

INTRODUCTION

In general, three forces are driving the demand for wastewater goods and services in Mexico: extremely high levels of water pollution, particularly in the 20 most polluted river basins; a general shortfall of water resources; and North American Free Trade and related pressures from the Canadian and U.S. governments to adopt stricter environmental standards.

Pollution problems — water, air, and solids — have reached unacceptable levels in Mexico. For example, many of the largest Mexican rivers will require as much as forty years of zero discharge levels in order to regain their environmental health. After decades of focusing on economic growth, the Mexican government has finally realized that environmental problems have a significant impact on the quality of life. In an attempt to avoid further degradation, several environmental initiatives have been undertaken. Industrial wastewater treatment is one focus area.

Mexico has traditionally suffered from regional water shortages. 80% of water resources are located in unpopulated areas; conversely, only 20% of water is easily accessible to large urban centres. Shortages have made water an important — and expensive — national resource (see Appendix 1). New government policies discouraging further pollution reflect this reality.

Finally, the negotiation of NAFTA has made Mexico increasingly susceptible to pressure from Canada and the U.S. to clean up its environment. In order to show improvement in this area, the Mexican government has been anxious to crack-down on environmental offenders.

As a result of these three factors, interest in wastewater management in Mexico has grown rapidly. However, serious shortfalls in treatment capacity exist.

TREATMENT CAPACITY

Mexican discharges of wastewater averaged 184m³/second in 1992. 42% of the total was attributable to industry. However, nearly 2/3 of the 2.4 million tons of biochemical oxygen demand (BOD) in wastewater was of industrial origin. In general, there is a significant lack of capacity for the effective

Most Polluted Rivers

Many Mexican rivers suffer from extreme pollution. Environmental authorities identify the following as the twenty most polluted rivers in Mexico:

Pánuco, Guayalejo, Lerma - Santiago, Balsas, Culiacán, Armería, Salado, Colorado, Jamapa, Sonora, San Juan, Bravo, Nazas, Coahuayana, Blanco, Tijuana, Conchos, Fuerte, Antigua, and Yanqui.

treatment of wastewater. In the industrial field, 282 treatment plants manage to neutralize the toxic content of only 20m³/second of water. In effect, less than 30% of industrial wastewater can be treated.

Many companies discharge directly to municipal drainage systems. However, municipal plants lack capacity - as well as the resources and know-how - to treat this industrial waste. Only 23% of municipal waters are effectively treated. Of the 289 municipal plants in current operation, 53% are stabilization ponds, 23% use activated sludge techniques, 2% are aerated ponds, 3% are oxidation ditches, 4% use trickling filters, and 15% use "other" techniques. Only 2/3 of existing plants are in operation. Additionally, between 20% and 50% of operating plants treat water ineffectively.

This lack of treatment capacity, coupled with increasingly strict legislation, is forcing industrial users to assume greater responsibility for wastewater treatment. Even companies that currently own primary treatment facilities are considering

Summary Chart: Mexican Wastewater

	Industry	Municipal
Total Wastewater in 1992	79 m ³ /s	105 m ³ /s
Treatment Capacity in 1992	20 m ³ /s	45 m ³ /s
Estimated Wastewater Year 2000	89 m ³ /s	207 m ³ /s
1992 BOD Content	64% of total	36% of total