# Trade and the Environment: Perceptions from a Region on the Border

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## I. Background and Content

The U.S.-Mexico border region is unique. Not only is it one of the fastest growing regions in both countries but it is also an area that for the most part is either acid or semi-arid. In addition since Mexico's entry into the General Agreement on Tariffs and Trade (GATT) and the instituting of NAFTA there has been a concomitant rise in industries servicing that trade. As a result of growth in the economy and population, the environment and natural resources can become strained.

NAFTA trade represents 30% of all U.S. merchandise trade. With respect to dollar value of goods traded, Canada was the United States' largest trading partner in 1998; Japan was second, and Mexico was the United States' third largest trading partner. However, with respect to its role as the destination nation for U.S. exports, Mexico moved past Japan in 1997 to become number two behind Canada in dollar value of U.S. exports.

In 1998, combined trade (exports and imports) along the U.S.-Mexico border had increased 76.7% since NAFTA went into effect in 1994. Over that same time period exports through the U.S.-Mexico border ports increased 53.8% while imports increased 101.5%.

From 1993 to 1998, U.S.-Canada trade increased 56.5%. During the same period, U.S.-Mexico trade grew 113.1%. Also in 1998, almost 89% of U.S.-Mexico trade went through U.S.-Mexico border ports. In 1998, the fort of Laredo handled more than $1 billion dollars a week in

trade. Mexico is the United States' third largest supplier of U.S. imports.[1]

Before NAFTA total U.S.-Mexico trade (imports and exports) equaled roughly $81.5 billion dollars per year Since NAFTA, total U.S.-Mexico trade has risen to over $173.7 billion dollars. This, as noted above, is an increase of over 113.1% in a five-year span. In 1993, Mexico was the United States' third largest trading partner at roughly $81.5 billion dollars.

A review of the first five NAFTA years not only reveals tremendous dollar increases in trade which, for many, are positive signs of NAFTA's consequences, it also reveals the tremendous burden on some of the communities that are home to the large inland ports. Truck traffic, alone, has been the cause of federal and state hearings at the congressional and agency level.[2] There have also been visits to the border ports by the General Accounting Office, the U.S. Department of Transportation, and the U. S. Environmental Protection Agency, all looking for solutions to congestion and environmental problems which may be caused by NAFTA which, of course, may also bring some benefits to the region. The impact of NAFTA is especially substantial in Laredo, Texas, the biggest inland port on the U.S.-Mexico border. Along the U.S.-Mexico border, long lines, congestion, cries for more infrastructure, and unparalleled growth

However, other border communities are affected by the increase in trade as well. Cotulla, although seventy miles from Laredo is the next major community north in which I-35 runs through. Zapata, although not hosting a port, may experience some of the spillover effects of the increase in trade.

## II. Statement of Problem/Research Question

The purpose of this study is to survey the opinions of individuals that by e in the border region with regards to the environment and to some extent the effect that trade as well as population may have upon it. It is not enough that civic leaders, and state and federal officials talk about, or not talk about, the environmental problems facing the border region but the impression of the environmental status of the average person is of great interest.

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[1] U.S. Department of Commerce, International Trade Administration Top 50 Suppliers of U.S. Imports, April 1999

[2] National Commission on Intermodal Transportation, May 12, 1994, Laredo, Texas; Texas Department of Transportation, October 24, 1995, Laredo, Texas; Surface Transportation Sub-Committee, United States House of Representatives, August 2, 199, Laredo, Texas; and many other State of Texas legislative hearings.

## III. Importance of Research Topic

The importance of this survey, as mentioned above, is to poll individuals from the communities that make up a portion of the border region. It is only when policy makers can effectively gage the understanding or misunderstanding of the issues surrounding the environment. from the public, and what impacts it, can effective programs be created to address those problems.

## IV. Research Methodology

A random sample of the populations of three cities: Cotulla, Laredo, and Zapata was surveyed with regards to their impressions of the environment that they live in and the impact that trade and/or population may have on that environment. The survey (see Appendix A) consisted of simple yes/no questions as well as the ranking of one's feelings on certain topics.

A total of two thousand surveys were sent. Twelve hundred were distributed in Laredo and four hundred each in Cotulla and Zapata. In Laredo, successful efforts were made to send surveys to individuals of varying economic status based on the location of their residence. For Zapata and Cotulla no distinction was able to be made. The reasoning behind picking these three different cities is the following: Laredo and Zapata are two cities directly on the border but of differing social and economic makeup. Cotulla is a city within the border region that feels the impact of trade due to its location on I-35 but is not directly- on the border.

Of the two thousand surveys sent only one hundred-fifty one were returned. Of this amount one hundred-thirty came from Laredo, twenty one from Cotulla, and none from Zapata. As this result is somewhat disappointing, useful information was gained from the surveys themselves as well as the problems of conducting survey research in the border region.

## V. Research Results

The value in the manner in which the survey was constructed is that it allows comparisons and contrasts to be made across fields in order to generate interpretive results.

### *Laredo*

As mentioned above, one-hundred thirty surveys were returned from Laredo. In this sample the average age of the respondent was forty-nine with greatest number having had some college work

or earning degrees along with earning an income of between $25,000-$50,000 (See Table 1). In addition an overwhelming majority were married and had children.

Seventy-four of the respondents said that they and/or their family engaged in outdoor activities for an average of twenty-three days a year,, fifteen of which was spent in border region. In assessing the respondents own activities for what they would view as "helping" the environment, question were asked about recycling, water conservation, and water use. One hundred fourteen or 88% of the respondents said that they engaged in some sort of an recycling program or recycled on their own. Ninety-eight or

Table 1: Demographic Information for Laredo (130 surveys)

| | | | |
|---|---|---|---|
| Average Age of Respondent | | 49 | |
| Sex: | M | 74 | 57% |
| | F | 55 | 42% |
| Educational Level: | | | |
| Some Secondary | | 16 | 12% |
| High School graduate | | 27 | 21% |
| College Work or Graduate | | 56 | 43% |
| Post Graduate | | 28 | 22% |
| Annual Income: | | | |
| Less than $17,000 22 | | 17% | |
| $17,000-$25,000 | | 21 | 16% |
| $52,000-$50,000 | | 48 | 37% |
| above $50,000 | | 33 | 25% |
| Single | | 33 | 25% |
| Married | | 94 | 72% |
| Children: | | | |
| Yes | | 112 | 86% |
| No | | 17 | 13% |

75% of the respondents said that they use water conservation methods such as low flow shower heads, watering lawns and landscape at night, or xeriscaping. A majority of the respondents (80%) also indicated that they consume on a regular basis bottled or filtered water because of safety (77%) and/or taste (52%).

The main focus of this study was to assess the populations perception with regards to the environment, trade, population growth and the perceived connection between all of them. Questions pertaining to the perceived effect of trade and population were developed and asked in a number of formats.

The perceived change in the environment for individuals that have hued in Laredo for at least ten years is of interest. As Table 2 shows the greatest percentage of respondents feel that there has been no change in local air and water quality along with water availability and open spaces. However, 96% of the respondents to the question feel that the increased trade through Laredo has had a harmful effect. Of the total respondents an overwhelming; majority feel that there has been a negative impact on air and water quality as well as water availability. This is in contrast to the perceived changes mentioned above.

Table 2. Environmental Perceptions (Laredo)

| Perception of changes in the environment for: | *improved a great deal* | *improved* | *no change* | *worsened* | *worsened a great deal* | *unsure* |
|---|---|---|---|---|---|---|
| Local Air Qualify | 7 (5.4%) | 14 (10.8%) | 40 (30.8%) | 39 (30%) | 12 (9.2%) | 7 (5.4%) |
| Water Quality | 7 (5.4%) | 24 (18.5%) | 37 (28.5%) | 27 (20.8%) | 18 (13.8%) | 3 (2.3%) |
| Water Availability | 13 (10%) | 25 (119.2%) | 44 (33.8%) | 15 (11.5%) | 15 (11.5%) | 5 (3.9%) |
| Open Spaces | 10 (7.7%) | 49 (37.7%) | 30 (23%) | 12 (9.3%) | 14 (10.8%) | 3 (2.3%) |

Has the increased trade had an effect on the environment in the community:

Yes: **123 (96%)** No: **5 (4%)**

| What has been the effect on: | *Positive* | *Negative* |
|---|---|---|
| water quality | 16 (13%) | 82 (67%) |
| water quality | 22 (17.9%) | 70 (57%) |
| water availability | 25 (20%) | 63 (48.5%) |

Has population growth had a harmful effect on the environment:

Yes: **102 (85%)** No: **18 (15%)**

| What has been the effect on: | *Positive* | *Negative* |
|---|---|---|
| air quality | 3 (2.9%) | 86 (84.3%) |
| water quality | 5 (4.9%) | 85 (83.3%) |
| water availability | 3 (2.9%) | 85 (83.3%) |

Is trade or population more harmful to the environment:

Trade: **56 (52.3%)** Population: **51 (47.7%)**

Note: If respondents did not answer a question percentages do not sum to 100%

When asked if population has had an harmful effect in their community, 85% of the respondents to the question agreed that it has. Once again, as with trade, an overwhelming majority felt that the impact on air and water quality and water availability was negative. Finally, when

choosing which of the two (population or trade) was more harmful to the environment the result were close to being evenly split with only a slight majority (52.3%)feeling trade was more harmful.

*Cotulla*

Twenty-one surveys were returned from Cotulla. In this sample the average age of the respondent was fifty-six with greatest number having had some college work or earning degrees and earning an income of between $25,000-$50,000 (See Table 3). In addition an overwhelming majority were married and had children.

Twenty of the respondents said that they and/or their family engaged in outdoor activities for an average of forty-four days a year, forty-three of which is spent in border region. In assessing the respondents own activities for what they would view as "helping" the environment, question were asked about recycling, water conservation, and water use. Fourteen or 67% of the respondents said that they engaged in some sort of an recycling program or recycled on their own. Seventeen or 81% of the respondents said that they use water conservation methods such as low flow shower

Table 3: Demographic Information for Cotulla (21 surveys)

| | | | |
|---|---|---|---|
| Average Age of Respondent | | 56 | |
| Sex: | M | 13 | 62% |
| | F | 8 | 38% |
| Educational Level: | | | |
| Some Secondary | | 2 | 10% |
| High School graduate | | 4 | 19% |
| College Work or Graduate | | 10 | 48% |
| Post Graduate | | 4 | 19% |
| Annual Income: | | | |
| Less than $17,000 4 | | 19% | |
| $17,000-$25,000 | | 5 | 24% |
| $25,000-$50,000 | | 8 | 38% |
| above $50,000 | | 2 | 10% |
| Single | | 13 | 62% |
| Married | | 7 | 33% |
| Children: | | | |
| Yes | | 14 | 67% |
| No | | 7 | 33% |

heads, watering lawns and landscape at night, or xeriscaping A majority of the respondents (52%) also indicated that they do not consume bottled or filtered water on a regular basis.

The perceived change in the environment for individuals that have lived in Cotulla for at least ten years is of interest As Table 4 shows the greatest percentage of respondents feel that there has been no change local air and water quality along with water availability and open spaces. However, 60% of the respondents feel that the increased trade through Cotulla has had an harmful effect on the environment. Of that total, a majority feel that there has been a negative impact on air and water quality as well as water availability. This is in contrast to the perceived changes mentioned above.

Table 4. Environmental Perceptions (Cotulla)

| Perception of changes in the environment for: | improved a great deal | improved | no change | worsened | worsened a great deal | unsure |
|---|---|---|---|---|---|---|
| Local Air Quality | 0 (0%) | 1 (4.8%) | 12 (57.1%) | 3 (14.3%) | 0 (0%) | 3 (14.3%) |
| Water Quality | 0 (0%) | 3 (14.3%) | 7 (33.3%) | 4 (19%) | 3 (14.3%) | 2 (9.5%) |
| Water Availability | 0 (0%) | 3 (14.3%) | 5 (23.8%) | 5 (23.8%) | 4 (19%) | 2 (9.5%) |
| Open Spaces | 0 (0%) | 2 (9.5%) | 11 (52.4%) | 3 (14.3%) | 0 (0%) | 2 (9.5%) |

Has the increased trade had an effect on the environment in the community:

Yes: **12 (60%)** No: **8 (40%)**

| What has been the effect on: | *Positive* | *Negative* |
|---|---|---|
| air quality | 3 (13%) | 9 (67%) |
| water quality | 2 (17.9%) | 6 (57%) |
| water availability | 2 (20%) | 6 (48.5%) |

Has population growth had a harmful effect on the environment

Yes: **9 (45%)** No: **11 (55%)**

| What has been the effect on: | *Positive* | *Negative* |
|---|---|---|
| air quality | 0 (0%) | 8 (88.9%) |
| water quality | 1 (11%) | 6 (67%) |
| water availability | 1 (11%) | 6 (67%) |

Is trade or population more harmful to the environment

Trade: **12 (57.1%)** Population: **7 (33.3%)**

Note: If respondents did not answer a question percentages do not sum to 100%

When asked if population has had an harmful effect in their community, 45% of the respondents agreed that it has. Once again, as with trade, an overwhelming majority felt that the impact on air and water quality and water availability was negative. Finally, when choosing which of the two (population or trade) was more harmful to the environment a majority (57%) felt that trade is more harmful to the environment

## IV. Concluding Observations

There are many similarities between Laredo and Cotulla with respect to their opinions on the environment and the factors that may effect change on it. Both of the cities perceived that there was no change in the air and water quality or the availability of water and open spaces over the time span that they have lived in these communities. However, when asked specifically if trade and population has had an effect on those same issues the majority in both cities said that they had. Individuals are aware that changes are taking place in the environment but because it is a slow process they may not feel the change.

Table 5. Views on Policy

*Cotulla*

| | *Extremely Important* | *Very Important* | *Important* | *Somewhat Important* | *Not Important* |
|---|---|---|---|---|---|
| • Cooperation between U.S.-Mexico on environmental issues: | 10 | 4 | 5 | 1 | 1 |
| • Financial help from U.S. to Mexico for environmental protection: | 5 | 0 | 7 | 5 | 3 |
| • Tighter emission standards for diesel trucks: | 6 | 2 | 5 | 4 | 3 |
| • Water conservation measures imposed by the city or counts: | 3 | 4 | 10 | 1 | 2 |

*Laredo*

| | *Extremely Important* | *Very Important* | *Important* | *Somewhat Important* | *Not Important* |
|---|---|---|---|---|---|
| • Cooperation between U.S.-Mexico on environmental issues: | 88 | 20 | 12 | 1 | 3 |
| • Financial help from U.S. to Mexico for environmental protection: | 36 | 36 | 32 | 7 | 11 |
| • Tighter emission standards for diesel trucks: | 61 | 31 | 24 | 3 | 3 |
| • Water conservation measures imposed by the city or county: | 53 | 35 | 24 | 5 | 3 |

These individuals also have opinions as what should happen in terms of policy with regards to the environment. Table 5 shows that the respondents in both Cotulla and Laredo feel very strongly that the U.S. and Mexico should cooperate on environmental issues. However, there is not an overwhelming feeling that it is important for the U.S. to offer financial help to Mexico for environmental problems. The issue of truck emissions seem to be of more importance in Laredo than in Cotulla. This result would be expected given the amount of truck traffic that moves in and around the city and the constant visual reminders of the amount of exhaust generated. Finally, water conservation measures imposed by the city or county are seemingly of more importance in Laredo than Cotulla.

These results offer some valuable insight into the perceptions of the two border cities in Texas. By no means can these opinions by transferred to the whole population, especially in light of the small response. But it is a beginning to understanding the how perceived changes in the environment are tied to changes in trade and population.

# APPENDIX A

## Sample Survey

**Trade and the Environment Along the Border**

Demographic Information

**Q 1**. Age of the Respondent_____

**Q2**. Sex: **M** **F**

**Q3**. Educational level (circle one): **(1)** Some secondary **(2)** High School graduate
**(3)** College work or graduate **(4)** Post Graduate

**Q4**. Annual Income (circle one): **(1)** Less than $17,000 **(2)** $17,000-$25,000
**(3)** $25,000-50,000 **(4)** above $50,000

**Q5**. ***SINGLE / MARRIED***

**Q6**. Children: ***YES / NO***

**Q7**. How many years have you lived in this community and/or border region?_____

**Q8**. Do you or members of your immediate family work far a company directly involved in trade, such as trucking, customs brokerage, freight forwarding, etc.? ***YES / NO***

Environmental Questions

**Q9a**. Do you and your family engage in outdoor activities such as; camping, fishing, hunting, bird watching, etc. YES / NO

**Q9b**. If **YES**: How many days a year on average?_____

**Q9c**. If **YES**: How many days spent doing these activities in the border region_____

**Q10a**. Do you recycle used products such as cans, plastic containers, paper, etc. ***YES / NO***

**Q10b**. If **YES**, choose what method you use most frequently:

**1** - city recycling program
**2** - county recycling program
**3** - recycle an your own

**Q11a**. Do you buy bottled water or have a filtration system at home? ***YES / NO***

**Q 11 b**. If **YES**:

**1**. do you drink bottled or filtered water on a regular basis? **YES / NO**
**2**. do you drink bottled or filtered water because of safety concerns? ***YES / NO***
**3**. do you drink bottled or filtered water because of taste? ***YES / NO***

**Q12**. Do you and your family use any water conservation methods such as low flow shower heads, watering lawns and landscape at night, xeriscaping, etc.? ***YES / NO***

**Q13**. If you have lived in your community and/or the border region for at least 10 years answer the following questions with regards to **your perception** to changes in the environment:

| 1=improved a great deal | 2=improved | 3=no change | 4=worsened | 5=worsened a great deal | 9=unsure |
|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| **a**. local air quality..... | **1** | **2** | **3** | **4** | **5** | **9** |
| **b**. water quality..... | **1** | **2** | **3** | **4** | **5** | **9** |
| **c**. water availability..... | **1** | **2** | **3** | **4** | **5** | **9** |
| **d**. open spaces (parks and recreation areas)..... | **1** | **2** | **3** | **4** | **5** | **9** |

**Q14a.** Do you think the increase in trade between the United States and Mexico has had an effect on the environment in your community? **YES / NO**

**Q 14b**. If **YES**, what has been the effect on:

**1** - air quality.....**POSITIVE / *NEGATIVE***

**2** - water quality.....**POSITIVE /*NEGATIVE***

**3** - water availability.....**POSITIVE / *NEGATIVE***

**Q 15a**. Do you think the increase in population of your community has had a harmful effect on the environment? **YES / NO**

**Q15b**. If **YES**, what has been the effect *on:*

**1** - air quality.....**POSITIVE / *NEGATIVE***

**2** - water quality.....**POSITIVE / *NEGATIVE***

**3** - water availability.....**POSITIVE / *NEGATIVE***

**Q16**. Is the increase in trade or the increase in population more harmful to the environment?

***TRADE / POPULATION***

**Q 17**. What is your opinion concerning <u>the following:</u>

| 1=extremely important | 2=very important | 3=important | 4=somewhat important | 5=not important |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **a**. cooperation between the U.S. and Mexico on environmental issues..... | **1** | **2** | **3** | **4** | **5** |
| **b**. financial help from the U.S. to Mexico far environmental protection..... | **1** | **2** | **3** | **4** | **5** |
| **c**. tighter emission standards for diesel trucks..... | **1** | **2** | **3** | **4** | **5** |
| **d**. water conservation measures imposed by the city and/or county..... | **1** | **2** | **3** | **4** | **5** |

***-Thank you for completing this questionnaire-***

please return in the enclosed postage-paid, self-addressed envelope