down the Weber River channel direct to
Great Salt Lake, but this on average (with full release of active
project storage) could hardly be over 16,000 a.f.; b) there is no
way both irrigation and M & I commitment can be met from the Davis
Aqueduct system; supplemental wells are necessary and always have
been!

This latter point merits further emphasis: to meet the WBWCD
commitment for irrigation, the Davis Aqueduct must be full all
summer. During that busy time of year, some under ground water
to cover municipal and industrial sales is essential. (Actual
well capacity of approximately 34,000 a.f. is considerably higher
than the amount pumped in 1974.) To put it another way, the 1959 Definite Plan Report required M & I sales of 50,000 a.f. by 1975, to meet repayment obligations. Without ground water development this objective could not have been realized, for aqueduct capacity is insufficient. This fact is so inconsistent with the overwhelming emphasis placed on surface water development during planning and construction that it may account for the obscurity with which physical water movements are now treated in management reports. It would be difficult to imagine a stranger administrative embarrassment than the existence of redundant surface features in one part of the project service area combined with the necessity for supplemental wells in another.

MUNICIPALITIES AND GROUND WATER DEVELOPMENT

The wells that provide part of WBP water in the Davis Aqueduct service area signify more than underdesign of the aqueduct. It is or has been less expensive for towns to construct and operate wells than to pay the $43 per a.f. conservancy district price for M & I
Ground water has proved abundant and easy to develop. In 1959 prices, the entire volume of current WBP deliveries in the East Shore area could have been provided from wells at a capital cost of under $2 million. (Only 60-70,000 a.f. of new irrigation water have been sold from WBP facilities, and this amount could have been obtained from 16-18 wells in addition to those already supplying M & I water.) Capital cost of the large surface system, by contrast, was close to $100 million.

Wells must be pumped of course, and this makes cost comparisons more difficult. However, many town managers interviewed used to calculate operation and amortization costs of their own wells at about $12 per a.f. By 1975, total costs of a well-water supply equivalent to the WBP (wells, conveyance, treatment and pumping installations) would have amounted to $20 to $30 million. Furthermore, most of that cost would have been current charges (for pumping) so that no interest payments would have been involved.

The first big wells for the WBP M & I component were constructed in the northwest Davis County by the Bureau of Reclamation, which
had been studying ground water potentials of the East Shore with
the U. S. Geological Survey. When town managers saw how effective
this program was, they forgot about further contracts for District
water and started to develop wells of their own. The WBWCD tried
to prevent them by asserting jurisdiction over all waters of the
region not appropriated prior to construction of the WBP. Local
water managers were enraged. Water from the WBWCD cost them over
$40 per a.f., well water about $12. Adding insult to injury, the
high-priced Conservancy District water often came from WBP wells
just outside their own town boundaries. Towns appealed to the State
Engineer's Office, which rejected the District's claim.

This decision of the early 1950's was a blow to the District
and the Bureau. The price of M & I water had been set high enough
to subsidize the irrigation features of the project. Without mono-
poly control over M & I supplies there was a potential threat to
revenue expectations. Ever since the Boulder Canyon Project
(Hoover Dam), hydroelectric and municipal-industrial sales have
been openly referred to as the "paying partners" of reclamation.
The formula ran into trouble in the Weber Basin because obvious abundance of water made contrived scarcity a very difficult idea to sell. Towns have simply been duplicating Conservancy District M & I facilities to a greater or lesser degree for the past 20 years.

DISTRIBUTION OF BENEFITS AND INCIDENCE OF COSTS

With the understanding that irrigation use is subsidized by urban residents and industrial users, it is instructive to notice how the two kinds of WBP water are distributed geographically. As already shown, little irrigation water is sold in parts of the East Shore area that could be served from the Ogden River. Northwest Davis County generally continues to rely on traditional, mutual irrigation company supplies. But the towns in this region, in combination with Ogden City, have contracted over 61% of the WBWCD's total M & I sales. Central and South Davis County, on the other hand, take the lion's share of the subsidized irrigation water from the WBP, but pay for only 20% of the expensive M & I water. Over 40% of all irrigation water goes to South Davis (Bountiful-Woods
Cross area). Urban residents in and around Bountiful enjoy a separate, piped-in irrigation system, under pressure, built and pumped by the WBWCD at subsidized prices, yet Bountiful City pays for only 1,000 a.f. of WBP M & I water. Figure 2 illustrates these points.

This does not end the list of ironies which surround water management in the Weber Basin. It is probably sufficient to arouse some curiosity for an explanation, nonetheless, and we now address ourselves to the question of how the WBP got that way.

BASIN-WIDE SOLUTION OF A SOUTH DAVIS PROBLEM

Although the Weber Basin generally is reasonably well-endowed with water and storage-conveyance facilities, the southern portion of Davis County seemed to be an exception, and by the late 1940's, local farmers and watermen were convinced that their own irrigation resources were fully exploited and that future development depended on getting an augmented supply from the Weber River. They put in
an application to the State Water and Power Board for assistance, were turned down, and took their case to the Bureau of Reclamation.

The Bureau went to work immediately. They already had plans on the shelf for a much more comprehensive development than the storage and aqueduct wanted in South Davis. In addition to the understandable possibility that a group of engineers preferred a larger to a smaller project, the Bureau was also constrained by reclamation law, internal regulations, and traditional practices. Although the local agitators appear to have looked on the Bureau as a combination of construction company and Big Brother, it could only help them if reclamation were the principal objective. Perhaps even more important, benefits had to exceed costs and local users had to show both financial capacity and willingness to repay the capital outlay. The high level aqueduct wanted for South Davis simply could not satisfy any of these requirements.

Both reclamation and potential benefits could be obtained, in the Bureau's plan, by inclusion of the Willard and Layton irrigation blocks (to use the storage of Pineview and Willard Reservoirs).
Assurance of repayment was a little harder to arrange. Although post-War prospects for urban-industrial expansion in Davis County seemed excellent, the Bureau was taking no chances. Supplicants for a Davis irrigation aqueduct were told the hard facts of reclamation life—that the project would have to be much larger than they wanted, and that municipalities would have to guarantee repayment via purchases of treated M & I water.

With assistance from prominent members of the Utah Water Users Association, a lobby was formed among economic growth promoters in municipalities along the East Shore. These men were easily convinced that an augmented water supply was absolutely critical to economic expansion in their region, and that the WBP was the only way to get it. Chamber of Commerce support was the key to long-term town and city agreements to purchase M & I supplies, and it was this lobby which carried the ball in winning local and congressional approval for the project. The principal tactic, reflected in all the propaganda to generate support for the project and conservancy district, was nourishment of drought phobia.
The Bureau would not start construction until it had firm 60-year contracts for over half the M & I sales called for in the original Definite Plan Report. There is reason to suspect that Bureau engineers knew something that their clients did not: additional sales of M & I water were jeopardized from the start by the availability of ground water in the East Shore area. No one knew more about this source than the Bureau, for its own personnel had done most of the geologic-hydrologic work for a U.S.G.S. survey that was drawing to a close just as the WBP was getting underway. Not as much was known in 1950 as in 1970, but there was more than enough information to justify concern. Nevertheless, it did appear at that time that ground water prospects were worst in South Davis. The WBWCD constructed the largest of its three treatment plants at Bountiful, even though firm M & I contracts in South Davis were only a small portion of the total. This is evidence of a confident expectation that South Davis would eventually be an important customer, one that could be coerced by benevolent
monopoly power. Ironically, however, just as population pressure began to build, major ground water resources were discovered. Population and economic growth have been dramatic, but Bountiful City has never increased the token M & I contract it signed in pre-construction days. The city simply drills wells and the WBWCD treatment plant is little used.

FINANCIAL STATUS OF THE WBWCD

In spite of the South Davis miscalculation, the WBWCD has not been and likely never will be in serious financial difficulty. Any financial problems belong mainly to the Bureau.

A large project like the WBP is completed in stages. As facilities become available, they are turned over to the Conservancy District as a development unit. This unit is made up of blocks in which either irrigation or M & I water is available for distribution. The Bureau then issues a unit notice describing the locations and amounts of water available, the repayment assignments and 60 year (in this case) schedules. Once the Conservancy District
receives a unit notice, it does not immediately begin making payments for the full amount of water available. Each block within a given notice can have a development schedule of up to 10 years before payment must be made for the full allotment. As each block is sold, others are opened and the District is given separate 10 year periods to finish the selling jobs, going on this way until the full delivery capacity of the project is sold. The Bureau wants to collect its money; it wants repayment to be quiet and relatively painless; it does not want to bankrupt its repayment agency or stir up resentment headlines, because such events would threaten the future of reclamation.

By the terms of its last (most recent and possibly final) unit notice, the WBWCD became responsible for an additional 1,000 a.f. of M & I water and 1,500 a.f. of irrigation water each year until the full allotment is sold. In the case of M & I, that condition will not be met until 1990, when the full 50,000 a.f. projected in the 1959 Definite Plan Report will finally come due for regular repayment. The final installment on the last 1,000 a.f. of M & I
will not be due until 2050. When the repayment bill hits its peak, the WBWCD will be turning over about $1.5 million per year. On the basis of sales as given in the 1974 annual report, the present rate is about $1.1 million annually. Several things are working in favor of the Bureau.

In 1970, the Bureau and the District came to an agreement to repay $78 million only, because construction was halted before all planned features had been built. Irrigation sales in North Davis and Weber Counties are expanding via contracts with city subconservancy districts. In other parts of the Basin most new irrigation contracts are for personal, retail service direct from District (or WBP) facilities. These sales bring the District a much higher price than wholesaling to irrigation companies. By 1970, these retail contracts accounted for over 1/3 of all irrigation sales, reflecting the transition from farming to residential, industrial-commercial and recreation uses, all of which are capable of paying higher prices than farming. Increased property valuation also works in favor of the district, for it gets a 1 mill levy on the
total assessed value of the real property in the district each year. Since 1965 that valuation increase has accounted for an annual increment in District revenues of over $15,000. Meanwhile, since 1970, District obligations have accumulated at the rate of $18,750 per year (to pay for the annual increment of 1,000 a.f. of M & I and 1,500 a.f. of irrigation water). The increased tax revenue is therefore virtually enough to make the additional payment, even if the water is unsold. Inflation alone, through increased property tax revenues and higher costs of alternative M & I supplies is probably enough to keep the District on easy street. In addition, the agricultural payments the District is not getting from the un-reclaimed Willard-Layton blocks may be partially replaced by some industrial water sales and by further allowances for non-reimbursable recreation and wildlife benefits.

In sum, it is really the Bureau of Reclamation that is stuck with a water inventory it could not sell, and not the WBWCD. The Bureau developed the water, they are financing it, and it is they
who must live with the embarrassments of redundancy, and unfairness in the distribution of costs and benefits.  

CONCLUSIONS AND ULTIMATE IRONY

The WBWCD (as most Western conservancy districts, we believe) is primarily an agent for the Bureau of Reclamation, and the means by which it assures that Western reclamation reimburses the national treasury. Although nominally an agent of state government, therefore, the WBWCD really dances to the tune of the Bureau. Utah practice of granting water rights to parties who can demonstrate control of previously unappropriated water has made it possible for an agency of the Federal government to effectively buy the state resource, with inevitable consequences for the ability of State government to manage Utah water. The Bureau may be stuck with a slow-paying customer, but the Basin and State suffer as well.

Not all the costs of excess capacity and redundant facilities are borne federally. State and Basin residents will incur most of the social costs imposed by the decision to ignore ground water and
build surface works. District taxpayers and water users will be feeling the direct effects for at least three generations. 8

Who is to blame for this situation? We believe it must be shared. Bureau planners made errors in assessing ground water prospects and the economic potential of farming reclaimed lands of the lake plain. Furthermore, these errors are hard to excuse because corrective information seems to have been available. The role wells had to play in the WBP supply for the Davis Aqueduct region is evidence enough. On the other hand, local and state "watermen" did woo the Bureau and petition Congress to authorize the WBP. They were, in the first place, a group dedicated to water development as the key to building paradise in the arid West. In the second place, recent war-time experience had given them a healthy respect for the influence of Federal spending on local economic development. There is clear evidence that they were after federal spoils. Records of their activities also suggest that they paid very little attention to warning signs that were available to them. For example, the repayment period had to be set at 60 rather
than at 40 years, a first for a reclamation project. President Truman refused to effect the enabling legislation until local investigations had forced an examination of possible consequences. Instead of taking this respite as an opportunity for the educative and deliberative function that is supposed to be a part of the democratic process, the local civic leaders took it as a challenge and "triumphed" over the President's reservations, which they interpreted as an adversarial tactic to keep them from getting the federal assistance.

The ultimate irony, to us, is thus a political one. Leading men of Utah have long warned its residents against the blandishments of federal involvement and easy time payments. For the past half century, Utahns have been continually reminded of the danger that they may lose their life's blood through taxes, and find their freedom strangled in bureaucratic regulations. They have, at the same time, continued to be captivated by the high ideal of making the desert bloom. In accepting the line that "water is the life blood of the land" they have swallowed the other hook.
FOOTNOTES

1 Currently there are negotiations for use of some irrigation water from the completed segment of the Layton Canal in the Hooper area, but the farmers want to rent it and the WBWCD wants them to sign long term contracts.


3 Since the ratio of storage to constructed capacity is only 1:1.2 on the Weber side, we take the liberty of treating the active storage figures not as stocks but as potential flows.

4 According to W. Winegar, current manager of the WBWCD.

5 This represented a reduction of $2-3 million from the initial amount; the WBWCD has never been obligated for about $20 million of non-reimbursable costs.

6 One consequence of redundancy is that U. S. taxpayers in general must bear the increased difference between actual construction and the smaller sum the WBWCD is obliged to pay.

7 There are 13 conservancy districts in the state, covering all the major watersheds; all of this is now Federal water.

8 Even more generations will be stuck with the high costs of the Central Utah project which is following the same pattern, namely: totally ignoring a much, much cheaper ground water alternative.

9 In the words of E. J. Fjeldsted, first Secretary-Manager of the WBWCD, to K. Wilde in October, 1969.

10 Motto of the Utah Water Users Association.
Appendix Table. Sources (facilities) used for 1974 WBWCD water deliveries as inferred from Project and District documents - acre feet.

<table>
<thead>
<tr>
<th>Sources and Destinations</th>
<th>Specific Disposition</th>
<th>General Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M &amp; I replacement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weber river misc.</td>
<td>2615</td>
<td></td>
</tr>
<tr>
<td>Ogden river misc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wasatch Front M &amp; I</td>
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<td></td>
</tr>
<tr>
<td>Roy well</td>
<td>149</td>
<td>29498</td>
</tr>
<tr>
<td>Other wells (esp. in Davis Co.)</td>
<td>9452</td>
<td></td>
</tr>
<tr>
<td>Pineview/Ogden R. (Ogden City)</td>
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<td></td>
</tr>
<tr>
<td>Pineview/Willard canal (GSL-M&amp;C)</td>
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</tr>
<tr>
<td>Gateway tunnel (aqueducts)</td>
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<td></td>
</tr>
<tr>
<td>Weber A. (Ogden City)</td>
<td>(8500)</td>
<td></td>
</tr>
<tr>
<td>Weber A. (So. Ogden)</td>
<td>(1300)</td>
<td></td>
</tr>
<tr>
<td>Weber &amp; Davis A's. (other towns)</td>
<td>(8773)</td>
<td></td>
</tr>
<tr>
<td>Irrigation, losses &amp; spills</td>
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<td></td>
</tr>
<tr>
<td>Causey Res. (Eden, Og. valley)</td>
<td>5394</td>
<td>83129</td>
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<td>Pineview/Willard canal (Plain City)</td>
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<td>Pineview/Ogden R.</td>
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<td>Ogden R. (mt. valleys)</td>
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<td>Ogden R. (No. Ogden)</td>
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</tr>
<tr>
<td>Ogden R. (So. Ogden)</td>
<td>(900)</td>
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<td>Weber R. (mt. valleys)</td>
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<td>Gateway canal (mt. valleys)</td>
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<td>Gateway tunnel (aqueducts)</td>
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<td>Weber A. (So. Ogden)</td>
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</tr>
<tr>
<td>Weber A. (Uintah bench)</td>
<td>(9370)</td>
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<tr>
<td>Davis A. (east shore farms)</td>
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<tr>
<td>Davis A. (losses &amp; spills)</td>
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</tr>
<tr>
<td>Stream inlets</td>
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<tr>
<td><strong>TOTALS</strong></td>
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</table>
Weber Basin Conservancy District

The trend in water sales continues to be "Class D" where irrigation is concerned and toward more sales of M & I water. Some of the latter sales do not have very much effect on the original project design figures because they come about through "exchanges" that can be made by utilizing some of the unutilized Pineview or Willard water, or, can be made due to purchase of water stock (or obtaining water stock) in existing irrigation companies. In the process, WBWCD is becoming more and more "the" water utility in the area between North Salt Lake and Ogden. The district is also involved in exchanges in high valleys.

During the drought year of 1977, the District (with the encouragement of the Bureau) applied for drought relief loan(s) that financed a link between Willard Bay (part of Layton Canal) and the Weber aqueduct. A short length of pipeline is involved and there are plans to put a treatment plant at its end. The Bureau will allow Willard water to be treated and sold for M & I even if this action exceeds the 50,000 M & I originally programmed in the target areas. [The Bureau apparently is also not going to fight the M & I sales of "nonproject" water, although when all the culinary sales have been made, the District will still have as much irrigation water as it has at present.] Some towns are still drilling wells, while others are more competitive with the District.

Winegar wants to be able to have the water even though it would be possible to not further service towns once the 50,000 a.f. M & I has been reached. Why this is so, since he complains of the extra work, is not
clear except as part of some "dream" or vision of the best way to operate—a kingdom. All the towns probably could go the well route even though W.W. doesn't agree. Speaking of wells, it is interesting to note that the District pumped a lot during the drought year—but cut back to surface water as soon as it could. Just what is the balance between pumping costs (the District can generate its own power) which reduces income from power sales vs. treatment costs in the plants?

The District is earning or taking in much more money than it pays out. In fact, the treatment plant for Willard water probably can be built out of savings. This creates a problem, however, because up until now the interest on the excess has been used to subsidize O & M costs. This explains why O & M shares of contracts haven't risen even though O & M costs certainly have (and O & M can be readjusted as necessary).

Dallin Jensen

The Assistant Attorney General assigned to Utah's natural resources section agrees that all the WBP "mistakes" are being repented in the CUP case. He also admits that some of the arguments of the water advocates are misleading. He had no answer when asked why persons who know better don't speak up. He does say that one reason why the incongruous aspects keep reappearing is that all the various "interests" see a particular something in the process for themselves and are willing to go along with illogical arguments or features in order to secure what parts they desire for themselves.

Jensen talks freely about the CUP subsidy of irrigation and how it is obtained from urban dwellers. He is willing to discuss the notion that urban residents lack and have lacked information about why they are
necessary to the CUP equation! He admits the groundwater alternative is cheaper as well as being certain insofar as M & I is concerned.

What is missing in the whole water debate raging over conservancy districts, etc., is the flat recognition of the subsidy question. Everything flows from that need to get the locals to put up the cash as well as the guarantee. The irrigators will not pay for the water, they never have paid the full price and it will become harder and harder (not easier) to pay in the future.

C.U.P.

The truth is that much of the Wasatch Front, as we know it, is underlain by sizable underground aquifers. They are known to recharge each year. They could be made to recharge more. The water usually doesn't need treatment. The quantities are great enough to fill urban needs for some time. They won't fill irrigation needs, but, at the same time, they won't be responsible for raising the level of the Great Salt Lake.

[There may be a need to pump the Great Salt Lake if too much water is imported.]

Actually, the CUP won't irrigate very much. The big effort of the conservancy district will be to sell irrigation to householders and M & I as much as possible. [Towns would be well advised to pump their own water since the District will undoubtedly put in wells sooner or later.]

What will happen, as in the WBP case, is that the CUP will be turned into a lawn watering project.