DRAFT

INDEPENDENT ANALYSIS OF THE ECONOMIC IMPACT STUDIES IN THE IID WATER CONSERVATION AND TRANSFER PROJECT EIR/EIS

Prepared For:

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EXECUTIVE SUMMARY

After replicating much of the CH2M Hill analysis of Socioeconomic Impacts, CIC could find no substantive disagreement with the results as presented the IID Water Conservation and Transfer Project Draft EIR/EIS. We did find some differences in the data, and some differences in the arithmetic. We also think those results could have been presented more succinctly, and we present Table 1 as a summary of the essential features of the economic analysis. However, as far as the analysis goes, we would not venture any substantial disagreement. We think it is fair, however, to point out some possible results that were not fully developed and analyzed.

1. Some of the programs presented in the CH2M Hill analysis are not economically viable.
2. There is no economically viable program that does not include at least some of the higher prices contained in the IID/SDCWA agreement.
3. 100 KAFY transferred to CVWD/MWD under the QSA is not economically viable if the 100 KAFY is obtained through conservation. However, there is no requirement in the QSA against fallowing.
4. The IID/SDCWA agreement which does prohibit fallowing, (although this requirement is evidently capable of being revised or eliminated) requires a minimum transfer of 130 KAFY. Any transfer under this agreement adds significantly to the total revenue because of the much higher SDCWA prices. The minimum project under the QSA that takes advantage of the higher prices is 230 KAFY. Adding an additional 70 KAFY under the IID/SDCWA agreement makes the project more financially attractive.
5. Although not considered in the EIR/EIS analysis, even if the IID/SDCWA agreement is not modified, nothing in either agreement prohibits a program of fallowing to supply the QSA requirement for CVWD and/or MWD. So a feasible program would fallow for this 100 KAFY, while using conservation for the 130 to 200 KAFY for SDCWA.
6. The analysis of the effects of fallowing was slanted in the direction of maintaining the same proportions in cropping patterns in the future as there has been in the past. This has the advantage of being similar to the expected cropping given conservation as the means of freeing up agricultural water for transfer. However, much more efficient results could be obtained by changing this assumption. From the viewpoint of economic efficiency, the analysis would consider reducing production in agricultural practices that had high water requirements relative to crop value. CIC came up with an approximate analysis by fallowing only hay and pasture crops. Besides requiring fallowing

could be obtained by fallowing 53,286 acres and a no cost $200 per acre per year distributed to every farmer, never-mind saving the $10 per acre. That avoids the $93 per acre expense to save $10, which after all is not a sound way to do business.

Between these two cases is a 230 KAFY scenario that represents the minimum transfer that fulfills the requirements of both the QSA and the IID/SDCWA agreement. I.e., in case the 100 KAFY at the lower prices is a requirement. We examined this case, and at the $50.5 million average annual revenue and the CH2M Hill analysis of $35.8 million in annual conservation costs plus $18.4 million in annual farmer payments, the program ends up $3.7 million per year on average short of paying for itself. However, if this unsound business proposition could be made more attractive by increasing the transfer to SDCWA to 200 KAFY, the extra $11.3 million makes it a workable program (Project B). This would pump up the revenue enough to make conservation a more attractive alternative if the QSA is in effect and the lower prices apply to the first 100 KAFY.

These issues are not explored in any depth in the draft EIR/EIS. The analysis rather turns to an assessment of economic impacts under 7 different scenarios.

Economic Impact Analysis

The economic impact analysis considers scenarios A, B, C, and D. Also, alternatives 2, and 3A and 3B.. In A and B, 300 KAFY are saved through conservation, 230 KAFY by on farm TRS measures and 70 KAFY saved through delivery system improvements. Project A transfers all 300 KAFY at SDCWA prices. Project B transfers 100 KAFY at the lower MWD price (without the first 50 KAFY at $50 in effect) and transfers 200 KAFY according to the SDCWA price schedule.

Scenarios C and D also assume 300 KAFY transferred. Only in this case, the 300 KAFY is obtained by fallowing approximately 50,000 acres. (Actually, at the quoted average 5.63 acre feet of water per acre of land, it takes fallowing 53,286 acres to save 300 KAFY). However, because of multi-cropping, 1.17 acres of crops are lost on average for each acre fallowed. Thus the opportunity costs of fallowing 53,286 acres is 62,345 acres of crops. An analysis of the crops lost through following is subject to several issues, some of which are summarized below. The only differences between Scenario C and Scenario D, is the revenue associated with each. Scenario C assumes all 300 KAFY is water transferred under the price schedule contained in the IID/SDCWA agreement. While Scenario D assumes only 200 KAFY of revenue is obtained at SDCWA prices and 100 KAFY is transferred at the lower CVWD/MWD prices and in this case, the first 50 KAFY does transfer at the lowest CVWD rate ($50 per acre foot for the first 50 KAFY).

Revenues under each scenario are summarized here and simplifying for the discounted values (to express dollars in constant 2001 dollars), and also the ramp-up schedule for water transfers.

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INTRODUCTION

CIC Research, Inc. conducted a review of the socioeconomic sections of the Draft EIR/EIS on the IID Water Conservation and Transfer Project. The purpose of this report is to provide an independent analysis of the socioeconomic material contained in the report.

BACKGROUND

Draft EIR/EIS

This report contains an analysis of a number of different projects and alternatives arriving at statements about best case and worst case, which seem to revolve around positive versus negative changes in Imperial County employment. There is a labored discussion about revenues, costs of conservation, and payments to farmers. However, the analysis is complicated by very different water price schedules, "ramp-up" timing schedules for water transfers and other time frames for the analysis. We will summarize these elements before discussing the economic impact analysis.

Water Transfer Revenues

The different projects and alternatives have revenues that vary for two reasons. First, the quantity of water transferred varies, and at different "ramp-up" schedules over time. Second, the prices received for different quantities of water varies over time and between programs. Price variation depends on whether the Quantification Settlement Agreement (QSA) is or is not in effect, and whether or not water is transferred to CVWD or MWD, or SDCWA, and the amounts going to each. These two variables are intertwined, but are best explained by examining prices first.

The lowest price is obtained for the first 50 KAFY if it is transferred to CVWD... $50 per acre foot, (actually, escalated by 2.5% per year to $52 in 2001 dollars). After 2001, the value of this $52 decreases gradually in constant 2001 dollars to account for future inflation. A discount rate of 3.2% is used to maintain prices in real 2001 dollars. This has the effect of lowering the real value of constant future prices. By the end of the 75 year period of analysis the real price in constant 2001 dollars for this first 50 KAFY in effect is reduced to $32 per acre foot. A similar analysis is made for the $125 price for any water transferred to MWD or the second 50 KAFY transferred to CVWD. The price in 2001 dollars is estimated at real value $130 in 2002 and declines in value (due to inflation) gradually after 2002 to $79 over the next 75 years.

By contrast, prices under the IID SDCWD agreement are not only higher in 2001 ($241) but under the agreement increase for the first 16 years of transfers to a high of $373 (in constant

Table 1

Summary of Scenarios Presented in the EIR/EIS (in constant 2001 dollars - millions)

Scenario (1)	Where Water Comes From (1)	Amount of Water Transferred (1)	Prices Used (2)	Average Yearly Revenue (3)	Annual Average Conservation Costs (4)	Annual Farmer Compensation After Taxes (4)	Annual Federal and State Taxes (5)	IID Program Costs (6)
Project A	All Conservation	300 KAFY	SDCWA for all 300 KAFY	$87.2	$36.8	$23.0	$15.5	$11.9
Project B	All Conservation	300 KAFY	100 KAFY @ MWD + 200 @ SDCWA	$71.3	$38.3	$12.8	$8.6	$11.5
Project C	All Fallowing	300 KAFY	SDCWA for all 300 KAFY	$87.2	$0.0	$51.2	$34.5	$1.5
Project D	All Fallowing	300 KAFY	50 KAFY @ CVWD + 50 KAFY @ MWD + 200 KAFY @ SDCWA	$68.2	$0.0	$39.0	$26.3	$3.0
Alternative 2	All Conservation	130 KAFY	All SDCWA	$40.6	$22.5	$13.7	$9.2	-$4.9
Alternative 3A	All Conservation	230 KAFY	MWD 100 KAFY+130 KAFY to SDCWA	$50.5	$35.8	$11.0	$7.4	-$3.7
Alternative 3B	All Fallowing	230 KAFY	CVWD 50 KAFY + MWD 50 KAFY + 130 KAFY to SDCWA	$47.4	$0.0	$26.9	$18.1	$2.4

(1) Draft EIR/EIS Section 3.14 pp. 10 & 16.

(2) Draft EIR/EIS Appendix G pp. G-9 to G-11.

(3) CIC Research, based on price data in Appendix G, and Transfer Ramp-up Schedueles in Appendix G p. G-4.

(4) Based on 75 year average of data contained in Appendix G Table G-5 p.G-16 and Appendix Table G-6 p. G-17.

(5) Based on Draft EIR/EIS Appendix G p. G-11 "40.3%."

(6) IID program costs are based on the statement in Appendix G, p. G-11... All revenues above IID's Program costs are paid to farmers as a per acre foot compensation. This column is derived as a residual based on the other cost data presented in Appendix G.

2001 dollars) by 2018.[1] After 2018, the price quoted in real 2001 dollars then declines in value due to inflation reaching $272 (in 2001 dollars) after 75 years.

Water transfer quantity variation seems to be tied to time requirements to get conservation measures in place. The discussed scenarios ramp-up as follows; 20 KAFY in 2002, 40 KAFY in 2003, 60 KAFY in 2004, 80 KAFY in 2005, 100 to 110 KAFY (depending on project) in 2006.[2] One limit is reached in 2008 at 130 KAFY.[3] Under another program, the quantity transferred continues to grow to 230 KAFY by 2025. Two other programs continue to 300 KAFY reached in 2021 if the QSA is not in effect, and 2026 if the QSA is in effect.

An analysis of these different possibilities from least revenue to most, makes it clear that transfers of 50 KAFY to CVWD at about $2.5 million is only a good deal if compared to what it brings in IID sales (at about $15 per acre foot, $75,000). If this amount is transferred to MWD at QSA mandated $125 it brings $6.25 million, and if transferred at the lowest rate in the agreement with SDCWA it would yield revenues of $12 million.

At the first limit of transfers, (130 KAFY) least revenues are obtained at 50 KAFY transfer to CVWD and next 80 KAFY transferred at $125. Skipping the ramp-up and inflation adjustments this is revenue of $12.5 million in 2001 dollars. The same quantity transferred under the SDCWA agreement price schedule yields $32 million at the lowest price in the agreement, and $48 million at the highest price.

An examination of the revenue associated with the range of possibilities for the 75 years under consideration results in the following, in constant 2001 dollars.

- Least for 130 KAFY $722 million total, or $9.7 million per year on average (CVWD/MWD prices).
- Most for 130 KAFY $3 billion total, or $40.6 million per year on average (IID/SDCWA prices only).
- Least for 230 KAFY $3.6 billion, or $47.4 million per year on average (CVWD/MWD QSA prices for 100 KAFY and IID/SDCWA prices for 130 KAFY).
- Most for 230 KAFY $5 billion, or $67 million per year on average (IID/SDCWA prices only).
- Least for 300 KAFY $5.1 billion, or $68.2 million per year on average (CVWD/MWD QSA prices for 100 KAFY and IID/SDCWA prices for 200 KAFY).
- Most for 300 KAFY $6.5 billion, or $87.2 million per year on average (IID/SDCWA prices only).

This is a wide range of revenue possibilities illustrating the importance of the price differences between CVWD, MWD, and SDCWD.

[1] Actually, the agreement calls for a 25% discount that diminishes yearly over the first 17 years of the agreement
[2] Appendix G p. G-4.
[3] Draft EIR/EIS p. 13.14-10.

Conservation Costs

On farm conservation costs are listed as $83,720 per for an 80 acre tailwater recovery system (TRS) composed of:

$25,000 for a diesel pump having a useful life of 10 years.

$$27,270 for piping that has to be replaced after 30 years.

$31,000 for pond excavation and components lasting 75 years.

If this $83,720 takes replacement costs into consideration, the actual cost over the 75 years is $286,675 per 80 acres, or $3,583 per acre, or about $45 per acre per year. Additionally, each TRS requires an annual expenditure of $1,980 for energy, and $1,885 for maintenance. This adds an additional annual cost for each 80 acre TRS of $3,865 or $48 per acre, bringing the total annual cost per acre to $93. Each 80 acre conservation TRS saves 53 acre feet, or 0.66 acre feet per acre. The average on farm annual cost reduction for this level of water savings is about $10 per acre. Obviously no farmer would spend $93 per acre per year to save $10 so an incentive payment of some sort would be required to bring about this type of conservation. At the least revenue for 130 KAFY transfer, ($10 million per year) divided over the approximate 200,000 acres required to conserve 130 KAFY would yield $50 per acre. Under this scenario then, would a farmer spend $96 in order to save $10 in water costs if given $50 for the trouble? Not likely, and we have not even considered interest charges in the conservation capital costs of $3,583. Obviously then at the lower water prices quoted for transfers to CVWA and/or MWD there is insufficient money for conservation to be economically viable. However, conservation is not required under the QSA, so distributing $50 per acre for using less water may provide a workable incentive, for example for fallowing.

The purpose of the above analysis is to show that in the absence of higher prices as in the IID/SDCWA agreement, proposals for transfers of water through conservation measures applied to Imperial Valley agriculture are not economically feasible. Some transfer at the higher SDCWA price schedule is required, or alternatively transfers involving fallowing rather than conservation would be required. The minimum transfer quantity specified in the IID/SDCWA agreement is 130 KAFY.

The higher prices in the SDCWA agreement would result in $41 million per year (in constant 2001 dollars) for 130 KAFY obtained by conservation on 200,000 acres or $205 per acre per year. This would provide a greater incentive for farmers to spend $93 per acre to save $10 in water costs. Again, not including interest costs, payoff for all 75 years of conservation costs could be made in just 16 years.[4] But if this is a good deal, why limit it to 130 KAFY when at 300 KAFY, every farmer in the valley could participate. Moreover, if this is a good deal why bother with the conservation costs at all. 300 KAFY

[4] There is a disparity between these conservation costs and those used by CH2M Hill. They estimate conservation costs in this alternative at an annual average of $22.5 million, and payments to farmers at $22.9 million, which leaves the program about $5 million short of paying for itself.

- Scenario A could be as high as $110 million per year using highest prices, but averaged over the life of the project, (75 years and using the gradual ramp-up schedule) is about $87.2 million dollars per year in constant 2001 dollars.
- Scenario B assumes 100 KAFY at about $130 per acre foot in 2002 dollars declining over 75 years to $79 per acre foot in real 2001 dollars. This amounts to an average of $9.9 million per year in 2001 dollars. The additional 200 KAFY transferred at SDCWA prices would result in an additional average annual revenue of $61.4 million or total revenue of $71.3 million per year in constant 2001 dollars.
- Scenario C assumes 300 KAFY at SDCWA prices or an average of $87.2 million per year in constant 2001 dollars.
- Scenario D assumes 50 KAFY at the lowest price (75 year average of $2 million per year), and 50 KAFY at the MWD price (an average of about $5 million per year) and 200 KAFY at SDCWA prices, which as in Scenario B is an average revenue of $61.4 million. Over the 75 years the average total revenue per year in constant 2001 dollars would therefore be about $68.2 million.

These projects are summarized in Table 1, along with 3 other alternatives that were presented in the report involving lower amount of transfers (130 KAFY & 230 KAFY):

(a) Conservation Projects A and B

Scenario A and B, proposes on farm conservation capital costs of $83,270 ($286,675 including replacement capital costs) per 80 acre tailwater recovery system (TRS). There would also be labor and maintenance charges of $1,885 per year per TRS and $1,980 per year in energy costs to operate the systems. It would require 376 TRS systems to obtain 20 KAFY in the first year of the program. To get to 230 KAFY it would take 4,324 such TRSs on 346,000 acres. The remaining 70 KAFY are proposed to come from delivery system improvements. Specifically:

- 10 subsurface systems at an average capital cost of $271,000 ($2.7 million) each would conserve 511 acre feet per year, (5.1 KAFY total for the 10). These systems would each have an annual energy cost of $1,691 and annual labor and other costs of $3,000 per system ($121,966 total annual costs). This makes the average annual cost of about $20 per acre foot.
- 16 surface systems at an average cost of $180,000 ($2.9 million total) that would conserve 622 acre feet per year each (a total of 10 KAFY). In addition to these capital costs, these systems would each have an annual energy cost of $1,715 and annual labor and other costs of $3,000 per system ($121,966 total annual costs). This tally's to about $15 per year per acre foot.
- Additional conservation of up to 85 KAFY are assumed from 14 sites for lateral interceptor systems at an initial capital cost of $495 per acre foot conserved plus energy and maintenance

costs of $5 and $6 per acre foot respectively. Assuming a useful life of 25 years, this would add to an acre foot cost of about $30 in constant 2001 dollars.

To initiate a 300 KAFY conservation program would require about $1,310 in initial capital cost plus $58 in annual energy and operations and maintenance costs per acre foot. Replacement capital costs could add as much as $3,200 to the capital costs per acre foot, or a total capital cost outlay over the 75 years of $4,500 per acre foot. Averaged over a 75 year period this amounts to $60 per acre foot in capital outlays, and $58 per acre foot in annually recurring operations and maintenance costs. Not including interest costs, this is a cost of $118 per acre foot of water conserved for transfer. The figure the report arrives at including interest is about $127.

(b) Conservation Expenditure Impacts

Tables 2 through 5 show the results of CIC's replication of CH2M Hill's analysis of the economic impacts of the extensive conservation projects required to conserve 300 KAFY, based on the Project A scenario. The results are based on total conservation expenditures averaged over 75 years in constant 2001 dollars.

Table 2 - 75 Year Annual Average Output Impacts – (Millions of 2001 Dollars)

Project A Conservation Impacts	Direct Output	Indirect Output	Induced Output	Total Output
New Utility Structures	$15.0	$3.7	$3.5	$22.2
Maintenance and Repair Other Facilities	$7.1	$1.0	$2.3	$10.5
Electric Services	$1.0	$0.1	$0.1	$1.1
Wholesale Trade	$7.5	$1.3	$1.7	$10.4
Banking	$6.2	$0.7	$0.9	$7.8
Total	$36.8	$6.7	$8.6	$52.1

Table 3 - 75 Year Annual Average Employment Impacts

Project A Employment	Direct Employment	Indirect Employment	Induced Employment	Total Employment
New Utility Structures	161	50	51	262
Maintenance and Repair Other Facilities	126	14	34	174
Electric Services	2	1	2	4
Wholesale Trade	83	16	25	123
Banking	55	9	13	77
Total	427	89	125	641

Table 4 - 75 Year Annual Average Labor Compension Impacts– (Millions of 2001 Dollars)

Project A Labor Income	Direct Income	Indirect Income	Induced Income	Total Income
New Utility Structures	$3.6	$1.1	$1.0	$5.7
Maintenance and Repair Other Facilities	$2.7	$0.3	$0.6	$3.7
Electric Services	$0.1	$0.0	$0.0	$0.2
Wholesale Trade	$2.7	$0.4	$0.5	$3.5
Banking	$1.4	$0.2	$0.3	$1.9
Total	$10.6	$2.0	$2.4	$15.0

Table 5 - 75 Year Annual Average Proprietors Income Impacts– (Millions of 2001 Dollars)

Project A Proprietors Income	Direct Income	Indirect Income	Induced Income	Total Income
New Utility Structures	$1.9	$0.3	$0.3	$2.5
Maintenance and Repair Other Facilities	$1.4	$0.1	$0.2	$1.7
Electric Services	$0.1	$0.0	$0.0	$0.1
Wholesale Trade	$0.2	$0.1	$0.1	$0.4
Banking	$0.1	$0.1	$0.1	$0.3
Total	$3.7	$0.6	$0.6	$5.0

(c) Fallowing Projects C and D.

The cost of water conserved for transfer by fallowing agricultural acreage is estimated by using 5.63 average water used in irrigation per acre under cultivation. Obtaining 300 KAFY, requires fallowing 53,286 acres. Converting this reduced cropping to dollars requires knowing what crops are lost and their market value. The EIR/EIS used the following data;

1. Cotton	2%	962 acres at	$1,003 per acre	= $0.97 million.
2. Food grains	13%	7,271 acres at	$425 per acre	= $3.09 million.
3. Hay and pasture	51%	26,989 acres at	$444 per acre	= $11.98 million.
4. Grass seed	5%	2,576 acres at	$638 per acre	= $1.64 million.
5. Vegetables	22%	11,614 acres at	$3,400 per acre	= $39.49 million.
6. Sugar crops	7%	3,873 acres at	1,227 per acre	= $4.75 million.
Total	100%	53,285 acres at	$1,166 per acre	= $62.13 million.

The total opportunity costs of transferring 300 KAFY in terms of crops lost, according to this assessment is $207 in lost crops per acre foot of water transferred. However, gross value of crops not produced would be an exaggerated assessment of opportunity costs. Economic Impact Analysis is a preferred method for assessing economic impacts for decreases or increases in an economy for changes that effect a few sectors directly.[5]

The EIR/EIS socioeconomic study employed the IMPLAN Pro input-output modeling software with 1998 Imperial County data to make these assessments. CIC Research tried to replicate this approach generating the following tables 6 through 11. In general, the results are the same as in the Draft EIR/EIS.

Table 6 - Estimated Crop Losses for 300 KAFY Fallowing

Crops Impacted	Percentage of Total Acres	Crop Acres Lost	Value per Acre	Total Value In Millions
1. Cotton	-2%	-962	$1,003	-$0.97
2. Food grains	-14%	-7,271	$425	-$3.09
3. Hay and pasture	-51%	-26,989	$444	-$11.98
4. Grass seed	-5%	-2,576	$638	-$1.64
5. Vegetables	-22%	-11,614	$3,400	-$39.49
6. Sugar crops	-7%	-3,873	$1,227	-$4.75
Total	100%	-53,285	$1,166	-$62.13

[5] The impact on the entire economy is measured by estimating indirect impacts, and induced impacts. Indirect impacts are changes associated those sectors that produce inputs for sectors that are directly impacted. Induced impact are changes associated with the change in expenditures by households because of the change in income payments by sectors that are directly or directly impacted.

Table 7 - Estimated County-wide Output Losses for 300 KAFY Fallowing

Output Impacts	Direct Output Changes	Indirect Output Changes	Induced Output Impacts	Total Output Impacts
1. Cotton	-$0.97	-$0.42	-$0.16	-$1.54
2. Food grains	-$3.09	-$1.15	-$0.36	-$4.60
3. Hay and pasture	-$11.98	-$3.89	-$1.87	-$17.74
4. Grass seed	-$1.64	-$0.44	-$0.22	-$2.30
5. Vegetables	-$39.49	-$18.24	-$7.94	-$65.66
6. Sugar crops	-$4.75	-$1.68	-$0.64	-$7.07
Total	-$61.92	-$25.81	-$11.19	-$98.92

Table 8 - Estimated Employment Losses for 300 KAFY Fallowing

Employment Impacts	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
1. Cotton	-3	-11	-2	-16
2. Food grains	-35	-16	-5	-56
3. Hay and pasture	-267	-81	-27	-375
4. Grass seed	-68	-5	-3	-76
5. Vegetables	-162	-540	-116	-818
6. Sugar crops	-35	-33	-9	-77
Total	-569	-686	-163	-1,418

Table 9 - Estimated Labor Income Losses for 300 KAFY Fallowing

Labor Income	Direct Labor Income	Indirect Labor Income	Induced Labor Income	Total Labor Income
1. Cotton	-$0.08	-$0.06	-$0.03	-$0.16
2. Food grains	-$0.07	-$0.26	-$0.10	-$0.43
3. Hay and pasture	-$0.26	-$0.96	-$0.51	-$1.73
4. Grass seed	-$0.03	-$0.10	-$0.06	-$0.19
5. Vegetables	-$4.93	-$5.08	-$2.18	-$12.19
6. Sugar crops	-$0.10	-$0.39	-$0.18	-$0.66
Total	-$5.46	-$6.85	-$3.07	-$15.37

Table 10 - Estimated Proprietor Earnings Reductions for 300 KAFY Fallowing

Proprietor Income $Millions	Direct Proprietor Income	Indirect Proprietor Income	Induced Proprietor Income	Total Proprietor Income
1. Cotton	-$0.09	-$0.04	-$0.01	-$0.14
2. Food grains	-$0.30	-$0.09	-$0.03	-$0.41
3. Hay and pasture	-$2.15	-$0.34	-$0.13	-$2.63
4. Grass seed	-$0.27	-$0.03	-$0.02	-$0.31
5. Vegetables	-$3.89	-$1.86	-$0.57	-$6.32
6. Sugar crops	-$0.64	-$0.15	-$0.05	-$0.84
Total	-$7.34	-$2.50	-$0.80	-$10.65

IMPLAN pro could also be used to explore impacts on indirect business taxes, as part of a fiscal impact analysis. CIC took the liberty of adding a table that would show this. It pales beside the Draft EIR/EIS estimate of 40.3 percent of net revenue payable to state and federal taxes.

Table 11 - Estimated Decreases in Indirect Business Tax Collections for 300 KAFY Fallowing

Indirect Business Taxes $Millions	Direct Taxes	Indirect Taxes	Induced Taxes	Total Indirect Business Taxes
1. Cotton	-$0.02	-$0.03	-$0.01	-$0.06
2. Food grains	-$0.08	-$0.09	-$0.03	-$0.19
3. Hay and pasture	-$0.48	-$0.25	-$0.14	-$0.87
4. Grass seed	-$0.01	-$0.03	-$0.02	-$0.05
5. Vegetables	-$0.57	-$0.87	-$0.61	-$2.04
6. Sugar crops	-$0.14	-$0.10	-$0.05	-$0.29
Total	-$1.29	-$1.37	-$0.85	-$3.51

(d) Alternative Fallowing Scenario

There are many other ways to free up 300 KAFY through changing agricultural practices. For example, by fallowing 37,500 Acres of Hay and Pasture production 300 KAFY could be saved. This would reduce adverse impacts to $16.65 million direct farm output, $25 million county-wide output, 521 total jobs, that produce $2.41 million in employee compensation, and $3.65 million proprietors income. (See Tables 10 through 17).

Table 12 - Economic Impacts of Fallowing 37,500 acres of Hay and Pasture Production

Crops Impacted	Percentage of Total Acres	Crop Acres Lost	Value per Acre	Total Direct Value In Millions
1. Cotton	-2%	0	$1,003	$0.00
2. Food grains	-14%	0	$425	$0.00
3. Hay and pasture	-51%	37,500	$444	$16.65
4. Grass seed	-5%	0	$638	$0.00
5. Vegetables	-22%	0	$3,400	$0.00
6. Sugar crops	-7%	0	$1,227	$0.00
Total	100%	37,500	$1,166	$16.65

Table 13 - County Wide Impacts of Fallowing 37,500 acres of Hay and Pasture Production

(Millions of 2001 Dollars)

Output Impacts	Direct Output Changes	Indirect Output Changes	Induced Output Impacts	Total Output Impacts
1. Cotton	$0.00	$0.00	$0.00	$0.00
2. Food grains	$0.00	$0.00	$0.00	$0.00
3. Hay and pasture	$16.65	$5.41	$2.60	$24.65
4. Grass seed	$0.00	$0.00	$0.00	$0.00
5. Vegetables	$0.00	$0.00	$0.00	$0.00
6. Sugar crops	$0.00	$0.00	$0.00	$0.00
Total	$16.65	$5.41	$2.60	$24.65

Table 14 - Employment Impacts of Fallowing 37,500 acres of Hay and Pasture Production (Millions of 2001 Dollars)

Employment Impacts	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
1. Cotton	0	0	0	0
2. Food grains	0	0	0	0
3. Hay and pasture	370	113	38	521
4. Grass seed	0	0	0	0
5. Vegetables	0	0	0	0
6. Sugar crops	0	0	0	0
Total	370	113	38	521

Table 15 - Labor Income Impacts of Fallowing 37,500 acres of Hay and Pasture Production (Millions of 2001 Dollars)

Labor Income	Direct Labor Income	Indirect Labor Income	Induced Labor Income	Total Labor Income
1. Cotton	$0.00	$0.00	$0.00	$0.00
2. Food grains	$0.00	$0.00	$0.00	$0.00
3. Hay and pasture	$0.36	$1.33	$0.71	$2.41
4. Grass seed	$0.00	$0.00	$0.00	$0.00
5. Vegetables	$0.00	$0.00	$0.00	$0.00
6. Sugar crops	$0.00	$0.00	$0.00	$0.00
Total	$0.36	$1.33	$0.71	$2.41

Table 16 - Proprietor Income Impacts of Fallowing 37,500 acres of Hay and Pasture Production (Millions of 2001 Dollars)

Proprietor Income $Millions	Direct Proprietor Income	Indirect Proprietor Income	Induced Proprietor Income	Total Proprietor Income
1. Cotton	$0.00	$0.00	$0.00	$0.00
2. Food grains	$0.00	$0.00	$0.00	$0.00
3. Hay and pasture	$2.99	$0.48	$0.19	$3.65
4. Grass seed	$0.00	$0.00	$0.00	$0.00
5. Vegetables	$0.00	$0.00	$0.00	$0.00
6. Sugar crops	$0.00	$0.00	$0.00	$0.00
Total	$2.99	$0.48	$0.19	$3.65

Table 17 - Impacts of Fallowing 37,500 acres of Hay and Pasture Production on Indirect Business Taxes (Millions of 2001 Dollars)

Indirect Business Taxes $Millions	Direct Taxes	Indirect Taxes	Induced Taxes	Total Indirect Business Taxes
1. Cotton	$0.00	$0.00	$0.00	$0.00
2. Food grains	$0.00	$0.00	$0.00	$0.00
3. Hay and pasture	$0.67	$0.35	$0.20	$1.22
4. Grass seed	$0.00	$0.00	$0.00	$0.00
5. Vegetables	$0.00	$0.00	$0.00	$0.00
6. Sugar crops	$0.00	$0.00	$0.00	$0.00
Total	$0.67	$0.35	$0.20	$1.22

Farmer Compensation Impacts

The 4 projects (A,B,C,D) have widely varying payments in the form of land owner compensation.[6]

1. Project A - Total Compensation -$600 Million, or $8 Million per year.
2. Project B – Total Compensation $300 Million, or $4 Million per year.
3. Project C – Total Compensation $1.6 Billion or $20.7 Million per year.
4. Project D – Total Compensation $1.2 Billion or $15.8 Million per year.

The EIR/EIS assumes 50 percent of these payments would impact the Imperial County economy through personal consumption expenditures. The rest (50%) was assumed to be used outside to county, because 37 percent of these payments would go to non-resident land owners, and because it is assumed that the location of Imperial County makes the probable leakage greater than it would be in other counties in the United States. (Because IMPLAN Pro does not differentiate for border/non-border locations.) Direct expenditures into the local economy of:

1. Project A - $4 Million per year.
2. Project B – $2 Million per year.
3. Project C – $10.4 Million per year.
4. Project D – $7.9 Million per year.

[6] The difference between project A and project B is lower prices for water, thus lower revenues. Conservation costs are the same (with only some differences in timeing), so the lower compensation to landowners is reflective of lower overall revenue. The same is true for the fallowing scenarios Project C compared to Project D.

REVIEW OF PROFESSIONAL STANDARDS

In general, the professional economic standards used the analysis is common, However, the use of input-output analysis to examine long term economic events is a bit unusual. Since the analysis is in constant 2001 prices, the only other variables that would not be expected to remain constant would be technological in nature, effecting cost functions and labor and capital productivity. One minor shortcoming in this regard is the use of 1998 technology and labor productivity with 2001 price data. This would tend to overestimate the labor requirement per dollar of output because of price increases from 1998 to 2001. This probably results in estimates of employment impacts larger than they should be by 8 or 9 percent in both directions. (*i.e.* Negative changes more negative and positive changes more positive)

REVIEW OF DATA USE

The economic impact analysis made some adjustments in the IMPLAN agricultural sectors, which are not regarded as the best data on agriculture. However, these changes were not well documented and CIC's replication analysis based on unadjusted IMPLAN data yielded very similar results. CIC found that the lower value crops tended to be overvalued in CH2M Hill's analysis, while higher value crops were under valued. The valuation differences were largest for sugar beets, (46.5%) but all differences were greater than 10 percent.

Table 18 – Average Crop Value Per Acre - 1999 Data

	CH2M Hill (1)	1999 Data (2)	Percent Difference
Cotton	$1,003	$1,109	10.6%
Food Grains	$425	$361	-15.1%
Hay and Pasture	$444	$390	-12.2%
Grass Seed	$638	$553	-13.3%
Vegetables	$3,400	$3,753	10.4%
Sugar	$1,227	$1,797	46.5%

(1) CH2M Hill EIR/EIS Appendix G. p. G-13
(2) Imperial County 1999 Agricultural Crop and Livestock Report.

These differences tend to support the argument that a more selective fallowing, (lower value crops first) would significantly reduce the adverse economic impacts. See MITIGATION discussion below.

SHORT AND LONG TERM ECONOMIC IMPACTS

The use of six 5-year blocks up to 30 years followed by a 45-year block is an unusual way to present results. We would have preferred to see the effective cash flow during the ramp-up years. However, most of the issues can be understood by summing the 75 years of transfer costs and revenues

then dividing by 75 to see what the typical (average) year looks like. This approach was used by CIC to produce replications of the economic impact analysis, and for producing a summary view of the different projects (Table 1).

MITIGATION

There are conflicting statements about the impact of fallowing on the Salton Sea. In Appendix D a statement is made that the all fallowing 300 KAFY project would result in lower adverse impacts on the Salton Sea because most drain water would continue to flow into the Sea. Table 3.14-1 states that the effects on the Salton Sea would be the same as under the conservation alternatives i.e. 11 years shaved off the life of the Sea. The Salton Sea's future depends on how the Salton Sea Restoration Program unfolds. A firm decision on restoration is still in the future. Demise of the sport-fishery seems eminent with the associated adverse impacts attributable to a decline in visitors and visitor spending. Inability of the tilapia to reproduce would be the next crises in the death of the Sea, although, tilapia can survive in water that is almost twice as saline as water in which they can reproduce. As long as there are tilapia in the Sea, the Sea would continue to function. For this reason, a mitigation that is popular at the moment is one that would grow the tilapia in hatcheries for plantings into the Sea. The land required for the hatcheries is estimated at 5,000 acres. Cost for hatcheries is estimated at between $350 and $800 million.[7] The EIR/EIS estimates fallowing 5,000 acres would impact employment by –150 jobs, but no estimate is offered for the beneficial effects of building and operating hatcheries. A second approach to mitigation of adverse impacts is also presented in the report. This approach would fallow 25,000 acres and drain the associated water (140 KAFY) directly into the Sea as a replacement for the 300 KAFY transferred. The adverse impacts are estimated at -750 jobs. Since the opportunity cost of 140 KAFY is over $40 million (in IID/SDCWA agreement prices) this would seem to be expensive enough to discourage any transfer program with the possible exception of the most selective fallowing program on over 60,000 acres. This would increase the adverse employment impacts to about –2,000 jobs, since there would be no offsetting expenditures.

Adverse employment impacts resulting from fallowing could be minimized by using employment impacts as a criteria for selecting which acreage and which crops would be fallowed. We suggested one possible scenario which was to fallow Hay and Pasture acreage that uses as much as 8 acre feet of water per acre. This would require fallowing 37,500 acres with a reduction in county-wide sales of $25 million and employment of 521. This compared to the nearly $100 million reduction in sales and 1,400 jobs contained in the socioeconomic analysis in Section 3.14 and Appendix G of the Draft EIR/EIS.

Other more creative fallowing approaches might result in even better results. For example, inefficient water users could be identified, and marginally productive lands.

[7] EIR/EIS p. 3.14-22.

Finally, the IID would have sufficient cash flow to purchase the land to be fallowed. Even at the discounted start up prices in the SDCWA agreement, the cash flow would cover the cost of buying 50,000 acres in only 2 years (although the ramp-up schedule in the IID CDCWA agreement might make this a more gradual acquisition). This would leave 73 years of a substantial revenue stream which could be used, for example, to lower or even zero water prices to IID water buyers, support economic development investments, support conservation, and environmental enhancements. There would also be sufficient funds available to undertake significant job retraining – skills development for Imperial County residents.

APPENDIX A

ENVIRONMENTAL JUSTICE

REVIEW OF THE DRAFT EIR/EIS FOR THE PROPOSED IID WATER CONSERVATION AND TRANSFER PROJECT: ENVIRONMENTAL JUSTICE IMPACT ANALYSIS

ENVIRONMENTAL JUSTICE IMPACTS OF FEDERAL PROJECTS

Executive Order 12898, was signed by President Clinton on February 11, 1994. EO 12898 directs "***Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low- income populations to the greatest extent practicable and permitted by law.***" However, the further objective of the EO is to enhance the provision of nondiscrimination in Federal programs affecting human health and the environment by promoting meaningful opportunities to access of public information and participation in matters relating to minority and low- income populations.

Therefore, the intent of EO 12898 is to identify the potential for disproportionate impacts to minority and/or low income populations as a result of a Federal project like the IID water transfer, and then to provide informational outreach to these populations to make them aware of the potential impacts and to involve them in the decision process and evaluation of potential alternatives. The reasoning behind this informational outreach is to involve populations that have historically been disenfranchised from the standard public informational process. The Federal policy recognizes that low-income and minority populations have a right to information regarding these Federal projects, but do not have the same access or may have language, transportation, education or other obstacles that make it difficult for them to participate in the public information and planning process.

The Environmental Justice (EJ) analysis should not be limited in focus to low-income/minority "communities" only, although this is a common misconception. Indeed the EJ analysis is not limited to a specific minimum threshold level of population impacts and may be found when a very small low-income/minority population is impacted whether or not that population would be readily defined as a community. Part of this misconception has been generated by analysis of Federal project impact areas that are usually defined as adjacent to or the general area surrounding a proposed Federal project. However, the proposed IID water transfer is not a specific localized project, but rather a regional project with potential impacts to the greater Imperial Valley economy.

CIC RESEARCH COMMENTS ON THE DRAFT EIR/EIS ENVIRONMENTAL JUSTICE IMPACT ANALYSIS

3.15 Environmental Justice

1) The Draft EIR/EIS Environmental Justice analysis employed a census tract impact methodology, based on physical proximity to the proposed project. Based on this definition (i.e., census tracts) the study identified low-income and minority communities as areas which were represented by above and below average percentage comparisons to the countywide average ethnicity and income, respectively.

2) In general the Environmental Justice impact analysis concluded that no EJ impact would occur disproportionately to any one specific low-income/minority community because the project impacts are countywide and not community specific (i.e., census tract specific). Further the study concludes that the impacts would likely occur throughout the region, therefore, low-income/minority communities would not be disproportionately impacted.

3) Further the study concluded that even though the worst case loss of farm employment is 1,400 jobs this would only represent 2.8% of the countywide employment (48,900). Therefore, it would not be a significant impact. Even within the farm employment sector the loss of 1,400 jobs would represent only 12% of the county's total farm jobs.

4) The Draft EIR/EIS states, "However, farm laborers could be affected as a group by fallowing activities and on-farm irrigation system conservation measures, which would reduce the demand for farm labor in some areas."

CIC Research Comments To The Consultant's Findings.

The census tract/community impact analysis performed by the Consultant for this project is not an appropriate methodology. The Consultant has misinterpreted the environmental impact criteria of EO 12898 as only pertaining to a "community" and that these communities can be defined by census tracts. The Consultant has also misapplied the impact of a region-wide Federal project as if it were a community-level project. In so doing the Consultant has ignored the region wide socioeconomic impacts and fails to address the potential for disproportionate impacts to the low-income and minority population throughout the Imperial Valley economy.

The proposed IID water transfers are a regional project with region-wide effects on employment loss. The Consultant has correctly identified the 48,900 countywide jobs. However, the appropriate measure of disproportionate impacts would have focused on the resulting 1,400 lost agricultural jobs identified by the Consultant and whether this employment loss would disproportionately affect low-income and/or minority households compared to the countywide population.

The census data clearly indicates that agricultural workers in general represent significantly higher proportions of low-income and/or minority households than the county's average employee/household characteristics. Therefore, a disproportionate Environmental Justice impact is likely. Indeed the Consultant states:

> ***"However, farm laborers could be affected as a group by fallowing activities and on-farm irrigation system conservation measures, which would reduce the demand for farm labor in some areas. This effect would not disproportionately affect a specific community or area but could affect farm laborers, which are predominantly minority and low-income, as a population group."***

The Consultant has clearly recognized that the predominate impacts of the water transfer program would be to minority and low-income farm laborers. However, the Consultant has inappropriately dismissed these impacts because the impacted low-income and/or minority population doesn't live in a specific community within the Imperial Valley. The correct application and study conclusion using EO 12898 is that the water transfer program results in a disproportionate impact to the low-income and minority population of the Imperial Valley.

When Environmental Justice impacts are found, then Federal Government policy guidelines require significant outreach to the low-income and/or minority population. This outreach should begin very early in the study phase in order to inform the potentially affected low-income and minority populations of the proposed project, including proposed project alternatives. The informational outreach to this population should be conducted in a way that is conducive to their inclusion in the decision and planning process, including in a language, time, and place that is convenient to them.

Overall Environmental Justice Review Findings.

In general the Environmental Justice analysis performed by the Consultant is superficial and inappropriately applied. Specifically, the community-level impact analysis was inappropriate for this project. The Consultant on the Draft EIR/EIS for the Proposed IID Water Conservation And Transfer Project should redo the Environmental Justice analysis based on the potential region wide disproportional impacts to minority and low-income households resulting from the water transfer program. Furthermore, the Consultant should then provide recommendations for informational outreach to the impacted population and possible mitigation measures.