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# ACHIEVING THE MDGs THROUGH THE INFORMAL RECYCLING SECTOR: A CASE STUDY IN NORTHERN MEXICO

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## Abstract

*Over the past several decades a dynamic informal recycling sector has developed in Juarez, one of the largest Mexican cities that border the United States. The potential contribution of the informal sector for achieving the MDGs has been neglected. This paper examines the contribution that informal recycling activities in Juarez are already making in terms of achieving MDGs related to poverty reduction, employment creation, and environmental sustainability (Goals 1, 7, and 8). Field research was conducted in the area in 2004 using a joint qualitative / quantitative research methodology. The paper argues that public policy should harness the potential of the informal recycling sector for achieving MDGs by supporting it instead of suppressing it or ignoring it. Considering the millions of people worldwide that survive by salvaging materials from waste, recognition and support of their activities would translate into their empowerment, improved living and working conditions, and minimization of public investments in the handling, collection and final disposal of solid wastes.*

## The United States - Mexico border

The U.S.-Mexico border is one of the few places in the world where an industrialized country has a common border with a developing country. The U.S. economy is 25 times larger than Mexico's and the U.S. income per capita is nearly 10 times that of Mexico. This economic disparity has created opportunities on both sides of the border for an intense flow of goods across the border in both directions, including recyclable materials. The markets for recyclables in Mexico and the U.S. tend to be different, and this stimulates international trade of recyclable materials. The international trade of recyclables is, however, only part of the cross-border movement of waste materials that takes place on the U.S.-Mexico border. Several types of materials are recovered and transported across the border informally. This paper describes some of the recycling activities on the El Paso / Juarez area.

## Markets for recyclables in the U.S. and Mexico

For any recyclable material, the interplay of variables that affect demand and supply determines the price for that material. The demand for a particular recyclable material is determined by factors such as economic growth, interest rates, consumer spending, and consumer expectations about the future. Government policy decisions, such as mandated minimum recycled product content, also affect the demand for recyclable materials. Factors such as investment and new capacity in each particular industry, natural disasters in producing areas, and the number of recycling programs determine the supply of recyclable materials.

In the US, the supply of recyclables has shown a steady increase over the last several years due to the proliferation of recycling programs in American cities: curbside pickup programs for recyclables went from about 1,000 in 1988 to over 7,000 in the year 2000. Prices paid for recyclables in the U.S. tend to fluctuate widely, depending on market conditions. In the mid-1990s, most grades of paper reached historical price highs. The price of newsprint, for instance, went from \$445/ton in June 1993 to \$680 in May 1995 and market pulp went from \$465/ton to \$910 in the same period. In contrast, in the early 1990s, paper occasionally had a negative price; that is, cities had to pay wastepaper dealers to have their source-separated paper hauled away and recycled.

Most Mexican mayors and local government officials do not perceive recycling as an activity that cities should actively support. As a result, the vast majority of Mexican cities lack municipal recycling programs. Recycling activities do exist but the recovery of materials is carried out informally by scavengers. These individuals salvage recyclables, usually from mixed wastes scattered on the streets, from curbside containers, from dumpsters, as well as at open dumps and landfills. In this way, recyclables are recovered in small quantities and tend to be of low quality. Municipal solid waste in Mexico contains less recyclable materials than in the U.S. due to widespread poverty and a lower standard of living.

In Mexico, industrial demand for recyclables is strong and does not experience wide price fluctuations as in U.S. markets. The paper industry illustrates the sharp contrast between U.S. and Mexican markets for wastepaper. The U.S. possesses large forest reserves. In fact, the U.S. and Canada are the world's largest producers of paper, pulp, and paper products. Softwood is commonly used for making paper, while hardwood is seldom used for this purpose. Softwoods –such as fir, pine, hemlock and spruce– grow in temperate forests. The Pacific Northwest and the South-eastern U.S. are important producers of softwood. Hardwoods – such as oak, ebony, and mahogany – are more abundant in tropical forests, and used commonly in furniture and in high-grade flooring. Mexico, like many other developing countries, does not have large reserves of softwoods, the primary raw material for making paper.

Government policies also affect the availability and price of wood pulp for making paper. The U.S. subsidizes the construction of logging roads, while the Mexican government does not. The softwood forests that do exist in Mexico are located in remote, and often inaccessible, mountainous areas. Roads must be built to transport the timber. In Mexico, the cost of building roads represents about 50 percent of a logging project's total costs. Mexican Indians comprise most of the inhabitants in these woodlands. Many of them, however, lack ownership deeds, or their ancestral rights to the lands have not been recognized. Thus, property rights are not well defined, which has allowed the plundering of the forests by outsiders with little benefit to the Indians. Those plundering experiences have made communities suspicious of any new logging proposal. The lack of deeds has caused conflicts over disputed lands among communities. Considering past abuses, environmentalists often oppose any logging project. Legal uncertainties make the necessary long-term investments in forestry projects risky. Not surprisingly, investment in commercial timber plantations is negligible.

Furthermore, the small scale of logging operations and the use of outdated technology result in poor quality and high prices of forest products. Prices of forest products in the Mexican markets are often higher than those prevailing in the international markets. The domestic production of wood pulp supplies less than 40 percent of the needs of Mexican paper mills. As a consequence of the previous factors, the Mexican paper mills need to import pulp and wastepaper. Market pulp imported from the U.S. or Canada can be 7 times more expensive than wastepaper. Not surprisingly, Mexican paper mills show a strong demand for wastepaper.

The markets for scrap metals are also different in the U.S. and Mexico. The main sources of metal scrap in the U.S. are old ships, railroad material, obsolete machinery, junk cars, armaments and steel

from aging bridges and demolished buildings. Due to a weaker economy and shortage of capital in Mexico, iron and steel scrap is scarce: existing goods, such as cars and machinery, as well as homes and buildings, are used longer than in the U.S. Also, no armaments to discard exist, resulting in insufficient availability of scrap.

The sharply different market conditions for recyclables in the U.S. and Mexico encourage international trade. The U.S. is the world's largest source of recyclable materials and the largest exporter. Mexico purchased 1 billion dollars of recyclables from the U.S. in 1998. The North American Free Trade Agreement (NAFTA) has eliminated most tariffs on recyclables, which has increased imports by Mexico from 700,000 tons in 1993 to 1.2 million tons in 1997. This trade in recyclables is likely to increase in the near future.

## **Cross-border flow of recyclables**

Recovery of recyclables in Mexico depends largely on the efforts of thousands of scavengers. These individuals salvage recyclable materials from garbage littered on the streets, from containers placed curbside for collection, from dumpsters, transfer stations, open dumps, composting plants and from sanitary landfills.

Income affects the waste generation rate and composition of the waste stream. Upper- and middle-income individuals tend to generate more wastes than their low-income counterparts. Waste from wealthy areas also tends to contain a greater percentage of recyclables, such as metals, glass, paper, and plastics. Scavengers know this, and eagerly seek to recover materials from hotels, office buildings, shopping areas, and upper-income neighborhoods. Sometimes janitors "sell" to scavengers the right to salvage recyclables from their buildings. At some dumpsites, municipal refuse collectors auction to the highest bidder truckloads of wastes from "recyclable-rich" areas. The scavenger(s) with the winning bid can then recover all the recyclables from that particular truckload.

For Mexican scavengers living on the U.S.-Mexico border, the garbage generated in American border towns is richer than any in Mexico. Many of the materials and items discarded by U.S. residents and businesses are valuable and considered a resource across the border in Mexico. Many residents in Mexican border towns, when shopping or visiting the U.S., recover discarded materials, such as aluminum cans littered on the streets. Some of those individuals realized that they could make a living by salvaging materials in the U.S., transporting them across the border and then selling them in Mexico. Over the last several decades, a complex informal system has developed on both sides of the U.S.-Mexico border, involving two main types of activities: cross-border scavenging and cross-border recovery carried out by businesses.

## **The Juarez / El Paso Metropolitan Area**

Ciudad Juarez and El Paso, Texas, form a binational metropolitan area with a combined population of over 2 million. Juarez is one of the largest Mexican cities that border the United States. A dynamic informal recycling sector has developed over the past several decades. It employs a vulnerable segment of the population, such as recent migrants, widows, children, and the elderly, as well as disabled and unemployed individuals. El Paso has a large retailing sector that caters to Mexican shoppers. Foreign investors have located industrial activities in Juarez, taking advantage of low labor costs. Retailing and industry generate large amounts of recyclable materials.

## **Cross-border recovery of recyclables by scavengers**

Mexican border cities are growing rapidly, due mostly to migration from the rest of the country. The population of Juarez, for instance, grows by about 65,000 residents a year, (5%), one of the highest

growth rates in Mexico. Some migrants are unable to find employment and are forced to pursue any activities that can provide them with an income. Scavenging provides recent and unskilled migrants an opportunity to make a living.

For Mexican scavengers, the abundance of high-quality recyclable materials discarded in the U.S. amounts to a sort of Promised Land. They can achieve relatively high incomes by recovering waste materials in the U.S. However, access to this “rich” garbage is restricted, and not everyone can gather recyclables in U.S. border towns.

The main obstacle is that all Mexicans wishing to cross the border need a U.S. visa, which is very hard to get for low-income individuals. If this restriction did not exist, the number of Mexican scavengers collecting materials in the U.S. would probably be higher than it is today.

There are three types of scavenging activities carried out by Mexicans in the U.S., as will be discussed in the following sections.

### **1. Scavenging for self-consumption**

In this type of activity, individuals salvage items from the waste stream to satisfy their own needs. No cash is involved in this type of scavenging. Mexican scavengers recover food with expired consumption dates but which is still in edible condition from American shopping centers and grocery stores. Mexican residents also roam U.S. residential neighborhoods, looking for discarded furniture and appliances they could use in their homes. Scavengers salvage old lamps, desks, sofas, chairs, tables, radios, pots, pans and other items that can be cleaned, refurbished, repaired and reused. Discarded clothing is also sometimes recovered and reused by scavengers and their families. Many recent migrants who become scavengers lack the money to rent or buy a home. They are usually forced to live on the outskirts of cities and build their homes over several years. The first stage in building a home generally involves the use of waste materials to serve as walls and roof. In time, these flimsy structures can be replaced by more permanent ones, using cement blocks or bricks. But the influx of newcomers into Mexican border towns supports a steady demand for inexpensive construction materials. In order to satisfy this need, some Mexicans cross the border into the U.S. to gather construction and demolition debris from construction sites, as well as from homes being remodeled. Scavengers salvage discarded sheet rock, door frames, window frames, and even toilets, which are taken to Mexico and reused in building their homes.

### **2. Recovery of materials for sale to consumers**

Some enterprising individuals have realized the business opportunities of salvaging discarded items in the U.S. and then selling them in Mexico. Since many low-income Mexican border residents lack a U.S. visa, they cannot cross the border and they are unable to gather usable items. Entrepreneurs salvage reusable items, such as furniture, appliances, kitchen utensils and construction materials, which they then sell to their mostly low-income clientele. These entrepreneurs use various kinds of vehicles to transport the products they recover from the waste stream. The vehicles range from three-wheeled carts to pick up trucks.

### **3. Recovery of materials for sale to industry**

The most important and steady source of income for scavengers is the recovery and sale of recyclable materials. The type of recyclable material that is recovered varies along the border. Demand for a particular material depends on the kind of industries that are located in each region. Scavengers retrieve the materials with the highest prices and for which there is industrial demand. For example, scavengers in the city of Nuevo Laredo, on the Texas-Mexico border, recover mostly cardboard and aluminum cans, while in Ciudad Juarez, across the border from El Paso, they collect scrap metals,

glass, different grades of wastepaper, and plastics. Nevertheless, cardboard and aluminum are the materials most commonly recovered by Mexican scavengers in U.S. border towns.

The scavengers who specialize in collecting cardboard are popularly known as “cartoneros” (*cartón* means cardboard in Spanish). Most American border towns have a commercial district near the border crossing that caters to Mexican consumers. Many Mexicans living on the border –and sometimes as far as Mexico City – do their shopping at U.S. border towns. Mexican shoppers are attracted to the U.S. because of lower prices for many items, as well as the existence of products that are not available in Mexico. Mexicans account for about 65% of retail sales in US border towns.

An active retailing sector generates important amounts of cardboard, resulting from the boxes that contain the shipments of merchandise. Shopkeepers fold and flatten the cardboard before placing it for curbside collection. Mexican *cartoneros* collect the cardboard before it is picked up by municipal crews. Some *cartoneros* have developed informal agreements with store owners or managers. A typical agreement awards property rights over the cardboard that the store generates to a particular *cartonero*, and the owners or managers keep their cardboard inside the shops until the collector comes to “claim” it.

The cardboard is clean and the *cartoneros* never come into contact with mixed wastes while collecting the cardboard. They simply pick it up, load it onto their vehicles, transport it across the border and sell it in Mexico where it is recycled. These are nearly ideal conditions for scavenging: it is relatively safe, they can earn a respectable income, it involves no significant risks to the *cartoneros*' health, and they are not harassed by police or looked down on by people. In contrast, many Third World scavengers usually face high health risks due to their contact with mixed wastes at waste bins, dumpsters and dumpsites, are discriminated against by hostile local ordinances, are often persecuted by police, tend to be exploited by middlemen, and earn low incomes.

## Survey results

A study on cross-border scavenging between El Paso, Texas and Juarez, Mexico was conducted during the summer of 2004. Both cities generate a considerable volume of recyclables from households, retailing, and industry. The study used a joint qualitative / quantitative methodology in order to examine the linkages between the informal recycling sector in the area, as well as estimate its size and characteristics. Participant observation and in-depth interviews were conducted among the scavengers, middlemen, industry, and government in the area. A survey among 80 scavengers using a stratified sampling method provided statistically significant data on this activity.

Mexican *cartoneros* recover approximately 2,770 tons of cardboard every month. All the cardboard recovered in El Paso by Mexican *cartoneros* is transported across the border using pushcarts and pickup trucks and recycled in Mexico. The typical *cartonero* who recovers cardboard in Texas earns the equivalent of 10 times the minimum wage in Juarez. The average *cartonero* has been recovering cardboard in Laredo for 16 years and engages in it on a full-time basis, six days a week. It is a stable activity that has allowed them to raise a family. Most *cartoneros* consider their working and living conditions as fair or good. The economic impact of scavenging in El Paso, Texas and Juarez, Mexico was estimated at 2.5 million dollars a year.

Cross-border scavenging benefits not only the scavengers involved in it; it also reduces the need for collection, transport and disposal equipment, facilities and personnel in U.S. border towns. Further, scavenging diminishes the amount of wastes that need final disposal, extending the life of the local landfills. El Paso municipal authorities recognize that the *cartonero* activities benefit their city, the cardboard collectors, and Mexico. As a result, Mexican *cartoneros* are allowed to perform their activities as long as they do not scatter wastes on the ground or violate any other regulation. The

*cartoneros* interviewed for that study reported that they felt welcome by the authorities and residents of El Paso, Texas. Transborder scavenging provides clear economic, social, and environmental benefits.

Scavenging on the U.S.-Mexico border is not only an individual and unorganized activity. Most scavengers do work individually and are not organized. But two scavenger cooperatives have been formed in Ciudad Juarez. By creating a cooperative, scavengers can sell directly to the factories, bypass the middlemen and obtain higher prices for the materials they gather. A cooperative also provides its members stability, a safety net, and legitimacy. Legitimacy is important, because it allows the cooperatives to negotiate with businesses. Both cooperatives have reached agreements with businesses across the border in El Paso. Supermarket chains and other stores donate the cardboard they generate to the members of these cooperatives, who must pick it up on a fixed day of every week. The border assembly plants – known in Mexico as “maquiladoras” – also donate cardboard and other recyclable materials to the cooperatives. These donations are tax deductible for the assembly plants. The donations of recyclables provide a steady income to the cooperatives and reduce the tax burden of the *maquiladoras*. It is, therefore, a mutually beneficial arrangement.

Aluminum cans constitute a common item recovered by Mexican scavengers in the U.S. While the recovery of cardboard requires a vehicle to transport it (because of its bulk and weight), anyone can salvage aluminum cans by crushing them and carrying them in a plastic bag. Aluminum can collectors are popularly known as “buscabotes.” They salvage aluminum cans from dumpsters located in public spaces, street waste containers, residential garbage placed curbside for municipal collection, or simply littered on the streets. Some *buscabotes* engage in recovering aluminum cans on a full-time basis, while the majority of them do it in their spare time to earn extra cash.

Full-time *buscabotes* tend to be recent migrants from other regions of Mexico who, unable to find employment, resort to collecting cans in order to survive. Salvaging cans is the only source of cash for many *buscabotes*, and the only way to avoid starvation.

In contrast, part-time *buscabotes* are individuals with other occupations, who gather cans to supplement their income. Some of them collect cans while shopping in the U.S.; others are children who collect cans left by spectators after baseball and soccer games, and some retired residents who, as they walk to take exercise, also pick up cans littered on streets and roads.

Collecting aluminum cans is not as lucrative as collecting cardboard. Most *buscabotes* must roam through several neighborhoods on foot carrying a sack or plastic bag containing the cans. They spend a considerable amount of time walking in their search for aluminum cans, which lowers their productivity, and ultimately, their earnings. The Mexican *buscabotes* operating full-time in El Paso, Texas, for instance, earn the equivalent of only 64% of the Mexican minimum wage.

Sometimes the recovery path goes back and forth across the border. The availability of aluminum cans in the city of El Paso attracts Mexican scavengers. The *buscabotes* collect cans in various commercial and residential areas and carry them across the border into Mexico. There are scrap dealers on the U.S. side who can buy the cans gathered by Mexican scavengers, but due to zoning ordinances, the dealers are located in somewhat distant locations. It is more convenient for the Mexican *buscabotes* to carry the cans across the border and sell them in Mexico. The middlemen in Juarez, Mexico, purchase the cans from the scavengers and transport the cans across the border into Texas in shipments that do not exceed a value of 2,000 dollars. U.S. Customs regulations allow the import of up to that amount of old aluminum cans for recycling, duty free. The El Paso scrap dealers purchase the cans from the middlemen and ship them to San Antonio, where they are recycled. In this way, the Mexican *buscabotes* perform a service – the recovery of aluminum cans – for U.S. border towns.

However, not all recovery activities carried out by Mexican scavengers in the U.S. are beneficial to American communities. Sometimes Mexican scavengers steal aluminum cans from recycling bins placed curbside. They simply extract the cans before municipal collection. This theft of aluminum cans diminishes the revenue for municipal recycling programs. As a result of persistent theft of recyclables, 220 cities and 33 counties in California have recycling programs with anti-scavenging provisions. But the theft of source-separated materials from recycling programs is not only a problem in border cities. It has also been reported throughout the U.S.: in New York City, Los Angeles, Chicago, Detroit, Houston, St. Louis, San Francisco, Boston, and Washington, DC.

## **Cross-border recovery of recyclables by businesses**

In addition to scavenging, there are also established businesses that purchase reusable items and recyclable materials in the U.S. and sell them to Mexicans. Some businesses operate on the U.S. side of the border but cater to Mexican shoppers. Low-income Mexicans constitute important customers for thrift and second-hand stores located on the border. Poor individuals purchase used furniture, appliances, clothes and kitchen utensils in U.S. stores and take them across the border. Most U.S. border towns have stores that specialize in selling discarded clothing in bulk mostly to Mexican customers. Used clothing collected by the Salvation Army and other U.S. organizations is sold in bales, or, for a higher price, stores allow their customers to select the best garments and pay by the piece instead. Clothing that, for some reason, cannot be sold for reuse is purchased by Mexican companies to make cleaning rags for various industrial purposes.

A large number of stores in Mexican border towns exist to satisfy the demand for used U.S. products. Many low-income Mexican border residents do not have a U.S. visa and are unable to cross the border and shop in the U.S., which forces them to make all their purchases in Mexico. Some of the most common items sold in these stores are used refrigerators, stoves, washing machines and dryers from the U.S., which are bulky, heavy and require a truck to transport. These stores often have to clean, refurbish and repair the appliances acquired in the U.S. before selling them in Mexico. There are also many entrepreneurs that buy bales or pieces of used clothes in the U.S. for sale in Mexico, where the clothing is purchased and reused by low-income individuals. The low price of the appliances and garments is the main reason for its appeal to poor Mexicans.

As previously mentioned, there is a strong demand in Mexican border towns for inexpensive construction materials. Mexican businesses have also been created to obtain discarded items in the U.S. and sell them in Mexico as construction materials. On the California and Texas borders, Mexican entrepreneurs purchase from U.S. construction and demolition companies discarded items, such as old door frames, window frames, wood and vinyl panels, sheet rock, toilets and bathroom fixtures. Discarded wooden pallets and plywood are also used in Mexico as construction materials to build shanties.

In many cases, homes in California and Texas are dismantled, and their components are taken across the border and reassembled in Mexico. This activity constitutes an unofficial "export" of homes from the U.S. to Mexico. Over the past few years, the recovery of discarded garage doors in California has become very popular. Mexican entrepreneurs collect old garage doors from San Diego to San Jose and sell them in Baja California. The garage doors serve as walls and roofs for low-income housing. In this way, hundreds of small houses have been built in the cities of Tijuana, Rosarito and Mexicali with discarded garage doors from California. This international trade in garage doors constitutes a source of income for U.S. contractors, saves them disposal costs, diverts materials from California landfills, thus extending their life, and satisfies a need in Mexico.

Cross-border business-to-business transactions in recyclables also exist. Scrap dealers in Texas purchase waste materials from the assembly plants located in Mexican border towns. The assembly

plants sell iron and steel scrap to the dealers, who in turn sell it to steel mills in Mexico for recycling. The dealers also purchase old metal parts from the factories in Mexico, take them across the border to their warehouses in the U.S. and sell them back to Mexican companies as spare parts.

The economic disparity between Mexico and the U.S. has created very different markets for recyclables in each country. Mexico has a steady and strong demand for reusable and recyclable materials from the U.S., which has stimulated a growing international trade in waste products. The U.S. is the largest producer and exporter of recyclables in the world, while Mexico is an important consumer of them. The availability of high-quality reusable and recyclable materials in the U.S. as well as Mexican demand have also resulted in a complex system of cross-border recovery, involving scavengers and businesses. The cross-border movement of discarded products and materials is mutually beneficial: it satisfies a need in Mexico, provides income opportunities to Mexicans and some Americans, reduces the amount of wastes that need final disposal in the U.S. – saving disposal costs and extending the lives of landfills. These cross-border activities are mutually beneficial to both countries and should be supported.

## Conclusions

Despite the social perceptions and some scholars' characterizations of scavengers as marginal and the poorest of the poor, the scavengers from Juarez cannot be considered marginal nor the poorest of the poor. This finding contradicts prevailing notions on scavengers. Having access to high quality materials translates into a high income of up to 10 times the minimum wage.

Scavenging in Juarez / El Paso has a positive and significant economic, social, and environmental impact: it provides income opportunities to disadvantaged individuals, it can reduce poverty, it reduces pollution, energy and water consumption, it improves the competitiveness of industry, it helps clean up the urban environment, and it extends the lives of the local landfills.

Scavenging has existed for several decades, and that it has strong backward and forward linkages with the formal sector and the international economy. The amounts of materials available to scavengers depend on factors such as the economic activity in the area, disposable income, purchases by Mexicans in El Paso, the number of maquiladoras and their production levels, and the Mexican peso / U.S. dollar exchange rate.

The economic disparity between Mexico and the US has created opportunities on both sides of the border and the region constitutes an important growth area for both countries. The geographical proximity of border residents has encouraged an intense flow of goods and people across the border in both directions.

Scavenging improves industrial competitiveness – for example the Mexican paper industry expects to survive competition under NAFTA by improving its technology and by maximizing its use of wastepaper recovered by scavengers.

Therefore, scavenging in the area is already contributing towards achieving MDGs related to poverty reduction, employment creation, and environmental sustainability (Goals 1, 7, and 8). Worldwide, several million people survive by scavenging, which is usually considered a problem to be eliminated. It can be argued that if supported, scavenging can have significant social, economic, and environmental benefits, and help contribute towards achieving the MDGs.