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MEXICO WATER REPORT

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Sector Analyses: Dairy, Textile and Metal Works

In our last edition, we described the five most important sectors in terms of discharge concerns, all of which had some kind of special Conagua sectoral program to regulate their discharges, above and beyond standard wastewater discharge regulations. In this edition, we are analyzing the following three, large and important manufacturing sectors, providing a feel for their size, current dynamic, and details about their environmental problems and related opportunities: A. Dairy Industry, B. Textile and Clothing Industries, and C. Metalworking and Automotive Industries.

A. DAIRY INDUSTRY

Size & Current Dynamic

Mexico consumes about 15 billion liters of milk annually but only produces 10.8 billion liters domestically. One important reason why Mexico has to rely so heavily on milk imports is water deficit issues. To produce one liter of milk in Mexico, 300 liters of water are required. Many of the leading production sites are in some of the driest areas of Mexico. With a growing urban population, milk demand in Mexico is growing three times faster than production.

Mexico currently produces almost 75% of the milk demanded by its domestic market. Imports represent about 40% of all processed final and intermediary dairy products, both because of price and because many local producers fail to meet quality standards. The US provides two-thirds of all milk and milk product imports with 15% coming from New Zealand and the other 20% from Chile, Argentina, Uruguay, and Australia. Although Mexico has historically relied on imports of milk powder, in the last 10 years it has been able to become more reliant on local product, thanks to the development and increased presence of Alpura and Lala.

Mexico ranks 8th in the world in terms of milk and dairy product production with 11.1 million tons of milk and milk products (2009). The industry is divided between 20 large, highly technical companies with approximately 70% of the production. The two largest companies, Lala and Alpura, control approximately half of that segment. An estimated 259,000 small manufacturing operations account for the remaining 30%. The ability to tackle water issues is significantly different depending upon whether a firm is one of the large or small producers.

Lala has doubled its size during the last three years and has become the leading dairy company in all of Latin America. It also has an important presence in the United States. Between its production and purchases, market experts estimate that it controls 60% of the liquid milk market and 45% of the

milk products market. The company's headquarters is in Torreon, at the center of the Lagunera Region which has become the hub of sophisticated Mexican dairying. It has 11 major operation centers located throughout the country and annual revenue of over US$5 billion, making it the 25th largest company in Mexico.

The Alpura Group is the second largest dairy company in Mexico with over 82,000 cows in 160 stables that produce more than 2 million liters of milk per day, approximately 10% of all of the milk produced in Mexico. It has 15 distribution centers with 60 distributors located throughout the country. The Alpura Group consists of 11 companies specialized in every stage of milk production and milk product development and sales. Alpura is headquartered in the State of Mexico, near Mexico City, and has production facilities in eight states in the northern and central parts of the country.

Despite the success of Lala and Alpura in the last 10 years, most of the other dairy companies have faced serious threats from increased imports, increased costs, and government imposed price controls. Mexican milk producers must sell their product at low government-set prices which dramatically affects the profitability of the small and medium-sized producers. These smaller operations insist they cannot afford to modernize unless milk prices are allowed to increase. As a result of these pressures, and the lack of adequate financial supports, many small producers have closed their stables for good.

While Lala and Alpura are better equipped to provide additional domestic production to meet this demand, half of their milk comes from small and medium producers. As a result, even before the arrival of the current international economic crisis, these low milk prices affected the abilities of small, medium, and large producers/processers to meet the growing domestic demand.

Opportunities

There is a general feeling that the residual products from dairy production processes are not harmful to the environment. However, while dairy process waste is mainly organic and is not toxic, its increased concentration in Mexican ecosystems has become a real concern and caused an important environmental disequilibrium. This is especially significant in rivers located near large milk production plants. Aside from concerns about waste volumes, the organic fats and proteins waste products, independent of concentrations, require more and better treatment. Corporate culture and concern about public complaints together with increased Conagua enforcement measures have made milk producers, large and small, take notice and acquire appropriate equipment to provide solutions to these problems.

The production process of the largest Mexican dairy plants is increasingly using new technology, at least in part to better handle the disposal and treatment of organic waste. Smaller companies are not so fortunate in light of the considerable expense and important investment required to adequately modernize and maintain some of these treatment solution systems. Mexican companies recognize the prudence of meeting Mexican wastewater standards. As a result, we see the demand for treatment solutions in the dairy sector growing as the sector grows. Large companies will meet requirements because they are in the spotlight and have the ability to pay for these solutions, and

medium and small companies due to increased vigilance by local water and Conagua officials.

A large number of small producers are struggling to remain viable and lack the capital to implement anything other than rudimentary processes. More stringent regulations or more comprehensive enforcement would benefit the Mexican consumer, but its cost would likely cripple the small- and medium-sized milk producers.

B. TEXTILE & CLOTHING INDUSTRIES

Size & Current Dynamic

The textile and clothing sector is very important in Mexico, generating a fifth of the country's manufacturing jobs and contributing 8% to manufacturing GDP. The sector generates annual revenues of over US$9 billion. Thanks to NAFTA, Mexico has become the United States' top supplier of apparel and the second most important supplier for textiles, just behind Canada.

Illegal imports of counterfeit consumer clothing is having an adverse effect upon Mexico's domestic producers. Domestic production methods remain outdated and inefficient and most companies feel they cannot afford to invest in better manufacturing processes and related equipment. Despite the threat from Asian, and to some extent, Caribbean competitors, large transnational firms are able to succeed in Mexico based on foreign financing, modern technology, and an emphasis on production for export to the United States. To increase the competitiveness in the Mexican clothing and textile industries, companies need to capitalize and modernize their facilities. While the sector absolutely requires more capital, credit, and financing, increased combat against smuggling is also important.

Opportunities

The textile industry is a large water polluter due to the use of dyes. One of the alternatives to avoid this type of pollution is the use of natural absorbents and synthetic pollution removal solutions like chromium, arsenic, inorganic compounds and fluoride, among others. The public is alarmed when dyes discharged into municipal sewer and rainwater drainage systems change the color of rivers and streams. Less visibly, dyes severely affect water in lakes and rivers because the different dye contaminants prevent the passage of sunlight which is essential to photosynthesis in the affected watersheds. Decreased photosynthesis reduces the amount of dissolved oxygen in the water available to fish and other water life. This causes a kind of methanogenic fermentation. Synthetic absorbents are used to both reduce industry pollution and discharge toxicity, and modify the artificial color of the water.

The textile industry is regulated by standards that deal with the discharge and treatment of waste and wastewater. In the past, the two applicable standards, NOM 001 for discharges into municipal sewer systems, and NOM 002 for discharges into federal bodies of water, did not include parameters for certain contaminants. Many of the contaminants that the EPA regulates in the United States are not mentioned in Mexican regulations. Mexico also lacks the manpower and will for the enforcement of these general wastewater standards. However, in light of these deficiencies, Conagua officials are carrying out specialized monitoring in areas where there is a concentration of clothing and textile production to ensure that these companies, especially large- and medium-sized companies, meet

environmental regulations by properly treating their waste before it enters municipal systems and federal water bodies.

Like the diary industry, one of the main problems is the difficulty in identifying and monitoring small company discharges that go directly into sewer systems. While large companies will produce larger volumes of discharge, their more modernized process equipment frequently means that the level of contaminants in their discharges will be much lower and generally less toxic than those of smaller producers who create much less discharge but with much higher contaminant levels. Wisconsin's Mexico Trade Office sees opportunities in this sector in both areas, especially since dye contaminants and related water discoloration can be readily identified by the public and it appears that the Mexican public is increasing complaints to Conagua officials who have the authority to fine and even close plants for this type of non-compliance.

C. METALWORKING/AUTOMOTIVE INDUSTRIES

Size & Current Dynamic

There are about 24,000 companies that are directly involved with the metalworking industries in Mexico. The metallurgical industry in Mexico produces and generates economic benefit equal to $21 billion USD country-wide. In the last few years, the lack of sophistication and technological level and in general the lack of equipment have led companies to seek partnerships that will bring them the technology and investment they require. This sector is responsible for 1 million jobs representing 13.5% of the country's manufacturing value, contributing nearly 3% to the Mexican GDP.

The automotive sector is key to the metallurgical industry in Mexico, responsible for 17.3% of the manufacturing GDP with more than 20 assembly factories , located in 12 different states. The auto parts industry has plants in 26 of the 31 Mexican states and counts with a network of more than 1400 dealers in urban areas across the country. About one million jobs depend on the automotive and auto parts sectors in the country, apart from the 1 million described above for metalworking industries. The greatest challenge for automotive companies is to reduce costs and processes while continuing to meet high quality requirements, challenges that have somewhat negatively affected Tier 1 and Tier 2 contracts with OEM companies in the sector during the last few years.

Year end 2010 figures for the automotive industry demonstrate very healthy relative growth compared to the stagnant 2009. Year end production (2,260,776 vehicles) was up 50 % over 2009 figures with over 750,000 more units built in 2010. Also, exports were up 50% and domestic sales were up 8.7% for the year, and up 14% during the month of December 2010. However, the 2010 increase vs. 2008 figures was more mixed. Compared to 2008, Mexico produced 12% more vehicles while exporting 3% less and selling almost 50% more into the domestic market.

The contraction of the exportation of auto parts and Tier 1 and Tier 2 segments during the last few years was sharper than the fall off of sales to the domestic market. Nonetheless, and although domestic sales are growing, the rebuilding of the vehicular base now that recovery is on the way is still a year or two away. As for the current dynamic in these sectors, while 2010 was better than 2009 and 2011 will be better than 2010, recovery in the sector is not expected until 2012 when it is hoped

that production levels will return to 2008 (pre-crisis) levels.

Opportunities
The metallurgical industry, in addition to this important production contribution, generates tones of hazardous and non-hazardous waste. This includes iron chips from grinding and drilling operations which usually are impregnated with oil and lubricant soluble. These are often sold to foundries or deposited in municipal waste centers. Iron waste not only serves as an important source of raw materials for metallurgical industry, it is also used as a reducing agent in the treatment of different pollutants.

In terms of water pollution, the automotive industry has had serious historical and some current problems dealing with compliance issues. Large OEM companies as well as Tier 1, Tier 2, and auto parts manufacturers have problems with the inappropriate use of and care for toxic chemicals in the manufacturing process. Automotive companiese, especially small and medium non-OEM companies, too often discharge metal waste byproducts and chemicals without control, measurement or treatment, causing serious damages to aquifers and other water bodies.

It appears that the most serious discharge and contamination issues in this industry are more or less under control, especially with the larger metalworking and and OEM companies. Increased government monitoring of associated water supplies and environmentally responsible corporate cultures has led to rather consistent compliance with Mexican environmental regulations and, with regards to historic problems, the carrying out of cleaning and restoration efforts of contaminated aquifers by these large and important producers. However a lot of auto parts, “Tier 1” and “Tier 2” companies are not nearly as well regulated, compliant, or identifiable, and these companies too often discharge directly into municipal sewer and drainage systeme, and therefore federal water bodies, without any treatment.

Conclusions about Opportunities in these Sectors
Like in the case of several of the above mentioned sectors, there are three distinct types of opportunities for environmental equipment sales and solution providing. The first and most obvious is with the larger manufacturers who often have corporate cultures or public images related to the environment that they must preserve and they are generally under the microscope of government authorities. The good news is that they have the funds and impetus to find and implement solutions. While many of these companies require on-going assistance, many also already have systems in place.

The second is with small companies who have enormous needs but who are short of funds, can´t get financing, do not have appropriate corporate cultures and are difficult for the government to identify and enforce. It takes a special, low-cost solution that allows for a fairly quick return on investment for a company to find a niche with these types of companies.

In the middle are medium-size companies, in the case of the automotive sector many auto parts, “Tier 1” and “Tier 2” companies. These companies have some of the funding but probably do not have

adequate financing to purchase the systems that larger companies can, but with enforcement of NOM 001, NOM 002, and special sector program progressing from larger to medium-size companies, these companies sooner than later will be faced with the reality that they, like their larger counterparts, will need to make similar environmental equipment investments to remain compliant. Medium size companies, like medium-sized cities, will be targets for compliance and environmental investment in Mexico during the next ten to twenty years.