Baseline Conditions Report

and

Irrigation District Indicators

for the

Hidalgo County Irrigation District No. 6

Submitted to BECC/NADB

August 2003

Hidalgo County Irrigation District No. 6

101 East 14th Street

Mission, Texas 78752

Table of Contents

1 INTRODUCTION

The information contained in Section 2 of this report was prepared pursuant to a request from Border Environmental Cooperative Commission (BECC). Some of the information reported was readily available and assumed accurate. However, some of the requested information was not readily available and is therefore approximate and estimated. This information should be considered preliminary and used for planning purposes only.

2 STATE AND PRESSURE INDICATORS FOR IRRIGATION DISTRICTS

2.1 Water Source

The Hidalgo County Irrigation District No. 6 (HCID6 or District) diverts 100% of the water used in the system from the Rio Grande. All of the water diverted by the District from the Rio Grande originates as surface water that is released by the International Boundary and Water Commission (IBWC) from Falcon Reservoir.

2.2 Volume of Water Diverted from the Rio Grande

The average quantity of water diverted from the Rio Grande is approximately 14,226 acre-feet per year for irrigation and 4,510 acre-feet per year for municipal and industrial use.

2.3 Texas Commission on Environmental Quality Water Rights

The District holds TCEQ Adjudication No. 23-828F, which authorizes the District to divert from the Rio Grande a maximum quantity, if allocated, of 34,913 acre-feet of "Class A" irrigation water and up to 5,816 acre-feet of water for municipal, industrial and domestic use.

2.4 Global District Efficiency (Water Delivery Efficiency)

The District water delivery efficiency for water diverted for irrigation purposes is approximately 75%.

2.5 Loss of Water Stored in District Reservoirs

The District has approximately 45 miles of lined canals, a 0.5-mile section of unlined canal, 72 miles of enclosed pipeline and one 200 acre-foot storage capacity reservoir. The net evaporation rate in the Rio Grande Valley is approximately 5 feet per year.

2.6 Loss of Water in the District's Conveyance System

Seepage losses due to evaporation and infiltration vary greatly by location. A study conducted by Texas A & M estimated that the concrete canals in the Rio Grande Valley were losing 215 acre-feet per mile per year. The District is currently conducting studies to verify these figures.

2.7 Water Productivity ($/acre/foot)

A 2002 Texas A & M study, Alternative Approaches to Estimate The Impact of Irrigation Water Shortages in Rio Grande Valley Agriculture, Texas Water Resources Institute Technical Report SR-2002-015, has estimated the business activity value of irrigation water to be $652 per acre-foot of water delivered to the farm gate.

2.8 Soil Productivity ($/acre)

Soils throughout the Rio Grande Valley and the District are considered very productive. Farmland values for land with limited or no non-agricultural development potential are approximately $1,200 per acre. Typical gross incomes vary depending on the crop and average $1,000 per acre for sugarcane and $150 per acre for grain sorghum.

2.9 Crop Production (Yield per Acre)

Typical yields for the primary crops grown in the District are as noted in the table below.

CROP PRODUCTION	
Crop Name	*Crop Yield*
Citrus	15 to 25 tons per acre
Cotton	1.25 to 2.5 bales per acre
Grain	4,000 to 4,500 lbs. per acre
Melons	15 tons per acre
Vegetables	75 to 100 bushels per acre

2.10 Existing Crops Grown in District

The crop mix varies due to market and water availability. The following chart is the current typical crop mix for the District:

EXISTING CROPS	
Crop Name	*Acres of Irrigated Crop*
Citrus	600
Cotton	1,600
Grain	1,650
Melons	500
Vegetables	450

2.11 Consumptive Water Use

Consumptive use is estimated from Potential ET during growing season multiplied by crop coefficient adjusted for crop growth periods for Brownsville, Texas. These are rough estimates and should not be used for determining irrigation water requirements. The 30-year average rainfall in Brownsville, Texas is approximately 26 inches.

CONSUMPTIVE WATER USE - PER CROP TYPE	
Crop Name	*Consumptive Use in Ac-Ft per Year*
Citrus	3.60
Cotton	2.60
Grain	1.50
Melons	2.40
Vegetables	2.40

2.12 Depth of Water Applied per Acre per Crop Type

DEPTH OF WATER APPLIED PER CROP TYPE PER ACRE	
Crop Name	*Water Applied (Ac-Ft per Year Per Year)*
Citrus	2.50
Cotton	1.33
Grain	0.67
Melons	2.40
Vegetables	2.33

2.13 Irrigation Efficiency Applies on Parcels

On-farm field distribution and application efficiencies vary depending on the crop type, land slope, soil type, irrigation method, irrigation practice, flow rate of irrigation water delivered by the District and other variables. The District average ratio of quantity of crop consumptive use to the quantity of irrigation water diverted to the farm likely ranges from 50% to 80%. This ratio has not been officially measured.

2.14 Irrigation Water Supplied per Acre by the District

IRRIGATION WATER SUPPLIED PER ACRE BY DISTRICT	
Crop Name	*Water Applied (Ac-Ft per Year Per Year)*
Citrus	2.50
Cotton	1.33
Grain	0.67
Melons	2.40
Vegetables	2.33

2.15 Slope of Irrigated Lands in the District

Typical slopes in the region vary from 0.05 to 0.10 of a foot per hundred feet. The District estimates that approximately 80% of the farmland in the District boundaries has been laser leveled.

2.16 Number of Water Users Within the District

The District has 2,219 irrigation accounts, 1 municipal account (La Joya Water Supply Corporation) and 3 industrial accounts (American Electric Power, US Department of Agriculture at Moore Field and Frontera Generation).

2.17 Existing Water Flow Measurement Devices

The District currently measures all water that is diverted from the Rio Grande at the diversion point. There are currently metering devices on 10 separate District accounts. There are no other current measurement devices in the irrigation system except for temporary demonstration sites to determine effectiveness of flow measurement systems for future use.

2.18 Water Control Mechanisms

The District pumps water from the Rio Grande through the District's main pumping station and disperses these waters into a canal system which includes 3 re-lift stations and 5 check structures.

2.19 Historic Water Reservoir Levels

The District water reservoir level is not a significant aspect of the program. The District uses the reservoir for buffers against changes in daily use and the time lag (2 days) between the Falcon Reservoir and the District Diversion point.

2.20 Irrigation Systems Currently In Use

The majority of the District is irrigated by flood irrigation or center pivot sprinkler irrigation systems. A small amount of acreage is irrigated by drip irrigation.

2.21 District Flat Rate Assessments and Delivery Charges

The District charges an annual flat rate assessment on every acre that is irrigable whether it is irrigated or not. The flat rate assessment is for the maintenance and operation of the District. The flat rate assessment is currently set at $19.00 per acre or part thereof. The District also charges $26.00 per acre-foot, which is paid by the water user prior to the date of water delivery.

2.22 Pump Operating Efficiency

The District's large capacity pumps (60 cfs or greater) used to divert water from the Rio Grande are estimated to have a pumping efficiency of 80%. The District's secondary lift pumps, typically 5 to 40 cfs, range in efficiency from 60% to 80%.

2.23 Rio Grande Historic Flow

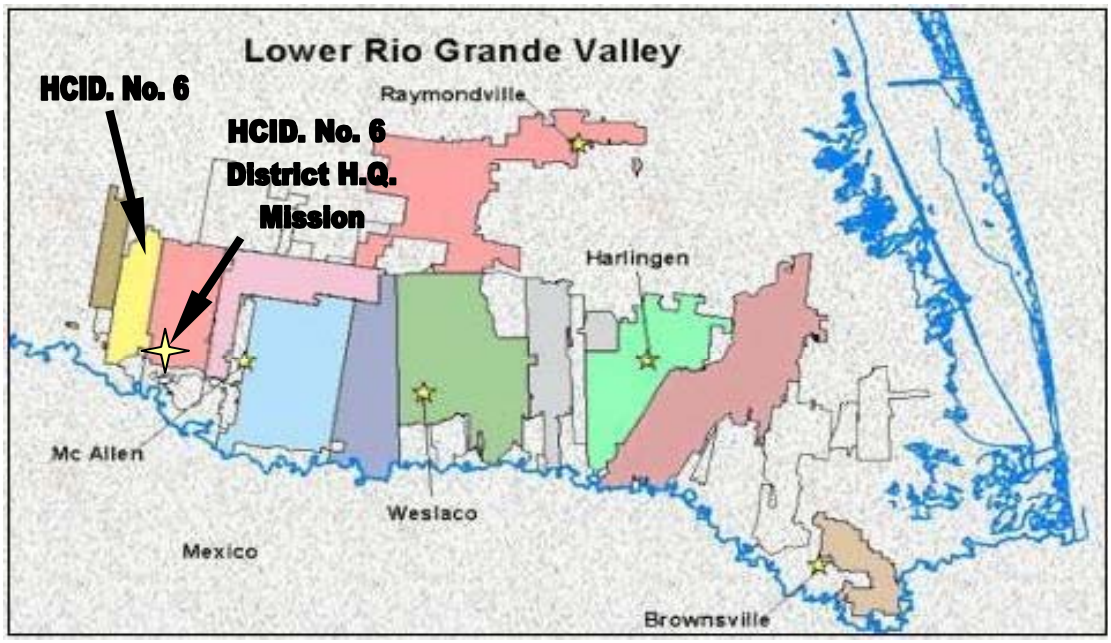
The firm yield of the Rio Grande for downstream users of Falcon Reservoir is approximately 1.3 million acre-feet.

2.24 Surface Water Contamination Problems

The District's primary concern with water quality is the contamination of the water upstream of the District's diversion point on the Rio Grande. There is no runoff or return flow from the District to the Rio Grande. The District does not use groundwater as the groundwater in the area is undependable and typically runs high in salts, which are unacceptable for irrigation purposes.

2.25 Physical Area (District Map)

The gross area of the District encompasses 15,381 acres. It lies in Western Hidalgo County with the Eastern boundary overlapping the City of Mission. The District extends from U.S. Highway 281 on the Southern side and extends northerly approximately 12-1/2 miles.



2.26 Irrigated Area

The District holds Certificate of Adjudication No. 23-828F for diversion from the Rio Grande of 5,816 acre-feet of water for the purpose of domestic, municipal and industrial use and 34,913 acre-feet of water for the purpose of Class A irrigation.

2.27 Geographical Distribution of Crops within the District

The majority of the agricultural land is located in the northern half of the District.

2.28 Economic Status of the Water Users within the District

Over the past several years, numerous variables have combined to negatively affect the agricultural community in the District. Commodity prices, unusual pest plagues, weather and other naturally occurring issues that affect farming activity have taken their usual toll. The most prominent issue in the past few years has been the failure of Mexico to deliver 1944 Treaty water to the United States. This issue has affected producers in the area by the lack of assurance of adequate water supply to produce crops and by affecting the ability to obtain financing for annual farming operations.

2.29 Property (Land) Ownership Within the District

The District maintains a complete list of all property owner's names and property descriptions within the District. This information is available upon request. However, the District does not have a summary of this information readily available.

2.30 Water Quality of the Rio Grande

The District does not analyze the water quality of the Rio Grande.

2.31 Environmental Flow of the Rio Grande

The Lower Rio Grande has no environmental or in-stream flow requirements by law.