EVD
internationaal
ondernemen en samenwerken

Opportunities in the Mexican Market for Water Purification and Potabilization Equipment and Services

Deze marktverkenning is uitgevoerd door Hanhausen & Doménech Consultores, S.C. (HDC), in opdracht van de EVD, en in samenwerking met de Nederlandse ambassade te Mexico City.

EVD
september 2005

Nadere informatie: EVD
Landenmedewerker Mexico
Telefoon: (070) 778 86 96 | e-mail: @info.evd.nl

Ministerie van Economische Zaken

Table of Contents

INTRODUCTION:

Mexico is experiencing significant urban population growth in areas with limited water availability. This growing demand for potable water is being addressed through various infrastructure development or expansion projects with a combined value estimated at € 500 million per year and representing almost 40% of Mexico's total investment in water infrastructure. These projects are supporting demand for potabilization technology and equipment, ranging from technologies for aquifer management, to the elimination of heavy metals to complete desalinization plants. This report describes over twenty concrete projects over the following 6 to 18 months for increasing potabilization capacity at various locations throughout Mexico.

This document also contains information on many areas and aspects comprising Mexico's water sector, including its size, characteristics, institutions, programs, authorities, investment needs, priorities and its challenges for expanding coverage and improving service quality. This information is provided to offer a background context and a reference for understanding the sector, while the focus of this report is to present business opportunities which are featured as brief project descriptions addressing upcoming projects throughout the country. That information is presented to serve as a business development tool for Dutch companies interested in exploring business opportunities in Mexico, as the featured projects have funding available and are the areas where new potabilization infrastructure will be constructed first in Mexico within an 18 month timeframe.

This report also incorporates descriptions of Mexican companies active in project development and which represent either competitors or potential distributors or partners for pursuing specific projects.

In addition to the specific projects described in this report, business opportunities in Mexico's potabilization infrastructure construction and maintenance segment will grow over the following years, as increased funding will be available for these projects from increasing revenue collection resulting managerial improvements in Mexico's local water companies. This is Mexico's biggest challenge in the water sector: Improving the managerial and financial efficiency of the entities providing water service at the local level. This increased efficiency translates into increased revenues, which in turn open the possibility of financing additional infrastructure or attracting private investment into the sector.

There are several on-going programs receiving support from multi-lateral financial institutions to accomplish this goal. The success of these programs will change the sector dramatically opening additional opportunities for increased private participation in both system operations and water infrastructure construction.

The water sector in Mexico will be under special scrutiny over the following months as the country will host the 4th World Water Forum in March 2006, which is expected to attract the participation of representatives from over 150 countries. This event is a world-wide forum for the discussion of water issues and the fact that Mexico is hosting the event, will translate into a more expedite process for the tendering of many of the pending projects which are described in this report.

The main theme of the 2006 conference is "Local Actions for a Global Challenge". Over 600 exhibitors and 12,000 visitors are expected from over 150 countries. The 2006 World Water Forum will be an excellent venue to give international exposure for Dutch water equipment, technologies and services.

EXECUTIVE SUMMARY:

Mexico closed 2004 with a population of 104.4 million and a per capita GDP of € 5,136. The country consumes approximately 2,394 m^3/s of water, of which 76% or 1,834 m^3/s are used in agriculture (irrigation), 14% or 320 m^3/s are used for human consumption and 240 m^3/s or 10% are consumed by industry and thermoelectric plants.

Close to 208 m^3/s or 65% of the water used for human consumption is obtained from underground aquifers which requires little or not require potabilization. The remaining 112 m^3/s comes from superficial sources of which 83.7 m^3/s is treated at water potabilization plants. The remaining 28.3 m^3/s are consumed without treatment or is chlorinated.

At the end of 2004, 89.4% of the Mexican population had access to potable water. Coverage ratios are uneven throughout the country, reaching almost 100% in Mexico City and some northern states, but remain below 70% in the lowest income states such as Chiapas, Oaxaca, and Guerrero. The coverage ratios are used by authorities to show progress in the sector, but this information alone helps disguise significant problems with interrupted water availability, high water losses in municipal systems and questionable water quality in various cities.

Over the past 15 years, the government has increased potable water service to an average 1.8 million people per year but the sector maintains a water availability deficit and is not able to meet demand in many urban areas. This is translating into the definition of a series of ambitious projects that will materialize in the following years and which will open new business opportunities to international technology and equipment suppliers.

The most important investment projects that will create short term business opportunities for international technology and equipment suppliers are presented in this report. These projects range from small water purification plant expansions, to integrated water supply projects to increase potable water coverage in major cities.

Investments in the development of water infrastructure in Mexico during 2005 are estimated at € 1.42 billion and are forecasted to surpass € 1.5 billion during 2006 especially because of the establishment of new investment programs and funding sources. The purchase of technologies will also become more sophisticated as there are notorious changes in the potabilization technology selection. In 1995 the country operated only nine reverse osmosis plants, today this technology accounts for fifty nine. This demonstrates the need for technologies which can adapt to the growing use of lesser quality water sources with increasing contents of pollutants including metals or other minerals.

The challenges for the water sector in Mexico remain very significant as for achieving the government's objectives of increasing water service and sewer coverage to 97% of the population and wastewater treatment to 90% by 2025, it will require annual investments of € 2.39 billion, which can only be achieved through the increased participation of private investment.

In addition to attracting increased investment, the most significant challenge continues to be the need to modernize water operation systems to improve their financial viability and reduce their need for subsidies. A series of programs sponsored by the National Water Commission (CNA) and multilateral financial agencies which are focused on this objective are currently being implemented. The modernization of municipal water service entities will translate into significant demand for water infrastructure development.

Dutch companies will find a wide spectrum of opportunities in Mexico's water sector, ranging from the construction and operation of new water potabilization plants, to specific equipment procurement opportunities for water utility management. As demand for equipment, technologies and services varies widely from one water utility to another, we present in this report a series of projects and government programs that can suite Dutch water equipment supply.

It is important to understand that Mexico has strong local construction and engineering

companies who often win tenders to build new water infrastructure, however the technological level in the country can be considered low when compared to Netherlands. Dutch companies will hardly compete in tenders that require heavy construction and few technologies, such a conventional clarification plant, however when the tenders call for more advanced processes as membrane filtration, reverse osmosis, specialized purification systems for metal removal, or desalinization technologies, international players who have sophisticated technologies take the lead in front of the local offer.

Establishing local presence is highly recommended to succeed. The options for establishing a presence in Mexico can be divided into two methods: direct and indirect. The first is by the establishment of a subsidiary to serve as a sales office in Mexico, the second is through developing a relationship or joint-venture with a leading local company with experience or interest in the specific business segment. There are many variants to developing a presence and the most adequate option will be defined on a case-by-case basis resulting from a careful evaluation of the market potential for a particular technology or service.

Dutch companies can request the assistance of the Netherlands Embassy in Mexico City to coordinate meetings with the CNA; local water utilities, and potential distributors or representatives.

*All amounts presented in Euros were converted using the rate of € 0.075 per $1.00 Mexican peso unless indicated.

**Dollar amounts were converted using the rate of € 0.82 per US$1.00

I. Mexico's Potable Water Market:

1.1. Consumption, Coverage and Jurisdictions:

Mexico closed 2004, with a population of 104.4 million and a per capita income of € 5,136, consuming approximately 2,394 m^3/s of water, of which 14% or 320 m^3/s are used for human consumption, 76% or 1,834 m^3/s are used in agriculture (irrigation) and 240 m^3/s or 10% are consumed by industry and thermoelectric plants.

Of the 320 m^3/s used for human consumption, 208 m^3/s or 65% come from underground aquifers that don't require potabilization, 112 m^3/s come from superficial sources and 83.7 m^3/s are purified in potabilization plants. The remaining 28.3 m^3/s are either consumed directly from the source or disinfected with chlorine.

Sixty four percent of the water comes from superficial sources (rivers, lakes, dams, etc) while 36% comes from underground aquifers. Most of the water from superficial sources is used for agriculture. Mexico has 6.5 million hectares covered with irrigation infrastructure; the 6th largest in the world.

Of the total urban consumption, 80% is for households, 15% for commercial and 5% for industrial processes.

Water supplied to industry directly from a water body (without passing through a municipal water network) accounts for approximately 240 m^3/s. This is most common in seven industries, including sugar, chemicals, petroleum, petrochemical, cellulose and paper, steel, and food and beverages.

By the end of 2004, 89.4% of the Mexican population had access to potable water, with coverage varying from 100% in the largest urban areas and some northern states, to under 70% in the poorest states such as Chiapas, Oaxaca, and Guerrero. The high coverage ratios in urban areas disguise widespread problems in the operation of many systems including common interruptions in water availability, high water losses in the distribution pipelines, and poor water quality issues.

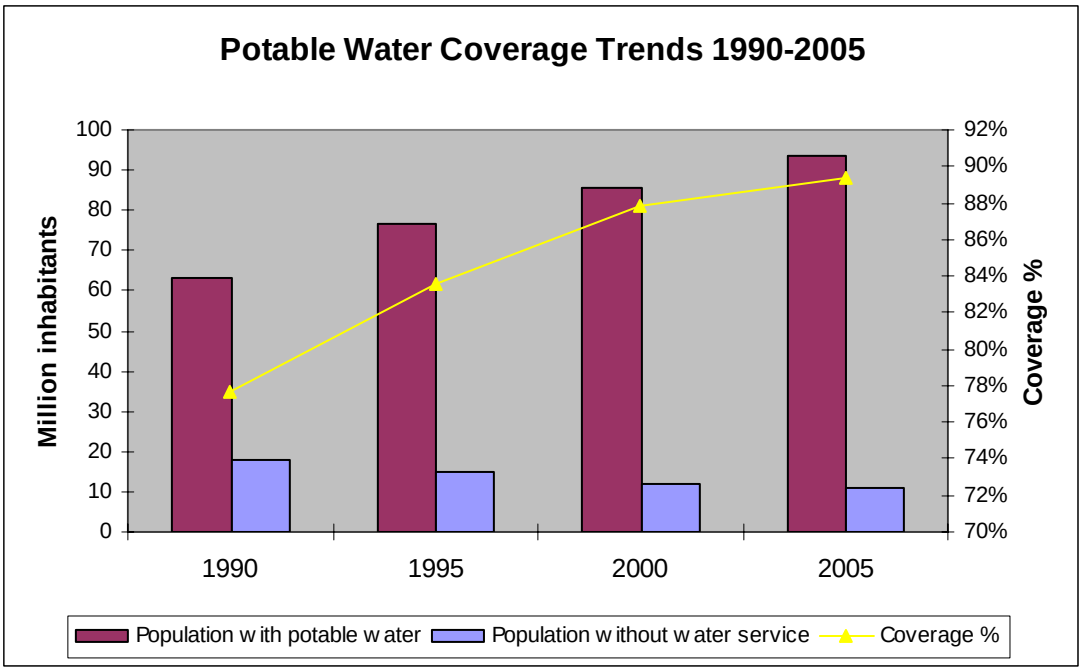
Potable Water Coverage

State	Total Population	Urban Coverage %	Rural Coverage %
Aguascalientes	956,222	99.0	94.8
Baja California	2,392,435	96.3	85.3
Baja California Sur	438,280	97.6	86.4
Campeche	717,723	86.0	58.6
Chiapas	2,483,815	77.8	59.6
Chihuahua	538,944	96.6	89.9
Coahuila	4,202,277	99.7	87.7
Colima	3,197,536	98.3	98.3
Distrito Federal	9,194,085	99.0	98.9
Durango	1,630,042	93.7	78.5
Guanajuato	5,075,943	94.2	76.5
Guerrero	3,281,473	71.5	49.9
Hidalgo	2,400,790	87.2	64.5
Jalisco	7,036,700	93.0	91.2
State of Mexico	13,898,732	91.3	83.0
Michoacán	4,392,393	90.6	76.3
Morelos	1,565,438	90.6	80.0
Nayarit	1,012,631	93.1	81.2
Nuevo	3,941,647	97.4	91.6
Oaxaca	3,847,576	73.8	43.7

Puebla	5,479,639	83.8	63.8
Querétaro	1,415,720	96.2	71.6
Quintana	766,210	97.9	86.3
San	2,529,620	78.9	60.5
Sinaloa	2,717,150	96.6	79.6
Sonora	2,332,891	97.7	80.3
Tabasco	1,933,344	71.9	82.1
Tamaulipas	2,857,882	96.4	77.0
Tlaxcala	1,012,469	95.3	82.8
Veracruz	7,918,895	71.3	65.0
Yucatán	1,721,817	95.3	54.4
Zacatecas	1,540,688	93.0	71.6
Total	104,431,007	89.4	77.2

Source: CNA

Potable water coverage in urban areas in Mexico has increased significantly over the past 15 years, from 77.7% of the population in 1990 to 94.7 million people or 90% of the population in 2005. In the last decade potabilization and distribution infrastructure was expanded to provide access to potable water to an additional 18.2 million people.



Source: HDC with data from CNA and Inegi.

Mexican federal legislation mandates that local governments are responsible for investing in water infrastructure, its operation and maintenance. However, as states, municipalities and local utilities have lacked the necessary funds and in many cases the required project development know-how for investing in new infrastructure, the federal government has played an important role in this area through an independent agency called the National Water Commission (CNA).

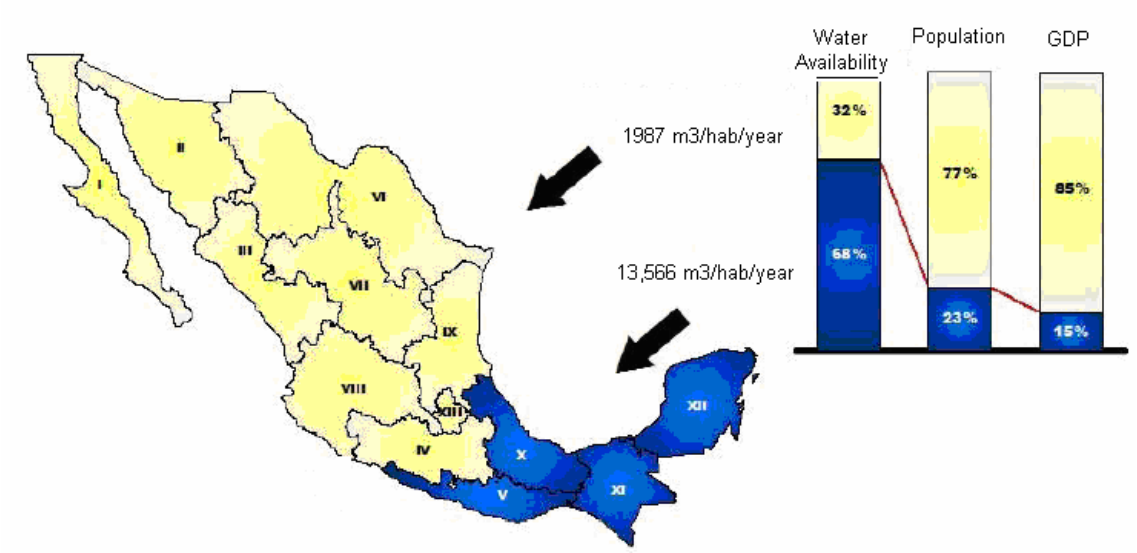
The CNA is the Federal Government's entity responsible for water sector policies and programs. This entity is responsible for all water issues at a federal level and is directly involved in the overall planning of the sector, including regulations and project development. The CNA has been a significant resource in supporting state and local water authorities in the development of plans, programs and projects to improve the water infrastructure and operational efficiency of local water entities.

In recent years, the Federal Government (through the CNA) has promoted several

decentralization programs that have received the support of multilateral agencies. This has helped transfer water investment responsibilities to the local level. Even as progress is slow and has shown little results, it is expected that in the medium term, local investments will begin to gain momentum and substitute federal spending in the sector. The government aims to promote private participation, including capital investment especially for increasing the efficiency of the services, as only an efficient system will generate the necessary cash flow for project repayment.

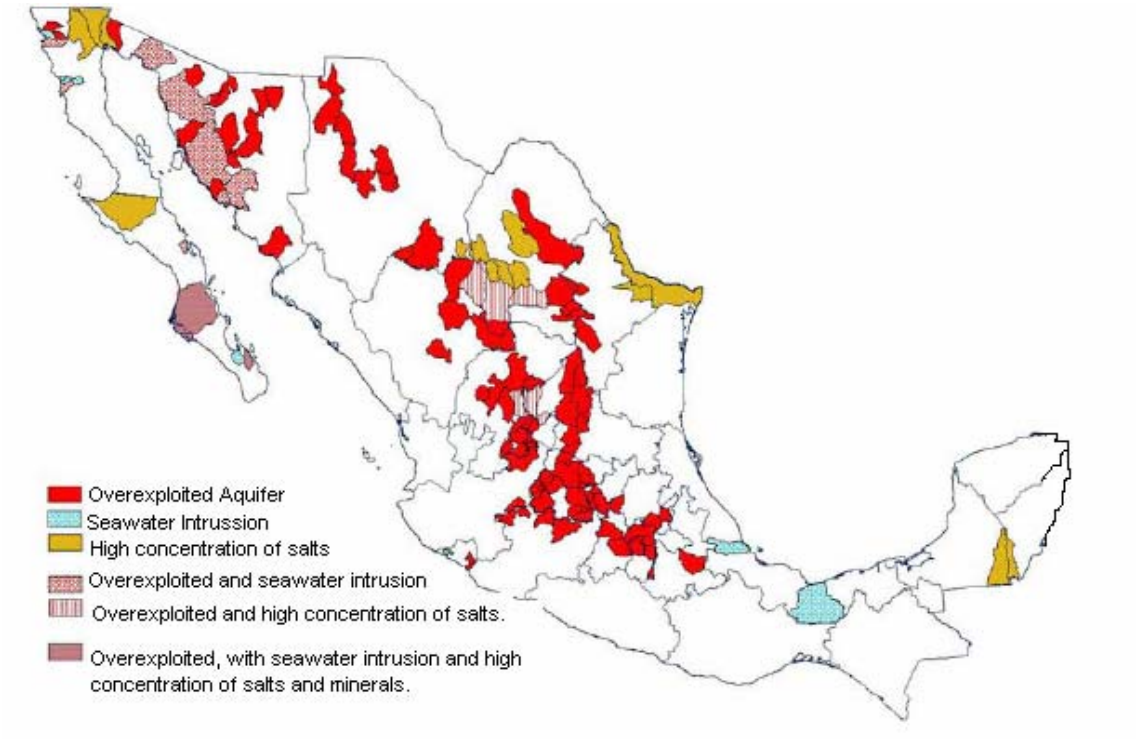
1.2. Problematic of the Sector and Status:

In general, Mexico has abundant water resources, receiving about 4,547 m^3 of water per inhabitant per year, but water resources are not located where they are needed. Highest water availability (sources and rainfall) is concentrated in the southeastern portion of the country while most of the population (77%) resides in the central highlands and north of the country. Water availability in the most populated regions averages 1,987 m^3 per inhabitant per year. In addition, rainfall in the northern region is concentrated in four months of the year with significant dry intervals.



This uneven water source distribution makes water scarce in some areas, for example, in the arid northern regions of Mexico, where surface water are almost inexistent and is becoming increasingly difficult to find new underground sources that meet the required water quality standards.

The CNA estimates that at least 104 of the 653 aquifers used in Mexico are overexploited and a number ranging from 50-100 were illegally tapped and are being used without any control. In addition, 34 aquifers have salt intrusion or their water is of bad quality. Approximately 60% of the volume of underground water used in Mexico comes from overexploited aquifers. This situation is one of the main drivers behind Mexico's interest in promoting wastewater treatment and reuse, and for minimizing water losses in municipal systems.



In addition to the uneven water resource distribution and the overexploitation of underground water resources, which are the two most important “natural” problems, the Mexican water sector faces several problems which act as inhibitors for the proper development of the sector and private investments. Among the most important issues we can mention the following:

Regulatory Problems: There is not a specific Potable Water Law, and the National Water Law is mostly designed to protect the agricultural sector and not to promote an efficient water use. The only regulations for potable water are for water quality and those are issued by the Ministry of Health, which cannot monitor water quality. This regulation is only enforced when the quality of the water endangers a community. A recent example took place in a community in Puebla, where the population was drinking water with up to 4mg/l of arsenic and the Ministry of Health didn’t detected the problem until a large part of the community was intoxicated.

In areas, such as Hermosillo, Sonora, the only water sources available are underground aquifers, and some of those are beginning to experience high concentrations of salts, arsenic and manganese. Currently the government is closing the wells from these sources and trying to replace the source with a different aquifer, however the options are becoming scarce. Eventually in the following years, the Government of Sonora will have to begin treating water from the aquifers using arsenic and manganese removal technologies. Other States such as San Luis Potosí, Sinaloa, Durango, Zacatecas and Mexico D.F. are also beginning to find arsenic, fluorine, and other contaminants in their aquifers.

The law for arsenic tolerance was modified, lowering the allowed arsenic concentration from 0.05 mg/l to 0.025 mg/l. Many aquifers do not meet the new standard and will need to be either closed or will need purification infrastructure. Enforcement for this regulation is weak at present.

There are no regulations or parameters for the evaluation of municipal water utilities, and the information that they provide to the Federal authorities is not homogeneous and is highly inconsistent. This makes very it difficult to monitor the efficiency improvements of their operations.

Finally, some state water laws contradict the federal water law and in most states the water service must be provided by the water company even if the user does not pay for the service. This situation deteriorates the financial condition of the local water company as it loses its capital by providing a service for which in many cases does not collect the revenue to pay for its

cost. The regulatory framework in Mexico needs to be revised to assure revenues for investment, this will likely be linked to the suspension of service to the users that do not pay. By assuring that every user pays for its service, this will cover operations costs and generate a margin that will help finance the required infrastructure and service coverage expansions.

Political Issues/Tariffs: Water prices are highly subsidized to most consumers, and therefore cash flows to local utilities are not sufficient to provide for adequate maintenance or system investment. Most rate structures have crossed subsidies from industrial and commercial sectors, and high income households. This tariff structure subsidizes poorer households.

Prices are set at the local level, in most cases by the municipal council. Although municipalities pay a water use fee to the CNA and they have high operational expenses, water tariffs obey political factors rather than costs. Mexican water systems are characterized by large amounts of unaccounted water, averaging 45% in a recent survey of 153 of the most important utilities.

The best example is Mexico City where from 100 m^3/s extracted, from 37% to 32% is lost in leaks and only 68 m^3/s arrive to users of which only 70% are metered, 90% of this water is billed and only 50% of the bills are collected. At the end, for every 100 m^3/s extracted from the source, only 21.4 m^3/s are paid by the users. In addition, there are high subsidies to water tariffs, as the average cost of supplying water is € 0.3 per cubic meter and the average rate paid is € 0.24. At the end the Mexico City government recovers only 17% of the costs of supplying water. In other words, for every € 30 spent in water supply the government receives € 5.14 from users.

The following table shows domestic water tariffs at some of Mexico's most important cities. As shown, tariffs vary greatly from one city to another and also in consumption ranges.

Domestic Water Tariffs in Selected Cities

	Minimum Range		Maximum Range		
City	Consumption	Tariff per M3 in €	Consumption	Tariff per M3 in €	No. of Ranges
Mexicali	6 to 10	0.11	>61	0.65	9
Tijuana	0 to 5	0.49	>61	1.79	12
La Paz	0 to 17	0.20	>500	2.06	11
Campeche	0 to 50	0.08	>51	0.10	2
Colima	0 to15	0.11	>201	0.80	7
Manzanillo	16 to 30	0.24	>10117.	3.00	6
Chihuahua	15 to 20	0.36	>500	1.28	17
Juárez	0 to 20	0.19	>151	0.86	8
Distrito Federal	0 to 10	0.10	>1500	2.83	14
Guadalaiara	0 to 17	0.14	>251	1.41	0
Morelia	0 to 15	0.09	>105	0.70	8
Tepic	0 to 20	0.20	>21	0.23	2
Monterrey	1 to 6	0.06	>201	1.58	27
Puebla	0 to 15	0.20	25 to 30	0.38	3
Cancun	11 to20	0.25	>61	1.89	5
San Luis Potosí	0 to 15	0.14	>125	1.48	7
Culiacán	0 to 10	0.17	250 to 251	0.56	16
Mazatlán	0 to 13	0.20	>150	0.87	17
Hermosillo	11 to 14	0.22	>76	1.86	6
Ciudad Obregón	0 to 10	0.17	>101	1.46	8
Tampico Madero	21 to 30	0.14	>2001	0.40	43
Nuevo Laredo	0 to 10	0.13	251 to 500	0.76	11
Xalapa	11 to 20	0.19	>251	0.42	12
Mérida	0 to 20	0.13	>2,251	0.42	15
Zacatecas	0 to 15	0.23	>101	0.83	11

Source: HDC with information from Gabriel Quadri.

Low Efficiency: Mexican water utilities have "adequate" potable water and sewer coverage, but their operations are generally very inefficient. Unaccounted water, low billing and collection indexes are commonly found in most water utilities. The number of water utilities that work in black numbers is approximately 25% and the remaining requires subsidies from federal or state funds to sustain their operations.

As improving efficiency would ease the financial problems of most water utilities, the majority of the government's support programs and access to financing, have efficiency improvement as a pre requirement. The problem remaining is that there are no defined parameters to report on efficiency improvements.

ANEAS is developing regulations for process and technical certification to help homologate the information water utilities provide to the CNA. If approved, ANEAS will work with the World Bank and the IDB in a program to certify water utilities that are working on becoming self-sufficient or creditworthy.

Financing: The combination of low tariffs and low efficiency impedes most water utilities from accessing credit and makes them rely on subsidies.

High Rotation of Water Utility Management: The municipal water utility managers are political appointees of municipal presidents or city majors, which are elected in most cases every three years. An average manager remains in the position for 1.6 years which eliminates the possibility of long term planning.

ANEAS and the CNA are discussing issuing a regulation requiring the certification of water utility directors. This change will be beneficial but unlikely as it curtails the political authority of municipal presidents.

Technology: Lack of planning and insufficient funding has impacted the technical and financial condition of water utilities which has originated inadequate coverage and service quality. Low investment capacity creates an inadequate environment for project decisions which favor inexpensive project alternatives and not sound technical decisions with a long term objective. This is changing at several municipal water utilities including Monterrey, León, Puerto Vallarta, Tijuana, Aguascalientes, Culiacán, Cancun, Chihuahua and several others which have seen that investments in technology can represent significant savings in the long term. These cities which are selecting state-of-the-art technologies are achieving the highest operational efficiency in Mexico and financially sound.

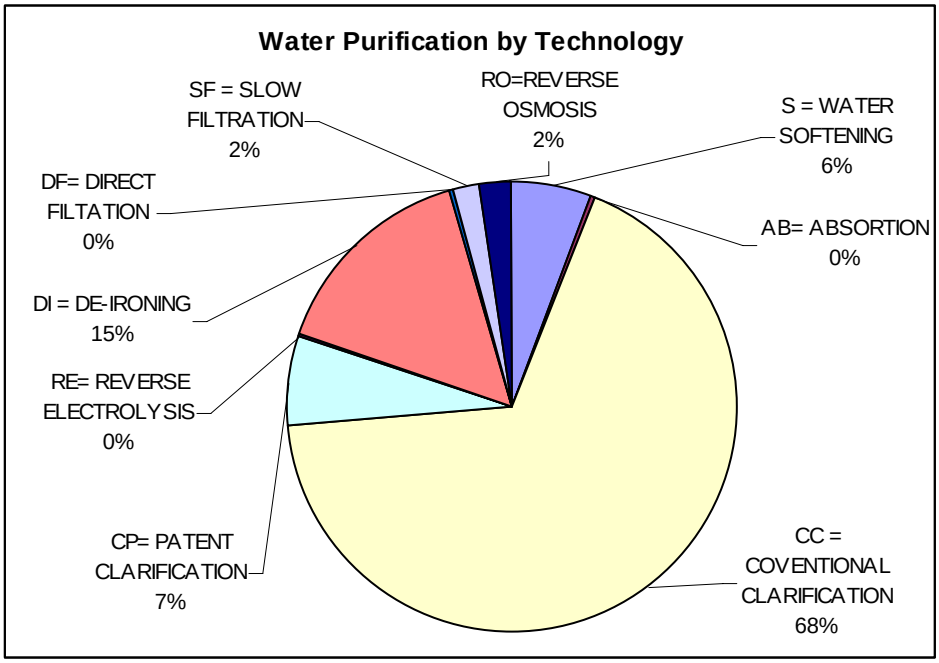
Despite of the problems surrounding the Mexican water sector, investments continue to increase and the number of water utilities becoming financially self sufficient grows every year. The CNA has played a key role in these improvements through its financial programs which condition grants or financing to either increased private participation or to efficiency improvements on the government-owned utilities.

During the 4th World Water Forum, Mexico will have to address these problems and propose solutions as the only alternative to meet the commitments made under the Millennium Development Goals, the WSSD Implementation Plan and the Local Agenda 21 is by overcoming at least some of the problems described above.

1.3. Existing Infrastructure, Technologies Used, Efficiency.

Mexico's water infrastructure includes over 4,000 dams, 465 potabilization plants, 3000 Kilometers of water pipelines, 1,236 municipal wastewater treatment plants, over 1,450 industrial wastewater treatment plants and over 3,000 small desalinization plants.

Of the 465 water treatment plants, 231 use conventional clarification technology with a total installed capacity of 83.4 m^3/s and actual output of 56.4 m^3/s. This represents 67.5% of the water purified in Mexico. Direct Filtration, is the second technology most widely used in Mexico with 52 plants that purify 12.8 m^3/s or 15.4% of the actual potable water flow. Other technologies such as patent clarification and softening are also widely used.



The number of potabilization plants and types of technologies varies greatly from state to state. Technology selection is based on the quality of the input, the characteristics of the location and population being served and in some cases it is left to the suppliers participating in the tenders. The following table presents an inventory of plants by state, capacity and actual output.

State	No. of Plants	Type of Plant	Functioning Plants (Lps)	
			Capacity	Actual Output
Aguascalientes	1	CC(1)	18.00	10.00
Baja California N.	34	CC(13), CP(1), DF(19), DI (1)	8,969.00	5,961.50
Baja California Sur	13	DE(1) , RO (13)	10.00	7.10
Campeche	5	S(1), CC(2), RO (1)	587.00	433.00
Coahuila	9	CC(6), DF (3)	1,505.60	1,285.60
Colima	16	RO (16)	5.02	1.75
Chiapas	3	CC(2), CP(1)	2,500.00	2,010.00
Chihuahua	2	CC(1), CP(1)	520.00	390.00
Distrito Federal	31	AB(7), CC(1), RE(1), 4(DF), 16(RO) DI(2)	3,517.00	2,891.00
Durango	12	AC(2), RO(10)	21.66	13.80
Guanajuato	7	CC(2), SF(5)	335.00	278.00
Guerrero	11	CC(7), CP(2), DF(1), SF(1)	3,278.00	2,973.00
Hidalgo	1	CC(1)	50.00	50.00
Jalisco	19	S(1) CC(13), CP(1), RO(4)	14,711.00	7,385.00
Estado de México	10	CC(6), CP(1), DI(1), DI(2)	26,144.00	16,719.00
Michoacán	4	CC(2), CP(1)	2,740.00	2,310.00
Morelos	N/A	N/A	N/A	N/A
Nayarit	1	CP(1)	60.00	30.00
Nuevo León	8	CC(4), DF(3), SF(1)	14,385.00	6,693.00
Oaxaca	6	CC(3), DI(2), DF(1)	1,291.30	771.30
Puebla	1	CP(1)	300.00	200.00
Querétaro	2	CC(2)	29.00	29.00

Quintana Roo	5	S(5)	1,190.00	920.00
San Luis Potosí	12	CC(4), CP(3) DF(4), MT(1)	1,141.34	801.34
Sinaloa	131	CC(77), CP(47), SF(4), DI (3)	7,094.00	6,148.00
Sonora	19	CC(18), DF(1)	2,900.00	1,898.80
Tabasco	28	CC(22), CP(6)	5,272.00	4,313.00
Tamaulipas	55	CC(34), CP(11), DF(9), RO(1)	13,813.00	11,096.00
Tlaxcala	N/A	N/A	N/A	N/A
Veracrúz	8	CC(8)	6,600.00	4,705.00
Yucatán	11	S(11)	4,745.00	3,336.00
Zacatecas	N/A	N/A	N/A	N/A
Total	**465**		**123,731.92**	**83,660.19**

KEY: S = WATER SOFTENING; AB= ABSORTION; CC = CONVENTIONAL CLARIFICATION; CP= PATENT CLARIFICATION; RE= REVERSE ELECTROLYSIS; DI = DE-IRONING; DF= DIRECT FILTATION; SF = SLOW FILTRATION; RO=REVERSE OSMOSIS.

This network has been built almost entirely with public sector funds and is operating under the responsibility of local water utilities.

Conventional clarification is the most commonly used process as in most cases it is enough to meet with federal regulations and operational cost are low The CNA estimates that a conventional clarification plant to treat 1 m^3/s costs approximately € 8.25 million and its operation ranges from € 0.0225 to € 0.0337 depending on the inflow quality.

The fastest growing purification technology is reverse osmosis as in some areas a conventional plant is not enough to remove pollutants including metals or other minerals from water. In 1995 there were only nine reverse osmosis plants and in 2005 there are fifty nine.

Some municipal water utilities, especially those of larger cities are investing in automating their metering systems using radio frequency or infrared technologies. Demand for commercial systems and software for metering, billing and collection is gaining momentum throughout Mexico.

Many households are installing filters to purify water from the tab. Activated carbon filters for home use have high demand in the Mexican market as the quality of potable water is variable and questionable in most cities.

Dutch companies will find an increasing number of opportunities for equipment and technologies that step aside from conventional clarification. This technology is becoming obsolete and useless in some areas of the country where the remaining aquifer water available has metal, salt or arsenic concentrations and thus requires more sophisticated purification processes.

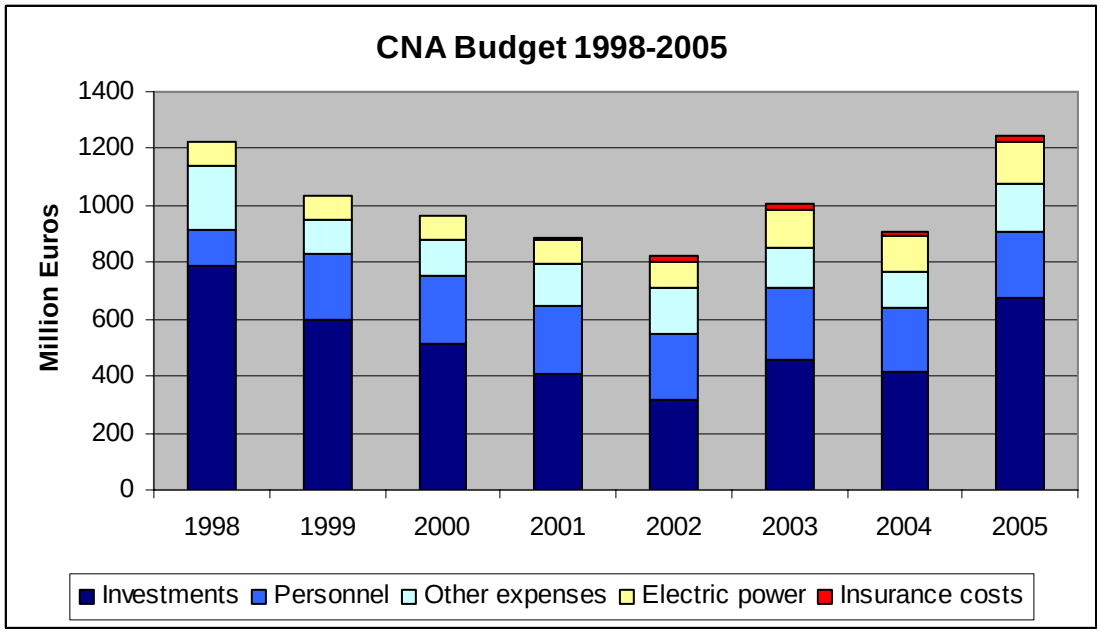
The 4th World Water Forum will be an excellent venue to present state-of-the-art technologies to Mexican and International Water Utilities.

1.4. Financial Issues Impacting Mexico's Water Sector:

Mexican Federal legislation mandates that local governments are responsible for investing, operating and maintaining water infrastructure. However, as states, municipalities and local utilities have lacked the necessary resources for investing in new infrastructure, the federal government has been required to play an important role in this area.

Of a total budget of € 1.25 billion for 2005, the CNA is devoting € 674 million to water infrastructure. It is estimated that states and municipalities are investing an additional € 336 million, and Banobras (Government controlled infrastructure financing bank), Sedesol (Secretariat of Social Affairs), private companies and multilateral agencies devoted an additional € 410 million. These figures represent total investments of € 1.42 billion for water infrastructure construction during 2005.

For 2006, being an election year and as Mexico will be hosting the World Water Forum the investment figure will most likely reach from €1.5 to €1.6 billion.



Source: CNA.

Total investments during 2005 were spent as follows: 39% for potable water, 33% for sewer lines, 14% for wastewater treatment, 10% for efficiency improvements and the remaining 4% for other projects such as irrigation.

Potable water and sewage collection infrastructure will continue to receive the largest share of investments despite that the Federal Government's goals for 2006 in these two areas have been already achieved.

In recent years, the Federal Government has promoted several decentralization programs that have received the support of multilateral agencies. This has helped to transfer water investment responsibilities to the local level. Although progress is just beginning to show results as an increasing number of municipal water utilities are becoming self-sufficient. In the medium term, local investments will begin to gain momentum and substitute federal spending in the sector. The government is seeking to promote private participation, not only to bring in much needed capital investment but especially for increasing the efficiency of the services. An efficient system will generate the necessary cash flow for project repayment.

Insufficient investments in the sector over the past several years have created an important backlog of water projects. In order to increase water and sewer coverage to 97% of the population and wastewater treatment to 90% for the year 2025, Mexico will need to invest € 2.39 billion yearly, and this can only be achieved if private investment is brought into the sector.

Water Investment scenarios for 2025 (Millennium Goals)			
Concept	**Current**	**Minimal**	**Desired**
Irrigation hectares modernized	1.1 million	1.1 million	5.8 million
Land with new irrigation infrastructure (Hectares)	N/A	490,000	1 million
Losses in irrigation	60%	60%	46%
Losses in urban systems	44%	44%	24%
Potable water coverage	89.4%	89%	97%
Sewer coverage	77.4%	78%	97%
Percentage of wastewater treated	25%	50%	90%
Water use volume (thousand million cubic meters)	78	91	81

Yearly investment in the sector. (Billion €)	**1.42**	**1.42**	**2.39**

1.4.1. Domestic Finance:

Local financing for water infrastructure comes from federal, state and municipal resources. The National Water Commission (CNA), which channels federal funding to municipal and rural projects, and the National Public Works Bank (BANOBRAS) which provides financing, subordinated debt, and capital have been the dominant players. States, municipalities and local authorities have very limited financing capacity for new infrastructure.

Another entity that invests limited resources, mainly in rural potable water systems is the Secretariat of Social Development (SEDESOL). This entity is responsible for helping Mexico's poorest communities and invests in expanding potable water coverage. Additionally, the government owned development bank NAFIN, has also played a financing role for water infrastructure, but it's role is mainly concentrated in providing financing to industry and its participation has been limited.

The most important financial programs offered by the CNA and BANOBRAS are described in Appendix 2 of this study.

1.4.2. International Finance:

The most significant trend in the involvement of multilateral and bilateral financial institutions in their support for Mexico's water sector is that the priority has shifted from providing funding to specific infrastructure projects, into providing funding for the modernization of the water sector, through supporting the managerial and financial improvement of local water companies serving specific cities throughout Mexico. These programs aim to make the entities financially self-sufficient and be able to attract investments as the existence of revenues through improved billing and collection makes investments viable and potentially attractive to private companies.

The World Bank (WB) and the Interamerican Development Bank (IDB) remain major players and important drivers in several major infrastructure programs in Mexico. These two agencies are focusing their support to finance programs aimed to creating efficient decentralized entities. Most of the programs are focused on improving the operation of water utilities and in upgrading infrastructure and reducing the water loss indexes.

Currently the IDB has two programs focused in Mexico's water sector:

The PROSSAPYS II: Sustainability of Water Supply and Sanitation Services in Rural Communities: The IDB approved a loan in 1998 for € 254.2 million (US$ 310 million) for the PROSSAPYS program. The principal objective of PROSSAPYS was to develop the water supply and sanitation sector in rural communities, this program finished in late 2004 with great success so a second phase was signed in July 20, 2005. the IDB loan for the continuation of the PROSSAPYS program will finance €164 million (US$200 million) and the Mexican Government € 73.8 million (US$90 million). The great majority of these monies will be invested in Infrastructure.

The PRODDI: Pilot Project For Water And Sanitation Institutional Development: This pilot project has the objective of assisting in the modernization and reform of Mexico's water supply and sanitation sector by conducting pilot projects that promote autonomy, efficiency, equitable access, citizen participation and the financial sustainability of the operators that provide these services in small- and mid-sized cities. Five municipal water utilities were selected for the program and are currently working in the assessment of their problems and institutional development. The pilot project will include investments for € 14.76 million (US$18 million) from the IDB and another € 5 million (US$6.1 million) from the CNA. Most of the investments will take place in 2006.

The results of the PRODDI are expected to generate a new IDB sponsored program called Investment and Reform in the Water Supply and Sanitation Sector. This program which is planned for 2006 could bring investments of € 205 million (US$250 million) for knowledge

transfer, efficiency improvement technologies and basic infrastructure to upgrade the operation and financial condition of at least 50 water operators. This project is currently being drafted and will wait for the results of the PRODDI for approval.

The World Bank has two active programs related to Mexico's water sector:

Second Programmatic Environmental Development Policy: This Program provided € 164.9 million (US$201.1 million) to the Mexican Government for the consolidation of reforms and addressing Environmental regulatory and institutional problems. The Program covers a wide variety of activities related to Tourism, Energy, Clean Development Mechanism (CDM), Forestry and Water. The Water component of this program calls for assisting the CNA in the operation of the recently created basin councils, and the creation of a system for publication of water availability data and an improved water rights registry as foundational steps in the implementation of a functioning water rights market, consistent with the current regulatory framework.

Modernization of the Water and Sanitation Sector: This Project was approved in July 2005 and will provide funding for specific studies and activities covering different areas where technical assistance is needed. The total project cost is estimated at €45.26 million (US$55.2 million) (The World Bank contribution is US$25.0 million). The project is divided in two basic components: (1) Modernization of water institutions (US$2.9 million) and (2) Modernization of five selected water utilities (US$47.7 million).

The World Bank is also preparing a loan for a program called Second Water Resources Management Project (GICA); This project aims to: (1) improve conditions for sustainable integrated water resources management and use; and (2) detain the accelerated deterioration of water resources in selected areas. The project will support: preparation of comprehensive water resources sustainability plans in collaboration with water users, states, municipalities, CNA, SAGARPA, private sector, and other entities. The plans will include reaching agreement on aquifer regulations, entailing the reduction of water rights to sustainable levels and enforcement mechanisms. The plans will also include financing schemes that will involve financing from different state, federal and private sources and will include activities financed through other World Bank-supported projects.

Another multilateral institution, which had been expanding its presence and support to Mexico's water sector, is the Japan Bank for International Cooperation (JBIC). This bank has been a major driver for Mexican water and wastewater projects mainly in Baja California. In 2000, JBIC loaned ¥22,148 million (€ 220 million) to the Baja California State Water Supply and Sanitation Project, which involved over € 287 million (US$350 million) in new water potabilization plants, sewer collection, wastewater treatment plants and water distribution networks for Baja California's three most important cities. JBIC also approved funding for projects in Jalisco and Mexico City, but these credits were lost as the projects suffered delays due to political reasons.

The programs sponsored by these multilateral agencies are described in Appendix 2 of this study.

In addition to the multilateral agencies, a bilateral institution created under NAFTA, The North American Development Bank (NADBANK) has been a major financial player for projects in northern Mexico within the U.S.-Mexico border, leveraging private and public investment and providing long-term loans and loan guarantees for infrastructure projects within 100 Kms of the US border, the area was expanded in 2004 to 300 Kms. NADBANK charges one percent above comparable maturity treasuries. As with multilateral funds, resources are channeled through BANOBRAS, typically raising the cost of capital to municipalities.

NADBANK is funded by the U.S. and Mexican governments and has received funds from the EPA for the construction of wastewater infrastructure. NADBANK's current priorities include promoting the efficiency and institutional capacity of water utilities; contributing to develop their creditworthiness, and linking water utilities with other sources of financing.

The bank operates different programs and funds for infrastructure development. The most

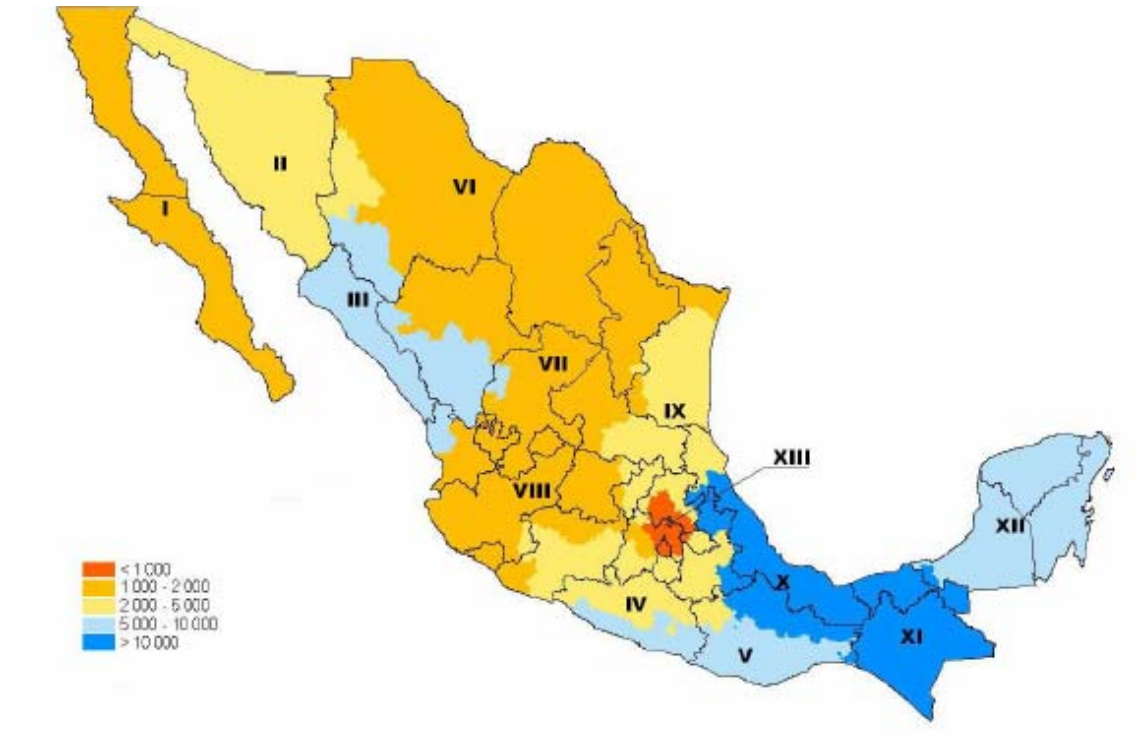
important are the Border Environmental Infrastructure Fund (BEIF) focused on water and wastewater projects, the Program for Cooperation for the Institutional Development (PRODIN), which assists municipal entities to develop institutional capacity; and the Program for Project Development (PDP) which provides technical assistance for project planning and development.

Since its creation, NADBANK has contracted 181 feasibility studies for projects in 85 communities and financed € 680 million for 89 infrastructure projects with a total value of € 2.1 billion, mostly of wastewater treatment plants; from these 25 are in operation, 52 in construction and 12 in the design stage.

The breakdown of NADBANK funded projects by sector is as follows:
- Water and wastewater 56%
- Water conservation 20%
- Solid waste 10%
- Air quality 3%

1.5. Regional Breakdown: Description of the Sector in Main Regions.

The CNA has divided the country in 13 water management regions. This division was based on basins and each has different characteristics and challenges. The following map shows this division as well as average water availability by region in per capita m^3/year.



Natural Water Availability by Administrative Region.

Administrative Region	Natural Average Water Availability (hm3)	Nat. Avg Av. Per capita (hm3)	Natural superficial draining (hm3)	Average Aquifer Recharge (hm3)
I Baja California Peninsula	4,423	1,317	3,012	1,411
II Northeast	8,213	3,210	5,459	2,754
III North Pacific	24,839	6,038	22,159	2,680
IV Balsas River Basin	28,924	2,703	24,944	3,980
V South Pacific	32,508	7,782	30,799	1,709
VI Bravo River Basin	14,182	1,356	8,962	5,219
VII North Central Basins	6,841	1,726	4,729	2,112

VIII Lerma-Santiago-Pacífic	36,977	1,820	29,594	7,383
IX Gulf North	23,347	4,666	22,070	1,277
X Gulf Central	102,544	10,574	98,930	3,614
XI South Border	158,260	24,549	139,839	18,421
XII Yucatán Peninsula	29,646	8,255	4,330	25,316
XIII Valley of Mexico and Cutzamala	3,934	1,881	996	1,938
Total National	**474,637**	**4,505**	**396,823**	**77,814**

1.5.1. Regional Demand Drivers and Supply Characteristics:

Based on water availability and the concessions granted for water use, the CNA has characterized the demand of the management regions, and has qualified each region assigning a pressure rate. In region XIII, which corresponds to Mexico City, the pressure rate reaches 120%, this means that the federal government has granted concessions to exploit 20% more water than what is available in the area. Availability in this area is considered critical as the Mexico City Aquifer is highly overexploited. Regions 1 and 2, corresponding to the northwest region have not reached a critical level as Mexico City however they are areas where water availability could become a problem in the near future.

Water Availability Pressure Rate

Administrative Region	Natural Average Water Availability (hm3)	Total Volume of Concessions (hm3)	Pressure Rate %
I Baja California Peninsula	4,423	3,807	86
II Northeast	8,213	6,419	78
III North Pacific	24,839	10,491	42
IV Balsas River Basin	28,924	10,417	36
V South Pacific	32,508	1,264	4
VI Bravo River Basin	14,182	8,539	60
VII North Central Basins	6,841	3,745	55
VIII Lerma-Santiago-Pacífic	36,977	13,210	36
IX Gulf North	23,347	4,503	19
X Gulf Central	102,544	4,622	5
XI South Border	158,260	1,999	1
XII Yucatán Peninsula	29,646	1,708	6
XIII Valley of Mexico and Cutzamala	3,934	4,706	120
Total National	**474,637**	**75,430**	**16**

Regions I and II: Baja California and Northeast of Mexico: This area has some of the some of the most severe water availability problems in the country as most of the underground water has seawater intrusions or high concentration of salts and minerals. The few aquifers that have good water quality are being overexploited. Water in this area of the country has been a topic of political disputes between Mexico and the U.S. as the Colorado River which flows to Mexico through California has a decreasing water flow.

In several cities in the region, including La Paz in Baja California Sur, Tijuana, Los Cabos and Ensendada in Baja California Norte, and Hermosillo in Sonora the water availability shortages have reached critical levels.

The city of Los Cabos is in the process of building the first large municipal desalinization plant in Mexico which will have a capacity to generate 250 LPS. This project was tendered in early 2005 and awarded to a Spanish group called INIMA. Tijuana, Ensenada and La Paz are also looking at desalinization technologies as an option to solve their water availability problems, while Hermosillo, is looking into advanced purification systems able to remove arsenic and minerals from water to begin exploiting some of the aquifers containing fossil waters.

There are also projects for the construction of water pipelines and potabilization plants in Tijuana and Mexicali. (See Appendix 1: Project Profiles).

In general, water utilities in these regions of Mexico have some of the most efficient operations in Mexico. (Except for La Paz) Water is so scarce that the population is aware of the need to pay for the service and keep the system financially viable.

Region III Northeast: Covers the States of Sinaloa, part of Durango and the Southeast of Chihuanhua. This area has no water supply problems as there are sufficient surface water available and also high quality aquifers. Most of the water used in this region comes from superficial sources to a lesser extent from aquifers. Sinaloa has 131 water potabilization plants, over 25% of the total number of plants operating in Mexico. The majority of these plants is small-scale and use conventional clarification technologies.

Regions IV and IX: Balsas River Basin and Gulf North: Although they are located in different regions of the country, they both share the same problems. These two areas lack sufficient underground water but both have water availability through superficial sources. Water availability in these two regions is considered low but still sufficient to cover the needs of the population in the long term.

Tamaulipas in the Gulf North region has the second highest concentration of water purification plants with 55 units that purify 11.09 m^3/s.

Despite of having sufficient water availability, some cities in the southeast of the state of Tamaulipas have low potable water coverage due to high inefficiencies of the water utilities, including cities such as Tampico and Ciudad Madero.

Region V South Pacific: Covers the State of Oaxaca and parts of the States of Guerrero and Chiapas. This area has excellent water availability as it has several superficial sources such as the Rio Verde, Ometepec and Papagayo rivers which carry large water flows. The area has few but very large aquifers with excellent water quality. The area has significant rainfall and is covered by jungle. Despite of the high water availability and quality, it is one of the poorest areas in Mexico and has very low water coverage and highly inefficient water utilities. Water purification technologies have very low use in the area as the water available is of good quality.

Regions VI VII and VIII: North Central Regions: These three regions are characterized by high aquifer overexploitation and poor water quality. Aquifers are contaminated with salts, arsenic, metals and some industrial pollutants. There are two very important rivers in the regions, the Rio Bravo in the northern border and the Lerma-Santiago River, but both have severe industrial and organic pollution which makes it difficult to use as a water source. The zone is beginning to experience water shortages and the only alternatives for additional supply consist in sanitizing superficial waters and building dams and reservoirs.

The cities of Monterrey and Guadalajara, Mexico's second and third largest of Mexico are in these regions. Monterrey has one of the most efficient water utilities in Mexico, this utility supplies close to 100% of the population with potable water, treats over 80% of its effluents and is financially self sufficient for operations and new investments. The water utility of metropolitan Guadalajara has acceptable efficiency indexes but inadequate tariffs and thus it is highly subsidized.

The cities of Durango and Colima are installing reverse osmosis purification plants to remove minerals and contaminants from water extracted from overexploited aquifers in the region.

In this region there are several major potable water projects such as the Guadalajara Water Supply project, a series of plants in Coahuila for removal of arsenic, and potabilization projects in Guanajuato and San Luis Potosí. (See Appendix 1 for project profiles).

Regions X XI and XII: Mexico's Southeast: These regions have excellent water availability. The region receives most of the rainfall in Mexico, it is rich in both natural superficial sources and underground aquifers most of which offer excellent water quality, which in some cases

contains some non-hazardous minerals (hard water).

The largest cities in the region use water softening purification technologies to remove salts from the underground water. Of the 18 water softening plants located in Mexico 16 are located in this region and purify 4.3 m^3/s.

In this region there is only one major potabilization project in the City of Tuxtla. This project will include the construction of a large 1 m^3/s purification plant, most likely with water softening technology.

The region is characterized by inefficient water utilities, and very low metering and collection indexes.

XIII Valley of Mexico and Cutzamala: This is the most conflictive area in terms of water availability. The CNA has granted concessions to extract 20% more water than what is recharged to the aquifer and there are no other superficial or underground water bodies available. In 1973 the Federal government built the Cutzamala system, to bring water from sources located at over 100 kms away.

Greater Mexico City has a population estimated at 22 million and spans over an area that includes the Federal District and parts of the state of Mexico. The city consumes 67.7 m^3/s of water. Sixty eight percent or 45.7 m^3/s is obtained from the aquifer under the city which is causing certain areas of the city to sink as much as 50 cm. per year. Five m^3/s (7%) comes from the valley of Lerma through a 60 kilometers water pipeline, 16.5 m^3/s (23.1%) comes from the Cutzamala system located 127 kms to the east of the city and the remainder comes from other sources including 0.5 m^3/s from the Magdalena River.

Overexploiting the aquifer of Mexico City has caused serious problems to both, water quality of the aquifer, as well as in the City's infrastructure. Sinking has caused the sewerage system to collapse or loose its declining angle to exit the city. The Mexico City government had to invest over € 300 million in upgrading the sewer system, building collectors and pumping stations. The sinking also causes underground structures such as pipes to break, which creates high water losses.

The Mexico City's Government attempted to expand the Cutzamala system to bring an additional 5 m^3/s into Mexico City but population of several areas in the State of Mexico opposed the project. As an alternative, they are working in two fronts for increasing the water supply: Fixing leaks, which create losses estimated at 37% of the water supply and modernizing the existent infrastructure of the Cutzamala system which could supply one additional m^3/s currently lost at the potabilization plant.

Some areas of Mexico City already have almost no water. In the western part is supplied using pipe-trucks at a very high cost for the government. The Mexico City aquifer is also beginning to show high concentrations of sulfide, iron, manganese and even arsenic.

The City government is also seeking for efficient systems to increase the recharge of the aquifer and for technologies to remove metals and dangerous minerals from water.

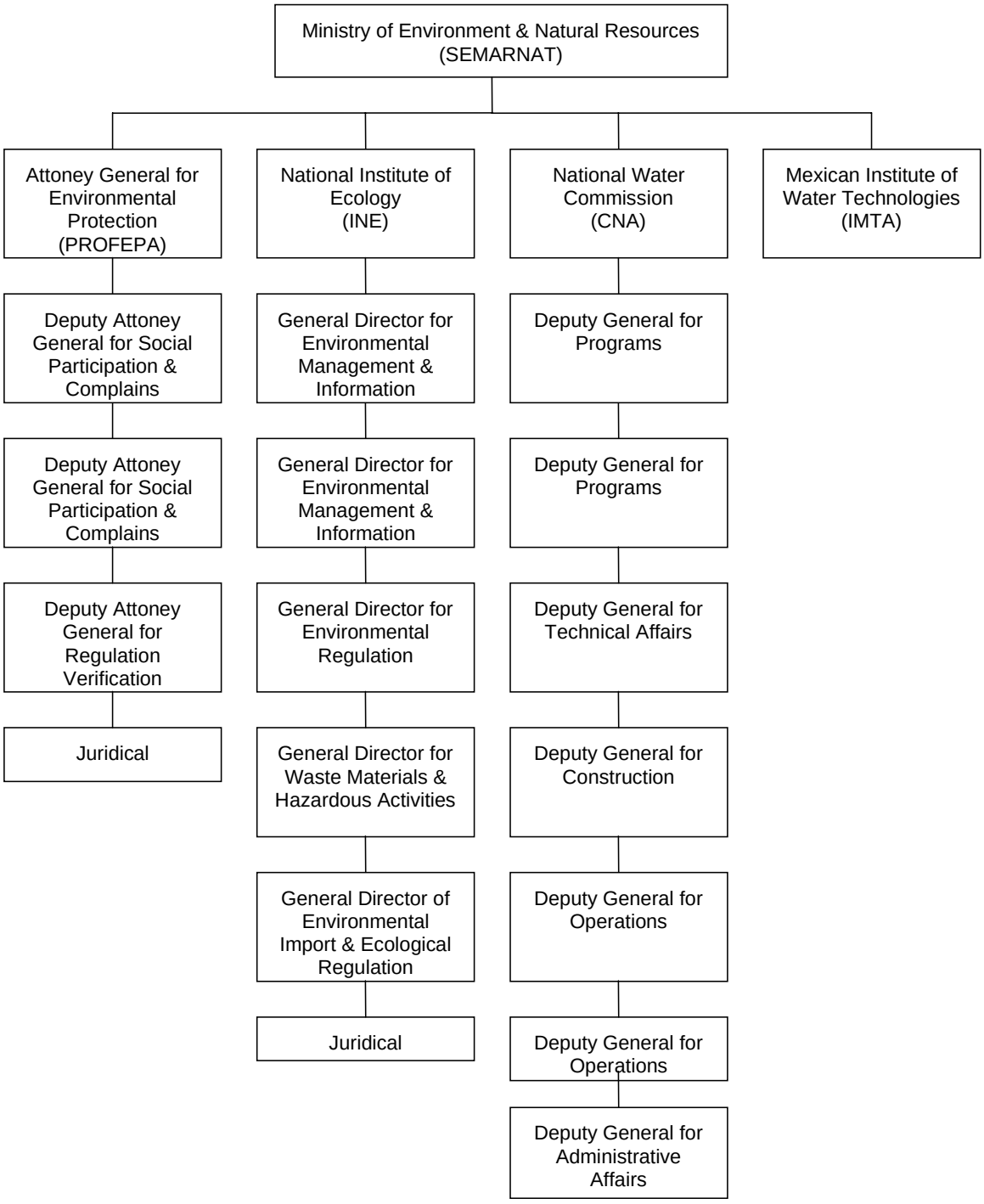
II. Institutional and Regulatory Structure: (Demand)

2.1. Institutional Framework:

The institutional framework is important for understanding the operation and responsibilities within Mexico's water sector, but somewhat independent from specific business opportunities for Dutch companies. The business opportunities result from participation or sales into projects sponsored at the local level. The following descriptions are presented to provide an understanding of the authorities and organizations involved in the sector and as a reference and for developing a clearer understanding of each entities or organizations' role.

The institutional framework of Mexico's water sector stems from the country's legislation. The Constitution dictates that water resources belong to the federal government and water usage requires a federal permit, but places the responsibility for the provision of water services to the population at the state and municipal levels.

At the Federal Level, the water sector falls under the responsibility of the Secretariat of the Environment and Natural Resources (SEMARNAT). This but this agency only acts as the head of the sector at a cabinet level, but with almost no real involvement in policies or decisions. The secretariat oversees the following agencies and organizations: The National Water Commission (CNA), the National Institute of Ecology (INE), the Attorney General for Environmental Protection (PROFEPA) and the Mexican Institute for Water Technologies (IMTA).



2.1.1. The National Water Commission (CNA):

Established in 1989 by a Presidential decree, The National Water Commission is the leading player in the Mexican water market. Its main roles include:

a) Management and custody of all water resources, assigning and collecting water rights to users, including rights for polluted water discharges into water bodies.

b) Overseeing compliance and enforcing the National Water Law, and other water related regulations. This includes assessing and collecting fees, fines and penalties for the violation of Federal environmental laws.

c) Promote sustainable development and protect water bodies, which might be under environmental risk.

d) Overall planning of the water sector.

e) Build, operate and maintain water infrastructure belonging to the Federal Government. (i.e. the Cutzamala system, dams, and water systems in some rural areas).

f) Provide technical and regulatory assistance to local water authorities and advice on project feasibility.

g) Provide financial support to priority water projects and assist local governments in providing service to the poorer communities.

CNA is seeking to move from being the main sponsor of water infrastructure projects, to a policy making and regulatory entity and is increasingly passing infrastructure construction activities to local governments and local water utilities. As most local water utilities lack of sufficient resources to pay their water right, maintain the system, and build new infrastructure, the CNA continues playing a dominant role in financing new water infrastructure.

The CNA has developed a series of programs to support local water utilities to incorporate private participation or to increase their efficiency levels. On exchange of these improvements the CNA forgives or in some cases returns water rights. (See Appendix B: Main programs).

It is recommended for Dutch companies seeking to enter the Mexican market to meet with CNA as their first stop in the Country as while CNA is trying to get less involved in financing and contracting suppliers for new infrastructure, the reality is that it continues to be the single most important player in Mexico's water sector. CNA can provide advice to individual Dutch companies on where they will find opportunities for their specific technologies and services. The CNA has knowledge and understanding of the problematic of each city and also plays and important role in refereeing technologies and participates in the decision-making process of projects that receive Federal funding.

2.1.2. National Institute of the Environment (INE):

Traditionally the INE was a decentralized entity of SEMARNAT responsible for developing environmental standards. The Fox government changed the role of this institute and the regulatory activities were placed at the secretariat level under the minister heading SEMARNAT. The INE now operates as a research center responsible for supporting SEMARNAT in all environmental areas including developing programs for a more efficient use of water resources.

The INE also acts as a research center for evaluating technological activities for protecting the environment, minimizing pollution and restoring polluted areas.

The INE could be a good venue for Dutch companies offering highly unique solutions for specific water purification problems such as removal of arsenic, heavy metals or salts to obtain local approval and promote their technologies to local water utilities.

2.1.3. Attorney General for Environmental Protection (PROFEPA):

The Office of the Attorney General for Environmental Protection (PROFEPA) is Mexico's foremost environmental regulations enforcement agency. PROFEPA is organized in three areas: One oversees regulatory enforcement, one manages community involvement and complaints and one oversees the voluntary industrial audit program. At the state level, PROFEPA has 32 regional offices, one in each state and one in the Federal District. PROFEPA has the authority to impose fines and initiate criminal prosecution as in Mexico company officers can be liable for the environmental damages caused by their companies. However PROFEPA's enforcement strategies have focused more negotiating solutions to environmental problems with violators rather than through the imposition of fines or pressing criminal charges. For example, if

a company's operation has contaminated a water body, PROFEPA is likely to negotiate with the company to pay for the clean-up rather than fine or prosecute.

PROFEPA also manages the voluntary environmental audit program, which allows companies to avoid major penalties by committing to investing in equipment and processes necessary for complying with environmental standards.

PROFEPA oversees that municipal utilities comply with water discharge regulations.

2.1.4. Mexican Institute for Water Technology (IMTA):

IMTA is a technological research institute of the Mexican government responsible for technology development, certification of new technologies and research on the water and wastewater areas. It's most important and recent development is the creation of the Mexican Center for Water and Sanitation Training located near Mexico City. This center provides training to water utility employees and offers courses on new water technologies and development. The center has laboratories, conference rooms, a pilot wastewater treatment plant, underground water and sewer networks with leaks, a sludge treatment facility and other infrastructure to train personnel for increasing the efficiency of their systems. This center can contribute to further open and give exposure to Dutch water equipment and services technologies in Mexico, especially those which are new and that can be of benefit to Mexican water utilities.

2.1.5. Ministry of Health (SS):

The Ministry of Health is responsible for developing the regulations related to water for human consumption. This Ministry has developed five regulations related to potable water quality, standards that tanks, pipes, and meters as well as methods for supervising water quality. Despite that this entity is the responsible for the development of the regulations, testing and enforcement is made by the CNA.

2.1.6. National Association of Water Utilities (ANEAS):

ANEAS is an independent organization that groups over 350 municipal water utilities as well as the few private water utilities operating in Mexico. The association's objectives include:

a) Support water utilities to increase their efficiency and assist them for becoming self sustainable.
b) Represent water utilities in front of Mexico's Federal Government.
c) Assist staff of municipal water utilities in becoming professional and well trained.
d) Link municipal water utilities with financial sources.

ANEAS is currently working in the development of procedures for certification of water utilities. Currently water utilities follow different methods to measure their water losses, billing and collection indexes which makes difficult to categorize them properly.

The association publishes a quarterly magazine where they include reports of the major developments of the sector during each quarter. This magazine is distributed to all water utilities in the country and is considered an excellent mean to get exposure for new technologies and equipment.

2.1.7. States and Municipalities:

As under Mexican law, the states and municipalities are responsible for providing water and sewer services as well as wastewater treatment services, these entities are the leading source of projects and the main clients for water equipment and services. States and municipalities are empowered to set water tariffs, collect payments, defining local regulations and their enforcement within their systems. State and municipal governments have the final word on allowing private participation for the provision of water services, and in granting concessions to private companies. Most municipalities have decentralized water utilities (Organismos Operadores), which provide the service under the guidelines of the local authorities. Local

governments have to pay water rights to the CNA as all water is property of the federal government. Because of the utilities inefficiency and low tariff rates, most have a high debt burden and are not able to pay these rights.

The CNA estimates it is currently owed over € 2.6 billion that represent total revenues of all 354 water utilities for over two years.

The CNA has developed a program for writing-off these debts in exchange for the utilities' commitment to incorporate private participation and establishing new tariffs that reflect operational and other service costs.

The growing demand for water in most Mexican cities and the programs to improve revenue collection, which will support the possibility to finance investments, will drive the development of projects to increase potabilization capacity. These projects present business opportunities for Dutch companies selling equipment or supplies used for potabilization. Specific opportunities for each company depend on each company's supply capabilities and the type of project being developed. Additional opportunities in the sector could result from regional projects or through consulting or other assignments issued by the entities described in this segment.

2.2. Government: Priorities (both short term and longer term), Policies.

The National Water commission set a series of objectives and goals for the 2001-2006 period. The following table provides an idea of where investments have concentrated in recent years, and where the government is still behind in its goals:

Goals for the National Water Commission (2001-2006)

Measure	2001	2004	2006 Goal
Population with potable water service	88%	89.4%	89%
Population with sewerage service	76%	77.4%	78%
Rural areas with potable water service	69%	71%	71%
Volume of wastewater treated as % of wastewater collected	25%	31.1%	46%
Verification of wastewater quality discharges to ensure compliance with NOM-ECOL-001-1996	10%	96.7%	100%
River basin councils functioning autonomously	1	16	25
Autonomous Technical groundwater committees	4	41	41
Number of inhabitants protected against floods (1000's)	364	3,371	1697
Amount collected for water rights and fines (Million €)	478	581	610

Source: CNA, 2005

The most important current priority for the Mexican government in terms of water supply is improving the efficiency and economic viability of municipal water utilities, addressing the problems of contaminated superficial and underground water, and maintaining the current supply indexes by building additional infrastructure where needed.

Some of the most significant short term challenges presented by the water sector to the Mexican authorities include the following:

- 11 million people lack potable water service and 23 million of sewer system.
- 29% of the people living in rural areas lack water service and 61% of sewer.
- Only 31% of the wastewater discharges are treated to meet existing regulations.
- Water utilities have very low technical and operational efficiencies, with water looses ranging from 30% to 50%.
- Water utilities maintain low tariffs and collection rates creating incapacity for new investments without requesting federal funds or subsidies.
- The Mexican population is growing by approximately 1.5 million inhabitants per year.
- There is an growing population concentration in Mexico's largest cities: 31 cities concentrate over 51% of the total population, with Mexico City, Monterrey and Guadalajara concentrating close to 32 million people.

- Some areas, especially Mexico's northwest region and Mexico City are beginning to experience water supply shortages and water availability problems. In the northeast the government will begin using desalinization technologies to supply water to the population. Mexico City needs to bring more water to supply demand, however there is no more water available near Mexico City and bringing it from other states has become a politically impossible as it is shifting the need from one area to another.

Long term goals for the water sector in Mexico remain very significant as the government's objectives call for increasing water service and sewer coverage to 97% of the population and wastewater treatment to 90% by 2025.

2.3. Legal and Regulatory Framework: Status, Developments, Norms and Control, (Influence on demand.)

Mexico's water regulatory framework derives from two constitutional precepts:

A) Article 27 of the constitution dictates that water resources belong to the federal government and individuals, companies or even municipal governments can only exploit these resources through a concession granted by the federal government.

B) Article 115 of the Constitution places the administration and provision of water related services including potable water supply, sewage collection and wastewater treatment under the responsibility of municipal governments.

Because of this constitutional mandates, water regulations are divided in federal and local laws and regulations.

Federal Regulations:

A) The National Water Law: promulgated in 1992, provides an interpretation of article 27 of the constitution in relation to water. The law is divided in 11 chapters and regulates water management organization, structures for concessions, water rights, protected zones, pollution prevention and control as well as penalties for violations. The law also establishes the responsibilities of the CNA, its regional basin councils, the Secretariat of the Environment and other government entities and municipal water utilities in water management. The law was revised and modified and its most recent version was published in the official gazette on April 29, 2004. A copy of the law can be consulted in Spanish at the following Internet site: http://www.conagua.gob.mx/eCNA/Espaniol/MarcoNormativo/Leyes/Ley%20de%20Aguas%20Nacionales.pdf

B) Regulations to the National Water Law: These regulations define the interpretation and operational aspects of the National Water Law. The regulations were originally published in 1994 and later modified in 1998. A new revision to the regulations is expected to be published in the following months.

C) Federal Law for Water Rights: This law is modified every year to incorporate tariff increases reflecting the inflation rate and to define water availability and protected areas. It sets the terms, conditions and pricing for water use in Mexico, including fines for exceeding pollution limits on water discharges.

In addition to these regulations, the CNA and the Secretariat of Health have issued the following regulations related to potable water:

NOM-001-CNA-1995. Sanitary sewerage systems. – Specifications for hermeticity. It was published in the Official Gazette on October 11, 1996, and entered into force on February 8, 1997.

NOM-002-CNA-1995. Domestic service connections for drinking water supply. Specifications and testing methods. It was published on October 14, 1996, and entered into force on April 12, 1997.

NOM-003-CNA-1996. Requirements during the construction of wells for withdrawing water in order to prevent the pollution of aquifers. It was published on February 3, 1997, and entered into force on May 4, 1997.

NOM-004-CNA-1996. Requirements for the protection of aquifers during the maintenance and reconditioning of wells for withdrawing water and for the closure of wells in general. It was published in the Official Gazette on August 8, 1997, and entered into force on February 3, 1998.

NOM-005-CNA-1996. Fluxometers. – Specifications and testing methods. It was published in the Official Gazette on July 25, 1997, and entered into force on January 21, 1998.

NOM-006-CNA-1997. Prefabricated septic tanks. – Specifications and testing methods. It was published in the Official Gazette on January 29, 1999, and entered into force on January 30, 1999.

NOM-007-CNA-1997. Security requirements for the construction and operation of water tanks. It was published in the Official Gazette on February 1, 1999, and entered into force on June 1, 1999.

NOM-008-CNA-1998. Showerheads used for human hygiene. – Specifications and testing methods. It was published in the Official Gazette on June 25, 2001, and entered into force on December 22, 2001.

NOM-009-CNA-1998. Toilets for sanitary use. – Specifications and testing methods. It was published in the Official Gazette on August 2, 2001, and entered into force on November 30, 2001.

NOM-010-CNA-1999. Toilet tank intake and discharge valves. – Specifications and testing methods. It was published in the Official Gazette on September 2, 2003, and entered into force on February 29, 2004.

NOM-011-CNA-2000. Conservation of water resources. This standard establishes the specifications and method for determining mean annual availability of national waters. It was published in the Official Gazette on April 17, 2002, and entered into force on June 17, 2002. In addition, the following standards are being considered (draft standards):

PROY-NOM-012-CNA-2002. General requirements for security of dams (preliminary drafts standards).

PROY-NOM-013-CNA-2001. Drinking water supply networks. Specifications for hermeticity and testing methods.

Official Mexican Standards of the Ministry of Health

NOM-127-SSA1-1994. (Modification.) Environmental health, water for human use and consumption. Limits permitted in terms of quality and treatment water should receive for its purification. It was published in the Official Gazette on November 22, 2000, and entered into force on February 20, 2001. (It was originally published on January 18, 1996, and entered into force the following day.)

NOM-179-SSA1-1998. Supervision and assessment of quality control of water for human use and consumption that is distributed by public supply systems. It was published in the Official Gazette on September 24, 2001, and entered into force on November 24, 2001.

NOM-012-SSA1-1993. Sanitary requirements to be complied with by public and private systems for supplying water for human use and consumption. It was published in the Official Gazette on August 12, 1994, and entered into force on August 13, 1994.

NOM-013-SSA1-1993. Sanitary requirements to be complied with by tanks of vehicles used for

transporting and distributing water for human use and consumption. It was published on August 12, 1994, and entered into force on August 13, 1994.

NOM-014-SSA1-1993. Sanitary procedures for sampling water for human use and consumption in public and private water supply systems. It was published in August 12, 1994, and entered into force on August 13, 1994

The most important of these regulations is NOM-127-SSA1-1994, which was modified in February 2001 and sets the tolerances of polluting agents for potable water. These tolerances are:

NOM-127-SSA1-1994 Potable Water Quality.

Characteristic	Tolerances
Water fecal coli form load.	Absent or undetectable
E. coli	Absent or undetectable
Color	20 units in the real color (Pt/Co) platinum-cobalt scale.
Taste and Odor	Pleasant (All those which are tolerable for the gross of the population, and that are no challengeable from the biological or chemical point of view.)
Turbidity	5 turbidity SSU units or its equivalent or other method.
Characteristic	**Tolerances Mg/l unless indicated**
Aluminum	0,20
Arsenic (As)	0,05
Barium (Ba)	0,70
Cadmium (Cd)	0,005
Cyanides (CN-)	0,07
Chloride	0,2-1,50
Chlorides (Cl-)	250,00
Copper	2,00
Chromium	0,05
Total Hardness (CaCO3)	500,00
Phenols	0.001
Iron	0,3
Fluorides (F-)	1,50
Aromatic hydrocarbons in micrograms/l:	0.15
Benzene	10,00
Methylbenzene	10,00
Toluene	700,00
Xylem	500,00
Manganese	0,15
Mercury	0,001
Nitrates (N)	10,00
Nitrites (N)	1,00
Amoniacal Nitrogen (N)	0,50
pH in pH units	6,5-8,5
Plaguicides in micrograms/l:	0.03
Aldrín/dieldrín	0,03
Chlordane	0,20
DDT	1,00
Gamma-HCH	2,00
Hexachlorobenzene	1,00

Heptachlor and epoxies	0,03
Metoxicloro	20,00
2,4 – D	30,00
Lead	0,01
Sodium	200,00
Total Suspended Solids	1000,00
Sulphates (SO4=)	400,00
Active substances to Blue Methylene	0,50
Trihalomethanes total	0,20
Residual Iodine.	0,2-0,5
Zinc	5,00

Dutch companies can consult these regulations in Spanish at the CNA web page www.conagua.gob.mx and then clicking in regulations on the left menu. English translations can be purchased at http://www.mexicanlaws.com/.

In addition of the Federal Regulations, each State has its own water law to regulate the provision of services. These laws are different from State to State but most agree with the guidelines of the National Water Law. Local Laws define how water tariffs are set and which state entities are responsible for overseeing service provision.

From a potable water quality or project perspective, the possibility to make permissible pollutant limits more stringent and increase regulation enforcement will be the only changes that could directly generate additional projects or potential equipment and technology sales opportunities. According to the CNA the current regulatory framework is adequate, however enforcement is still weak and only the largest cities meet with all the established regulations.

There are other indirect changes that could increase opportunities for Dutch companies and which are related to the general trend in the sector, especially in larger urban areas, where the administration of the system is being modernized and is generating additional revenues which could translate into additional projects for water potabilization.

2.4. Trends and Enforcement:

Enforcement of potable water quality is limited in Mexico. Potable water produced by potabilization facilities operated by local governments must comply with the regulations established by federal health authorities and it is expected that effluent quality will be tested at that point, but demand for potable water is exceeding the local governments' capacity to supply the water and in many cases is reducing the quality of the water being supplied.

Enforcement of the water quality standard is performed by the Secretariat of Health. In most cases, the water supplied into the municipal systems meets or is close to meeting the limits set under regulation NOM-127-SSA1-1994. Violations to the regulation by the local water utility are reported by the ministry of Health to the National Water Commission, which will intervene to solve the situation and apply penalties to the local utility. The ministry of health will alert the local population on the problem but, it is unlikely that the enforcement authority, in this case the Ministry of Health, will get involved in actually closing the potabilization facility. It is mostly the local press informing on the poor quality of the water being supplied to the population and how its health is put at risk, which exerts some pressure with state and local authorities. An example is the case of San Luis Potosi, an important mid-sized city, where the press has been responsible for alerting the population about the elevated arsenic content in the municipal potable water supply. These pressures could in some cases be a driver for improving the technologies or procedures for potabilizing water. There should be a differentiation between water quality at the potabilization plant and quality as it is being delivered to the user, as this second case also depends on the physical condition of the distribution infrastructure which in most cases is either very old or has not received any maintenance. Because of this situation, the population does not trust the quality of the water being supplied as it is always highly chlorinated, to avoid potential cross contamination with possible leaks in both potable water and sewage lines as the quality and integrity of the pipeline infrastructure is always questionable.

This situation has created a large amount of economic distortions as Mexico is the second largest world market for soft-drinks and also one of the largest bottled-water markets.

There is a clear need to expand potabilization capacity in many cities throughout Mexico and those plants, being new facilities, will necessarily have to meet all potable water regulations.

Most of the enforcement effort in Mexico in relation to the water sector is focused on industrial and municipal wastewater treatment.

In general terms, the effectiveness of regulatory enforcement in Mexico's water sector is very low with regard to public sector entities, and moderate with regard to industry.

CNA is responsible for enforcing federal water regulations, charging water rights to municipalities or industries using water, property of the nation, and for charging rights to municipal or industrial discharges into water bodies. Currently 64 municipalities with a population greater than 50,000 inhabitants, equivalent to 57 percent, are violating water discharge regulations for not having wastewater treatment systems. These municipalities are charged with water discharge rights, but less than ten percent of those are actually paying these rights.

The lack of payment has resulted in a debt of over € 2.6 billion which is unplayable for the municipal water utilities. The Federal Government issued a presidential decree where it writes-off debts to municipalities and water utilities that develop an action plan to install wastewater treatment systems in place. Of the 265 cities that subscribed the agreement only 85 have met their goals and the rest have delays in their investment plans superior to 30%.

In theory, the CNA has the right to request to the Ministry of Treasury (SHCP) to take monies from the federal funds assigned to municipalities when these don't pay their obligations. Politically however, this would be difficult since municipalities would have less to invest, so the CNA will continue to simply document these liabilities in its books while finding an alternative solution.

According to CNA, to solve the water problems that Mexico is facing, the Federal Government needs to work with State and local governments as the three levels need to participate in the solutions. The CNA has been more proactive in finding a long-term solution rather than punisher for regulations violators.

The CNA's water programs provide incentives to State and Municipal water utilities that increase their coverage, efficiencies, to those who install wastewater treatment facilities or those who make efforts to become self sustainable. The policies of this administration have been useful to create various self-sufficient water utilities, however the number of inefficient and subsidized water utilities continues being greatly larger.

2.5. Sector/Consumers: Characteristics, Demand, Possibilities of Financing New Investments. Main Government Programs

The largest consumers for water purification and supply technologies are the local governments through their municipal water utilities, however, as we have mentioned before, very few have financial capabilities to undertake large water infrastructure projects with their own resources so they rely on Federal State or multilateral financial support.

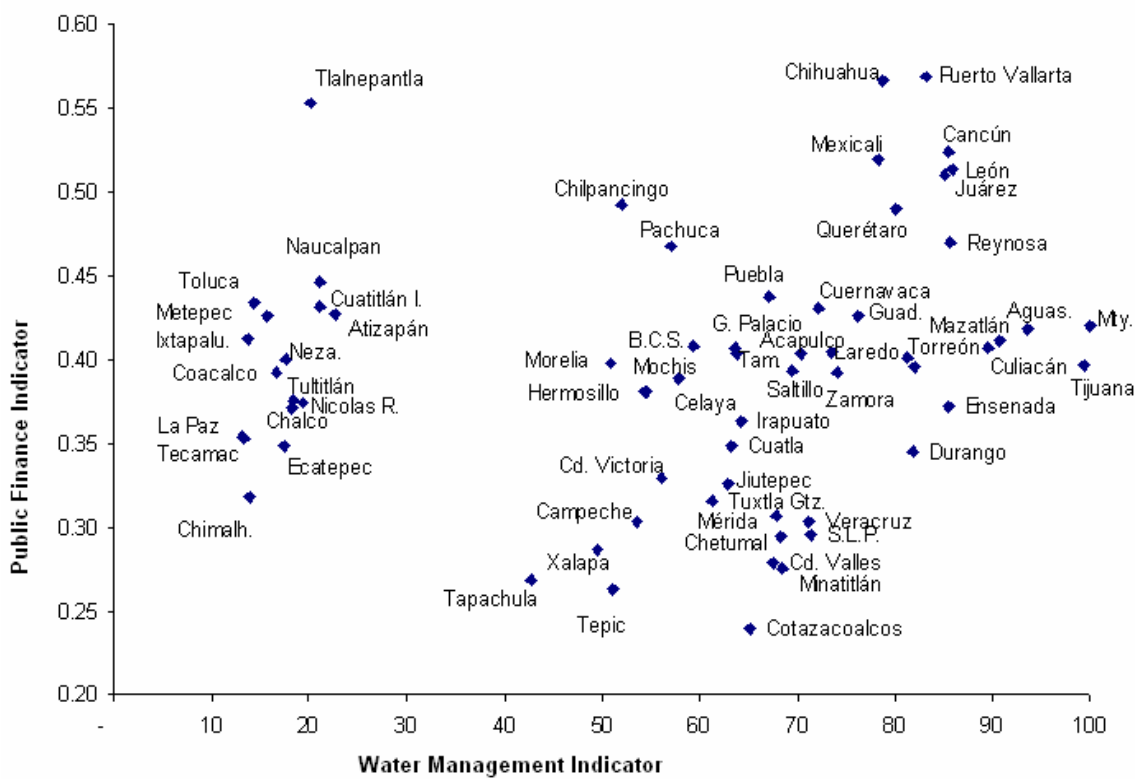
There are a few municipal water utilities who have received ratings from qualifying agencies such as S&P or FitchRatings. These are some of the best water utilities of Mexico and their qualifications are the following:

SAPAL (León, Gto.)	AA-(mex)
SADM (Nuevo León)	AA-(mex)
SIMAS (Torreón, Coah.)	A+(mex)
CESPT (Tijuana, B.C.)	A+(mex)
CESPM (Mexicali, B.C.)	A(mex)

SIAPA (Guadalajara, Jal)	A-(mex)
JUMAPAM (Mazatlán)	BBB+(mex)
CEA (Querétaro)	BBB(mex) pcp
CAPA (Quintana Roo)	BBB-(mex)
OPDM (Tlalnepantla)	BB+

Low Risk mxAAA: Extremely strong; AA: Very Strong; A: Strong, subject to effects of changes in the sector; BBB: Adequate, with weakness possibilities.
High Risk: BB: Vulnerability of non-payment risk, B: Major non-payment vulnerability. CCC: Possibility of non payment. D: Non payment.

As municipal water utilities don't follow the same methodology to report efficiencies to CNA, it is hard to determine which are really the most efficient. The following table analyzes the data provided by utilities to the CNA and ranks them based on their efficiency reported and the financial capability of the municipality:



Although in general, Municipal water utilities develop large infrastructure projects only when they receive financial support from the Federal Government or from Multilateral organizations, they are constantly investing in maintenance, upgrades and expansion of their existent infrastructure. The Federal Government is conditioning financial support to efficiency improvements so most municipalities in Mexico are investing in metering technologies, billing systems, leak detection and repair technologies, and other products and services for efficiency improvement.

Purchases by public entities in Mexico are conducted through a public tender process. Doing business with local utilities requires knowledge of their particular project objectives as well as procurement practices and of the public works and acquisition laws. It is recommended for Dutch companies interested in selling directly to the water utilities to either establish a local presence in Mexico or work through a local distributor to sell to municipal water utilities. This as many projects are defined as national tender, indicated that the purchase will be made from a company incorporated in Mexico.

III. Potable Water Opportunities: (Supply)

3.1. Local Production.

Almost all the water utilities of Mexico are owned and operated by the municipal governments and their infrastructure is also operated by municipal employees, unless in the few cases where the infrastructure or the whole system have been concessioned to a private operator.

Most potable water infrastructure in Mexico has been built by Mexican construction companies mostly in partnership with international water groups and technology suppliers. The construction of potabilization plants is contracted as public works and only when the plant is highly technologically advanced (Such as the desalinization plants) is contracted as a concession where the private company operates the plant for a specified period.

Mexico has strong and highly recognized engineering and construction companies. The country is also a large producer of concrete, pipes, and other low-tech water construction materials. The technologies used in a potabilization plant, such as flow meters, chemical dispensers, filters, membranes, analyzers, pumps, valves, and fittings are mostly imported.

Private participation in the provision of water services is almost incipient in Mexico, and at present only two cities (Aguascalientes and Cancun) are fully operated by private companies. In Saltillo, the government created a partnership with a private company to operate the system and Mexico City and Puebla have signed agreements with private companies under management contracts. In all cases where schemes for private participation have been selected, efficiency levels, quality of the service and coverage have increased over the national average. Despite of this, local governments are still not willing to cease control of their systems.

Dutch companies will find larger opportunities in Mexico for supplying equipment, technology and consulting services rather than operating systems or plants.

3.2. Pricing and Metering.

The service providers' revenue is generally not sufficient to cover the costs of providing the service. This may be due to low tariffs, low collection efficiency or operating inefficiencies. A CNA study of a sample of 56 cities found that residential tariffs ranged from € 0.08 to € 2.83 per cubic meter. However, the outdated customer records and low collection efficiency meant that the average real income was just € 0.12/ m3. Based on this sample, rates would have to be significantly increased, collection expanded and/or expenses cut back for service providers to be able to cover all their obligations, including investments in both water supply and sanitation. Rates are approved in accordance with the laws of each state. In 10 states, the state congress sets the tariff, whereas in another 19 states the system operator's administrative board fixes the tariff; in one state, the governor decides what the tariff will be. Only 20 of the 31 states allow service cutoff for nonpayment. The Mexican constitution states that every Mexican has the right to have basic services, and as water is considered among those, the interpretation of this constitutional precept is that the government has to provide water service regardless of payment.

Although 20 State water laws allow for water cuts, in practice very few municipalities cut or reduce the water flow if a user misses to pay for the service and most of the cuts are made to industrial or commercial users and not to residents.

Mexico has very large disparity of income, with high-income and poor people living together in cities or communities. Several cities have divided their water tariffs in zones, charging higher tariffs to upscale neighborhoods and lower to the poorest areas of the city. This has created some controversies and non-payment issues.

At the end, very few tariffs in Mexico are set according to the real cost of the supply and thus very few municipalities have positive cash flows.

Unaccounted water and metering indexes have improved significantly in the last few years as a

result of the incentives offered by the CNA and they are expected to continue increasing as municipal water utilities need to invest in this area to receive subsidies from the Federal Government.

According to a study developed by the Mexican Commission of Environmental Infrastructure (COMIA) among 69 municipal water utilities, their average efficiency indicator is 65 using a scale where 100 is the best utility in that particular indicator.

STATE	CITY	Operational Capability	Physical Efficiency	Commercial Efficiency	Tariffs (in relation to average)	Employees for every 1000 tabs	EFFICIENCY INDEX
WEIGHT OF INDICATOR		30	20	20	20	10	100
BC	Tijuana	20	87	99	100	58	100
NL	Monterrey (1)	21	82	99	67	62	91
BC	Ensenada	20	87	89	87	36	88
Jal	Guadalajara (1)	35	68	68	64	83	87
Chih	Juárez	16	83	76	41	92	85
Gto	León	16	65	95	63	66	84
BC	Mexicali	19	91	89	58	41	82
Chih	Chihuahua	20	72	85	41	78	81
Gto	Celaya	40	63	90	33	65	80
Dgo	Gómez Palacio	27	44	88	72	53	78
Sin	Culiacán-Rosales	26	72	94	39	53	78
Q R	Cancún	20	60	94	70	36	77
Coah	Ciudad Acuña	18	84	96	23	56	76
Tam	Reynosa	19	85	82	48	40	75
Pue	Puebla	12	47	49	64	100	75
Sin	Los Mochis	32	61	95	31	48	74
Méx	Lerma	96	66	65	25	14	73
SLP	San Luis Potosí	14	60	94	22	76	73
Tam	Ciudad Victoria	26	63	87	46	42	73
Qro	San Juan del Río	16	69	87	43	44	71
Jal	Puerto Vallarta	15	66	98	50	29	71
Coah	Torreón	15	55	68	59	61	71
Zac	Zacatecas-Guadalupe	18	63	100	37	39	71
Mich	Zamora	15	68	83	9	81	70
Ags	Aguascalientes	17	43	77	51	68	70
Gto	Irapuato	31	55	66	49	55	70
Mor	Cuernavaca *	18	76	97	18	45	70
Chis	Tuxtla Gutiérrez	20	51	91	59	32	70
Coah	Saltillo	13	48	70	47	74	69
Sin	Mazatlán	10	77	94	32	37	69
Qro	Querétaro	8	57	78	53	54	69
Ver	Minatitlán	23	43	68	74	41	68
Ver	Veracruz (1)	19	48	68	76	38	68
Son	Hermosillo	16	57	84	37	52	67
Yuc	Mérida *	13	48	73	24	86	67
Dgo	Durango	18	43	53	49	78	66
Gro	Acapulco	23	36	82	82	19	66
Méx	Cuautitlán Izcalli	100	72	60	9	0	66

Mich	Morelia	16	45	84	37	55	65
Coah	Piedras Negras	14	65	77	31	51	65
SLP	Ciudad Valles	20	53	95	39	29	65
Gro	Chilpancingo	16	79	63	47	27	64
Tam	Tampico-Madero-Altamira	11	72	89	19	37	62
Ver	Coatzacoalcos *	17	50	73	49	34	62
Chis	San Cristóbal Las Casas	15	41	69	20	74	60
Méx	Chalco	22	48	92	0	56	60
Ver	Xalapa-Enríquez	18	61	73	28	37	60
BCS	La Paz	16	63	49	55	32	59
Nay	Tepic	14	41	59	28	69	58
Méx	Netzahualcóyotl	0	70	57	0	83	58
Méx	Atizapán	8	69	55	41	36	58
Gro	Iguala	19	43	57	42	47	57
Méx	Tultitlán	0	92	50	0	63	56
Camp	Campeche	13	51	53	7	78	55
Chis	Tapachula-Ordóñez	15	46	73	31	37	55
Mor	Cuautla	16	25	84	41	33	55
Mor	Jiutepec	20	41	63	24	50	54
Méx	Naucalpan	0	77	90	0	30	54
Méx	Coacalco	0	68	69	0	52	52
Méx	Ecatepec	0	60	68	0	58	51
Méx	Metepec	0	70	73	0	42	51
Q R	Chetumal *	9	46	84	17	28	51
Tam	Nuevo Laredo	12	54	51	31	36	51
Méx	Toluca	14	57	73	0	27	47
Méx	Zinacantepec	0	97	30	0	40	46
Méx	Chimalhuacán	0	61	43	0	63	46
Méx	Tlalnepantla	0	74	56	0	30	44
Méx	La Paz	0	63	59	0	36	43
Méx	Ixtapaluca	0	74	55	0	27	43
Méx	Nicolás Romero	0	100	48	0	0	41
Méx	Tecamac	0	65	59	0	0	34
DF(3)	Distrito Federal (3)	1	70	0	18	0	25

3.3. Transfer of Knowledge and Technologies: Status, Opportunities, Stimulation.

Most potable water infrastructures is designed by the local water utilities and the CNA with assistance from private consulting engineering firms, and then open for bid as turnkey projects.

Municipal water utilities who are seeking to develop a project or evaluate technologies for their systems usually recur to one of four sources: The CNA, ANEAS, IMTA or BANOBRAS. Municipalities in northern Mexico also seek technologies and knowledge in the NADBANK.

The CNA through its Construction Deputy Directorate advises municipalities in which are the best technologies available to solve their water problems. The CNA also assists municipalities with basic engineering, detailed engineering and preparation of tender documents.

ANEAS assists municipalities in approach financing options, generally through the CNA, Banobras or multilateral banks. The Association also recommends technologies and systems that are of their knowledge and provides training to personnel of the Utilities.

The Mexican Institute for Water Technologies (IMTA), acts as the research center for water technologies in Mexico. The institution analyzes potential solutions to water quality and water systems operational problems and advises municipal water utilities of the potential solutions.

This entity also certifies technologies that are new to the Mexican market and informs the water utilities of their latest developments. It is highly advisable for Dutch companies bringing state of the art technologies to Mexico to present those to the IMTA as in addition to be a requirement to obtain their certification, they are a good channel to inform water utilities of the availability of the new technology. IMTA also provides training to personnel of water utilities and often works with International companies or organizations to present the latest technologies to the utilities.

BANOBRAS plays a major role in project design and preparation of bidding documents in all the projects where they participate as financial player. For water projects, the bank works closely with the CNA for project design and feasibility studies.

Projects that request financing to the NADBANK are requested to pass through an exhaustive and usually long certification process. NADBANK provides grants to municipal utilities for all the feasibility studies required for a project. These studies are contracted through public tenders and usually granted to American or Mexican companies. Dutch companies are allowed to participate in these tenders, however it is highly advisable that they partner with a local company in order to increase their success in winning the bid.

None of the above entities is allowed to recommend particular brands for a technology. If a technology is unique for a company, they often look for alternatives so they don't recommend a particular company.

All water works in Mexico that receive financing from public monies need to be tendered. Tenders are usually open to various technologies (For example, for a potabilization plant, the tender indicates water quality of the inflow and required quality of the outflow but doesn't state the type of technology needed). Only in those cases where a particular technology has proved to be the ideal for that area, the authorities are allowed to specify which technology will need to be used. (See Appendix 3: Procurement Law and Considerations).

For efficiency improvement projects, the following technologies and services are the ones with higher demand in Mexico:

Production and Distribution	Commercial Efficiency	Institutional Development
Hydraulic	Cadastre and customer databases	Business organization
Physical	Micro-metering	Human Resources development
Electromechanical	Consumption estimates	Leadership
Water Quality	Billing	Staff Training and capacity building
	Collection	Financial management
	Tariff studies	Customer service and relations
	Control of supplies and stock management	External and internal communication
	Transport	Accounting systems
	Social communication and customer service	

3.4. Characteristics of the Market in Terms of Quality and Price.

Historically price has been the main purchasing decision factor for water purification technologies, this is one of the reasons why the installed base of potabilization plants in Mexico is dominated by conventional clarification plants which are some of the least expensive among the purification technologies available.

Until April 2005 Mexican laws stated that the lowest price bidder should be awarded with the purchase. This law was changed and under new amendments, price has stopped being the only consideration factor and a stronger emphasis will be placed on the quality and technical aspects of the offer and the supplier's experience and credibility.

Prior to the amendments, the tendering process consisted in two separate envelopes, one with

the technical proposal and a different envelope with the economic proposal. Only the envelopes passing the technical tender passed to the economic stage where the lowest price bidder was awarded. Under the new amendments only one envelope will contain both proposals and all will be evaluated.

Despite of these changes, we believe municipal water utilities will continue placing considerable emphasis in price as their budgets for investment are usually very tight.

Water utilities facing water availability issues or water quality problems are searching for more advanced purification technologies; proof of this is that most membrane or reverse osmosis plants built in Mexico, have been built in the last five years.

Municipal utilities in areas facing water availability issues are less price sensitive than those located in areas where the resource is widely available. In the Baja California peninsula, the only sources available for water in the future will be aquifers that have seawater intrusions and the sea. Desalinization technologies will find good demand in this area in the future. Also in some cities such as Hermosillo, Coahuila and Durango, advanced water purification technologies will be needed as the only water available is fossil water which has high arsenic concentrations.

3.5. Schemes for Private Participation.

The historical financial weakness of local water systems in Mexico and the impossibility of the federal and state governments to continue providing grants and subsidizing the systems, yielded the idea of opening the sector to private participation through a series of schemes. These projects started in the largest cities with the financing and construction of wastewater treatment plants, under build-operate-transfer (BOT) arrangements. By 1998, almost 40 of these projects were in either operation or construction, with many projects running into financial trouble. The concept of private participation remained as a key element for the modernization of the sector, but in fact, it has remained limited, with very few examples of complete water system concessions. These were only developed in the cities of Aguascalientes (1993), Cancún (1994) and Saltillo (2001).

The PROMAGUA is the leading program to promote private participation in the operation of water systems but it is still premature for evaluating its success. To date, only one joint public-private venture for the operation of the water system in Saltillo in the northern state of Coahuila has been established. The feasibilities studies for defining private participation have been finalized for the municipalities of Manzanillo, Colima; Querétaro, Querétaro; Guadalajara, Jalisco; Morelia, Michoacán; Coatzacoalcos, Minatitlán and Nachital in Veracruz; Colima, Colima; and Acapulco, Guerrero, with an additional 12 municipalities continuing the analysis. There is a strong probability that private participation in these municipalities will significantly increase investment in water projects at those communities.

Some of the schemes that have been developed for the participation of private investment in water projects include:

Integrated Concessions: Under this scheme, the government grants a concession title to a private operator for the operation of their entire water system, from water extraction, potabilization and supply to the treatment of wastewater. The private company is in charge of financing all the required infrastructure improvements and is usually required to meet certain water coverage goals. The private company is also in charge of billing customers and collecting payments.

Mixed Public Private Venture: The municipal water authority defines a desired level of private participation and invites a private operator to invest jointly in a new utility which will be in charge of providing water and sanitation services under a concession scheme. This scheme is new for Mexico and Saltillo is the first mixed public-private utility with 49% private investment. The venture has achieved a series of successes including increasing potable water coverage from 80% to 95% (The goal is 98% for 2007). The city continues with low efficiency indexes and potable water losses of close to 40% but is working on achieving its objective of reducing

potable water distribution loses to 25%. These opportunities can be explored by Dutch companies interested in the administration and operation of water systems.

Management Contracts: A private company is put in charge and compensated for achieving specific benchmarks or improvements. It has worked in Mexico City and Puebla and is less controversial than concessions since fees are paid to the local government, which is also responsible for setting service fees. The most successful example is Mexico City, where the private companies have survived two administration changes, increased metering, billing and collection indexes and has minimized water losses in the secondary distribution network. The local government will re-tender the contracts in 2006 which will open opportunities for Dutch companies interested in potable water system operations.

Partial Concession: Similar to the integrated concession where the private company is responsible for potable water, sewage and performs the billing and collection, but is not responsible for wastewater treatment. The private company invests to expand coverage and improve the efficiency of the system. The revenues are first used to pay the private company and the remaining is used to finance water treatment. This scheme has not been used in Mexico but will work for cities which have a concession for their wastewater treatment plants and require investments for expanding and improving potable water services.

The different private participation schemes share a common objective which consists of the expansion and quality improvement of water service at the location. Accomplishing those objectives require investments which create potential sales opportunities for Dutch companies dedicated to supplying services or products to potable water infrastructure construction or water operation systems.

3.6. Needs and Investment Plans.

We have described the regional challenges of the water sector in terms of availability, demand, supply and the specific problems such as polluted water sources and low efficiencies of local water utilities.

The federal government has accomplished its potable water service coverage for 2006, but investments into the sector will continue as they are necessary to improve the efficiency of the water companies and their operations.

Sales opportunities in Mexico for Dutch companies with potable water related offerings will depend on the specific types of water potabilization projects that will be undertaken over the following months in Mexico and which many are described in this report. These sales opportunities can range from selling small water potabilization plants to be used for emergency response to the provision of all necessary services, equipment and infrastructure construction for an integral water concession project which in many cases requires the construction of dams, pipelines, potabilization plants, pumping and distribution infrastructure, metering systems, water quality testing and monitoring equipment, radio frequency consumption monitoring and a very long list of products well known to the suppliers specialized in the potabilization market. Dutch companies will constantly find potable water projects being developed across Mexico as demand is growing at a fast pace in many areas and driving the need for new potabilization capacity expansion. The fact that demand for potabilization related equipment is growing also translates into significant competition from local and international suppliers, which calls for the development of a strategy and a commitment to becoming successful players in this market.

The main priority for the Federal Government in the following years and where most of the investment will be canalized will be to promote the efficiency of local water utilities. Investments toward this initiative include modernizing the infrastructure of existent potabilization plants, detecting leaks, installing meters, improving commercial applications for water billing and collection as well as investing in personnel training. The Mexican Government will also invest over € 500 million to support potabilization projects including the Guadalajara Water Supply Project, in the construction of new desalinization plants in Mexicali, a large water supply project in Querétaro as well as several potabilization plants across the country. All these projects will receive financial support from the CNA, Banobras and/or multilateral organizations.

The Mexican government is negotiating with the IDB for the implementation of a second phase of the PROSSAPYS program (sustainability of water supply and sanitation services in rural communities),

3.7. Priority Projects.

Almost every municipal water utility in Mexico has efficiency improvement related projects or programs. Most of these programs are financed through the CNA programs listed in Appendix B of this report. Most efficiency improvement programs represent a series of small national tenders for equipment or services purchases. It is highly recommended that Dutch companies seeking to participate in these tenders establish direct presence in Mexico or develop a joint-venture or distribution agreement with a local company.

The following list includes the major priority projects for potable water for the period 2005-2008. All these projects are fully described in Appendix A of this report. The projects presented in this table were ranked under the following scale and evaluation criteria:

1. Project Definition: Qualifies the level of definition of the project. Five means that the project is completely defined, it has basic and detail engineering, site location selected and secured, and it is clear how the project will be tendered and when the tender will take place. Zero means that the project is on its idea stage, the need exists and the authorities are thinking of potential project solutions.

2. Financing: Five indicates that Financing has been secured or assigned, Four that it is close to be secured, it is either approved or awaiting allocation or is near approval. Three means that the project sponsor is in advanced negotiations with a financial source, Two indicates that the sponsor is in conversation with potential financing sources, one and zero indicate that financing has not yet been defined.

3. Political: As some projects in Mexico move forward quickly or fail due to political reasons, this is a very important indicator for project likeliness. The scale indicates the level of political risk for the project being 5 very low political risk and 0 very high political risk.

4. Need: Qualifies the urgency of the project. Five indicates that the project is needed as soon as possible, three or lower indicate that although the need exists, it is not qualified as urgent.

Project Name	Project Definition	Financing	Political	Need	Overall Rating
PROJECT PROFILES					
Construction of a Potabilization Plant in Queretaro	5	5	5	5	5
Program for Rural Water Infrastructure PROSSAPYS	5	5	5	5	5
Potabilization Capacity Expansion in Tijuana, Baja California	5	5	4	5	4.75
Construction of Three Potabilization Plants in Mexico City.	5	4	4	5	4.5
Guadalajara Water Supply Project	5	4	4	4	4.25
Ensenada Desalinization Plant	5	3	5	4	4.25
Tuxtla Gutierrez water supply project	5	3	4	4	4
Tijuana, B.C. Desalinization Plant	4	2	3	4	3.25
Arsenic Removal Project in the	3	2	4	4	3.25

State of Coahuila.					
Guanajuato and San Luis Potosi Potabilization Projects	3	1	4	4	3
La Paz, B.C.S. Desalinization Plant.	2	0	3	5	2.5
BRIEF PROJECT PROFILES					
Potabilization Plant Up Grade in Mexicali	5	5	5	5	5
Water supply Consulting Services in Campeche	5	3	5	5	4.5
Potabilization Plant Expansion in Tabasco	4	3	4	4	3.75
Chilpancingo Water Supply Project	4	1	4	4	3.25
Water softening plant construction in Quintana Roo.	4	1	4	3	3
Calvillo Water Supply Project	4	0	3	4	2.75
Construction of 3 Potabilization Plants in the State of Mexico	3	1	3	4	2.75
Ixtapa, Zihuatanejo Desalinization Plant	2	0	3	5	2.5
Pachuca Potabilization Plant Construction	2	0	3	4	2.25

IV. Market Players:

4.1. Public Players. – Contacts.

As we have mentioned before in this document, the most important public players in Mexico's water sector are the National Water Commission (CNA) and the State and Municipal Water Utilities. The following are some of the most important key players in this entities:

National Water Commission Comisión Nacional del Agua (CNA)
Name: Lic Cristóbal Jaime Jaquez
Position: General Director
Address: Insurgentes Sur No. 2416, piso 13
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5550-7607, 5550-6302
Fax: (52-55) 5550-6721
E-mail: direcciong@cna.gob.mx
Web page: www.cna.gob.mx
Comments: He is the head of the CNA. Dutch companies interested in doing business in Mexico can establish communication with his office indicating their interest in doing business in Mexico. Mr. Jaime will either meet with the companies coming to Mexico or direct one of his Sub-directors to meet with the company to orient them on specific business opportunities for individual technologies and services.

Name: Ing. Cesar Herrera Toledo
Position: Deputy Director
Address: Insurgentes Sur No. 2416, piso 4
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4473
Fax: (52-55) 5174-4475
E-mail: cesar.herrera@cna.gob.mx
Web page: www.cna.gob.mx
Comments: Recently Mr. Herrera was promoted to Deputy Director from a position of Planning Director which he had for the past 10 years. Mr. Herrera is an open person committed with the improvement of Mexico's water sector. He has knowledge of most upcoming infrastructure projects and through his large career at CNA he has knowledge of most players in the Mexican market. Mr. Herrera in addition to be a source of project information can assist Dutch companies to develop the necessary contacts for the local distribution of equipment and technologies.

Name: Ing. Jesús Campos López
Position: Urban Hydraulic Infrastructure Deputy Director
Address: Insurgentes Sur No. 2416, piso 3
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4215
Fax: (52-55) 5174-4217
E-mail: jesus.campos@cna.gob.mx
Web page: www.cna.gob.mx
Comments: Mr. Campos is the main person responsible for infrastructure project development in the CNA. He manages all projects where CNA has participation either as project sponsor or financial player. Mr. Campos also manages most of the financial programs focused in infrastructure development supported by multilateral and bilateral institutions as well as Banobras.

Name: Ing. Juan Carlos Valencia Vargas
Position: Potabilization and Waste Water Treatment Manager
Address: Insurgentes Sur No. 2416, piso 3
Col. Copilco del Bajo
04340, México D.F.

Ph: (52-55) 5174-4249
Fax: (52-55) 5174-4000 Ext. 1387
E-mail: juan.valencia@cna.gob.mx
Web page: www.cna.gob.mx
Comments: Mr. Valencia works closely with municipal water utilities to provide advice on Potabilization and wastewater treatment project development. In many cases local water utilities lack of the necessary technical skills to develop projects of this nature and Mr. Valencia's area supports the local utilities in the development of their projects and bidding documents. In addition Mr. Valencia acts as supervisor for projects that receive financial support from CNA. Dutch companies can meet with Mr. Valencia to learn about upcoming project opportunities as well as to identify municipalities with specific water quality problems or that need technical assistance.

Name: Ing. Antonio Fernández Esparza
Position: Urban Hydraulic Infrastructure Project Manager
Address: Insurgentes Sur No. 2416, piso 3
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4237
Fax: (52-55) 5174-4239
E-mail: antonio.fernandez@cna.gob.mx
Web page: www.cna.gob.mx
Comments: Mr. Fernández works closely with the Urban Hydraulic Infrastructure Deputy Director, Mr. Campos. His responsibility is to cooperate with Urban areas for the development of potable water infrastructure as well as to assist municipal utilities in improving their efficiency indexes. In this area Dutch companies can learn about the largest water infrastructure projects being programmed in Mexico.

Name: Dr. Felipe Ignacio Arreguin Cortés
Position: Technical Deputy Director / Subdirector Técnico
Address: Insurgentes Sur No. 2416, piso 8
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4000 Ext. 1620
Fax: (52-55) 5174-4402
E-mail: felipe.arreguin@cna.gob.mx
Web page: www.cna.gob.mx
Comments: This area is in charge of providing technical assistance to water utilities and to the CNA. Through this area Dutch companies can learn about specific technologies or solutions being sought by individual water utilities.

National Association of Water and Sanitation Companies / Asociación Nacional de Empresas de Agua y Saneamiento (ANEAS)
Name: Lic Salomón Aberdrop López
Position: President
Address: Calle de la Fuente No. 433 Altos
Col. Centro
25000, Saltillo Coahuila
Ph: (52-844) 412-7069
Fax: (52-844) 414-6544
E-mail: ceas_dirgral@hotmail.com
Web page: N/A

Name: Ing Roberto Olivares
Position: Executive Director
Address: Palenque No. 287
Col. Narvarte
03510, México D.F.
Ph: (52-55) 5543- 6600
Fax: (52-55) 5543-6605

E-mail: aneas@aneas.com.mx
Web page: www.aneas.com.mx
Comments: As indicated previously in this report the ANEAS groups most water utilities in Mexico. The association is an excellent venue to link technologies from private companies with local water utilities seeking for solutions. It is highly recommended for Dutch companies to meet with ANEAS and to use this association to distribute information of their technologies throughout Mexico. The bi-monthly magazine published by ANEAS is an excellent venue to give exposure to water related products and services among water utilities. In addition ANEAS keeps and updated directory of all water utilities in Mexico.

Federal Bank for Public Works / Banco Nacional de Obras y Servicios Públicos (BANOBRAS)
Name: Lic Enrique Lara DiLauro
Position: Water and Sanitation Project Director
Address: Av. Javier Barros Sierra No.515
Col. Lomas de Santa Fe
01219 México, D.F.
Ph: (52-55) 5270-1518
Fax: (52-55) 5270-1200 Ext. 1542
E-mail: elara@banobras.gob.mx
Web page: www.banobras.gob.mx

Name: Ing. José Carlos Ramoneda
Position: Water and Sanitation Project Manager
Address: Av. Javier Barros Sierra No.515
Col. Lomas de Santa Fe
01219 México, D.F.
Ph: (52-55) 5270-1540
Fax: (52-55) 5270-1200 Ext. 1542
E-mail: cramoneda@banobras.gob.mx
Web page: www.banobras.gob.mx

Comments: Trough the Water and Sanitation Project Directorate of Banobras, Dutch companies will be able to learn about upcoming project opportunities financed through Banobras or through Multilateral organizations when Banobras acts as the financial intermediary.

4.2. Multilateral or International Players – Their Roles, Contacts.

Interamerican Development Bank (IDB)
Name: Mr. Lawrence Harrington
Position: Director - Mexico
Address: Av. Horacio No. 1855, piso 6
Col. Los Morales Polanco
11510, México D.F.
Ph: (52-55) 9138-6200 Ext. 6210
Fax: (52-55) 9138-6229
E-mail: lluvisag@iadb.org
Web page: www.iadb.org

Name: Mr. Sergio Urra Molina
Position: Sanitation Specialist
Address: Av. Horacio No. 1855, piso 6
Col. Los Morales Polanco
11510, México D.F.
Ph: (52-55) 9138-6200 Ext. 6203
Fax: (52-55) 9138-6217
E-mail: sergiou@iadb.org
Web page: www.iadb.org

World Bank (WB)
Name: Ms. Ana Wellenstein
Position: Infrastructure Project Director - Mexico
Address: Ins Sur 1605 Piso 24
Col. Sn Jose Insurgentes
03900, México D.F. .
Ph: (52-55) 5480-4219
Fax: (52-55) 5480-4282
E-mail: lezeta@worlbank.org , kkashiwamoto@worldbank.org
Web page: www.worldbank.org

Japan Bank For International Cooperation (JBIC)
Name: Mr. Kenichi Iwase
Position: Director - Mexico
Address: Paseo de la Reforma 265 Piso-16
Col. Cuauhtemoc
06500, México D.F. .
Ph: (52-55) 5525-6790
Fax: (52-55) 5525-3473
E-mail: k-iwase@jbic.go.jp
Web page: www.jbic.go.jp

North American Development Bank (NADBANK)
Name: Ing Raúl Rodriguez Barocio
Position: Director
Address: 203 South St. Mary's, Suite 300
San Antonio, Texas 78205
Ph: (210) 231-8000
Fax: (210) 231-8000
E-mail: rrodriguez@nadb.org
Web page: www.nadbank.org

4.3. Private Sector Players – Competitors, Potential Partners, Contacts.

PRIVATE OR MIXED WATER OPERATORS:

Water Utility of Cancún: AGUAKAN, S.A. de C.V. (Dasarrollos Hidráulicos de Can Cun – DHC)
Name: Ing. Leonardo Alloco Minero
Position: General Manager
Address: Nader 35 Super Mza. 2 Mza. 9 Lote 31
Col. Centro
77500, Can Cun, Quintana Roo.
Ph: (52-998) 891-4700
Fax: (52-998) 891-4703
E-mail: lalloco@aguakan.com
Web page: www.aguakan.com

Water Utility of Aguascalientes: Concesionaria de Aguas de Aguascalientes,S.A. de C.V. (CAASA)
Name: Humberto Blancarte Alvarado
Position: Director
Address: República de Ecuador No. 205
Col. Fraccionamiento las Américas
20230, Aguascalientes, Ags. .
Ph: (52-449) 910-5800
Fax: (52-449) 910-5819
E-mail: humberto.blancarte@cima.com.mx
Web page: www.cima.com.mx

Water Utility of Saltillo: Aguas de Saltillo, S.A. de C.V. (AGSAL)
Name: Jesús García García
Position: Director
Address: Calle de la Fuente No. 433
Col. Centro
25000, Saltillo, Coahuila
Ph: (52-844) 438-0100
Fax: (52-844) 438-0150
E-mail: direccion@aguasdesaltillo.com
Web page: www.aguasdesaltillo.com

WATER COMPANIES (OPERATORS AND TECHNOLOGY COMPANIES)

Tecnología Intercontinental S.A. de C.V. (TICSA)
Contact: Ing. Jose Primelles
Position: Comercial Director
Address: Rio Lerma # 171 4°. Piso
Col. Cuahutemoc
06500, México D.F., México
Phone: (52-55) 5514-0321
Fax: (52-55) 5207-2478
e-mail: jprimelles@ticsa.com.mx
Web page: www.ticsa.com.mx
Business Overview: Founded in 1983 in Mexico City, TICSA is a dynamic group specialized in the design, construction and start-up of wastewater treatment plants and process water treatment plants. The company has a solid track record in municipal waste water treatment plant construction in Mexico.
Role in Water Market: The Company's portfolio includes municipal water utilities and many national companies such as breweries, soft drink bottlers, paper and pulp manufacturers, chemical and petrochemical firms, pharmaceuticals, and food processing firms. The company is now considering entering into the potable water sector in Mexico and is actively seeking for technological partners.
Recent Project: The Company won recently the US$ 30 million dollar contract for the construction of a 1200LPS WWT plant in Morelia, Michoacan.

Grupo Marhnos, S.A. – Grupo Proaqua
Contact: Dr. Juan Pedro Escobar Latapi
Position: Director
Address: Av. Himno Nacional No. 1911 4° piso
Col. Fracc. Tangamanga
C.P. 82296, San Luis Potosí, México
Phone: (52-444) 817-4381
Fax: (52-444) 817-4411
e-mail: jplatapi@proagua.com.mx
Web Page: www.grupoproaqua.com.mx
Business Overview: Grupo Proaqua, is a Mexican infrastructure company part of Grupo Marhnos. At present, this company is focused in opportunities in sanitation services and has only developed a few potable water projects. Grupo Marhnos has very good reputation within the CNA and local water utilities. The company, which holds contracts in Hidalgo and San Luis Potosí states, plans to expand business to Central America, where its parent company Marhnos has business contacts.
Role in Water Market: Meanwhile, the company is working to expand its presence in Mexico's wastewater treatment market. As such, it is competing for a concession to build and operate a wastewater treatment plant in Coahuila state capital Saltillo.
Recent Project: The water utility of Tepeji del Rio in Hidalgo awarded Proaqua a US$ 6 million concession to build a 100 LPS wastewater treatment plant and operate it for 18 years. The company is also in the fifth year of a 15-year concession contract to operate three wastewater treatment plants with combined capacity of 550 l/s in the city of San Luis Potosí.

Tecnología en Sistemas Ambientales, S.A. de C.V. (TESA)

Contact: Lic. Fernando Rodríguez Baxter
Position: Director
Address: Calle México No. 707
Col. Obispado
C.P.,64060 Monterrey Nuevo León, México
Phone: (52-81) 8989-3900
Fax: (52-81) 8989-3909
e-mail: fbaxter@grupodomos.com
Web Page: www.proaqua.com.mx , www.grupodomos.com.mx

Business Overview: TESA is a Mexican company established in 1988 and is a subsidiary of Grupo Domos, which is a well known construction company in northern Mexico. The company provides solutions for industrial and municipal potabolization and waste water treatment markets.
Role in Water Market: The Company is dedicated to design, build and operate WWT and potable water infrastructure in Mexico.
Recent Project: TESA has recently won a US$ 15 million dollar WWTP in Gómez Palacio Durango under a 20 year BOOT.

BAL ONDEO, S.A. de C.V.

Contact: Mr. Luis Rodríguez Bucheli
Position: General Director
Address: Corporativo Bal. Moliere No. 222 Piso 4
Col. Polanco
C.P. 11540, México D.F.
Phone: (52-55) 5279-3493, 5279-3313
Fax: (52-55) 5279-3365
e-mail: adriana_guillen@penoles.com.mx
Web Page: www.penoles.com.mx

Business Overview: Bal Ondeo is a join venture between Grupo Bailleres, one of the most important interdisciplinary business group which owns peñoles and Ondeo one of the most recognized water companies world wide. The company is dedicated to supply water and waste water solutions for the industry in Mexico. They are not participating in municipal projects at this time.
Role in Water Market: Bal Ondeo is dedicated to supply the Mexican industry with water treatment technologies.
Recent Project: Las industrial: The Company has installed several WWTP and Potabilization infrastructure for industrial complexes including mining, automotive, chemical among others.

Degremont de Mexico, S.A. de C.V.

Contact: Mr. Rodolfo Motto
Position: Commercial Director
Address: Av. Paseo de la Reforma No. 350 piso 15
Col. Juárez
C.P. 06600, México D.F.
Phone: (52-55) 5080-3534
Fax: (52-55) 5533-1457
e-mail: rodolfo.motto@degremont.com
Web Page: www.degremontmexico.com.mx

Business Overview: Degremont de Mexico is a subsidiary of Suez group one of the most important environmental solutions provider in the world. Degremont in Mexico is one of the leader companies supplying advanced construction services, operation, maintenance and financing of WWTP for human and industrial consumption.
Role in Water Market: Degremont has been involved in numerous water projects in Mexico and is very active in almost every single bid of the Government as well as in the industrial market in Mexico.

Recent Project: Degremont de Mexico is participating in several municipal WWTP construction projects in Mexico, some of the most representatives are: Celaya Guanajuato (1100 lps.) and Queretaro (750 lps.).

FYPASA Construcciones, S.A. de C.V.
Contact: Ing. Francisco Obregón
Position: International Business Coordination
Address: Nicolas San Juan 1541
Col. Del Valle
C.P. 03100
Phone: (52-55) 5688-0585
Fax: (52-55) 5688-9469
e-mail: cordint@fypasa.com.mx
Web Page: www.fypasa.com.mx
Business Overview: FYPASA is a 100% Mexican company with more than 30 years in the market. The company is dedicated to the construction, operation, rehabilitation and development of hydraulic engineering projects, such as WWTP,, potabilization plants, and other civil engineering related projects.
Role in Water Market: Fypasa has participated in several important projects in Mexico. The company has also participated in several projects in Leon Guanajuato, Cancun, Mexicali Baja California, Torreon Coahuila among others.
Recent Project: Currently they are working in a WWTP project in Lagos de Moreno in the state of Jalisco, with a capacity of 250lps. This project had a US$ 4.1 Million investment.

Earth Tech Mexico, S.A. de C.V.
Contact: Ing. Rafael Forseck
Position: Commercial Director
Address: Privada San Alberto No. 301
Col. Residencial Santa Barbara
C.P. 66266, San Pedro Garza García, Nuevo León, México
Phone: (52-81) 8133-3200 Ext. 3206
Fax: (52-81) 8133-3105
e-mail: rafael.forseck@mx.earthtech.com
Web Page: www.earthtech.com
Business Overview: Earth Tech has presence around the world and is dedicated to develop water treatment technologies to manage and reuse water, providing water and wastewater treatment and conveyance solutions, offering a full complement of engineering, construction management and operations services.
Role in Water Market: Earth Tech's water management market sectors include: water, waste water, water resources and urban infrastructure
Recent Project: The most recent projects this company has won was the construction of WWTP in Tlanepantla State of Mexico, Chihuahua, Mexicali B.C. and Xalapa Veracruz.

Odis Asversa, S.A. de C.V.
Contact: Mr. Fabian Yanez Carvajo
Position: General Director
Address: Paseo de la Reforma 155-1er. pìso
Col. Lomas de Chapultepec
C.P. 11000
Phone: (52-55) 5540-9035
Fax: (52-55) 5540-9030
e-mail: fabian@odis.com.mx
Web Page: www.odis.com.mx
Business Overview: ODIS ASVERSA is a Israeli company established in 1992 in Mexico, dedicated to design, manufacture and operate different types of water systems.
Role in Water Market: The Company is well recognized in Mexico in the construction of municipal and industrial desalinization plants.
Recent Project: Their most recent project was the construction of a SWRO plant in Huatulco port in the state of Oaxaca. This project was for a private hotel consortium.

IMPEL de México, S.A. de C.V.
Contact: Ing. Ángel Bonfigli
Position: Director
Address: Eugenia No. 407
Col. Del Valle
C.P., 03100, México D.F.
Phone: (52-55) 5536-0326
Fax: (52-55) 5669-0611
e-mail: angelbonfigli@prodigy.net.mx
Web Page: www.impel.com.mx
Business Overview: IMPEL de México is a Mexican company established in 1970, dedicated to offer design, construction, equipment, and start up of industrial WWTP, inverse osmosis systems, mechanical mud collectors, and other technologies.
Role in Water Market: The Company is capable to commercialize and manufacture submergible pumps among other equipments related to the water sanitation and Potabilization markets in Mexico..
Recent Project: N/A

Ingeniería Ambiental Y Tratamientos de Agua (IATA), S.A. de C.V.
Contact: Ing. Ma. Del Rosario Martínez
Position: Comercial Director
Address: Oriente 239 C No. 46
Col. Agrícola Oriental
C.P., 08500, México D.F.
Phone: (52-55) 5608-6314
Fax: (52-55) 5608-6314
e-mail: enviromentalmx@yahoo.com.mx
Web Page: N/A
Business Overview: IATA is a small sized Mexican company dedicated to provide water treatment and Potabilization turn key projects for both, municipal and industrial markets in Mexico. This company also provide tank and pressure vessels manufacturing, structural metal works, tubing, industrial coating, among others services including water testing and sampling.

WATER INFRASTRUCTURE CONSTRUCTION COMPANIES (POTENTIAL PARTNERS FOR PROJECT DEVELOPMENT)

Grupo Mexicano de Desarrollo S.A. (GMD)
Contact: Ing. Jorge Saavedra S.
Position: Water Project Director
Address: Carretera México – Toluca N° 4000
Col. Cuajimalpa
05000 México D.F., México
Phone: (52-55) 8503-7000
Fax: (52-55) 8503-7081
e-mail: jorge.saavedra@gmd.com.mx
Web page: www.gmd.com.mx
Business Overview: Grupo Mexicano de Desarrollo is a 100% Mexican Construction Company established in 1975. The company was one of the most important infrastructure development companies in Mexico in the mid-nineties. Because of their large project exposure the company declared bankruptcy as a consequence of Mexico's 1994 peso devaluation. The company was bailed out by a new group of investors and has become active again in the area of potable and waste water projects.
Role in Water Market: The Company had constructed the Ecosys WWT facility with a capacity of 2250 LPS for the city of Toluca, and most of the potable and wastewater infrastructure in Cancun.
Recent Project: The Company has not been awarded for WWT or potable water project since the construction of the Cancun water supply infrastructure in 1990. GMD is tendering the Rio Colorado Aqueduct in Tijuana Baja California.

GUTSA, S.A. de C.V.
Contact: Ing. Luis Rotter Aubanel
Position: Construction Director
Address: Av. Revolución No. 1387
Col. Campestre Tlacopac
01040, México D.F.
Phone: (52-55) 5322-8542
Fax: (52-55) 5322-8536
e-mail: lrotter@gutsa.com.mx
Web page: www.gutsa.com.mx
Business Overview: GUTSA is one of the 5 major construction companies in Mexico and has presence in the market since 1945. The company is very active in the potable and wastewater sectors.
Role in Water Market: GUTSA most representative water infrastructure developments include: Dam, deep sewage, aqueduct, Potabilization and WWT plants construction among others. At present the company has a concession with the Mexico city water utility (Sistema de Aguas de la Ciudad de Mexico) to provide water management infrastructure.
Recent Project: Their most recent water project in Mexico was the construction of potable water and sanitation infrastructure for the water utility of Ecatepec in the state of Mexico.

Compañía Contratista Nacional S.A. de C.V. (COCONAL)
Contact: Ing. Albano Anadón Baruch / Ing. Juan Antonio Casas
Position: General Director / Construction Director
Address: Periférico Sur No. 4249
Col. Jardines en la Montaña
14210, México D.F.
Phone: (52-55) 5449-0530
Fax: (52-55) 5446-0900
e-mail: direcciongeneral@coconal.com , jcasas@coconal.com
Web page: www.coconal.com
Business Overview: COCONAL is a 100% Mexican construction company established in 1950 dedicated to develop infrastructure works for the municipal and industrial sectors, specially in highways, electricity (transmission lines), edification, potable water, dams docks, sewage, among other infrastructure related projects.
Role in Water Market: Constructor of major potable water infrastructure for municipal and industrial areas.
Recent Project: The last project COCONAL made in Mexico related to water was the construction of a 67.2 Km. aqueduct for Veracruz. The company is tendering the Rio Colorado Aqueduct in Tijuana Baja California.

Ingenieros Civiles Asociados, S.A. de C.V. (ICA)
Contact: Ing. Alma Rosa García Romero
Position: Construction Manager
Address: Minería No. 145 Int B
Col. Escandón
11800, México D.F.
Phone: (52-55) 5272-9991 Ext. 2300
Fax: (52-55) 5227-5071
e-mail: alma.garcia@icacc.com.mx
Web page: www.ica.com
Business Overview: ICA is Mexico's largest engineering, procurement and construction company. ICA is dedicated to the construction of infrastructure works, urban and industrial construction, and operation and maintenance of highways, airports and tunnels, and participates in contracts to manage water distribution and waste disposal.
Role in Water Market: Constructor and operator of potable water and waste water treatment facilities as well as sewage systems. The company is also involved in large water supply projects and dams.
Recent Project: The Company recently has not been involved in water project because its strategy is focused to other infrastructure sectors like industrial, highway, housing construction.

TECHINT México, S.A. de C.V.
Contact: Ing. Massimo Pepe
Position: Commercial Director
Address: Edificio Parque Reforma
Campos Elíseos 400 - Piso 1°
Col. Chapultepec Polanco
11560, México D. F.
Phone: (52-55) 5282-8600
Fax: (52-55) 5282-8696/8697
e-mail: rmarure@techint.com.mx
Web page: www.techint.com.mx
Business Overview: TECHINT Mexico is a well recognized engineering company with more than 50 years of experience in the Mexican market. The company provides engineering, procurement and construction services on a global basis.
Role in Water Market: Constructor of potable water and waste water treatment facilities as well as sewage systems. The company is also involved in large hydraulic civil works construction in Mexico.
Recent Project: The last project TECHINT made in Mexico related to water was the construction of a 45 lps. WWTP in Ixtapa Zihuatanejo, Guerrero. The company is tendering the Rio Colorado Aqueduct in Tijuana Baja California.

EQUIPMENT SUPPLIERS (POTENTIAL DISTRIBUTORS FOR EQUIPMENT)

Company: **Arema-Agua Residuos y Medio Ambiente S.A. de C.V.**
Contact: Ing. Ramon Gonzalez Uriegas
Position: General Director
Address: Av. Roble No. 300 Desp. 1206, Edif. Torre Alta
Col. Valle del Campestre
66220, San pedro Garza Garcia, Nuevo Leòn Mexico
Phone: (52-81) 8478-4113 / 8400-7756
Fax: (52-81) 8478-4114
e-mail: rgu@arema-mexico.com
Web page: www.arema.com
Comments: Design, development and equipment for potable and wastewater facilities as well as solid waste sites.

Company: **Prominent Fluid Controls de Mexico S.A. de C.V.**
Contact: Lic. Alejandro Castillo Blázquez
Position: Operations Chief Manager
Address: Av. Santa Fe No. 170 Of. 12
Col. Lomas de Santa Fe
01210, Mexico D.F.
Phone: (52-55) 9172-9300
Fax: (52-55) 9172-9303
e-mail: ventas@prominent.com.mx
Web page: www.prominent.com.mx
Comments: Company dedicated to the application of systems for the neutralization of waste water, the disinfection of drinking water or the dosing of corrosion inhibitors into a cooling circuit, among others. With 40 years of experience in chemical fluid handling and water treatment, the company has diverse product lines to offer different solutions.

Company: **Prosi-Pvs Chemicals**
Contact: Ing. Jorge O. Ferreria Garza
Position: Director
Address: Av. Salamanca Esq. Av. San Miguel de Allende S/N
Col. Cd. Industrial
36541, Irapuato Guanajuato, Mexico
Phone: (52-462) 622-5058
Fax: (52-462) 622-5445

e-mail: ventas@prosipvs.com
Web page: www.prosipvs.com
Comments: Mexican Company dedicated to the manufacturing of inorganic coagulants for residual and potable water treatment plants. The company was established in 1992 with the Joint Venture of PROSLS S.A. de C.V., an inorganic chemical product manufacturer and PVS Chemicals, American company leader in the manufacturing of ferrous chloride.

Company: **Cinetica Quimica S.A. de C.V.**
Contact: Ing. Jose Luis Gonzalez Aragon
Position: Director
Address: Av. Ruiz Cortines No. 915 Ote
Col. Vidriera
64520 Monterrey, Nuevo Leon, Mexico
Phone: (52-81) 8351-2927
Fax: (52-81) 8351-5841
e-mail: ventas@cineticaquimica.com
Web page: www.cineticaquimica.com
Comments: Cinética Química S.A. de C.V. is a 100% Mexican company, established in 1986. The company is focused in the distribution of chemical products for potable water and waste water treatment industry

Company: **Hydrocontrol**
Contact: Ing. Juan Carlos Herrera
Position: Director
Address: Jaime Nuno No. 5009
Col. Vidriera
64500 Monterrey, Nuevo Leon, Mexico
Phone: (52-81) 8305-8040
Fax: (52-81) 8305-8050
e-mail: servicio@hydrocontrol.com.mx
Web page: www.hydrocontrol.com.mx
Comments: Hydrocontrol is focused in the study of water problems and to provide solutions to the industry in order to re-use water and preserve the environment.

Company: **Industrias Islas**
Contact: Ing. Jesus Lozano Ruy Sanchez
Position: Sales Manager
Address: San Francisco No. 338 Dpto 302
Col. Del Valle
03100, Mexico D.F.
Phone: (52-55) 3004-8288
Fax: (52-55) 3004-8288
e-mail: jlozano@industriasislas.com
Web page: www.industriasislas.com
Comments: The company provides different types of processes for water treatment solutions. It is a company known for their advanced inverse osmosis, ionic exchange, and filtration water systems. The company also has pre-water treatment and post-water treatment equipment and services.

Company: **Ozomatic de Mexico**
Contact: Ing. Robert Bischof
Position: Director
Address: Kansas No. 63-1ª
Col. Del Valle
03810, Mexico D.F.
Phone: (52-55) 5523-3302
Fax: (52-55) 5682-5703
e-mail: ozomatic@prodigy.net.mx
Web page: www.ozomatic.org
Comments: The company uses carbon activated filters for water filtration processes.

The system offered by the company is best suited for companies, restaurants, bars, houses, hospitals and all type of places that require sterilized water.

V. Case Study:

5.1. The Cutzamala Water System.

Mexico City and its surroundings have a population estimated in 22 million people and currently consume 67.6 m3/s of water of which 68% come from the underground aquifer 7% come from the valley of Lerma located 60 kms away and 23.1% comes trough the Cutzamala system located 127 kms away from the City. The remaining 1.9% comes from other various sources.

The aquifer system of Mexico City supplied the population of the basin for hundreds of years. Natural springs and runoff of summer rains from the sierras and mountains surrounding the city were the main source of water to the aquifer. This source is so bountiful that water was not a scarce resource in Mexico City until about 35 years ago, when its population reached over six million people.

Today, however, Mexico City faces a serious water deficit. As a result of increased demand from consumers and industry, and the rapid deforestation in the surrounding hills that have served as aquifer recharge areas, more water is now leaving the system than entering it.

While engineers attempt to find a solution to this water shortage, the damaging consequence of aquifer overexploitation is alarmingly visible to the inhabitants of the capital, whose city is literally sinking beneath them. This sinking, or subsidence, is caused by the depletion of water volume and pressure from the lowering of the aquifer, which causes the clay soils below the city to consolidate and the land that rests on top to collapse. Subsidence has been a problem since the early 1900s as an effect of the diversion and draining of lake water from the basin floor. Since this time, some areas in downtown Mexico have sunk 9 metres and the current sinking is estimated in between 5 to 40 centimeters a year.

To help make up the city's water shortfall and to slow or stop the sinking landscape, Mexico City's water authority and engineers sought water from other sources outside the basin. As early as 1941, a 15 kilometer long aqueduct was constructed to divert water from the adjacent Lerma river catchment area to Mexico City, this aqueduct has had several expansions and now brings water to the city from over 60 kms away.

In 1982, work began on the large-scale Cutzamala River project - a system to transfer surface water to Mexico City from a distance of 120 kilometres and over elevations of 1,200 metres. These two supplementary sources contribute 5 m3/s of groundwater and 16.5 m3/s of surface waters respectively, amounting to 30 per cent of the total supply to Mexico City.

The combined Lerma-Cutzamala projects represent a massive capital investment. According to Mexico City's hydrological planners, it requires 443 km of pipelines, which supply 202 storage tanks, with a joint capacity of 1.5 million m3. There are 102 plants to pump the water to the upper zones of the west and south of the Federal District. For its distribution, there are 560km of primary pipeline network and 12,044 km of secondary network. It also requires a tremendous amount of energy -equivalent to an 800 MW reactor running permanently - because water must be conducted uphill over one kilometer. Before it reaches its final destination, chlorination plants treat the water to make it suitable for human consumption.

Despite these remarkable examples of engineering, testimony to the ingenuity of the city's modern engineers, Mexico City still cannot meet the water demands of its population. Water projects on this grand scale are highly capital intensive. In past decades, the government placed its emphasis on water supply at the expense of its aging domestic distribution system. Thus, although the bulk supply of water has increased steadily in an effort to keep up to the demand, water is consumed or lost through leaks as fast as it is supplied. This is a source of frustration for the CNA and hydrological engineers, because after water leaves their distribution system, an estimated 37 per cent of the total water supplied to the MCMZ is lost through leaks in the aging municipal systems, and through ineffective coordination policies between the various levels of government.

The Mexico City’s Government attempted to expand the Cutzamala system to bring an

additional 5 m^3/s into Mexico City but population of several areas in the State of Mexico (Where Cutzamala originates) opposed the project. As an alternative, they are working in two fronts for increasing the water supply: Fixing leaks, which create losses estimated at 37% of the water supply and modernizing the existent infrastructure of the Cutzamala system which could supply one additional m^3/s currently lost at the potabilization plant.

Some areas of Mexico City already have almost no water. In the western part is supplied using pipe-trucks at a very high cost for the government. The Mexico City aquifer is also beginning to show high concentrations of sulfide, iron, manganese and even arsenic.

The cost of water supply in the Cutzamala system is estimated at € 0.41 and the average rate paid by consumers is € 0.24. In addition to this a very low percentage of the water is accounted and paid for.

The Mexican Government is planning to upgrade the Cutzamala system infrastructure. Currently it supplies 16.5 m^3/s and the authorities plan to bring it up to 20 m^3/s. The system is currently loosing over 1 m^3/s through its filter cleaning systems and sludge. The filters of the potabilization plant are obsolete and new technologies allow for saving large water amounts. Other equipment such as mixing systems and flow meters are also obsolete and will be modernized. This project will likely be bid by the end of 2005 and beginning of 2006.

VI. Water Equipment Trade Trends:

6.1. Local equipment:

The water equipment market is estimated in between € 700 to € 500 million per year, approximately 65% of the market is supplied by local products and the remaining 35% of the equipment is imported.

Mexico has a strong base of suppliers for water engineering supplies. Most pipelines, tanks and civil works involved in water infrastructure are supplied by local companies. More advanced technologies and equipment, such as flow meters, instruments, analyzers, pumps, reverse osmosis membranes and other are mostly imported.

6.2. Imported equipment:

Imported equipment supplies close to 35% of the Mexican water market. Most of the equipment that involves technology or electronic components are imported. The most representative water equipment imported includes centrifugal pumps, check valves, flow meters, flow control and membrane equipment.

The leading suppliers of water technologies into Mexico are the United States of America, Germany, the United Kingdom, Taiwan, Japan, China, Canada and France. These eight countries combined represent over 80% of the water equipment imports.

Most Representative Equipment Imports (In Euros)

Description	Harmonized Code (HS)	2003 (€)	2004 (€)
Flowmeters	90261003	16,198,949	17,784,660
Instruments and apparatus for measuring or checking the flow level of liquids	90261099	15,176,510	15,187,359
Reguladores de presion, acoplados a valvulas o manometros.- Para medida o verificacion de presion	90262004	9,172,853	10,199,581
Analyzers	90271001	6,616,526	6,814,775
Remote water counters	90282001	3,981,177	3,644,627
Reverse Osmosis membranes	39269016	5,808,472	5,085,982
Hand pumps	84132001	4,597,889	4,503,787
Gear pumps	84136003	9,013,964	12,562,242
Submergible motor pumps	84137004	6,652,686	8,197,137
Centrifugal pumps	84137099	49,006,677	60,059,183
Chemical water purifiers based on chlorine	84212102	744,545	1,996,740
Reverse osmosis modules	84212104	13,486,384	9,829,121
Equipos hidráulicos de perforación de pozos, integrados a semirremolques, para programas de abastecimiento de agua potable en el medio rural.	84304902	N/A	20,950
Automatic check valves	84813099	46,605,876	52,508,125
Hydraulic control valves	84818024	8,717,554	8,974,301
Ball bearings	84821099	7,393,916	9,149,978
Con equipos hidraulicos de perforacion destinados a programas de abastecimiento de agua potable en el medio rural.- Camiones automoviles para sondeo o perforacion.	87052001	126,930	57,028
TOTAL		**203,300,908**	**226,575,576**

VII. Market Access and Recommended Approach:

Most companies that have succeeded in developing business with Mexican water utilities have developed sufficient company and project insight to efficiently prepare competitive proposals for project and equipment purchase tenders.

The tenders have a technical and an economic proposal component. The technical proposal is produced to demonstrate capability, experience and compliance with the technical requirements outlined in the tender specs.

Technical Proposal (Technical, Financial, Legal Documentation, Works Schedule, Project or Equipment Specifications)

Economic Proposal (Cost Structure Analysis, Pricing, Cash Flow Analysis, Total Cost/Final Price)

Establishing local presence is highly recommended to succeed. The options for establishing a presence in Mexico can be divided into two methods: direct and indirect. The first is by the establishment of a subsidiary to serve as a sales office in Mexico, the second is through developing a relationship or joint-venture with a leading local company with experience or interest in the specific business segment. There are many variants to developing a presence and the most adequate option will be defined on a case-by-case basis resulting from a careful evaluation of the market potential for a particular technology or service.

The necessary analysis can be conducted by the company or through contacting specialized consultants to define the potential options, outline the implementation process and develop a business plan.

Important elements of the business plan must include the following:

1. Define market potential based on a “competitive” profile of the company vis-à-vis local opportunities and competition.

2. Review information on “technical” specifications on previous tender processes and the value at which the project was awarded.

3. Establish meetings with potential project sponsors, to present information on company and capabilities.

4. Visit potential project sites to learn about specific needs.

5. Establish meetings with the areas responsible for selecting new technologies or supplier options, both at the Municipal (project sponsor) and Federal (Financing sponsor) levels.

6. Analyze subcontracting opportunities with Mexican and /or international companies.

7. Introduce the company to the National Association of Water Utilities (ANEAS)

8. Meet private sector project developers.

7.1. Import Regulations and Documents, Product Requirements.

In relation to the importing process for bringing products and equipment into Mexico, there are no significant legal or regulatory impediments to import water equipment into Mexico. Probably the main obstacle that foreign companies will find is that the equipment has to be imported by a company registered in the Importers Registry of the Secretariat of Economy.

Companies that will be responsible for importing any products into Mexico require incorporation in the importing company roster (Padron de Importadores). Obtaining the registration is a simple process that takes about one month, however only companies established in Mexico can obtain

this registration.

Imports of water equipment and products must comply with labeling regulation NOM-050-SCFI-1994, which states that each product must have a label indicating the data of the manufacturer, data of the importer, product description in Spanish, warnings, and country of origin. A document called “Understanding Nom-050: a Guide to Mexican Consumer Product Labeling Requirements” can be found at: http://www.natlaw.com/pubs/spmxcs2.htm. In addition to labeling, some equipment must comply with specific regulations related to electronic equipment, flow equipment, valves, and other depending on the specific regulations (NOM’s) for that particular equipment.

It is highly recommended to obtain a NOM certification compliance from a laboratory prior exporting products into Mexico, to obtain this certificate, products must be tested to national, mandatory NOM standards by an accredited Mexican laboratory. Testing may be conducted by a laboratory outside of Mexico if it has a laboratory-to-laboratory mutual recognition agreement with an accredited Mexican laboratory. Note:

NOM certificates will only be issued to Mexican manufacturers and exporters, or to manufacturers and exporters in countries with which Mexico has a free-trade agreement.

NOM certificates are non-transferable. However, a manufacturer that is a NOM holder may extend usage rights of its NOM certification to Mexican distributors, who may then obtain their own NOM certification without additional testing.

7.2. Payment Conditions.

Most of the foreign water equipment technologies imported into Mexico are imported by a Mexican company and then sold or incorporated into a project by a Mexican company. Common payment terms are 30 days or a 2-5% discount for up-front payment. It is recommendable for Dutch companies to request Mexican buyers to provide a Letter of Credit (LOC) to ensure payment.

When selling directly to a municipal water utility, payment terms might be in accordance to the bidding documents or the payment calendar stipulated in the contract. In most cases water utilities pay late, so it is important to include in the contract penalties or warrantees to ensure payment.

7.3. Bottlenecks For Foreign Companies.

A potential bottleneck for a Dutch company interested in selling to potabilization projects in Mexico is that the government’s purchasing processes are conducted through competitive tenders.

The contract will be awarded to the company that complies with the technical requirements specified in the tender documents and which at the same time offers the lowest price proposal.

There is growing transparency in the decision process especially when funding from the national development bank BANOBRAS or any other federal agency is involved. The fact that business is in most cases obtained through participation in tenders should not be viewed as an impediment to access the market.

7.4. Market Entry Considerations.

Each company interested in selling into the Mexican market for potabilization equipment supplies and projects will have different business potential depending on how much its product represents a competitive alternative to existing options in the market.

The process of assessing existing competition, market pricing and defining potential demand is a critical exercise to define the size of the potential opportunity. These estimates are necessary to prioritize the market within the company’s export plans and assign the necessary resources

for business development.

Companies that invest time and resources in understanding the market and learning the key purchasing decision factors in their product segment can maximize the potential for success. It is likely that the initial phase of the market assessment might require the assistance of a local consultant with experience in business development in the water sector.

The following are some recommendations for Dutch companies seeking to enter the Mexican water market:

1) Corporate Commitment: Firms are advised to devote sufficient resources toward developing a Mexican business strategy, preferably involving Mexican nationals experienced in selling to Municipal water utilities.

2) Technology Differentiation: Finding a niche will enhance the ability to compete in a market that favors lowest cost products and services.

3) Competitive Pricing: Although the methodology employed to evaluate and qualify proposals will increasingly include other factors, price will remain a central component in the winning of bids.

4) Aggressive Marketing: Market intelligence and company-promotion maximize chances of success.

5) Local Procurement: Including local suppliers and subcontractors with solid reputation in selling to water utilities can be a useful strategy.

7.5. Logistics and Distribution.

Aspects related to import logistics and product distribution will dependent upon the type of product, equipment or component being supplied, as equipment or components specifically designed for a particular project have different requirements that spare parts or consumable products which are constantly used by a potabilization plant.

Equipment which is specially designed for a specific project has a different sales and distribution criteria than standardized products which can develop constant demand in the market and which require an adequate local inventory level as having products available for immediate delivery is a significant competitive advantage in Mexico.

The decision regarding the type of market presence either through the establishment of a sales subsidiary or a distribution agreement with a local company will depend on the perceived potential of the Mexican market, which will be different for each company. The pricing potential will also define if margins will allow for the establishment of a distribution agreement or if sales will need to be directly into clients, all these factors and will impact the distribution strategy.

7.6. Promotion and Advertising. – Suitable Media, Trade Fairs, Promotional Activities.

The best way to give product exposure to water equipment and technologies is by conducting personal presentations with potential partners (Mexican construction companies and equipment distributors) and end users (water utilities). Dutch companies can request the assistance of the Netherlands Embassy in Mexico City to coordinate meetings with the CNA; local water utilities, and potential distributors or representatives. Dutch companies can contact the Economic Department of the Embassy to learn more about the assistance provided:

Netherlands Embassy in Mexico City
Contact: Alexander Braune
Position: Deputy Cief/ Economic Department
E-mail: mex-ea@minbuza.nl
Telephone: +52(55) 5258-9921 x202
Fax: +52(55) 5258-8138

Website: www.paisesbajos.com.mx

The 4th World Water Forum will be an excellent venue to exhibit technologies in Mexico. A component of the Forum is the World Water Expo. Decision makers from practically all the Mexican Water Utilities will attend the forum and exhibition. This will be the largest event focused in the water sector in Mexico.

Event: Mexico 2006 4th World Water Expo.
Date: March 16-22, 2006
Location: Centro Banamex, Mexico City.
Organizer: EJ Krause
Contact: Laura Barrera.
E-mail: laura@ejkrause.com,
Telephone: +52(55) 1087-1650 ext. 1120
Contact: Adrian Morales.
E-mail : adrianmorales@ejkrause.com
Phone: +52(55) 1087-1650 ext. 1135
Website: www.worldwaterforum4.org.mx

Every year, the National Association of Water Utilities (ANEAS) organizes a convention where most of the Directors from all water utilities across the country attend to present their demands to the Federal authorities and to learn about the development of plans and programs issued by the Federal Government. While this convention is mostly conferences, in recent issues the organizer has devoted space for equipment exhibits.

Event: ANEAS Convention 2006
Date: TBD
Location: TBD
Organizer: ANEAS
Contact: Ing. Roberto Olivares
E-mail: aneas@aneas.com.mx
Telephone: +52(55) 5543- 6600
Website: www.aneas.com.mx

After the World Water Expo and the ANEAS Convention, the single most important trade show related to water technologies is the environmental trade show EnviroPro. This event is organized by the National Council of Environmental Companies (CONIECO) and is supported by the Secretariat of the Enviornment and Natural Resources and the CNA. The event combines technical presentations with a trade exhibit where close to 100 companies exhibit their environmental technologies every year. The expected attendance is 5,000 executives. The date for the 2006 edition of EnviroPro has not been defined yet, however the show usually takes place in late September or early October.

Event: EnviroPro México 2006
Date: TBD – Most likely end of September or beginning of October.
Location: World Trade Center, Mexico City.
Organizer: EJ Krause
Contact: Laura Barrera.
E-mail: laura@ejkrause.com,
Telephone: +52(55) 1087-1650 ext. 1120
Website: www.enviropro.com.mx

Most Mexican end users attend these events to meet and select new potential suppliers. After trade shows, the tools used most often by water technologies buyers to identify potential suppliers are specialized magazines.

The Magazine “Agua y Saneamiento” (Water & Sanitation) published by the National Association of Water Utilities (ANEAS) reaches over 340 local water utilities in Mexico, the largest water construction companies and equipment distributors in Mexico. This magazine is issued quarterly and each edition includes information about the most recent projects,

developments and technologies.

Magazine: Water & Sanitation.
Publisher: Proyecto Unruly under contract with ANEAS
Contact: Martha Susana Diaz
Position: Sales.
E-mail: unruly@infosel.net.mx
Telephone +52(33) 3585-8642 and 3585-8643

Another magazine specialized in water technologies with a Latin American focus is “Agua Latinoamericana” (Latin American Water). This magazine is published in Spanish with selected articles in Portuguese and is distributed in 24 countries in Latin America. Like its English language sister magazine, Water Conditioning & Purification it offers the latest information on changing trends and technology, basic and advanced applications and the continuously expanding advantages of water treatment and purification technologies.

Magazine: Latin American Water
Publisher: Willow Springs Publishing, Inc. (U.S.A.)
Contact: Karen Smith
Position: Editor Director
E-mail: ksmith@wcponline.com
Telephone +1(520) 327-6469
Fax: +1(520) 323-7412
Website: www.agualatinoamerica.com

Finally another Magazine, which is widely distributed among Mexican water technologies and services buyers is called “Teorema Ambiental” (Environmental Theorem). Although this Magazine is focused in the environmental sector as a whole and not only in water. It reaches decision makers of most local water utilities, the CNA, and construction companies specialized in environmental infrastructure. This is a bi-monthly magazine.

Magazine: Environmental Theorem
Publisher: 3WMexico
Contact: Wendy Coss
Position: Editor Director
E-mail: wendy@3wmexico.com
Telephone +52(55) 5660-1655
Website: www.3wmexico.com

Opportunities in the Mexican Market for Water Purification and Potabilization Equipment and Services

Final Conclusions:

- The Mexican water purification market offers a wide variety of opportunities for Dutch companies, ranging from the construction of a water supply system for the city of Guadalajara (a €240 million project) or the construction of municipal water desalinization plants (€18-20 million projects), to the supply of small equipment such as water meters, leak detection equipment or water utility management software.

- Despite of being considered as a difficult sector due to the involvement of various government levels, to the inefficiency of most water utilities, to subsidized water tariffs and to weak regulatory enforcement, the water sector is attracting larger investment amounts from Mexican and international companies. - Just in the last decade water potabilization and distribution infrastructure was expanded to provide access to potable water to an additional 18.2 million people. - Some international companies have been successful developing large-scale projects in Mexico and several other have been able to sell equipment and services to local water utilities.

- The opportunities for Dutch companies lie in three areas: 1) Developing large scale water supply and purification plant projects. 2) Participating in the World Bank and Interamerican Development Bank sponsored programs to bring potable water to small rural communities and 3) Providing consulting services, equipment, technology and know-how for making local water utilities financially feasible and operationally self sufficient.

- In the first category, the document describes projects for complete water supply projects in five cities and the construction of ten new municipal water purification plants. In this category Dutch water companies will face strong competition from Mexican engineering firms who are very strong in construction but weak in technology. Traditionally these large scale projects are awarded to Mexican construction companies and very few have been awarded to international companies. We recommend Dutch companies to seek for a local partner – being this a Mexican construction or engineering company – to increase success chances in these projects. A list of major players who could be candidates for a partnership of this nature can be found in chapter 4.3 of the report.

- Within the second category, the IDB sponsored Program for Sustainable Development of Rural Potable Water Infrastructure (PROSSAPYS) offers excellent opportunities for Dutch companies offering small modular water purification plants, as well as small water distribution networks. Within this program 2,000 rural communities with population fewer than 2,500 inhabitants will receive potable water service in their communities in the following four years. The IDB and the National Water Commission will invest over €220 million in equipment and construction under this program. As this is an IDB sponsored program the tenders follow IDB's rules and are fully open to international players.

- The single most important problem within Mexico's water sector is that most municipal water utilities are not financially self sufficient due to the lack of adequate metering, billing and collection systems. The Federal Government is conditioning financial support to the utilities to the improvement of their efficiency indexes and this has helped to have an increasing – but still small – number of financially solid water utilities. This brings us to our third category where Dutch companies will find a great number of opportunities to provide consulting services, leak detection and repair equipment, metering systems and commercial equipment to over 300 different water utilities nationwide. Demand for these type of equipment and services varies from one utility to another. The least developed seek for the cheapest meters, while in larger cities, meters offering radio frequency reading devices are being demanded. To attack this niche, it is highly recommended that Dutch companies establish local presence or develop an agreement with a Mexican company as the opportunities are spread across the country and relationships are a key to success.

- Mexico is increasingly demanding more sophisticated water equipment and technologies; the fastest growing purification technology is reverse osmosis as in some areas a conventional plant is not enough to remove pollutants including metals or other minerals from water. In 1995 there were only nine reverse osmosis plants and in 2005 there are fifty nine. Other technologies such as desalinization and arsenic removal are beginning to be demanded and there is no local production of any of those in the local market. The only municipal desalinization plant being currently built in northern Mexico was awarded to a Spanish company.

- The 2006 World Water Forum will be an excellent venue to give international exposure for Dutch water equipment, technologies and services. The main theme of the 2006 conference is “Local Actions for a Global Challenge”. Over 600 exhibitors and 12,000 visitors are expected from over 150 countries.

APPENDIX A. PROJECT DATABASE

FULL PROJECT PROFILES:

A.1. Construction of a Potabilization Plant in Queretaro:

Type of Project: Municipal Potabilization Plant Construction
Location: Queretaro, Qro.
Estimated Investment: € 300 Thousand
Source of Investment: Comisión Estatal de Aguas del Gobierno de Querétaro (CEA) / Queretaro Water State Commission
Sponsor: Queretaro Water State Commission
Nature of Work: Turn Key Project
Likely Bid Date: 1Q 2006.

Project Overview: The city of Queretaro is the capital of the state of Queretaro in central Mexico at approximately 200 Km from Mexico City. The city has a population of 650 thousand. The city will issue a tender for the construction of a potabilization plant with two modules of 40 LPS each. The plant will be constructed near Jurica which is 10 kilometers form Queretaro The estimated investment will reach € 200 to 300 thousand.

Project Status: The local authorities have finalized the technical analysis for the project and are developing the tender documents to proceed to the bidding. The project will be a turn key construction project. The tender is expected for the 1st quarter of 2006.

Technical Aspects: The technology options are open to the selection of the bidders but will be especially interested in the solid and aluminum removal capabilities of the technology. The plant must comply with federal regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998

Project Drivers: This is a small project but the authorities have the Funding to proceed immediately with the investment.

Project Inhibitors: The project might not move forward as scheduled.

Contact Information:
Entity: Comisión Estatal de Aguas del Gobierno de Querétaro (CEA) / Queretaro Water State Commission
Name: Ing. Manuel Urquiza Estrada
Position: Director
Address: Av. 5 de Febrero No. 35
Col. Las Campanas
76010, Querétaro, Qro.
Ph: (52-442) 211-0600 Ext. 1510
Fax: (52-442) 211-0601
E-mail: murquiza@ceaqueretaro.gob.mx
Web page: www.ceaqueretaro.gob.mx

A.2. Guadalajara Water Supply Project:

Type of Project: Dam , Water Pipeline and Potabilization Infrastructure Construction
Location: Guadalajara, Jalisco
Estimated Investment: € 240 million
Source of Investment: IDB (Inter American Development Bank), Federal and State Government.
Sponsor: Comisión Estatal de Agua y Saneamiento (CEAS) / Water and Sanitation State Commission
Nature of Work: Construction Service Contract
Likely Bid Date: Mid 2006

Project Overview: The city of Guadalajara is the capital of the state of Jalisco and is located in western Mexico. This is the second largest urban area in the country with a population reaching 3.9 million. The traditional water source for the city has been the lake of Chapala, which has been severely affected through excessive exploitation and its water level has continued to decline. As an alternative, the city has developed a project to construct a dam with a capacity of 440 MM^3 called "Arcediano" which will receive the flows of the Rio Verde (Green River) and the Rio Santiago (Santiago River). The site for the dam is located 13 kilometers from Guadalajara. The project has two components, one related to water supply and the other to municipal water treatment. The water supply component will be a single tender that will include the construction of the dam, pumping infrastructure and potabilization capacity. The expected investment for this portion of the project will reach € 240 million.

Project Status: The funding for this project will be a combination of a loan from the IDB (Inter American Development Bank) and grants from the federal and state governments. The IDB loan has been approved and it is expected that Mexican authorities will commit their portion of the funding within the following 6 months. Once the grant is approved, the tender document for the bidding process will be issued within 3 months.

Technical Aspects: The investment for the potabilization plant is estimated at between 20 to 40% of the total investment, or between € 24 to 48 million. The project sponsors have been operating a pilot plant to evaluate water inflow quality and define if it will comply with local water quality regulations. The raw flow complies with aromatic hydrocarbon and pesticide limits but not with metals, including aluminum, manganese, and iron. The authorities estimate can be eliminated under a conventional potabilization process without requiring specialized removal of any particular metal including arsenic.

The potabilization plant will be divided in modules, with the first module having a capacity of 1.2M^3/s to reach total capacity of 4.5M^3/s over the following years.

The Potabilization plant with conventional capabilities and capacity of 1.2M^3/s that will be constructed must comply with federal regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998.

Project Drivers: The city of Guadalajara has insufficient potable water supply only covering around 80% of demand. It has been working for several years in the development of the feasibility studies for this project and has concluded that the construction of the new dam is the best option which guarantees that this version of the project will move forward. The project is supported by the CNA (National Water Commission) and the funding for the construction of this project has been obtained through the IDB and the Mexican government is in the process of approving a grant for the construction.

Project Inhibitors: A possible obstacle for this project could be that the Federal government will take too long in providing the grant for the construction. This scenario is unlikely as the federal government is aware about the urgency of this project to protect lake Chapala.

Contact Information:
Entity: Comisión Estatal de Agua y Saneamiento (CEAS) / Water and Sanitation State Commission of Jalisco
Name: Ing. Enrique Dau Flores
Position: Director
Address: Calle Basilia No. 2770
Col. Providencia
44680, Guadalajara Jalisco
Ph: (52-33) 3642-9102, 3642-4509 Ext. 102
Fax: (52-33) 3640-2382
E-mail: ceas@jalisco.gob.mx
Web page: www.ceasjalisco.gob.mx

A.3. Program for Sustainable Development of Rural Potable Water Infrastructure (PROSSAPYS Phase II)

Type of Project: Water Infrastructure and Institutional Capacity in Rural Areas.
Location: Countrywide.
Estimated Investment: € 241 Million (US$292.5 Million)
Source of Investment: IDB (Inter American Development Bank), Federal and State Governments.
Sponsor: National Water Commission (CNA) and Interamerican Development Bank.
Nature of Work: Plants (Turnkey contracts), Consulting service contracts, and various other depending on the nature of works.
Likely Bid Date: Several bids beginning in late 2005 and ending 2009.

Program Overview: The objective of the program is to supply water and sanitation services to rural communities of up to 2,500 inhabitants, in a framework that encourages active and organized participation by beneficiaries, and guarantees sustainability during the operational phase. The program will give priority to highly and very highly marginalized communities through self-management systems. It is estimated that over 2000 communities will apply for the program.

The program is divided in four components:

1. Institutional development and strengthening of the executing agencies. (US$5.8 million). Funding will be provided for consulting services, studies, training activities, dissemination, materials, and equipment needed for sector diagnostic assessments and investment plans; technical supervision, monitoring and outcome evaluation systems; staff training in administrative, financial, technical, social, and environmental areas; procurement of computer, audiovisual, transportation, and office materials and low-cost portable equipment for water quality control; preparation of guides, manuals, and teaching material; and regional and national workshops and seminars to share experiences and disseminate lessons learned and best practices.

2. Community support and participation (US$8.7 million): This component aims to strengthen or create approximately 2,000 community organizations tasked with operating and maintaining the services, guaranteeing their medium- and long-term sustainability. In close coordination with the infrastructure component.

3. Water supply and sanitation infrastructure (US$256.5 million) This component will finance construction of potable water supply and sanitation systems that are in compliance with the technical, environmental, economic, and social criteria previously established in the program. The program will give preference to communities with no public supply system or with potable water coverage of less than 20%. The community's formal commitment to operate the systems and pay the requisite rate to cover operating and maintenance costs will be required. The program is expected to benefit some 900,000 people in 2,000 rural communities.

4. Small urban community pilot projects (US$4 million) This component will finance pilot projects in communities with between 2,500 and 5,000 inhabitants with potable water coverage under 30%.

Category or component	IDB	Local counterpart	Total	%
1. Program administration	3,500		3,500	1.2
Administration	3,000		3,000	1
Evaluation	300		300	0.1
Audit	200		200	<0.1
2. Components	137,500	137,500	275,000	94
Institutional development	2,900	2,900	5,800	2

Community support and participation	4,350	4,350	8,700	3
Potable water and sanitation infrastructure	128,250	128,250	256,500	87.6
Small urban community pilot projects	2,000	2,000	4,000	1.4
3. Unallocated costs	9,000	3,500	12,500	4.3
Contingencies	9,000	3,500	12,500	4.3
4. Financial costs		1,500	1,500	0.5
Credit fee 1,500		1,500	1,500	0.5
5. Total cost	150,000	142,500	292,500	100

Project Status: The project was approved by the IDB in July 20, 2005 with project number ME0212. Bids will commence in late 2005. This is a 5 year program.

Technical Aspects: Using the PROSSAPYS phase 1 experience, the CNA estimates the investment needed to attain the potable water goal at some US$50 million per year, based on a per person investment of US$200 to US$230. Real unit costs are tied to the technological solution adopted, increasing as smaller, difficult to reach communities, with distant or low quality water sources are included. Current sewerage and sanitation system coverage is lower, therefore requiring a stepped-up expansion (2.5% a year). The annual investment in sewer systems is estimated at US$300 million, computed on the basis of unit costs of US$240 to US$320 per person, including sewage treatment. The proposed program will help increase potable water coverage by approximately 2.5% over current values

The total program cost will be US$292.5 million, to be financed as follows: US$150 million from the IDB Ordinary Capital resources, to be transferred to participating states or municipalities through CNA budgetary allocations; and US$142.5 million in local counterpart funds, which may be provided by the states and municipalities. Beneficiary communities may provide local counterpart contributions when they so wish or when required by the state.

Most of the technologies used in PROSSAPYS 1 included technologies to extract water from underground sources, chlorination technologies, and a small municipal potabilization plants.

Project Drivers: It is estimated that some 6.5 million inhabitants in rural communities (population < 2,500 people) have no water supply systems, and 14 million do not have appropriate sanitation. There are also major variances in service coverage by region, with better service delivery in the central and northern states. For example, the water supply coverage in the states of Aguas Calientes, Colima, Coahuila, Tlaxcala, Sonora, and Nuevo León, located in northern and central Mexico, is greater than 95%, whereas the states with the lowest coverage are predominantly in the south of the country: Chiapas (75%), Tabasco (73%), Oaxaca (72%), Veracruz (70%), and Guerrero (69%). This service inequality also contributes to the disparity in health indicators, such as the child mortality rate: the national average is 32 (per thousand births), ranging from 20 in the Federal District to 47 in Chiapas.

Project Inhibitors: None.

Contact Information:
Entity: Interamerican Development Bank
Name: Mr. Sergio Urra Molina
Position: Sanitation Specialist
Address: Av. Horacio No. 1855, piso 6
Col. Los Morales Polanco
11510, México D.F.
Ph: (52-55) 9138-6200 Ext. 6203
Fax: (52-55) 9138-6217
E-mail: sergiou@iadb.org
Web page: www.iadb.org

Entity: National Water Commission Comisión Nacional del Agua (CNA)
Name: Ing. José Javier Jiménez Sánchez

Position: Potable Water and Sewage Manager for Rural Communities
Address: Insurgentes Sur No. 2416, piso 4
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4645
Fax: (52-55) 5174-4647
E-mail: jose.jimenez@cna.gob.mx , miguel.covarrubias@cna.gob.mx
Web page: www.cna.gob.mx

A.4. Ensenada Desalinization Plant:

Type of Project: Desalinization Plant Construction
Location: Ensenada Baja California
Estimated Investment: € 18 to 19 million
Source of Investment: Banobras through Promagua, Federal and State Government
Sponsor: Comisión Estatal de Servicios Publicos de Ensenada (CESPE) / Ensenada Public Services State Commission
Nature of Work: 20 year BOOT
Likely Bid Date: December 2005

Project Overview: The city of Ensenada is located in the state of Baja Califonia in northwestern Mexico. This is one of the largest municipalities in the country with a population reaching 395 thousand. The traditional water sources for the city have been a series of wells to extract water from the aquifers. The supply is becoming scarce and the city has a deficit of 30% of the water volumes currently required to satisfy the population. The city has evaluated several alternatives for locating additional water supplies and has concluded that the best alternative is the construction of a desalinization plant. The investment for the desalinization plant is estimated at between € 18 to 19 million.

The project will be tendered as a 20 year BOOT concession that will require 40% investment from the project awardee. The municipality will pay the private company for unit of potable water delivered into the municipal system.

Project Status: The project sponsors have finalized the feasibility studies for the project and can move forward with the tender. The funding will be a combination of grants from the Federal government through the Promagua program with 30% of the investment, which will be matched by the state government. The tender documents will be issued at the end of 2005.

Technical Aspects: The desalinization plant will be located at about 9 kilometers from Ensenada and will have a capacity of 250 LPS. The project sponsors will open the technology choice to the bidders as long as the potable water meets Mexican regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998. The concessionaire will recuperate the investment by selling water to the municipality for distribution to the population. A similar project was awarded in the city of Los Cabos Baja California Sur and the selected technology was seawater reverse osmosis (SWRO).

Project Drivers: The city has insufficient water availability to cover the existing needs of the population and industry. The Federal funding for this project (30%) has been assigned and the state government is in the process of obtaining 30% of the required investment through a loan from the Federal bank for public works (BANOBRAS).

Project Inhibitors: The possibility that the state government can not close financing from Banobras. The project will require the construction of a 9 kilometer water pipeline from the potabilization plant to the Ensenada area. It has not been defined if the pipeline will be included in the potabilization plant tender or under a separate tender.

Contact Information:
Entity: Comisión Estatal de Servicios Publicos de Ensenada (CESPE) / Ensenada Public Services State Commission

Name: Mr. Hector Ramos Covarrubias
Position: Director
Address: Av. Gastellum No. 750 between calle7 y calle 8
Col. Centro
22800, Ensenada Baja California
Ph: (52-646) 178-2100
Fax: (52-646) 178-1074
E-mail: hramos@baja.gob.mx
Web page: N/A

A.5. Tuxtla Gutierrez Water Supply Project:

Type of Project: Potable Water Infrastructure Construction
Location: Tuxtla Gutierrez, Chiapas
Estimated Investment: € 30 million
Source of Investment: Federal, State and Municipal Grants
Sponsor: Sistema Municipal de Agua Potable y Alcantarillado de Tuxtla Gutierrez (SMAPA) / Municipal Potable and Sewage Utility of Tuxtla Gutierrez
Nature of Work: Turn Key and Construction Contracts
Likely Bid Date: October 2005

Project Overview: The city of Tuxtla Gutierrez is the capital of the state of Chiapas located in southern Mexico bordering with Guatemala. The city has a population reaching 700 thousand. This geographical area of Mexico has significant water availability, but requires additional potabilization capacity as all water sources are superficial. The city demands approximately 1350LPS of potable water but is loosing approximately 45% of the flow through leaks in the secondary pipeline distribution network. This has created a severe water shortage situation in the city, which authorities have decided to solve through a project to increase potabilization capacity. The city will build a potabilization plant with a capacity of $1M^3/s$. The estimated investment for this project is € 30 million.

Project Status: The project sponsors have finalized the feasibility studies for the project and can move forward with the tender. The negotiations for the project funding will be finalized in the second half of September. The funding will be a combination of federal, state and municipal grants. The tender documents are expected to be issued in early October 2005. The project will be tendered as a turn key delivery project.

Technical Aspects: The project sponsors will open the technology choice to the bidders as long as the potable water meets Mexican regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998. The investment will include additional infrastructure consisting of 2 water pipelines of15 kilometer each, 3 pumping stations, replacement of some water distribution infrastructure and 2 steel water storage tanks. The water supply source will be the Grijalva river located 10 kilometers from Tuxtla Gutierrez.

Project Drivers: The city is facing a water supply emergency as it is loosing 45% of the supply through leaks. The city has decided that the fastest solution is the construction of additional potabilization capacity. The funding for the project will be closed in late September 2005.
Project Inhibitors: The local authorities are committed to moving this project forward and it is likely that the federal government will provide a grant for a portion of the required investment. The negotiation process with the federal government could be delayed.

Contact Information:
Entity: Sistema Municipal de Agua Potable y Alcantarillado de Tuxtla Gutierrez (SMAPA) / Municipal Potable and Sewage Utility of Tuxtla Gutierrez
Name: Ing. Raúl Saavedra Horita
Position: Director
Address: Av. 4ª Ote. Y Sur No. 1621
Col. Fraccionamiento Lomas del Venado
29080, Tuxtla Gutierrez, Chiapas

Ph: (52-961) 618-7170, 618-7175
Fax: (52-961) 618-7173
E-mail: smapa01@yahoo.com
Web page: N/A

A.6. La Paz, Baja California Sur Desalinization Plant.

Type of Project: Desalinization Plant Construction
Location: La Paz Baja California Sur
Estimated Investment: € 5 to 7 million
Source of Investment: TBD
Sponsor: Sistema Municipal de Agua Potable y Alcantarillado de La Paz (SAPA) / Municipal Potable and Sewage Utility of La Paz
Nature of Work: Most likely 20 year BOOT but not yet defined
Likely Bid Date: September 2006

Project Overview: The city of La Paz is located in the state of Baja California Sur in the southern part of the Baja California peninsula. The city has a population reaching 200 thousand. This geographical area of Mexico has scarce water availability and it is overexploiting its aquifer. The population and industry in the area are growing and require additional potable water supply. The city will move forward with the construction of a desalinization plant with a minimum capacity of 100 LPS. The authorities continue developing the feasibility studies to define the precise capacity requirements. It is expected that the project will be developed in stages with the first part consisting on a plant with a capacity of 100 LPS with an estimated investment of € 5 to 7 million.

The desalinization plant could be located at Bahia La Paz which is located at 8 kilometers from La Paz.

Project Status: The studies for the feasibility of the project begun in September 2005. It is expected that a probable tender date will be in September 2006. The type of tender for this project is being defined but it will likely be a 20 year BOOT project.

Technical Aspects: The project sponsors will open the technology choice to the bidders as long as the potable water meets Mexican regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998

Project Drivers: Population and industrial growth in the area with severe potable water availability shortages.

Project Inhibitors: The feasibility studies have just begun and it will not be possible to request government grants for the construction of the project until the technical and economic analysis documents are presented.

Contact Information:
Entity: Sistema Municipal de Agua Potable y Alcantarillado de La Paz (SAPA) / Municipal Potable and Sewage Utility of La Paz
Name: Ing. Marco Antonio Gutiérrez de La Rosa
Position: Director
Address: Av. Felix Ortega No. 2330
Col. Centro
23000, La Paz B.C.S.
Ph: (52-612) 122-6758, 122-3958
Fax: (52-612) 125-4149
E-mail: magr1@prodigy.net.mx
Web page: N/A

A.7. Guanajuato and San Luis Potosi Potabilization Projects:

Type of Project: Dam construction, civil works and equipment
Location: State of Guanajuato
Estimated Investment: € 150 million approximately
Source of Investment: TBD
Sponsor: Comisión Estatal de Agua de Guanajuato (CEAG) / Guanajuato Water State Commission and Comisión Estatal de Agua de San Luis Potosí (CEA) / San Luis Potosí Water State Commission
Nature of Work: Turn Key and Construction Contracts
Likely Bid Date: Mid 2007

Project Overview: The states of Guanajuato and San Luis Potosi are located in central northern Mexico. Both areas have limited water availability and the population and industry are growing in the area. The states two have decided to develop a joint project for the construction of a dam in the Santa Maria river with a capacity of over 400 Mm3. The objective of the project will be to increase potable water supply in the area. The states are working on committing a budget of € 150 million for the development of the project. The expected project will include the construction of a dam and a potabilization plant with a minimum initial capacity of 1.5 M^3/s to be located in San Luis La Paz in the state of Guanajuato.

The additional potable water supply will be transported through a new water pipeline which will be constructed in stages. The first phase will reach San Miguel de Allende, Comonfort and Celaya in the state of Guanajuato. The second phase will transport potable water to San Jose Iturbido, Guanajuato. The third phase to San Diego, Guanajuato and the fourth phase will reach the city of San Luis Potosi, in the state of San Luis Potosi.

Project Status: The states recently contracted a consultant (Consorcio de Empresas de Ingenieria S.A. de C.V.) located in the state of Guanajauato to develop a € 832,500 feasibility study for the development of technical concept for this project. The results of the analysis will be presented in July 2006.

Technical Aspects: The feasibility of the project is being analyzed, but the potabilization component must meet with Mexican regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998 The minimum project calls for the construction of one dam, four water pipelines and a potabilization plant with a minimum capacity of 1.5 M^3/s.

Project Drivers: Population and industrial growth in the area with severe potable water availability shortages. The current water supply in the area is mostly obtained from wells with growing presence of arsenic and other contaminants. The states of Guanajuato and San Luis Potosi signed an agreement for jointly requesting federal grants for the construction of this project.

Project Inhibitors: The feasibility of the project has not been defined as the studies have just begun. The authorities have an investment estimate but it will be required for the analysis to be finalized to know the precise investment required for the project. As this is a joint project, it will call for close coordination of two state governments which has demonstrated to be a difficult task.

Contact Information:
Entity: Comisión Estatal de Agua de Guanajuato (CEAG) / Guanajuato Water State Commission
Name: Ing. Ricardo Sandoval Minero
Position: Director
Address: Autopista Guanajuato – Silao Km. 1
36251, Guanajuato, Gto.
Ph: (52-473) 733-0473, 733-0301 Ext. 102
Fax: (52-473) 733-047 Ext. 103
E-mail: rsandova@guanajuato.gob.mx
Web page: N/A

Entity: Comisión Estatal de Agua de San Luis Potosí (CEA) / San Luis Potosí Water State Commission
Name: Ing. Urbano Diaz de León Barroso
Position: Director
Address: Mariano Otero No. 905
Col. Barrio de Tequisquiapan
78250, San Luis Potosí, S.L.P.
Ph: (52-444) 833-1715, 834-1502
Fax: (52-444) 834-1500
E-mail: ceapas@prodigy.net.mx
Web page: N/A

A.8. Potabilization Capacity Expansion in Tijuana, Baja California:

Type of Project: Municipal Potable Water Systems Expansion
Location: Tijuana Baja California
Estimated Investment: € 80 million
Source of Investment: Finfra through Banobras and State Grants
Sponsor: Comisión Estatal de Servicios Publicos de Tijuana (CESPT) / Tijuana Public Services State Commission
Nature of Work: Turn Key and Construction Contracts
Likely Bid Date: December 2005

Project Overview: The city of Tijuana is located in the state of Baja California in northwestern Mexico bordering with the United States at San Diego, California. The city has a population of 1.25 million people and has a current potable water consumption of 4 M^3/s. Because of population and industrial growth in the area, the city requires increasing the supply by 1.3 M3/s. The population growth in Tijuana is the largest in Mexico for urban areas with population of over 1 million growing at a rate of 3.0% per year. Because of the urgent need to provide public services, especially water to the population, the state government has decided that a viable water source for this project is the El Carrizo dam located 64 Km from Tijuana. The project consists in the construction of a 64 Km water pipeline to bring water into the city to an existing potabilization plant called El Florido with a current capacity of 4M3/s. This project will require the expansion of the existing plant to a capacity of 5.3M^3/s. The expected investment for the project is € 80 million of which 10% will be invested in additional potabilization capacity.

Project Status: The national public works bank (BANOBRAS) will provide 100% financing for the potabilization expansion project. The funding has already been earmarked for the project through the FINFRA investment fund. The rest of the project will be financed with federal, state and municipal funds. The city will issue separate tenders for the pipeline construction and for the potabilization plant expansion. Both tenders will be published in early December 2005.

Technical Aspects: The potabilization plant is in operation in Tijuana and the project calls for an expansion. The technology would be for conventional potabilization and must meet with Mexican regulations NOM-012SSA1-1993, NOM-127SSA1-1994 and NOM-179SSA1-1998.

Project Drivers: The city of Tijuana has urgent need to increase potable water availability. Funding for the potabilization capacity expansion has been approved.

Project Inhibitors: It is expected that this project will move forward as scheduled.

Contact Information:
Entity: Comisión Estatal de Servicios Publicos de Tijuana (CESPT) / Tijuana Public Services State Commission
Name: Lic Jorge Ramos Hernández
Position: Director
Address: Blvd. Federico Benitez No. 4057
Col. 20 de Noviembre

22430, Tijuana Baja California .
Ph: (52-664) 62215-05
Fax: (52-664) 622-4065
E-mail: dircespt@cespt.gob.mx hermila@cespt.gob.mx
Web page: www.cespt.gob.mx

A.9. Construction of Three Potabilization Plants in Mexico City.

Type of Project: Mexico City Potabilization Plants Construction
Location: Mexico City
Estimated Investment: € 3.5 million
Source of Investment: Mexico City Government
Sponsor: Sistema de Aguas de la Ciudad de México / Mexico City Water Utility
Nature of Work: Turn Key and Construction Contracts
Likely Bid Date: Early 2006

Project Overview: Mexico City is the capital of Mexico, located in central Mexico at an altitude of 2700 meters and a population estimated at 8.2 million. The city has scarce water availability with significant supply shortages in various areas especially in Iztapalapa with a population concentration of 1.8 million. The city is currently delivering water by truck to the population and the political problems are increasing in that area. The city will begin to address the problem by issuing a tender for the construction of three potabilization plants at three separate wells with capacities of 180,220 and 250 LPS. The estimated investment will reach € 3.5 million.

Project Status: The government of Mexico City is working on developing the technical specifications for the tender documents. The funding for the project will come from the government of Mexico City. The tender for the project is expected to be issued in early 2006. The authorities of Mexico City consider being extremely knowledgeable about potabilization technologies but are having trouble in selecting a technology for arsenic removal. There is a Japanese company interested in this project and has established a 1 LPS pilot plant, but authorities are not convinced about the economic feasibility of the technology.

Technical Aspects: Water supply in this area is obtained through wells which have an average depth of over 1500 meters. The water being extracted has significant contamination of nitrites, nitrates, iron, manganese, sulfhydric acid and especially of Arsenic. This tender and the resulting projects are expected to solve approximately 25% of the current problem in the Iztapalapa area. So it is expected that a series of similar projects will be tendered following this process. The government is operating several potabilization plants in Mexico City but remains looking for alternatives to inverse osmosis for arsenic removal.

Project Drivers: There is a growing political crisis because of the lack of water supply in Iztapalapa.

Project Inhibitors: Due to the severe nature of the situation this project will move forward as scheduled.

Contact Information:
Entity: Sistema de Aguas de la Ciudad de México / Mexico City Water Utility
Name: Ing. Arturo Correa Camacho
Position: Water Quality Control Director
Address: Av. División del Norte No. 3330
Col. Ciudad Jardín
04028, México D.F.
Ph: (52-55) 5549-8220
Fax: (52-55) 5549-8220 ask for tone
E-mail: lacorrea@prodigy.net.mx
Web page: N/A

A.10. Tijuana, Baja California Desalinization Plant:

Type of Project: Desalinization Plant Construction
Location: Tijuana Baja California
Estimated Investment: € 8 to 10 million
Source of Investment: In negotiations with Japan International Cooperation Agency (JICA), Federal and Municipal Grants
Sponsor: Comisión Estatal de Servicios Publicos de Tijuana (CESPT) / Tijuana Public Services State Commission
Nature of Work: 15 to 20 year BOOT
Likely Bid Date: December 2005

Project Overview: The city of Tijuana is located in the state of Baja California in northwestern Mexico bordering with the United States at San Diego, California. The city has a population of 1.25 million people and has a current potable water consumption of 4 M3/s. Because of population and industrial growth in the area, the city requires increasing the supply of potable water. The population growth in Tijuana is the largest in Mexico for urban areas with population of over 1 million growing at a rate of 3.0% per year. One of the projects being analyzed is a 200 LPS desalinization plant that will be located in at seashore at about 10 kilometers for the city. The estimated investment will reach € 8 to 10 million.

Project Status: The local authorities are finalizing the feasibility analysis for the project which they expect to present to Japan International Cooperation Agency (JICA) to request funding for the project. The local authorities have contemplated this project for several years, but the opportunity is maturing as the results of the analysis will be presented shortly. The water authorities from the Otay water district in California have agreed that future supply in the area would require desalinization and were involved in the initial stages of the feasibility studies. They were also interested in building a plant for San Diego.

Technical Aspects: This information will be available once the feasibility study is presented. The authorities are interested in receiving funding from Japan, but any company with desalinization technologies and experience can be considered during the project tender.

Project Drivers: Need for additional water supply in the area.

Project Inhibitors: The project has been considered for several years. The authorities might require obtaining funding from the Mexican government.

Contact Information:
Entity: Comisión Estatal de Servicios Publicos de Tijuana (CESPT) / Tijuana Public Services State Commission
Name: Lic Jorge Ramos Hernández
Position: Director
Address: Blvd. Federico Benitez No. 4057
Col. 20 de Noviembre
22430, Tijuana Baja California .
Ph: (52-664) 62215-05
Fax: (52-664) 622-4065
E-mail: dircespt@cespt.gob.mx hermila@cespt.gob.mx
Web page: www.cespt.gob.mx

A.11. Arsenic Removal Project in the State of Coahuila.

Type of Project: Arsenic Removal Project
Location: Various municipalities of the State of Coahuila
Estimated Investment: TBD
Source of Investment: Federal and State Monies
Sponsor: Comisión Estatal de Aguas y Saneamiento del Estado de Coahuila (CEAS) / Water and Sanitation State Commission of Coahuila

Nature of Work: TBD
Likely Bid Date: 2007

Project Overview: The state of Coahuila is located in northern Mexico bordering with the United States. The state has a total population of 2.5 million. The only water supply sources available in the area are deep wells obtaining water with heavy metal concentrations. Arsenic concentration is reaching 1.5 mg/l in cities including the capital of the state, Torreon and other cities including Viesca, Matamoros, Madero and San Pedro. The arsenic problem is also becoming prevalent in 200 rural communities throughout the state. Close to 40% of water sources in the "Comarca" region which is shared by Coahuila and the state of Durango have elevated arsenic content. The state government has contracted a private university ITESM to present technical alternatives for arsenic removal

Project Status: The authorities will need to move fast in developing a solution. The problem is so severe that they have been approached by several suppliers but the authorities do not want to select a technology that will tie them to a single supplier for replacement parts.

Technical Aspects: The ITESM will provide a report with alternatives, but a final decision will be made by the local water authorities. The authorities will have to install arsenic removal systems in over 100 wells.

Project Drivers: This is becoming an environmental emergency and a solution must be reached soon.

Project Inhibitors: Authorities do not want to depend on a single supplier.

Contact Information:
Entity: Comisión Estatal de Aguas y Saneamiento del Estado de Coahuila (CEAS) / Water and Sanitation State Commission of Coahuila
Name: Ing. Salomón Aberdrop López
Position: Director
Address: Calle de la Fuente No. 433 Altos
Col. Zona Centro
25000, Saltillo Coahuila.
Ph: (52-844) 412-7069
Fax: (52-844) 414-0568
E-mail: ceas_dirgral@hotmail.com
Web page: N/A

BRIEF PROJECT PROFILES

A.12. Calvillo Water Supply Project

Type of Project: Construction of 120 to 150 LPS potabilization plant
Location: Calvillo, in the State of Aguascalientes, in Central North Mexico.
Estimated Investment: € 10 to15 million
Source of Investment: Requesting funding from the state government and the federal Government's bank BANOBRAS.
Sponsor: Instituto del Agua del Estado de Aguascalientes (INAGUA) / Aguascalientes State Water Institute
Likely Bid Date: 2007 - 2008

Brief Project Description / Special Comments: The municipality of Calvillo is located 54 kilometers from the capital of the state of Aguascalientes and has a population of 55,000. The state and municipal authorities are planning the construction of a dam with a capacity of 2.7Mm3 and related infrastructure projects which will include the construction of a potabilization plant with a capacity of 120 to 150 LPS. The technical project is well defined and the project sponsors are in the process of obtaining funding for construction. The authorities consider this as an important alternative to reduce the dependence on wells as water sources as the dam will use the flow from the Calvillo river.

Contact Information:
Entity: Instituto del Agua del Estado de Aguascalientes (INAGUA) / Aguascalientes State Water Institute
Name: Ing. Luis Javier Campos Hermosillo
Position: Director
Address: Calle 18 de Marzo No. 98
Col. Fraccionamiento Las Adas
20140, Aguascalientes, Ags.
Ph: (52-449) 910-2586 Ext. 5750
Fax: (52-449) 910-2587
E-mail: lcamposh@aguascalientes.gob.mx
Web page: N/A

Entity: Organismo Operador de Servicios de Agua de Calvillo (OOSAC) / Calvillo Water Utility
Name: Ing. Luis Miguel Díaz Martínez
Position: Director
Address: Prolongación. Independencia Esq. Guanajuato
Col. Los Ángeles
20800, Calvillo, Aguascalientes.
Ph: (52-495) 956-1902
Fax: (52-495) 956-1203
E-mail: oosac@prodigy.net.mx
Web page: N/A

A.13. Construction of Three Potabilization Plants in the State of Mexico:

Type of Project: Construction of three potabilization plants with average capacity of 50 LPS each.
Location: At three sites being defined along the Lerma river in the State of Mexico
Estimated Investment: In the process of being defined
Source of Investment: State and municipal funding
Sponsor: Comisión de Aguas del Estado de México (CAEM) / The Water Commission for the State of Mexico
Likely Bid Date: Mid 2006

Brief Project Description / Special Comments: The state water commission (CAEM) is developing this project to increased potable water supply to a series of communities along the vicinity of the Lerma river. The sponsor has the funding to proceed with the project.

Contact Information:
Entity: Comisión de Aguas del Estado de México (CAEM) / The Water Commission for the State of Mexico
Name: Ing. José Manuel Camacho
Position: Director
Address: Félix Guzmán No. 10 Esq. Jesusillo piso 7
Col. El Parque
53390, Naucalpan, Estado de México
Ph: (52-55) 5395-1917 5395-1835
Fax: (52-55) 5358-4963
E-mail: caemvocalia7@prodigy.net.mx
Web page: N/A

A.14. Chilpancingo Water Supply Project:

Type of Project: Construction of 300 LPS potabilization plant.
Location: City of Chilpancingo.
Estimated Investment: € 60 Million

Source of Investment: Federal and state governments. Resources from Banobras.
Sponsor: Comisión de Agua Potable, Alcantarillado y Saneamiento del Estado de Guerrero / (CAPASAEG) Water and Sanitation Commission for the State of Guerrero
Likely Bid Date: Early 2007

Brief Project Description / Special Comments: Chilpancingo is the capital of the state of Guerrero, located in Mexico's south west Pacific coast. The city has a population of 198,000.The area will develop additional water supplies through the use of flows from the Mezcala river located at 70 kilometers for the city. The project will require the construction of a water pipeline into the city and two potabilization plants of two 300 LPS each. The first phase will be tendered in early 2007 and the second phase in 2009.

Contact Information:
Entity: Comisión de Agua Potable, Alcantarillado y Saneamiento del Estado de Guerrero / (CAPASAEG) Water and Sanitation Commission for the State of Guerrero
Name: Ing. Rodolfo Guerrero Terán Flores
Position: Director
Address: Av. Alemán No. 9
Col. Centro
39000, Chilpancingo, Guerrero
Ph: (52-747) 472-2623, 472-2699
Fax: (52-747) 472-4121
E-mail: capaseg@guerrero.gob.mx
Web page: N/A

A.15. Ixtapa, Zihuatanejo Desalinization Plant:

Type of Project: Construction of one 200 LPS desalinization plant.
Location: City of Ixtapa Zihuatanejo in the State of Guerrero.
Estimated Investment: € 8 to 10 million.
Source of Investment: Federal government through Banobras and state and municipal funding.
Sponsor: Comisión de Agua Potable y Alcantarillado de Zihuatanejo (CAPAZ) / Water commission of Zihuatanejo
Likely Bid Date: 2008

Brief Project Description / Special Comments: Ixtapa Zihuatanejo is an important tourism destination in the Pacific coast in the state of Guerrero with a population of 90,000. The water supply sources are wells with excellent water quality. Demand for water is causing the over-exploitation of the aquifers which are being consumed at a rate which does not allow for recharging the water supply. Because of this situation, the municipal government is beginning to develop a desalinization plant project as there are no other water supply options in the area.

Contact Information:
Entity: Comisión de Agua Potable y Alcantarillado de Zihuatanejo (CAPAZ) / Water commission of Zihuatanejo
Name: Ing. José Aguedo Valencia López
Position: Director
Address: Heróico Colegio Militar No. 176
Col. Centro
40880, Zihuatanejo, Guerrero
Ph: (52-755) 554-2358, 554-2224
Fax: (52-755) 554-3388
E-mail: capaz@prodigy.net.mx
Web page: N/A

A.16. Pachuca Potabilization Plant Construction:

Type of Project: Construction of a 60 to 100 LPS potabilization plant.
Location: Mineral del Monte State of Hidalgo.
Estimated Investment: In the process of being defined depending on the size of the plant.
Source of Investment: Federal government through Banobras and state and municipal funding.
Sponsor: Comision de Agua y Alcantarillado de Sistemas Intermunicipales (CAASIM) / Water commission for the state of Hidalgo
Likely Bid Date: 2007

Brief Project Description / Special Comments: The expected plant will be located in Mineral del Monte in the vicinity of the city of Pachuca, which is the capital of the state of Hidalgo, located in central Mexico at 160 Km from Mexico City. The state's water commission is evaluating the use of waters from the Moztezuma river as an additional source of water for the population of the area. The river is receiving discharges from mining operations so the potabilization plant will require systems for eliminating a significant concentration of heavy metals in the water. The project will also require the construction of a 9 Km water pipelined from the Moctezuma river to the area of Mineral del Monte. Authorities are currently defining the expected size of the potabilization plant.

Contact Information:
Entity: Comision de Agua y Alcantarillado de Sistemas Intermunicipales (CAASIM) / Water commission for the state of Hidalgo
Name: Ing. Alejandro Sánchez García
Position: Director
Address: Av. Industrial La Paz No. 200
Col. Zona Industrial La Paz
42092, Pachuca, Hidalgo
Ph: (52-771) 718-9934, 718-9853
Fax: (52-771) 718-9853
E-mail: alejandrosanchez_caasim@hotmail.com
Web page: N/A

A.17. Potabilization Plant Upgrade in Mexicali:

Type of Project: Upgrading and capacity expansion for an existing potabilization plant
Location: Mexicali in the State of Baja California.
Estimated Investment: € 340 thousand
Source of Investment: State funding
Sponsor: Comisión Estatal de Servicios Públicos de Mexicali (CESPM) / The Municipal Water Commission of Mexicali
Likely Bid Date: Early 2006

Brief Project Description / Special Comments: The city of Mexicali has an existing potabilization plant with a capacity of 500 LPS. The city will contract a project for upgrading the plant and expanding the potabilization capacity to 650 LPS. The city is interested in installing high-efficiency pressure filters.

Contact Information:
Entity: Comisión Estatal de Servicios Públicos de Mexicali (CESPM) / The Municipal Water Commission of Mexicali
Name: Ing. Efraín Muñoz Martín
Position: Director
Address: Calzada Independencia y Río Sinaloa S/N
Col. Vallarta
21270, Mexicali B.C.
Ph: (52-686) 564-1948, 564-1900
Fax: (52-686) 564-1949

E-mail: emuñoz@cespm.gob.mx
Web page: www.cespm.gob.mx

A.18. Water supply Consulting Services in Campeche:

Type of Project: Consulting contract for assessing the water supply system
Location: City of Campeche
Estimated Investment: To be defined
Source of Investment: Federal government through Banobras and funding from the municipal government.
Sponsor: Comisión de Agua Potable y Alcantarillado del Estado de Campeche / (CAPAE) Water Commission for the State of Campeche
Likely Bid Date: Early 2006

Brief Project Description / Special Comments: The city of Campeche is the capital of the state of Campeche located in Mexico's gulf coast with a population of 220,000. The city is in the process of contracting consulting services to evaluate their existing potable water infrastructure. The city has a series of potabilizations plants of which two are not in operation and are interested in knowing if they can be upgraded of if they will require building additional potabilization infrastructure. The water requires treatment to reduce hardness.

Contact Information:
Entity: Comisión de Agua Potable y Alcantarillado del Estado de Campeche / (CAPAE) Water Commission for the State of Campeche
Name: Ing. Julio Retana Villareal
Position: Director
Address: Centro Comercial Ah-Kim Pech. Modulo C Local 311
Col. Centro
24000, Campeche, Camp.
Ph: (52-981) 816-8680, 816-8668 Ext. 102
Fax: (52-981) 816-8680 Ext. 104
E-mail: jretana@campeche.gob.mx
Web page: N/A

A.19. Water softening plant construction in Quintana Roo.

Type of Project: Construction 150 LPS water softening plant
Location: Chetumal
Estimated Investment: To be defined
Source of Investment: Federal funds through Banobras and state funding.
Sponsor: Comisión de Agua Potable y Alcantarillado del Estado de Quintana Roo / (CAPA) Water Commission for the State of Quintana Roo
Likely Bid Date: 2007

Brief Project Description / Special Comments: The city of Chetumal is the capital of the state of Quintana Roo with a population of 62,000 and located in southeastern Mexico, close to the Guatemala border. The water commission is currently conducting a project to eliminate leaks in the pipelines supplying water to their existing potabilization plants. The commission is also drilling additional wells to increase water supply in the area. The authorities are estimated the new water supply volumes to define the size of a new potabilization plant that will be required in the area. It is currently estimated that the plant will have a capacity of 150 LPS

Contact Information:
Entity: Comisión de Agua Potable y Alcantarillado del Estado de Quintana Roo / (CAPA) Water Commission for the State of Quintana Roo
Name: Ing. Andrés Ruiz Morcillo
Position: Director
Address: Efrain Aguilar No. 210
Col. Centro

77700, Chetumal, Quintana Roo
Ph: (52-983) 832-8048, 832-8073
Fax: (52-983) 832-3631 ask for tone
E-mail: patriciaguitian@capa.gob.mx
Web page: N/A

A.20. Potabilization Plant Expansion in Tabasco:

Type of Project: Expansion of an existing 500 LPS potabilization plant to a capacity of 1500 LPS.
Location: Villa Hermosa, Tabasco
Estimated Investment: To be defined
Source of Investment: Federal funding through Banobras and state and municipal funding.
Sponsor: Servicios de Agua Potable y Alcantarillado del Estado de Tabasco (SAPAET) / Water commission for the state of Tabasco
Likely Bid Date: Late 2006

Brief Project Description / Special Comments: The city of Villa Hermosa is the capital of the state of Tabasco with a population of 550,000 and is located in Mexico's gulf coast. The city will obtain an additional 1 M3/s from the Carrizal river and will require the expansion of their potabilization infrastructure. The city has an existing plant with a capacity of 500 LPS and the proposed project will increase capacity to 1.5 M^3/s.

Contact Information:
Entity: Servicios de Agua Potable y Alcantarillado del Estado de Tabasco (SAPAET) / Water commission for the state of Tabasco
Name: Ing. José Esteban Olmos Perez
Position: Director
Address: Santos Degollado No. 806
Col. Centro
86600, Paraíso, Tabasco
Ph: (52-993) 315-8066
Fax: (52-993) 315-8044
E-mail: N/A
Web page: N/A

A.21. Jalisco and León Guanajuato Water Supply Project (El Zapotillo Dam)

Type of Project: Dam, Water Pipeline and Potabilization Infrastructure Construction
Location: Jalisco and Guanajuato States
Estimated Investment: € 560 million
Source of Investment: Federal, State Government and probably multilateral bank credit.
Sponsor: Comisión Estatal de Agua y Saneamiento (CEAS) / Water and Sanitation State Commission of Jalisco, Comisión Estatal de Agua de Guanajuato (CEAG) / Guanajuato Water State Commission and Comisión Nacional del Agua (CNA) The National Water Commission
Nature of Work: Turn Key and Construction Service Contracts
Likely Bid Date: Mid 2006

Brief Project Description / Special Comments: The states of Guanajuato and Jalisco are located in north western Mexico. Both areas have limited water availability. The two states have decided to develop a joint project for the construction of a dam called El Zapotillo in the Rio Verde river with a capacity of over 280 Mm3.

The objective of the project will be to increase potable water supply in the area. The states are working on committing a budget of € 590 million for the development of the project. The expected project will include the construction of a dam and two potabilization plants with a minimum initial capacity of 3.8 M3/s and 1.8 M3/s to be located in state of Guanajuato and Jalisco respectively.

The additional potable water supply will be transported through a new 127Km. acueduct.

At this time the projects is being evaluated by the Urban Hydraulic Infrastructure unit of the National Water Commission (CNA) which is in charge of the project coordination. The tender documents are expected to be issued in mid 2006. Economic resources for the project will be a combined scheme between Federal and State Governments as well as private participation.

Contact Information:

Name: Ing. Jesús Campos López
Position: Urban Hydraulic Infrastructure Deputy Director
Address: Insurgentes Sur No. 2416, piso 3
Col. Copilco del Bajo
04340, México D.F.
Ph: (52-55) 5174-4215
Fax: (52-55) 5174-4217
E-mail: jesus.campos@cna.gob.mx
Web page: www.cna.gob.mx

Entity: Comisión Estatal de Agua y Saneamiento (CEAS) / Water and Sanitation State Commission of Jalisco and
Name: Ing. Enrique Dau Flores
Position: Director
Address: Calle Basilia No. 2770
Col. Providencia
44680, Guadalajara Jalisco
Ph: (52-33) 3642-9102, 3642-4509 Ext. 102
Fax: (52-33) 3640-2382
E-mail: ceas@jalisco.gob.mx
Web page: www.ceasjalisco.gob.mx

Entity: Comisión Estatal de Agua de Guanajuato (CEAG) / Guanajuato Water State Commission
Name: Ing. Ricardo Sandoval Minero
Position: Director
Address: Autopista Guanajuato – Silao Km. 1
36251, Guanajuato, Gto.
Ph: (52-473) 733-0473, 733-0301 Ext. 102
Fax: (52-473) 733-047 Ext. 103
E-mail: rsandova@guanajuato.gob.mx
Web page: N/A

APPENDIX B: GOVERNMENT PROGRAMS

B.1. PAS: Program for Action in Sanitation:

This program was published as a presidential decree in December 21st 2001 and it writes off past water right debts to municipalities agreeing to invest in sanitation infrastructure under a financially feasible investment plan. This plan was originally focused to 306 municipalities with over 20,000 inhabitants. Of those, 265 signed as participants but to the end of 2004 only 85 remained as participants and have met with their investment programs. The remaining have missed to meet their plans for over 30% and this causes that their debts remain in books and are charged with interests for the whole period. The deadline for wastewater compliance was 2007 however as many of the municipalities who are participating will finish with their investment plans after 2007, in November 17, 2004 this program was extended to 2010 and the program was opened to all municipalities with a population of more than 2,000 inhabitants.

B.2. APAZU: Potable Water and Sewage Collection Program in Urban Areas.

APAZU has the dual goal of providing resources for the construction of new infrastructure or improving existent infrastructure while at the same time improving the institutional and commercial capabilities of local operating companies. The APAZU program allows states and municipalities to request financial assistance from the federal government for the improvement or construction of potable water, sewage and wastewater treatment infrastructure. To receive federal monies under this program, the states or municipalities have to sign an agreement whereby they commit to having their municipal water utilities become financially solid or at least "break even" on their operations under a period of no more than five years.

The main goals of the program are:

1. Support municipalities and states in strengthening their water utilities as well as to increase service coverage.
2. Gradually eliminate federal government subsidies for the construction of water infrastructure.
3. Focus subsidies on improving the utilities' physical, commercial and financial operations.

This program is available for cities with populations greater than 2,500 inhabitants while in smaller localities the CNA will continue to directly finance the development of infrastructure. The program provides the largest federal subsidies to the poorer municipalities.

States or municipalities entering this program have to provide the CNA with a schedule for the completion of the works as well as a plan demonstrating how the utility will become profitable in less than five years. These plans require authorization from the local congresses to ensure that if tariff increases are contemplated as part of the plan these will be approved.

The maximum federal government financial participation through the CNA in water projects is as follows:

For cities or localities with a population between 2,500 and 500,000 inhabitants:

FOR EFFICIENCY IMPROVEMENT		
Poverty Index	**Federal**	**State/Municipal**
High	Up to 60%	40%
Medium	Up to 48%	52%
Low	Up to 42%	58%

FOR POTABLE WATER		
Poverty Index	**Federal**	**State/Municipal**
High	Up to 48%	52%
Medium	Up to 30%	70%
Low	Up to 18%	82%

SEWAGE & WASTEWATER TREATMENT		
Poverty Index	**Federal**	**State/Municipal**
All	Up to 42%	58%

For cities with a population greater than 500,000 inhabitants:

For cities with a population greater than 500,000 inhabitants: **Type of Work**	**Federal**	**State/Municipal**
Efficiency Improvements	Up to 42%	58%
Potable Water	Up to 18%	82%
Sewer and WW treatment	Up to 42%	58%

During 2003 the APAZU program provided Federal funds for € 72.78 million, and the States and municipalities contributed with € 100.47 million. During 2004 the total investments of the APAZU program accounted for over € 200 million.

Disbursements of APAZU had delays due to a constitutional controversy of the 2005 Federal Budget and they remained almost frozen for over 4 months. The Ministry of Treasury (SHCP), has over € 225 million for the APAZU program for 2005 and several projects which are considered as candidates for these amounts are behind schedule, lack of land or executive project, so the monies will most likely won't be spent completely in this fiscal year. The SHCP could transfer these monies to FINFRA before the end of the year so they are used to finance other projects that already have a site and design.

B.3. Program for Attention to the North Border:
The Mexican and American Governments have worked together during the past several years to protect the environment and natural resources in the border area of both countries, however population growth in the area has been very high, reaching 4% per year in some border cities. Industrial development in the zone is also growing at very fast rate, so demand for services is increasing and putting pressure on the resources available. Through this program and with the support of the NADBANK and the Japan Bank for International Cooperation (JBIC), potable water coverage, sewer and wastewater treatment infrastructure has been developed in the border area and as a result, the zone has the highest water, sewer and wastewater treatment indexes of all Mexico. Investments in this area will continue in the following several years as while current coverage is high, water availability has become very low and the population and industry continue growing at high rates. Several of the project in the area have financial support from the Federal Government, Multilateral and Bilateral organizations and also receive grants from the US. Environmental Protection Agency and other Amercian sources.

B.4. PRODDI: Pilot Project For Water And Sanitation Institutional Development:
This pilot project financed trough the IDB has the objective of assisting in the modernization and reform of Mexico's water supply and sanitation sector by conducting pilot projects that promote autonomy, efficiency, equitable access, citizen participation and the financial sustainability of the operators that provide these services in small- and mid-sized cities. The program, currently under way seeks to: (1) demonstrate the real potential for improving service quickly and with limited resources; (2) build a consensus within the community concerned and support for the required measures; (3) learn and share experiences that will be useful in similar communities; and (4) lay the groundwork for a larger-scale investment and institutional development program.

The program has four main components: (1) preparation of the participating service providers' business plans (US$1.72 million); (2) implementation of the improvements and modernization measures (US$5 million); (3) investments in priority civil works (US$7.7 million); and (4) evaluation and dissemination of the results obtained and the lessons learned. (US$700,000).

The Water utilities selected to participate in this pilot project are:

City	State	Operator	Population
Zacatecas	Zacatecas	JIAPAZ	243,000
Tapachula	Chiapas	COAPATAP	191,000
Atlixco	Puebla	SOAPAMA	86,000
Coatepec	Veracruz	CMAS	46,000
Tepeaca	Puebla	SOAPAT	28,000

This program was signed in 2004 and is currently underway. Most tenders for equipment and infrastructure will take place in late 2005 and during 2006. Currently the water utilities are receiving technical advisory and consulting services.

The disbursements for this program are mostly concentrated in metering equipment, software, training programs, a review of tariffs, and a few infrastructure works only when needed to improve efficiency such as correcting leaks or fixing tanks.

Contact Information:
Entity: Junta Intermunicipal de Agua Potable y Alcantarillado de Zacatecas (JIAPAZ) / Zacatecas Potable Water and Sewage Utility
Name: Enrique Alcalá Gallegos
Position: Director
Address: Calzada CNC No. 102
Col. Buenos Aires
98050, Zacatecas, Zac.
Ph: (52-492) 925-6049
Fax: (52-492) 925-6046
E-mail: jiapaz_zac@yahoo.com.mx
Web page: N/A

Contact Information:
Entity: Comité de Agua Potable y Alcantarillado de Tapachula (COAPATAP) / Tapachula Potable Water and Sewage Utility
Name: Ing. Carlos Enrique Córdoba Cerdio
Position: Director
Address: Av. Norte No. 13, entre 20 y 31 Pte.
Col. 5 de Febrero
30710, Tapachula, Chiapas
Ph: (52-962) 626-1750
Fax: (52-962) 626-5895
E-mail: coapatap6@prodigy.net.mx
Web page: N/A

Contact Information:
Entity: Sistema Operador de Agua Potable y Alcantarillado de Municipio de Atlixco (SOAPAMA) / Atlixco Potable Water and Sewage Utility
Name: Ing. Francisco Velasco Islas
Position: Director
Address: Av. 3 Norte No. 3
Col. Centro
74200, Atlixco, Puebla
Ph: (52-224) 445-6620 EXT. 1
Fax: (52-224) 446-3400
E-mail: soapama@prodigy.net.mx
Web page: N/A

Contact Information:
Entity: Comisión Municipal de Agua Potable y Saneamiento de Coatepec (CMAS) / Potable Water and Sanitation Utility of Coatepec
Name: Carlos Darío Polanco Medina
Position: Director

Address: Calle de 16 de Septiembre No. 6
Col. Centro
91500, Coatepec, Veracruz
Ph: (52-228) 816-3142
Fax: (52-228) 816-0542
E-mail: cmascoa@prodigy.net.mx
Web page: N/A

B.5. PRODDER: Program for Devolution of Water Rights:
This program began its operation in 2002 through a Presidential decree and it seeks to develop water rights payment culture among municipal water utilities without damaging their cash flows. Municipal water utilities participating in this program had to sign a letter recognizing their past debts to the CNA for water rights. Past debts were frozen and are kept in books, and the municipalities signed an agreement committing to begin paying quarterly its current water rights. The amounts paid by the water utilities are returned in full if the municipality makes the commitment to match the sum and invest the total sum in water infrastructure or efficiency improvements. In 2003, of € 106 million paid by municipal water utilities who applied for this program 99.9% of the amount was returned. Total investments resulting for this program were € 212 million of which 35.9% were invested in potable water infrastructure, 23.9% in sewer, 9.9% in wastewater treatment and 30.3% in improving efficiency.

B.6. PROMAGUA: Program for the Modernization of Municipal Water Utilities:
PROMAGUA has the objective of becoming an additional source of funds to support water utilities. These resources are dependant upon the authorities' willingness to include private participation in their operations. This idea is to support a process to make these utilities self-sufficient. PROMAGUA was created to promote the consolidation of municipal water utilities; promote operational efficiency; facilitate access to state of the art technologies; and promote environmental protection through sanitation projects, preferentially linked to wastewater re-use projects. PROMAGUA is targeted to municipalities with over 50,000 inhabitants and will channel federal resources to:

a) Increase efficiency of water utilities.
Supply and installation of macro-metering.
Supply and installation of micro-metering.
Leak detection and control.
Develop user registries.
Billing and collection systems.
Accounting systems.
Information systems.

b) Increase coverage:
Drilling and equipment for new wells.
Potabilization plants.
Regulation tanks.
Aqueducts.
Construction and rehabilitation of sewer collection systems and wastewater treatment plants.

PROMAGUA provides funds for up to 49% of the required investment, based on the achieved efficiency and private participation level. Any water utility in Mexico serving a population greater than 50,000 inhabitants is eligible for PROMAGUA funds, however these funds are only provided as grant to utilities with an efficiency level of over 45%. Otherwise funds provided by PROMAGUA are considered credit until the utility exceeds a global efficiency level of 45%.

PROMAGUA Funding for Efficiency Investments

Current level of Global Efficiency	Management Contracts or Mixed Public-Private Utility With Majority of Public Participation	Integrated Concession or Mixed Public-Private Utility With Majority of Private Participation
	Funding Up to	
Lower than 30%	40%	49%

30% to 40%	30%	40%
Higher than 40%	25%	30%

Source: BANOBRAS

PROMAGUA also provides funding for water, sewer and wastewater infrastructure. All Infrastructure projects require a feasibility study with a social impact evaluation approved by BANOBRAS. These funds have the same financial treatment and are considered credit until the utility reaches a global efficiency level of 45% and only after this, funds are considered grant without need for repayment.

PROMAGUA Funding for Infrastructure

Type of Work	Management Contracts	Mixed Public-Private Utility With Majority of Public Participation	Integrated Concession or Mixed Public-Private Utility With Majority of Private Participation
	Funding Up to		
Water Supply	20%	25%	30%
Sanitation	30%	40%	49%

Source: BANOBRAS

PROMAGUA began operations in early 2000 and its results are considered weak. Most municipalities in Mexico do not want to cease control of water operations to a private company and thus this program has had low success. The only success story so far was the creation of a mixed Puplic-Private company in Saltillo who began operating the water system in 2001. Other municipalities such as Manzanillo, Colima; Querétario, Querétaro; Guadalajara, Jalisco; Morelia, Michoacán; Coatzacoalcos, Minatitlán and Nachital in Veracruz; Colima, Colima; and Acapulco, Guerrero, have finalized their Diagnose studies. An additional 12 municipalities are under diagnose phase.

B.7. PROSSAPYS: Sustainability of Water Supply and Sanitation Services in Rural Communities: The IDB approved a loan in 1998 for US$ 310 million for the PROSSAPYS program. The principal objective of PROSSAPYS was to develop the water supply and sanitation sector in rural communities by: (1) applying standards to ensure the quality of water supply and sanitation services; (2) strengthening the decentralization of responsibilities and financial resources; and (3) providing efficient services to marginalized rural populations through sustainable mechanisms, with active, organized community participation.

The program had a five-year execution period, and comprised the following three components: (1) institutional development that sought to strengthen sector functions to provide services in rural areas in 20 states and 200 municipalities; (2) community development support and community participation intended to create and strengthen community organizations in approximately 1,500 rural communities to operate and maintain water utilities in a sustainable manner; and (3) water supply and sanitation infrastructure that sought to support the construction of new works and the rehabilitation and expansion of existing water systems to bring potable water to some 1.87 million people (1,200 communities), and sanitation solutions to about 1.29 million (950 communities). The amount of the Bank loan was US$310 million, and the total program cost was estimated at US$560 million.

According to the rules agreed upon under PROSSAPYS, the Federation, acting through the CNA, contributes 50% of the resources needed to cover the project investment costs, including the amounts for institutional development, and community support and organization. Each participating state contributes the remaining 50%, which may include contributions from the municipalities or beneficiary communities. In 13 out of the 31 states, communities made small contributions to the initial investment. Contributions are usually less than 10% of the total cost and may be provided in cash or in kind. Users must pay for the administration, operation, maintenance, and replacement costs of the system constructed. The community itself sets the rates, based on the estimated cost of system administration and operation.

As of 28 February 2005, PROSSAPYS had financed construction of 3,950 potable water projects and 1,325 sanitation projects, providing potable water to 2.16 million rural inhabitants and sanitation systems to 643,000. Approximately 87% of loan resources had been disbursed, and more than 90% were committed to finance works currently in execution.

There are 13,500 rural communities with populations ranging from 100 to 2,500 inhabitants that have no potable water service. These communities, with a total of 4.5 million inhabitants, are the main reason for continuing the efforts put forth in the operation currently nearing completion. It is worth noting that 11,800 of these 13,500 communities are highly or very highly marginalized, and 7,800 have been classified as predominantly indigenous communities. The sanitation situation is similar to that of potable water, although more acute because some rural communities were able to build a water supply system but do not have an appropriate sanitation system.

In July 20, 2005 the IDB granted a new loan for the continuation of the PROSSAPYS program both the IDB and the Mexican Government are highly satisfied with the results. The IDB will finance US$200 million and the Mexican Government US$90 million.

Tenders of PROSSAPYS funded services, equipment and projects are published in the Official Gazette of Mexico (Diario Oficial), as well as in IDB's acquisition advice systems.

B.8. Modernization of the Water and Sanitation Sector Technical Assistance: This World Bank funded project has a somewhat similar scope than the PRODIN program sponsored by the IDB. The objectives of the program are to (1) implement reforms mandated by the new National Water Law and (2) develop replicable, sustainable models for provision of services by five targeted water utilities.

Component 1. Modernization of the WSS Sector Institutions (US$2.9 million) This component will provide assistance to the Federal and State Governments for developing a series of studies and activities associated to the strengthening of the sector policy making and planning institutions through:

a) Support to the implementation of recent changes to the Water Law, by providing an assessment of the current water supply and sanitation programs, an essential input for the design of the overarching financing framework for the sector (Le. Sistema Financiero del Agua).

b) Strengthening of the existing national water and sanitation information system; support of the State and Municipal Water Utilities in the strengthening of planning, technical assistance and overseeing capacities through a series of activities to be implemented under an agreement between CNA and ANEAS;

c) Development of an accreditation program; and dissemination of the lessons learned in the project

Component 2. Modernization of Water Utilities (US$47.7 million): This component will support the development of replicable models for an efficient and sustainable provision of water supply and sanitation services ("success cases") through institutional reforms and improvement of utility performance (technical, commercial and financial). This component will fund efficiency improvement programs in selected utilities to strengthen and bring utilities to reasonable levels of management, operational efficiency and financial viability. In some cases, and given the necessary social, political and financial conditions, this program would pave the way for some form of private sector participation in service delivery and financing.

The water utilities selected to receive this assistance are:
Colima-Villa de Alvarez, Col.
Puerto Vallarta, Jal.
Hermosillo, Son.
Cd. del Carmen, Camp.
Guaymas, Son.

Project Cost By Component and/or Activity	Counterpart US$ th.	Financed US$ th.	Total US$ th.
1 Modernization of the Sector at the Federal and State Level	**364**	**2,499**	**2,863**
1.1 National WSS Information System	0	762	762
1.2 Evaluation of existing programs in the water and sanitation sector	0	400	400
1.3 Strengthening of the State Water Commissions (CEA)	0	455	455
1.4 Training Component	0	682	682
1.5 Dissemination activities	0	200	200
1.6 Project Management	364	0	364
2 Pilot Cases of Modernization of Water Utilities	**27,688**	**20,050**	**47,738**
Subtotal: Components 1 and 2	**28,052**	**22,549**	**50,601**
Contingency	2,201	2,201	4,402
Total Project Cost	**30,253**	**24,750**	**55,003**
Front End Fee (1%)		250	250
Total Project Cost	**30,253**	**25,000**	**55,253**

B.9. FORTEM: Program for Strengthening of States and Municipalities (FORTEM):
Under this program, BANOBRAS received from the International Development Bank (IDB), a credit line of US$ 400 million to support the decentralization efforts carried by the Mexican government. The objective of this program is to strengthening the financial condition and institutional capacity of State and Municipal governments, and at the same time promoting the modernization of local services through funding projects and public works with high social and economic impact in the municipalities.

The tenders for projects and contracts made under FORTEM are made following IDB's guidelines, through international tenders and are open for participants of any IDB member country.

Although FORTEM is not limited to strengthening water authorities, and it covers a wide range of local institutions such as waste collection and disposal utilities, police, health, traffic, etc., the program states water utilities as one of its top priorities. FORTEM funds services destined to personnel training, technical assistance, project development, and feasibility studies. Equipment such as office equipment and software, monitoring equipment, vehicles, metering and collection systems, and billing technologies, as well as other water infrastructure, with the condition of a) to be of benefit strengthening the financial or institutional capacity of the utility and b) to have high social and economic impact.

Tenders of FORTEM funded services, equipment and projects are published in the Official Gazette of Mexico (Diario Oficial), as well as in IDB's acquisition advice systems.

APPENDIX C: PROCUREMENT LAW AND CONSIDERATIONS:

Mexican Congress approved on April 14, 2005, a series of changes to the government' purchasing processes through a number of amendments to the legal framework comprised of two laws. The Service and Acquisitions Law SAL (Ley de Adquisiciones, Arrendamientos y Servicios del Sector Público) and the Public Works & Related Services Law PWL (Ley de Obras Públicas y Servicios Relacionados con las Mismas). These amendments entered into law at publication in the Official Gazette on July 7, 2005.

The previous purchasing process was through a public tender in which the lowest price bidder was awarded the purchase. Under the new amendments, price has stopped being the only consideration factor and a stronger emphasis will be placed on the quality and technical aspects of the offer and the supplier's experience and credibility.

1. Lowest price offer selection criteria modified. Amendments to Article 36, section III of the SAL allows public entities to consider factors beyond price for the selection of suppliers. These will only apply to service contracts. Price will now account for 50% of the awarding criteria and public entities will have to specify how the remaining 50% will be evaluated. This change does not apply to the PWL. This modification will support more credible and experiences suppliers, but the selection criteria might remain vague and open to a long series of interpretations.

2. Elimination of separate technical and pricing offer submission requirement. Article 34 of the SAL and Article 36 of the PWL now states that participants will only present one envelope that contains both the technical and the economic proposals. This is a change over previous requirements which called for separate submission of technical and pricing information related to the offer. Under the previous process, the technical offer was opened first and companies that were accepted, passed to a second evaluation based price. The new process will consist of a simultaneous on the technical merit of the proposal and its pricing.

3. Bid processes can move forward without previous budgetary approval New article 25 of the SAL and Article 24 of the PWL state that, in exceptional situations, and with the previous authorization of Hacienda, public entities will be able to sign a contract even if the required funding was not included in the current fiscal year's budget. The idea is to include the funding in the following fiscal year, but as this cannot be guaranteed, the existence of the contract will create no obligations to the parties.

4. Foreign Currency Payment Clarifications. Article 31, section VI of SAL states that for tenders open to international suppliers, the contracting entity can commit to paying foreign contractors abroad in the currency stipulated in the contract. Article 33, section VI of the PWL now allows payments in Pesos to be adjusted for exchange rate variations. It is not clear if the requirement for foreign suppliers to establish a subsidiary in Mexico for participating in tenders will continue to be enforced.

5. Special treatment for small companies, Article 42 of the SAL states that in cases when public entities directly assign contracts without a tender process, they must: 1) invite at least three participants, and 2) assign 50% of the value of such contracts to micro, small and medium sized companies.

6. Reduction in duration of tender processes. The amendments to the laws indicate the interest in reducing the time required for a tender process and define new criteria for avoiding participants to delay the process.

7.- Increased transparency of the tender processes: Both laws incorporate the criteria of the recent transparency law ("Ley Federal de Transparencia y Acceso a la Información Pública") which obligates authorities and defines procedures to make information available to the public.Article 29 of the SAL and Article 31 of the PWL creates the obligation of free access to public tenders. Previous requirements including need of having acquired the bidding guidelines or received invitation from the tendering entity were eliminated. Article 31 of the SAL and Article 33 of the PWL calls for presenting pre-bidding guidelines on the Internet. The new guidelines are clear as to which companies are allowed and which barred from tender processes.

APPENDIX D: THE 4th WORLD WATER FORUM:

The World Water Council was established in 1996 by recognized specialists and international organizations related to water as a response for the increasing concern of the international community about global water issues. The World Water Forum is an event held every three years where major water international issues are discussed. The 4th World Water Forum will be held in Mexico City, from March 16th to 22nd, 2006. It is organized by the National Water Commission of Mexico and the World Water Council. This forum has become one of the most important water events at an international level.

The forum will have three main objectives: to generate awareness related to the problems posed by water, to promote a better usage of hydraulic resources and to propose specific policy changes on global water issues. In order to accomplish this, the forum will actively promote the participation of all stake holders during the preparatory process and the forum itself, they will try to reinforce the conviction that local actors have facing main water management challenges, they will seek to remove the barriers obstructing local action and a regional scheme will be used throughout the preparatory process in order to foster regional debate geared at addressing regional challenges to later yield regional and global commitments.

In the past events the forum had several positive results the 1st World Water Forum which was held in Marrakech in 1997 had the first obligation to introduce and develop a long term "Vision for Water, Life and the Environment in the 21st century", to be presented during the 2nd Forum.

The 2nd World Water Forum was held in The Hague in 2000. Over 5,000 participants discussed the results of the document "Vision for Water, Life and the Environment in the 21st century". The Vision was an unprecedented prospective exercise conducted through a participatory approach, which provided an overview of the state of the world's water resource and its future.

A number of commitments were made by governments and other stakeholders for action to be taken following the Forum. The WWC committed to monitor actions leading to the fulfillment of the Vision. The Vision had successfully contributed to launch a movement which clearly aimed at influencing policy makers and governments.

The 3rd World Water Forum took place in Kyoto, Shiga and Osaka, Japan in 2003. Substantive principles, which were established from the outset, gave the tone and demonstrated the determination to involve all stakeholders. To this end, new concepts were introduced such as a Virtual Water Forum and the Water Voices Project. Following up on its commitment from the 2nd Forum, the WWC launched the World Water Actions report, an inventory of over 3,000 local water actions. This Forum was the largest water conference in history, gathering 24,000 participants. A Ministerial Conference was held in parallel and brought together 130 Ministers. Hundreds of commitments to action were made from participants in both the Forum and the Ministerial Conference and it was requested for each session organizer to state what concrete output would follow their respective session.

The main theme of the 2006 conference is "Local Actions for a Global Challenge". This theme is based on the issue of how water related problems have their greatest impacts at the local level. Local action will be the primary issue discussed throughout the forum. These local actions are seen as the key to meet concrete results for water related targets set by the Millennium Development Goals, the WSSD Implementation Plan and Local Agenda 21. The preparatory process and the activities of the 4th World Water Forum will seek to harness the practical, intellectual, financial, and political means to support local action on a global scale. The aim is to reach commitments to remove the barriers for local action and create opportunities for its thriving. Contributing to strengthen local actions in both the highest political levels and in society as a whole will be the main goal.

With the purpose of facilitating the organization of the forum, the world has been divided into the following five regions: Africa, Americas, Asia-Pacific, Europe and Middle-East. Each region will be working in different actions orientated to:

Identify successful experiences and local actions that could be presented during the Forum.

- Integrate a document that shows the main water related problems in the region, that explains the progress made so far in their solution and that evaluates the future perspectives.
- Produce a brief paper that will be considered as an input for the Ministerial Declaration.
- Encourage the registration in the 4th Forum website of the organizations and institutions interested in being session conveners.

The organizers of the event established a thematic content in order to create a purposeful and policy-orientated forum. This will serve as a framework for dialogue and deliberation throughout the conference. The thematic component consists of 5 framework themes and 5 Cross-cutting perspectives which will introduce the most important challenges and problems faced by the global water community.

The framework themes are the following:

- Water For Growth and Development
- Implementing Integrated Water Resources Management
- Water Supply and Sanitation for all
- Water Management for food and the Environment
- Risk Management

The framework themes will be analyzed using The Cross-cutting Perspectives which will represent different factors influencing the viability of local actions.

- New Models for Financing Local Water Initiatives
- Institutional Development and Political Processes
- Capacity-building and Social Learning
- Application of Science, Technology and Knowledge
- Targeting, Monitoring, and Implementation Assessment.

Then why is it important to participate in the 4th World Water Expo in Mexico?

- There will be 150 countries governments attending the conference.
- It will be held in a 12,000 m2 room.
- It will be expected to have more than 12,000 visitors. The profile of the visitors will be princes, presidents, ministers, top officials, 10,000 delegates and government representatives, entrepreneurs, industrial buyers, business executives, researchers, among others.
- There will be 600 expositors. Among the most important companies related to wastewater treatment, purification systems, irrigation control systems, filtration systems, chemical engineering, control and conservation, hydraulic energy and water pumping.
- It will be considered as one of the most important events of the water industry in Mexico and as one of the last major events of president Fox.
- Companies will be able to offer their products and services, plus the opportunity to offer different water solutions to thousands of corporate decision-makers.
- Since it is an international event, companies will be able to have several opportunities to build up new relationship with different water expertise companies from the entire world. They will be exchanging ideas, technologies and new research approaches for water solutions.
- Small to medium companies of this sector will be able to actively participate in the forum and expo. They will show what and how they are doing things to improve water solutions.
- It will gather the Mexican and international media, therefore guaranteeing mass communications.