Promoting Safer and Healthier Homes, Workplaces and Communities in the United States and Latin America

Issue Papers

Hispanic Forum on a Safe and Healthy Environment
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National Safety Council

Pan American Health Organization
Regional Office of the
World Health Organization

EPA

CONTENTS

INTRODUCTION

The Hispanic Initiative

The regional integration that is reshaping the social, political, legal, and economic landscapes of the Americas is creating an unprecedented opportunity to improve environmental health and working environments for Hispanics. To achieve this goal, the *Hispanic Forum on a Safe and Healthy Environment* is bringing together representatives of national, international, and community-based organizations to identify common challenges, forge new partnerships, and collaborate in the development of model strategies.

The Issues

Throughout the year, three distinct but complementary sub-groups have joined their efforts and shared their resources to discuss problems and potential solutions with relevance to the environmental and occupational safety and health issues that Hispanics face in the north and south hemispheres of the region. These sub-groups and their overarching themes are, respectively:

Occupational Safety and Health
A Safer, Healthier Workplace for a Diverse Workforce

Environmental Health
Healthy Children, Living in a Safe Environment

International Workers' Health
Protecting Worker Health: Forging a Common Agenda for the Americas

Potential Actions

For each sub-group, three to four issues have been selected and background information provided for needed actions. For each of the issues discussed within each breakout group during the forum, several potential actions will be suggested to generate a fruitful exchange of ideas, experiences, and opinions. These potential actions will be captured and consolidated in model strategies that will allow all stakeholders to move forward and to continue their drive to expand existing partnerships and build new ones. It is our vision that through consensus-building, a common agenda containing model strategies and priorities for action will be agreed upon by all interested parties during the Hispanic Forum of October 2000.

Thank you in advance for your interest and active participation in this initiative.

Sincerely,

The Sponsor Organizations:

- U.S. Environmental Protection Agency
- Pan American Health Organization
- National Safety Council
- National Alliance for Hispanic Health

HISPANIC WOMEN AND OCCUPATIONAL HEALTH[1]

The Problem

Though much more research is needed in this area, available research appears to show that Hispanic women face greater risk of occupational injury and illness than non-Hispanic white women. This is due in large part to the disproportionate representation of Hispanic women in high-hazard industries and occupations.[1] A 1989 California study showed Hispanic women experienced incidence rates of occupational injury and illness that were 1.5 times that of non-Hispanic white women.[2] Because many Hispanic women are employed in "informal" industries or in industries where safety, health, and wage laws might not be routinely followed (e.g.,"sweatshops" in the apparel, restaurant, food processing plants, or other industries), the risks can become even greater. In addition, many of these industries might not provide the necessary social support should injury or illness occur, and knowledge about rights and available services is low among this population.[3]

Jobs held by women are often seen as safe when compared with those held by men. While men are more likely to be employed in more hazardous occupations, the safety of jobs held by women is often understated. Many jobs performed by women have more physical and mental demands than is usually considered.[4] In addition, tools and machinery utilized in certain professions are often designed for men and might be ill-suited for some women, increasing the likelihood of occupational injury or illness.[5,6]

In terms of employment, Hispanic women continue to have the highest unemployment rate of any racial/ethnic group and tend to be over represented in lower paid, higher risk occupations.[1,7] For example, Hispanic women were far less likely to be employed in Managerial and Professional Specialty occupations than the overall employed female population (19 percent versus 31 percent, respectively); they were far more likely to be employed in more hazardous jobs such as Service occupations (25 percent versus 17 percent) and Operator, Fabricator, and Laborer occupations (15 percent versus 7 percent). In 1997, nearly two out of every three Hispanic women worked in one of two major occupational groups: Technical, Sales, and Administrative Support (38 percent) or Service occupations (25 percent).[8]

In looking at data from the 1997 Bureau of Labor Statistics (BLS) Annual Survey of Occupational Injuries and Illnesses, three major areas of concern emerge with regard to occupational injuries and illnesses involving women (see below). While estimates for Hispanic women are not calculated by the BLS Annual Survey, Hispanic women are highly represented in the services and manufacturing occupations where many of these events occur.

- **Musculoskeletal disorders (MSDs):** Women suffer more MSDs in large part because of their disproportionate representation in manufacturing and service occupations, where a greater risk of these events exists. In 1997, women accounted for 57 percent of diseases and disorders due to the "musculoskeletal system and connective tissue," and 70 percent of carpal tunnel cases. The largest number of these cases occurred in manufacturing, followed by service occupations. Hispanic women represent a high proportion of the women who work in

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[1]This paper was written by Scott Richardson, Occupational Health and Safety Administration.

occupations such as Hand Packers and Packagers (19 percent of female workforce), Assemblers (14 percent of female workforce), and machine operators, where risk of MSDs might be particularly high. Back injuries and other injuries related to overexertion are also a major problem for women, especially in the health care industry, where lifting patients or equipment can cause back injuries and other problems. For example, 90 percent of work-related injuries and illnesses among "nursing aides, orderlies, and attendants" involved women; nearly two-thirds of the incidents for this occupational group were "sprains and strains " primarily related to overexertion. The 1997 incidence rate for occupational injuries or illnesses requiring time away from work for nursing and personal care facilities—where many Hispanic women are employed—was 530 cases per 10,000 employees, or about 2.5 times the overall rate for all workers.

- **Violence in the workplace:** Women were victims in nearly three out of five nonfatal occupational incidents involving "assaults or violent acts by persons" that resulted in time away from work in 1997. The vast majority of these incidents (75 percent) occurred in service industries, especially in nursing homes, social services industries, and hospitals. (More than half of these incidents occurred while working with "health care patients.") In terms of fatal assaults, homicide was the leading manner of traumatic workplace death for women in the workplace in 1997.[9] Hispanic women are heavily represented in both health services positions and cashier positions where risk of workplace violence is highest.

- **Other occupational illnesses:** Occupational cancers and other work-related illnesses are also major concerns for women.[10] More research is needed, however, especially with regard to occupational cancers. Women accounted for 43 percent of work-related systematic diseases and disorders recorded in 1997, and accounted for the majority of infections and parasitic diseases and several other illness categories. Hispanic women who work in agricultural occupations are often at high risk of occupational illness from pesticide exposure and other agricultural hazards. (About 30 percent of the women employed as farmworkers are Hispanic and more than half of the "graders and sorters of agricultural products" are Hispanic, according to the 1990 Census.) Pregnant women might be at particularly high risk from such exposures, and several studies have documented risks to both mother and fetus.

Susceptibility to occupational injury and illness cannot be entirely separated from other health-related issues for Hispanic women. Lack of routine medical care (about two out of every five Hispanics in the United States are uninsured—double that of non-Hispanic whites),[11] living in areas with environmental hazards (water pollution, pesticides, hazardous waste), and individual health issues (lack of good nutrition, etc.) can increase susceptibility to occupational illness or injury or blur the work-relatedness of certain exposures. Other issues such as stress and hypertension or the presence of other diseases might also contribute to the likelihood of occupational injury and disease. In fact, stress is considered the primary health concern overall by women.[12]

Many of the occupations and industries in which Hispanic women are currently employed will be among the fastest growing during the next 10 years. For example, health-related occupations represent nearly half of the 25 occupations expected to grow the fastest over the next 10 years, according to the Census Bureau. The projected growth of occupations such as nursing aides (projected to increase 24 percent), child care workers (26 percent increase), waiters and waitresses (15 percent increase), and

electrical and electronic assemblers (8 percent increase) from 1998 to 2008 makes it essential to focus on the occupational health issues associated with these occupations and the Hispanic women who will assume a large number of these jobs.

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PESTICIDES

The Problem

While estimates vary, some sources count approximately four million farmworkers in the United States.[1] Virtually all migrant and most seasonal farmworkers are Latino. These workers, often called the poorest of the working poor, provide the bulk of labor for the agricultural industry in the United States. They suffer from extraordinary poverty, frequent mobility, cultural and linguistic barriers, low literacy rates, geographic isolation, and a variety of other conditions that often relegate them to Third World living conditions. Their dire situation is nowhere more apparent than in the fields where they work. Pesticide exposure poses one of farmworkers' greatest challenges because they suffer from the heaviest exposure to toxic chemicals of any worker or consumer group, while often enjoying only minimal protection from that exposure.

Few occupations in the United States are more hazardous than farm work, and chemical exposure is perhaps the occupation's most serious danger. Recently, the U.S. Environmental Protection Agency (EPA) estimated that 950 million pounds of pesticides are used annually.[2] Only a few crops receive application of pesticides to more than 75 percent of total acreage; however, it is these very crops that create the work environment for the vast majority of migrant and seasonal farmworkers.[3]

Farmworkers are exposed to deadly pesticides in numerous ways. Winds carry sprayed pesticides to adjacent fields where farmworkers work and live; pesticides are sometimes sprayed directly onto the farmworkers through ground or aerial equipment; and farmworkers come into contact with toxic residue on plant leaves. Pesticides are often stored near where farmworkers and their families live. Further, farmworkers might eat meals with hands contaminated with the chemicals; they might consume just-harvested fruits and vegetables without thoroughly washing them; in the absence of drinking cups, farmworkers might use hollowed-out fruits and vegetables to consume water; because of the lack of alternatives, they might cook, bathe, and drink contaminated water from a variety of sources, including irrigation ditches; and they often hug family members when the residue is still on their clothes.

This list of the ways in which the workers may be exposed to pesticides is hardly exhaustive. It therefore should come as no surprise that estimates of annual injury from pesticide exposure exceed 300,000 farmworkers.[4] It is impossible to determine how many countless workers ultimately die of latent illnesses caused by chemical exposure. Victims of such poisoning often suffer from neurological disorders, miscarriages, sterility, and cancer. Workers often pass the effects of pesticide exposure to future generations in the form of birth defects and genetic damage.

Furthermore, in addition to the workers themselves, their children—who often live, attend school or day care, and play near the fields and chemical storage sites—are themselves exposed to these hazards.

While federal and state protections are in place, lackluster enforcement, weaknesses in current law, and lack of adequate training of workers and applicators undermine their intended effect. However, much can be done to provide a safer working environment for these hard working people and their families.

In 1992, eight years after EPA first published draft regulations, the agency promulgated the Worker Protection Standard (WPS) pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).[5] The WPS provides entry restrictions for farmworkers working in pesticide-treated areas. An employer is forbidden to permit or force any worker to enter a treated area before the "restricted-entry interval," which is specified on all pesticide labels, has expired.[6] The WPS also mandates that employers provide specific information about the pesticides they are applying.[7] The information must convey the location and description of the treated area, the name of the pesticide and its active ingredients, the time and date it is to be applied, and the restricted-entry interval for the pesticide.[8]

The WPS requires farmworkers to receive training in pesticide safety.[9] For instance, the regulation requires instruction on how to prevent chemicals from being absorbed into their bodies.[10] The rule also requires employers to provide a variety of items for decontamination, such as quality washing water, soap, single-use towels, and at least one pint of clean water for emergency eye-flushing.[11] Employers are also required to provide prompt emergency assistance to farmworkers injured by pesticides, including immediate transportation.[12]

Another federal protection is the Food Quality Protection Act (FQPA).[13] FQPA amended many of the pesticide registration requirements of FIFRA to provide stronger protections. For example, FQPA amended FIFRA to allow the EPA Administrator to issue emergency orders suspending a pesticide registration before issuing a notice of intent to cancel it or change its classification.[14] FQPA also contains several provisions for expediting registration and tolerance adjustments for pesticides that are purportedly safer than ones currently on the market.

Several states have laws that complement the WPS and FQPA, and, in principle, many provide farmworkers with even more protection than federal law. For example, California has more stringent use restrictions than EPA and requires notice of intent filings before restricted-use pesticide applications.[15] Texas state law requires employers to provide extensive information to their farmworkers on the pesticides to which they will be exposed, prohibits retaliation against farmworkers who make inquiries or file complaints, and disallows any waiver of statutory rights by the farmworkers.[16]

Unfortunately, these laws are often very poorly enforced. A study conducted from October 1995 through September 1998 in New Jersey and Florida illustrates the problem.[17] Only 35.4 percent of New Jersey farmworkers interviewed on 232 farms had been trained in pesticide safety; in Florida, only 54.5 percent of workers on 246 farms had been so trained. Only 35.3 percent of New Jersey employers and 24.6 percent of Florida employers had provided written information on pesticides to workers. New Jersey farmworkers were informed of re-entry intervals only 48.6 percent of time; Florida farmworkers had such information only 39.7 percent of the time. Finally, in New Jersey, only 20.4 percent of employers provided sinks for farmworkers, while in Florida, the percentage was 48.7.

California, the state with the largest number of farmworkers, showed similar problems. The state has a county-based enforcement system that produces highly inconsistent results. Furthermore, only 10 percent of employer regulatory violations in California result in any sort of fine.[18] Of those, 50 percent are for less than $151, and a negligible 5 percent of all fines were in excess of $1,000.

The federal government has also failed to oversee enforcement of the WPS, according to a recent U.S. General Accounting Office (GAO) report.[19]

Companies involved in spraying or manufacturing pesticides have often claimed they were not responsible for worker injuries. Recently, a California aviation company, with a history of pesticide drifting violations, sprayed a group of women farmworkers who subsequently became ill. The company not only denied the women were affected by the spraying, it called the entire incident a "set-up."[20] Also, pesticide manufacturers often oppose federal restrictions and regulations. For example, a major U.S. manufacturer of the chemical chlorpyrifos (which has campaigned to protect the use of DDT and DBCP), recently launched a campaign to protect chlorpyrifos and successfully cut the chemical's safety factor by two-thirds.[21]

There are also significant problems with the laws themselves. FQPA, which provides regulation of pesticides through a reregistration process, only assesses the toxicity levels by using the standard of a child who consumes the produce on which pesticides were used. Worker exposure is not a standard protected under law. And there is no private right of action for aggrieved workers under the law.

Child labor compounds this problem. Children, an estimated 800,000 of whom are working on farms, absorb these chemicals more quickly than adults, and yet re-entry times are set based on adult body size and chemistry.

Finally, the existing federal legal protections have several loopholes, including allowing employers to instruct workers to re-enter sprayed fields and perform hand labor before the re-entry interval expired, in the event of an "agricultural emergency."[22]

Of course, an overarching problem is that there is a paucity of reliable data regarding the connection between farmworker pesticide exposure and resulting illnesses. The EPA estimates it will take decades to collect these data, and because it is extremely difficult to prove causal links between exposure and illness, developing such conclusions could take even longer. This absence of data makes it harder than it would otherwise be to argue for tightened regulation in the face of resistance from employers, applicators, and chemical companies.

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5. *See* 7 U.S.C. § 136a-k (1999).

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7. *See* § 170.122.

8. *See* § 170.122(c).

9. *See* § 170.130(a).

10. *See* § 170.130(c).

11. *See* § 170.150.

12. *See* § 170.160.

13. *See* 7 U.S.C. § 136.

14. *See* § 136d(c)(3).

15. *See* Bobotek, *supra* note 3.

16. *See* Tex. Agric. Code Ann. § 125.013(a)-(b) (West 1995).

17. *See Compliance with Worker Protection Rules on Pesticides Given Failing Grade*, Pesticide & Toxic Chemical News, July 29, 1999.

18. *See* Pesticide Action Network North America, Fields of Poison: California Farmworkers and Pesticides (1999).

19. *See* United States General Accounting Office, *supra* note 2, at 20.

20. *Pesticide Applicator Says Women Farm Workers Faked Poisoning Illnesses* (KGET Ch. 17, a NBC station, television broadcast, June 19, 2000).

21. *See* <http://www.bansdursban.com>.

22. *See* 40 C.F.R. 170.112(d).

HISPANIC WORKERS IN THE U.S. CONSTRUCTION INDUSTRY: FALLS AS A SPECIFIC RISK

The Problem

The purpose of this paper is to examine a specific occupational safety and health concern to illustrate the types of issues that may be useful to raise in developing improved approaches for focusing on hazards of importance to Hispanic workers. It is a work in progress, and feedback from breakout discussions at the October forum will be used to guide completion of a final version.

Construction is now second only to agriculture as the workforce sector with the highest percentage of Hispanic workers. In 1997, Hispanic workers made up 11.7 percent of the construction workforce nationally, ranging from 5.4 percent in the northeast to 21 percent in the western United States. This rate is on the increase, and may undercount Hispanic construction workers who are self-employed (an estimated 27 percent of all construction workers are self-employed).[1] and those who are day-laborers in construction.

Data from the Bureau of Labor Statistics (BLS) show that Hispanic workers in construction are distributed across both relatively skilled and unskilled occupations, including management. Table 1 provides the top five construction occupations for Hispanic workers.

Table 1. Top Construction Occupations for Hispanic Workers as of 1997[1]

Top Five Construction Occupations by **percentage** of Hispanic Workers	Top Five Construction Occupations by **total number** of Hispanic Workers
1) Drywall 28.9 percent	1) Laborer and Helper 181,704
2) Tile 24.3 percent	2) Carpenter 142,272
3) Roofing 23.7 percent	3) Painter 112,328
4) Painting 21.2 percent	4) Other 93,707
5) Concrete 21.1 percent	5) Manager 61,404

Construction has a high overall fatality rate compared to other sectors, such as manufacturing and services. It has the highest overall number of fatalities of any sector. For construction, 166 of the 1107 fatalities reported for construction in 1997 were among Hispanic workers. Between 1996 and 1997, while the number of Hispanics working in construction in the United States increased 19.8 percent, the fatality rate among these workers increased 40.7 percent.[2] In other words, the fatality rate for Hispanic workers appeared to be about twice that expected from increasing presence in the industry. Further work is needed to examine fatality rates and create more recent statistics to evaluate this issue in more detail.

Falls constitute the single largest cause of construction fatalities, both for the United States workforce in general and for Hispanic construction workers. Table 2 provides additional information on the types of falls and their frequency.

Table 2. Fatal Falls in Construction in the United States[2]

	# falls among non Hispanic workers	# of falls involving Hispanic workers	percent of Total Falls among Hispanic workers
Fall from scaffold, staging	311	73	21 percent
Fall from roof, unspecified	157	41	12 percent
Fall from roof edge	180	38	11 percent
Fall from ladder	264	29	8 percent
Fall to lower level, NEC	183	28	8 percent
Fall through skylight	57	26	8 percent
Fall through roof surface	68	22	6 percent
Fall from building girders or structural steel	167	17	5 percent
Fall through existing roof opening	60	17	5 percent
Fall through existing floor opening	50	10	3 percent
All Other Falls	232	42	12 percent

Fall prevention requires a number of workplace measures. Fall hazards need to be identified ahead of time so that the guardrails and fall arrest/fall restraint systems can be planned and put into place. Workers need training on fall hazards, and authorized employees need to inspect the job and make changes before accidents occur. Safety and health programs are needed to coordinate the overall effort and to collect and disseminate data and information on unsafe conditions and close calls. No studies were found that specifically target the increase in falls for Hispanic workers. A number of possible factors, however, provide a starting point for looking at this and other types of hazards that are of concern to Hispanic workers:

- **Fall hazards might be greater in the specific trades (e.g. roofing) that are attracting the most Hispanic workers.** In general, construction poses a number of hazardous conditions that change continuously as the job progresses. Heavy equipment and tools, heights, and weather conditions can provide challenges not found in other settings such as manufacturing. While fall hazards are a problem across construction, some trades do involve more fall hazards and have higher fall-related fatality rates than others. Research can help identify factors associated with falls. For example, drywall work is the trade with the highest percentage of Hispanic workers, and falls account for about a third of all traumatic injuries for drywall installers. Studies by the National Institute of Occupational Safety and Health indicate that drywall lifting and hanging tasks cause more fall-related injuries than any other tasks done by these workers.[3] Because drywall is large and awkward to carry, it is easy for workers to lose their balance while lifting or hanging drywall on ladders, stilts, and scaffolds. A variety of approaches involving modifications of tools, supplies, and practices, might provide some effective solutions to help address falls in this and other occupations. Additional targeting of trades with high participation by Hispanic workers might identify useful strategies for reducing falls.

- **Language and communication problems might contribute to the risks faced by Hispanic workers.** The ability to communicate effectively and immediately is critical in

a high-risk environment such as a construction site. Many tasks require workers to work together as a team, and additional communication might be needed with other employees and contractors on the site. Availability of translators or bilingual co-workers might be of little use when someone yells "look out below," as something falls off the catwalk over your head. While training materials are increasingly available in Spanish, critical skills are learned by observation of co-workers or journey-level workers who know the job, practicing the job with critical evaluation of performance, close supervision when you are new to a job, and other applied learning experiences. Translating these learning experiences must go beyond translating textbooks and fact sheets in order to successfully prevent occupational injury and disease in construction. While no specific research on the contribution of language issues to falls in Hispanic construction workers was found, it appears to be an important area for further attention and research. For example, the top cause of falls among Hispanic construction workers involves falls from scaffolds that are being put up or taken down. A closer look at this task might reveal that communication problems or training deficiencies could be contributing to the resulting injuries.

- **The competitive nature of the construction industry, and a shortage of trained workers might be leading to conditions where safety is compromised.** Sectors of construction work have become commodities where square feet of drywall, cubic yards of concrete, or hundreds of feet of trench dug can be bid aggressively. Fierce competition can result in thin profit margins and the potential for downward pressure on wages, quality of work, and safety. Multiple tiers of sub-contracts where work is divided and contracted to increasingly small and powerless employers or the self-employed contributes to this high degree of competition, and might lead to reduced control of working conditions and increasing susceptibility to economic pressure. Increasing use of temporary firms, employee leasing, construction management firms, and other forms of contracting that separate control of the work process from the legal employment relationship might also make accountability and liability for construction hazards increasingly tenuous. The smaller employers that predominate in the construction industry are less likely to have safety and health experts on staff. Workers often find contingent work, in which workers are hired for a specific project or task rather than as a long term employee, provides less restricted initial access to the job market, which results in a disproportionate number of relatively powerless, economically disadvantaged workers. Fewer than half of construction workers have any employer contribution to health insurance and only agriculture and retail sectors have a higher fraction of workers with family income below the poverty line (8.2 percent of construction workers.[1] The current shortage of skilled workers in construction might also have effects, by increasing the fragmentation of the very smallest employers, and increasing schedule compression and extensive overtime. The result might be a formula for occupational injury and disease problems creating a serious challenges for workers, safety and health professionals, and employers.

For falls, the factors described above might play a role in a variety of ways. A cost-sensitive contractor might rely on ladders for a job instead of renting rolling scaffolds. Workers experiencing time pressures to finish a job quickly might rush the job in ways that increase risks of falls. For example, a worker trying to reach further on a ladder instead of taking extra time to move it could increase the likelihood of a fall as his or her

center of gravity shifts during a reach. Time-pressured workers might be reluctant to take the time to properly set up guard rails or arrange for fall protection when unanticipated tasks come up on a job. These types of factors are difficult to research, but could contribute to an increased incidence of fall-related fatalities among Hispanic construction workers.

- **Safety expectations based on home country work practices, combined with unfamiliarity with worker/immigrant rights, might also play a role.** One example is workers from Mexico, who constitute approximately half of all Hispanic construction workers in the formal sector. This figure rises to almost three quarters when Mexican Americans are added to the total.[1] These workers bring expectations, training, and experiences with them, and these work culture influences might include acceptance of higher risk work practices. When such workers do encounter safety problems or exploitation, unfamiliarity with worker rights and lack of empowerment might hamper their efforts to utilize union and governmental safety resources. For example, workers hired as day laborers might be reluctant to complain and risk losing their jobs and income they need to feed their families for the day. Similar concerns might hamper the efforts of small Hispanic contractors to negotiate with other contractors. Lack of outreach by government agencies might be contributing to these types of potential problems. Addressing these types of issues might require much more than mere translation of occupational safety and health educational materials and training into Spanish. More discussion and information is needed about the extent and role of these factors. Various groups might want to consider the working conditions and home country work practices of immigrant workers when planning efforts to provide training or other types of assistance.

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The groups and individuals involved with the Hispanic Forum are interested in your comments and feedback. Please contact the following person with any suggestions.

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ASTHMA AND HISPANIC CHILDREN

The Problem

Asthma has reached epidemic proportions in the United States, affecting 17 million people of all ages and races, particularly children.[1] Asthma is a chronic, inflammatory lung disease. During an asthma attack, the airways in the lungs become blocked, causing the lungs to receive less air than normal. Symptoms of an asthma attack include mild to extreme difficulty in breathing, a tight feeling in the chest, coughing, and wheezing. Lost school days, emergency room visits and hospitalizations, increased risk of lung and heart disease, and mortality are some of the short and long term effects of asthma.

The number of asthma sufferers has more than doubled from 6.7 million in 1980 to 17.3 million in 1998. An estimated 4.8 million asthmatics are children.[2] Asthma is disproportionately prevalent among poor, inner city dwellers, many of whom include Hispanic families. In fact, the rate of asthma among Hispanic children is 22 times higher than the asthma rate among whites and more than 12 times that of African American children. Particularly hardest hit are children of Puerto Rican descent, who are two to four times more likely to have asthma than any other ethnic group. Approximately 20 percent of Puerto Rican children from 6 months to 11 years have asthma, a greater percentage than any other ethnic group.[3] In Brazil, Costa Rica, Panama, Peru, and Uruguay, prevalence of asthma symptoms in children varies from 20 to 30 percent.[4]

Researchers are conflicted over the reasons for the rise of asthma in Hispanic communities. The occurrence of the disease in Hispanic children appears to be related to a number of risk factors, including exposures to outdoor air pollutants and indoor air allergens. Social factors, including language barriers, cultural views, emotional anxiety, and access to health care also appear to contribute to the prevalence and control of the disease.

Many industrial facilities, such as power plants, sewage treatment plants, and bus depots, are located in poor urban areas. Studies show that these facilities are disproportionately concentrated in counties with high percentages of minorities. Approximately 69.2 percent of Hispanic children live in areas that exceed the 0.88 parts per million ozone standard, while only 50.8 percent of white children live in such areas.[5] In Latin America, the use of leaded fuels also has been linked to asthma.

The quality of indoor air also is very important for an asthmatic child. Ninety-one percent of Hispanics live in urban settings, and many of them in substandard housing.[6] Infestations of cockroaches can be common in these circumstances. Exposure to other common allergens such as dust mites, animal dander, secondhand smoke, ozone, volatile organic compounds and excess moisture are more common in these environments. In Latin America the use of wood burning stoves also can contribute to asthma attacks.

Secondhand smoke is another common indoor air pollutant; however, data has shown that Hispanics are less likely to be smokers (18.3 percent) than non-Hispanic whites (25.6 percent) and African Americans (25.8 percent). In addition, asthmatic children are most affected by a mother that smokes, and Hispanic women have among the lowest smoking rates of any group (14.9 percent) Among Hispanics, however, Puerto Ricans have the highest smoking rates (25 percent) and also the highest incidence of asthma.[7]

Access to healthcare and cultural views on illness also factor into the high rate of asthma in Hispanic children. Thirty percent of Hispanic children in the United States do not have health insurance.[8] These children are less likely to be diagnosed or have the appropriate tools (nebulizers or inhalers) and information to control and manage their asthma. Also, a study of Hispanic families in San Diego, California, found that parents who speak only Spanish have significantly more misconceptions about asthma than English-speaking Hispanic parents. These misconceptions lead to lack of diagnosis and treatment of asthma symptoms.[9]

Current Activities

The U.S. government, health professionals, and community-based organizations are working to educate Hispanic communities about asthma, study its high incidence, and help control its effects. Projects undertaken in the Hispanic community have shown that a multidisciplinary approach to the problem that includes measurement of lung function, environmental measures, patient education, and medication work well. Successful programs in asthma management have focused on patient/family education and self-management skills. Positive results have occurred when a healthcare team of community clinics, schools, and community-based organizations partner with the child and its family to jointly develop a treatment plan.

Providing asthma information in Spanish is a basic and important step in decreasing its debilitating effects on Hispanic children. In 1998, the National Alliance for Hispanic Health and other Hispanic organizations teamed with the Public Broadcasting System's Sesame Workshop to produce a bilingual video, caregiver's guide, and poster for preschoolers called "A Is for Asthma." Fifty thousand copies of the materials were distributed to childcare and healthcare facilities nationwide. Impact research showed that the video and other materials made a key difference in children's understanding of asthma.[10]

Bilingual asthma hotlines are another successful education tool. EPA's National Hispanic Indoor Air Quality Hotline provides information on asthma, and a similar hotline in New Mexico was well used not only by rural families that lived far from medical care, but also by health care providers, pharmacists, and case managers. In addition, EPA is working with a number of Hispanic community-based organizations to control childhood asthma through education on indoor and outdoor air quality. For example, EPA is working with the National Council of La Raza to provide training to lay health educators in low-income Hispanic communities on asthma, environmental tobacco smoke, and other health-related topics.[11]

Studies on Hispanics and asthma have produced valuable information. In 1989, the National Institutes of Health National Heart, Lung, and Blood Institute funded five studies on asthma in minority communities–three of the studies focused on Hispanic children. A major goal of the research effort was to develop model, replicable programs to reduce asthma morbidity. In one study, the University of Texas Health Science Center-San Antonio designed an asthma intervention program with both physician and patient/family components. The project succeeded in producing culturally sensitive education materials in both English and Spanish, including flip-charts, take-home brochures, and videos.[12]

Recently, childhood asthma has received attention in Latin America through the Global Initiative for Asthma and international conferences sponsored by the World Health Organization (WHO) and other health groups. The first WHO conference on childhood asthma was held in Buenos Aires, Argentina, in

October 1999. In addition, Latin American countries participated in World Asthma Day and workshops on global strategies for asthma.[4]

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LEAD POISONING AND HISPANIC CHILDREN

The Problem

Lead poisoning is one of the most serious environmental health problems for children today. Lead can harm nearly every system in the body, particularly the nervous system, kidneys, blood, and reproductive system. Children are especially vulnerable to the effects of lead because their nervous systems are still developing. Blood lead levels as low as 10 to 15 micrograms per deciliter (Φg/dL) can stunt growth rates, affect attention span, cause learning disabilities, lower IQ scores, impair hearing, and cause behavioral problems. Fetuses exposed to elevated levels of lead can suffer from low birth weight, impaired hearing, and premature birth.

Lead poisoning is entirely preventable. Yet in the United States, more than 4 percent of all children under age 6—nearly 1 million children—have blood lead levels high enough to cause irreversible damage to their health (10 Φg/dL or higher). Children in low-income, minority, and inner-city populations are at even greater risk. Poor nutrition, deteriorating housing, lack of access to medical care, and language barriers all place poor and minority children at greater risk for lead poisoning.

Hispanic children age 1 to 5 in the United States are nearly twice as likely to have elevated blood lead levels compared to white, non-Hispanic children (4.0 percent vs. 2.3 percent).[1] Sources of exposure for Hispanic children in the United States differ significantly from that of their Caucasian and African American counterparts. The use of lead glazed pottery overshadows paint as a source of exposure for Hispanic children in the United States, particularly in the southwestern states where immigrants from Mexico comprise a significant portion of the population. In addition, home remedies which contain lead are sometimes given to children for stomach complaints and other illnesses.

In Latin America, adequate data on blood lead levels are not available; however, in studies that have been conducted, blood lead levels are alarmingly high. One study of 619 children in Mexico found 100 percent to have levels above 10 ug/dL.[2] Leaded gasoline remains a significant source of exposure. While some countries in Latin America are attempting to reduce the lead content of gasoline, increased gasoline consumption is causing large increases in the total amount of lead emissions.[3] Lead-glazed ceramics are used extensively in Latin America; for example, in Mexico City an estimated 30 percent of families regularly cook and store food on lead-glazed ceramics.[4] Cottage industries can result in extremely high lead levels for families living nearby; in Mexico, for example, family-based smelting industries use open furnaces in their backyards to recover lead from batteries.[3] Lead pigments in toys and pencils and lead solder in cans, no longer used in the United States, continue to be a source of lead exposure in Latin American countries. Lead-based paint also continues to be used throughout Latin America, though the extent of its use and the magnitude of associated exposure are not well known.[4]

In the United States, the most important source of lead exposure for all children combined is lead paint. About 85 percent of all homes built before 1978 (the year the use of lead paint was banned in the United States) still contain lead paint, which chips, peels, and forms dust. Through normal hand-to mouth activities, young children ingest lead-contaminated dust, dirt, or paint chips. Unsafe remodeling and repainting projects that fail to control lead dust account for 5 to 10 percent of lead poisoning cases.[5] The phase-out of leaded gasoline has been accompanied by a dramatic decline in children's blood lead levels

(from an average of 12.8 Φg/dL in 1976 to 2.3 Φg/dL today). However, 4 to 5 million metric tons of lead emitted from automobiles remain in the environment.

Much of the lead emitted from automobiles was deposited in soil, especially in high-traffic, inner-city areas. Children playing in lead-contaminated yards may ingest lead when they put hands, toys, or food in their mouths.

Other sources of lead exposure include lead in workplace settings, which can be brought home on the clothes and skin; lead from industrial emissions, such as lead smelters, lead mining, and battery recycling plants; drinking water obtained through lead-containing plumbing (a particular risk when used to prepare infant formula); lead-containing tableware, such as lead-glazed pottery and leaded-crystal glassware; certain hobbies and activities that use lead, such as target shooting and metal soldering; and the use of remedies that contain lead. Among Hispanic families in the United States, the use of lead-glazed pottery and lead-based home remedies, such as azarcon and greta, are of particular concern and are as prevalent a source of exposure as paint and soil.

Current Activities

In the United States, the focus of federal agency activities is the continuing threat of exposure from lead paint. EPA works with the Department of Housing and Urban Development (HUD) to enforce disclosure rules, and works with the states to help ensure that abatement of lead paint hazards is carried out safely. EPA funds a wide range of community-based activities to reduce lead risks, a number of which focus on Hispanic populations (e.g., an EPA-funded lead-safe yard program in Boston, Massachusetts; lead exposure risk reduction training in Spanish for migrant farm workers who are now health educators in Illinois; and Spanish-language outreach work in Washington State). (See <www.epa/gov/children/info/ ochp_pub.htm>.)

EPA also funds the National Safety Council's Environmental Health Center/National Council of La Raza's national public awareness campaign on lead poisoning prevention targeted to Hispanic Americans. Television and transit public service announcements appear in cities with a high population of Hispanic residents. This campaign focuses on lead-glazed pottery, as well as home remedies and lead paint and dust.

HUD's Office of Lead Hazard Control (<www.hud.gov/lea>) runs a grant program, provides technical assistance, evaluates hazard reduction methods, conducts community outreach, and builds state and local capacity to address lead hazards.

Many states and metropolitan areas have childhood lead poisoning prevention programs, most of which carry out a wide range of community-based activities to identify and prevent lead poisoning. These programs are often a good source of culturally competent outreach and education materials in Spanish and other languages. A directory of state contacts and summary of state statutes can be found at <www.ncsl.org/programs/esnr/toxics.htm>.

The Alliance to End Childhood Lead Poisoning has documented a wide range of best practices to address lead hazards in distressed and marginal housing (<www.aelcp.org>). Examples of activities that benefit, or potentially could benefit, Hispanic families, are the *Los Angeles Healthy Homes Pilot Project Collaboration,* a community-based collaborative effort to

identify and address housing conditions related to children's environmental health, including lead poisoning; *Rhode Island's Window Replacement* Program, under which replacement of old windows is a Medicaid-reimbursable service in housing units where lead-poisoned children have been identified; and *Manchester, New Hampshire Health Home Services,* a program to train and employ low-income community residents to provide environmental health services, including lead dust removal, to their communities.[6]

In Latin America, activities that prevent lead from entering the environment have proven highly effective in preventing childhood lead poisoning. For example, After unleaded gasoline was introduced in Mexico City in 1990, mean blood lead levels in children dropped from 16.5 ug/dL to 11.14 ug/dL in 2 years.[3] The voluntary ban on leaded solder by the Mexican canning industry is another example of eliminating sources of lead exposure.

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HISPANIC FARM CHILDREN AND PESTICIDES

The Problem

More than 70 percent of field workers in U.S. agriculture are Hispanic. A large portion of this work force is migrant. Economic necessity is the main reason migrant Hispanic children work in agriculture. Children working in the fields contribute to the family's income. Most migrant Hispanic workers do not have enough annual income to raise their families out of poverty. A national survey estimated that about 57 percent of migrant farm workers and 73 percent of migrant children under the age of 14 live in poverty. Often, child labor is not recorded on payroll or other documents by employers. This practice allows employers to avoid the provisions of some government regulations, such as the Fair Labor Standards Act, by technically lowering the number of employees.

Hazards faced by children in agriculture include machinery, falls from ladders, dehydration, and heat stress, poor sanitary facilities, inadequate housing, heavy lifting, and poor sanitation. Another serious work hazard concerns the short and long-term effects of exposure to pesticides. Pesticides are used extensively in U.S. agriculture and include insecticides, herbicides, defoliants, molluscicides, nematocides, algicides, and acaricides. Residues left by these substances can be absorbed by workers through mixing and loading activities, drift of chemicals during pesticide application, harvesting, weeding, pruning, packing, and a variety of other ways. In a seven year period ending in 1992, the U.S. Environmental Protection Agency (EPA) recorded more than 750 cases of reported exposure to pesticides involving people under 18 years of age.

Exposure to pesticides and their residues can cause a variety of diseases and conditions, including dermatitis, fatigue, headaches, sleep disturbances, anxiety, memory problems, different types of cancer, birth defects, sterility, blood disorders, liver and kidney abnormalities, chronic neurotoxicity, and adverse reproductive consequences. Tracking and monitoring pesticide-related illnesses is difficult. It is widely believed that such illnesses are under-reported because many farm workers have only limited access to health care. If workers do seek medical attention, health care professionals providing treatment may be unfamiliar with the symptoms of pesticide-related illnesses.

Current Activities

To address concerns for children, and particularly Hispanic children, working around or exposed to pesticides, EPA, under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates pesticides by:

- **Encouraging the adoption of Integrated Pest Management practices that reduce or eliminate the use (and therefore the potential risk) of pesticides**: Pesticides are useful to society because of their ability to kill disease-causing organisms and control insects, weeds, and other pests. EPA, which has the lead responsibility for regulating pesticides in the United States, supports an integrated pest management (IPM) approach. The overall goals of IPM are to minimize pesticide use, choose those pesticides that are least toxic to people and the environment, and increase the use of non-chemical approaches, such as good housekeeping

and preventive maintenance. IPM has been successfully adopted by many schools across the country.

- **Promoting the development and use of lower risk pesticide products:** Several hundred active ingredients, representing thousands of pesticide products, are registered with EPA. To reduce the use of the most dangerous pesticides, EPA is working with other government agencies on integrated pest management techniques emphasizing use of safer pesticides. The purpose of this program is to ensure the availability of cost-effective alternatives for agricultural growers, utilities, and other groups. Toward this end, EPA is hastening the movement of safer pesticides onto the market.

- **Assessing the dietary risk to infants and children when registering and re-registering uses of pesticides on food:** The Agency is developing better methods to assess pesticide exposures. EPA is also working with the Department of Health and Human Services (HHS) and the U.S. Department of Agriculture (USDA) to design new surveys to improve knowledge of what infants and children eat. The USDA, in partnership with several state laboratories, conducts an annual survey of residues of pesticides in foods. The foods that are sampled are those most often eaten by children. The sampled pesticides are those commonly used on the foods eaten by children.

- **Controlling use of registered pesticides to improve safety for workers and children**: A new Consumer Labeling Initiative will expand the amount of hazard and health information on pesticide labels, similar to the new food nutrition labels. EPA is working with the Consumer Product Safety Commission, Food and Drug Administration (FDA), key industry groups, parents, and health professionals to implement this program. EPA also provides numerous publications and public service announcements to increase public awareness of the dangers to children from careless handling and other misuses of pesticides.

- **Expanding worker and community right-to-know activities through required training and community outreach to improve individual's ability to protect themselves**: Under EPA's Worker Protection Standard, farm workers must receive pesticide safety training prior to working in the fields. Workers learn about the potential dangers of field-applied pesticides. Since the standard was published in 1992, EPA has performed extensive outreach on agricultural safety and has assisted in the development and approval of education tools for states and safety trainers to relay pesticide safety messages to farm workers. EPA has also performed general pesticide safety outreach and offered training to rural primary health care providers.

CONSUMER PRODUCT SAFETY

The Problem

Each year there are about 29 million injuries and 22,000 deaths related to consumer products. Many are preventable.

The U.S. Consumer Product Safety Commission (CPSC) is the only federal agency charged with reducing the risk of serious injury and death from over 15,000 kinds of consumer products. Many families, but especially children, can be at risk from consumer products used in their homes, schools, and recreation. A wide variety of commonly used products can be hazardous. These include:

- Toys, bicycles, and children's sleepwear;
- Cribs, strollers, baby walkers, and other nursery equipment;
- Appliances, furniture, clothing, sports and recreational equipment, computers, lawn mowers, and cigarette lighters;
- Household products, such as toasters, hair dryers, extension cords, and smoke detectors; and
- Toxic household cleaners, prescription medicines, and some over-the-counter remedies not in child-resistant containers.

In 1999, CPSC obtained more than 300 recalls or other corrective actions involving about 75 million units of consumer products. About 95 of these corrective actions were for some 60 million toys and children's products. Unfortunately, some consumers do not learn about CPSC's recall announcements and continue to use potentially unsafe products that pose risks for serious injury or death.

Current Activities

To get its potentially life-saving information to the public, CPSC widely publicizes its recall announcements through the media. It also has a toll-free hotline, available 24 hours a day (800 632-2778; Spanish-speaking staff available Monday through Friday, 8:30 a.m. to 5 p.m. ET), and an up-to-date web site (http://www.cpsc.gov) where consumers can get current information on recalled products and other product safety information, report product-related injuries or hazardous products, and order CPSC's free publications.

Finally, CPSC has ongoing grassroots safety programs and supporting publications that local organizations can use to reduce the risk of injuries and deaths from consumer products in their communities.

AGRICULTURAL INDUSTRY

The Problem

In order to understand the numerous challenges to Hispanic worker safety and health in agriculture, one must examine them within the context of globalization, particularly the increasing trade integration within the Americas. Different international agreements within the framework of the World Trade Organization (WTO), the World Bank, the International Monetary Fund (IMF), and the North American Free Trade Agreement (NAFTA) set policies that affect the social and economic realities of agricultural workers.

Against this background, there are some basic characteristics that describe the agricultural labor workforce and factors that may impact their health and safety:

- Many farmworkers in the United States were small farmers in their home countries in Latin America. In the Americas, an industrial agricultural system that increasingly relies on large-scale and monoculture operations is the model.

- As a result, small farmers are forced to migrate either within their home countries or to other countries, due to economic (and also environmental) conditions. The difference in living standard influences the direction of the migration flow. In Latin America, most migrants head north, primarily to the United States.

- Policy guidelines for developing countries emphasize the production of export crops instead of traditional foods to meet a country's domestic food needs. This focus on producing crops for export requires a greater dependence on pesticides compared to the production of traditional crops.

The shift from subsistence farming towards an export-based economy has resulted in the displacement of small farmers to become farmworkers. As a result, there is an increase in the agricultural workforce that does not have adequate protection from health and safety hazards in the workplace. Therefore, the specific challenges for occupational health among agricultural workers, especially in developing countries, include:

- **Legislation issues:** gaps in the legislative and/or enforcement capacities of all countries in the Americas.

- **Work organization:** prominent informal sector without government controls and occupational safety and health services, absence of independent labor movement and labor rights tradition.

- **Expertise:** few occupational safety and health experts, few inspectors, little enforcement activity.[1]

- **Workforce consideration:** low literacy rates, high level of malnutrition, high background level of illness (e.g. infectious and parasitic), child labor.

- **Working conditions:** weather extremes, long work shifts, high levels of chemical exposure (especially pesticides), little investment in personal protection equipment, little investment in machinery and tools, poor machinery maintenance.

In the developing countries of the Americas, a large portion of the labor force works in agriculture. In the case of the developed countries also in the Americas, a large portion of the agricultural workforce is Hispanic. The top three countries in the Americas for persons employed in agriculture are Brazil (16.7 million), Mexico (7.6 million) and the United States (3.5 million). The following countries have 20 percent or more of their total employed population in the agriculture, hunting, and forestry sector: Mexico, Belize, Costa Rica, El Salvador, Honduras, Brazil, Dominican Republic and Jamaica.[2]

It is estimated that in Latin America and the Caribbean, out of 15 million children involved in the labor market, 56 percent work in agriculture starting as young as 5 years of age. Exposure to poor working conditions not only has potential damaging effects on the growth, development, and general health of these children, but also prevents them from attending school.[3] Women account for 17 percent of the total agricultural workforce in Latin America and the Caribbean. In developing countries, the majority of the women work in subsistence farming, self-employed or as an unpaid family worker. Furthermore, women may take children into the fields while working. When working in fields as a family unit, children and women may not get direct or indirect payment.[4]

Hispanic agricultural workers often have poor access to health services, even though there is a wide range of potential hazards encountered in agricultural work:

- Physical - farm machinery, dust, heat stress, repetitive trauma disorders, unsafe transportation to and from the worksite
- Biological - allergens, organic dusts
- Chemical - pesticides, fertilizers
- Zoonotic agents - brucellosis, bovine tuberculosis, rabies
- Substandard living conditions - temporary labor camps, homelessness, living near fields
- Contaminated water - chemicals, parasites
- Other infections and parasites - malaria, tetanus
- Confined spaces - silos, pits, and tanks
- Poisonous wildlife - insects, spiders, scorpions, snakes
- Noise and vibration

- Weather extremes [5, 6]

Pesticides are a special category of concern for agricultural workers because of the large spectrum of health effects and the under-reporting of poisonings that occurs. Some of the reasons for this under-reporting include: lack of legislative mandate to report; lack of knowledge among medical, worker, and grower communities; lack of diagnostic facilities; lack of surveillance systems which record poisonings; misdiagnoses; and the fact that less severely affected workers do not seek medical attention. [7,8]

There are various types of legislation that impact agricultural work; however, many countries or regions within a country exempt farmworkers from workers compensation programs. In addition, pesticide and agricultural regulations are often administered and enforced by different governmental agencies than those concerned with workers' health or workers' compensation. Also, the lack of resources for inspection activities may limit the effectiveness of existing protective labor laws. [9] Farm workers in some countries face severe economic and political barriers due to excess of workers and the powerless status of undocumented or non-immigrant guest workers. The conclusion of the 1997 Commission on Immigration Reform recommended that farmers and the government should "stabilize the work force by improving wages, working conditions, and housing opportunities; improve legal protection; and better enforce the law."[10] Although this commission was addressing the migrant worker situation in the United States, some of these ideas can be applied to other parts of the Americas. Finally, there are several ILO conventions which are relevant to agricultural health and safety: Plantation (C.110), Employment injury benefits (C.121), Labor inspection - ag (C.129,133), Minimum age (C.138,146), Occupational safety and health (C.155,164), Occupational health services (C.161,171), Chemicals (C.170,177), Right of association - ag (C.11), Workmen's compensation - ag (C.12), Unemployment - ag (C.11), Living-in conditions - ag (C.16), Social insurance - ag (C.17), Migration for employment (C.87,86), and Protection of migrant workers - underdeveloped countries (C.100). [11]

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TABLE 1:					1998 Employment (x1000) in				% Total Emp
	1998 Employment (x1000)				Agriculture, Hunting and Forestry*				in Ag, Hunt,
Country	Total	Male	Female	Notes	Total	Male	Female	Notes	Forest
North America									
Canada	14,326	7,803	6,524	*1,2*	500	359	141	*1,2*	3.5%
Mexico	38,618	25,663	12,954	*3*	7,642	6,509	1,133	*3*	19.8%
USA	131,463	70,693	60,771	*2,4*	3,509	2,657	852	*2,4,5*	2.7%
Central America									
Belize	63	44	19	*1,8*	14	13	1	*5,12*	22.2%
Costa Rica	1,300	888	413	*2,3*	256	233	23	*2,3*	19.7%
El Salvador	2,076	1,292	784	*9,10*	547	492	55	*5,9,10*	26.3%
Guatemala	3,201	--	--	*11*	--	--	--		
Honduras	2,135	1,401	734	*2,9*	738	681	58	*2,5,9*	34.6%
Nicaragua	260	--	--		--	--	--		
Panama	903	604	299	*1*	161	154	7	*1*	17.8%
South America									
Argentina	10,542	6,576	3,966	*9,11*	159	148	11	*9,11,18*	1.5%
Bolivia	1,355	736	619	*2,9,11*	28	16	13	*2,9,11,16*	2.1%
Brazil	69,332	41,978	27,354	*9,10,14*	16,771	11,254	5,516	*5,9,10,14*	24.2%
Chile	5,432	3,625	1,808	*1,2*	784	702	82	*1,2,5*	14.4%
Colombia	5,655	3,195	2,460	*3,15*	58	43	15	*3,5,15*	1.0%
Ecuador	3,151	1,921	1,230	*9,16*	231	202	28	*5,9,16*	7.3%
Paraguay	1,190	685	506	*2,9,11,16*	62	48	14	*2,5,9,11,16*	5.2%
Peru	6,834	3,885	2,948	*16,17*	339	246	93	*16,17*	5.0%
Suriname	87	58	29	*11,17*	5.1	4.6	0.5	*5,11,17*	5.9%
Uruguay	1,114	640	474	*16,17*	44	37	7	*5,16,17*	3.9%
Venezuela	8,287	5,452	2,812	*1,2,10*	894	853	41	*1,2,5,10*	10.8%
Others									

Puerto Rico	1,136	666	470	*2,4*	28	27	1	*2,4,5*	2.5%
Dominican Republic	2,652	--	--	*10*	520	503	17	*10*	19.6%
Jamaica	954	554	401	*2,17*	200	161	40	*2,5,17*	21.0%

Notation:

1 - Age 15 years and older
2 - Exclude full time military
3 - Age 12 years and older
4 - Age 16 years and older
5 - Includes Fishing
8 - For year 1995
9 - Age 10 years and older
10 - For year 1997
11 - For year 1996
12 - For year 1994
14 - Exclude rural populations of Rondonia, Acre, Amazonas, Para and Amapa
15 - Seven main cities of country
16 - Urban areas
17 - Age 14 and older
18 - Includes Fishing and Mining

Source: *Data derived from ILO Labor Statistics, www.ilo.gov*

* *International Standard Industrial Classification of all Economic Activities-Revision 2,* ISIC-2 (1 = Agriculture, Hunting, Forestry and Fishing); and ISIC-3 (A = Agriculture, Hunting and Forestry)

MANUFACTURE SECTOR

The Problem

The reader should bear in mind that the terms "maquiladora" and "manufacture" sector are used interchangeably for the purpose of this discussion paper, and the term "maquila" is understood as a shorthand expression of the term "maquiladora."

Many studies have focused on this sector, especially in the last decade, and yet it can be said without too much exaggeration that the definition and scope of the concept of maquiladora is still lacking a common agreement, which limits employment estimations and hinders efforts to make cross-country comparisons. All told, a maquiladora can loosely be defined as a foreign owned company operated with special tariffs concessions mostly in Mexico, Central America, and the Caribbean. Maquila operations involve the importation of foreign merchandise into the home country on a temporary basis, where it is assembled, manufactured, or repaired and then exported, either to the country of origin (often the United States) or to a third country. Although the manufacture sector is present in every country of the region, Mexico is a prime location for U.S. assembly activities abroad due to lower wages, utilities, and overhead and proximity to the United States. Transportation costs from practically any location in the continental United States to the Mexican border are lower than almost any point overseas. To a lesser extent, the same rationale explains the growth and prevalence of maquiladoras in Central America. Hence, it comes as little surprise that the great majority of maquiladoras are owned by the United States.

The concept of maquiladora is rooted in the complex economic, social, political, and legal relations that govern the production of goods and services in developed and developing countries. From a historical standpoint, the emergence of maquiladoras has its roots in the Bracero Program created by the United States in 1942 that allowed Mexican workers to cross the border and provide a much needed workforce that was in short supply due to the Second World War. Shortly after this program came to an end, the Mexican government began its Border Industrialization Program in 1965, which followed on the economic momentum that was generated by the Bracero Program. In recent decades, the growth of the maquiladora reflects a shift in economic development policy from an import-substitution strategy to an export-oriented model. It is also a response to a problem created in the region by the economic fatigue of a development model based on the primary sector, which relied heavily on the exploitation of natural resources for its survival.

In brief, the growth of this sector has been fueled by the increase in world trade and in the intensification of competition between and within countries, and it is based on a wide disparity in labor costs (which include, inter alia, health and safety standards, wages, benefits, social protection, and pensions) between North and South America. NAFTA and similar free trade zones have encouraged the growth of this sector, and a devaluation of the peso in the mid 1990s has contributed to the expansion of this sector in Mexico, which is now second only to oil as a source of foreign exchange in that country. The same pattern is true for Central America, another region highly affected by the growth of the manufacture sector. There as well such a sector provides much needed foreign exchange that pays the interests on national debts.

In 1996, about 4 million workers were employed in maquiladoras in Central America. This number represents approximately 25 to 30 percent of the Economically Active Population (EAP). In Mexico, this sector employs more than 1 million workers in some 4000 maquilas. The city of Tijuana alone has about 700 maquiladoras, the largest concentration in the world. The maquiladora sector has greatly increased during the 1990s in Mexico and in much of Central America. During that period, for example, this sector's share of national exportations increased four times in El Salvador, and the increase was threefold in Honduras and Guatemala.

The majority of maquila workers are women (56 percent in Mexico) in their prime reproductive years; between the ages of 16 and 28. The high number of women in this sector is in part due to their increased participation in the labor market. In Central America alone, women participation made up only 10 percent of the EAP in the 1960s, and they now represent in average more than a third of the economically active population. Likewise, in the region as a whole, the increase of women's participation in the labor force has far outstripped that of men between the 1970s and the 1990s. Because women make up the majority of workers in this industry, it is a foregone conclusion that the manufacture sector is detrimental to the majority of its workers because of the well-documented gender disparities and inequalities throughout Latin America in terms of income, benefits, hours of work, working conditions, power relations, managerial practices, etc. The fact that only men hold managerial and decision-making positions is a good reflection of these inequalities. Paradoxically, the data show that income disparities between men and women are smaller in the manufacture sector in comparison to the agriculture, fishing, tourist, and service sectors.

Within this sector, the textile industry is one of the main sources of employment for women, but it is not the only one. Manufacture plants range from low-tech woodworking to high-tech electronics firms, from companies employing only a handful workers to those employing thousands.

Other characteristics of the maquila sector include low wages (the average in Mexico is USD $1.60 per hour, and the average worker in this and other nations earns about $4.80 a day), few benefits, little job security, low level of educational attainments of workers, weak independent union movement, and high exposure to toxics. The activities in this sector are provided for an enterprise that designs the products, defines the modes of production, and decides of the strategic planning. The modalities of production are based on a timed rhythm of work and the productivity of workers is the major concern of employers. The organization of production is Tayloristic and authoritarian, with detailed division of labor, repetitive simple tasks, and piecework wages.

The form of production that manufacture work renders makes labor organization difficult. Contracts are offered to young workers, with little or no organizational experience, and for short-term periods. Moreover, the labor turnover rates are extremely high. All of these factors seriously limit unionization. In every country, attempts to unionize in this sector have led to lay-offs and other intimidations on behalf of employers.

Controversy undeniably exists as to whether the maquiladoras contribute to Latin American countries' development and to the health of its population. Maquiladoras provide foreign investment, technology, access to markets, and local employment. For women, access to these assembly jobs offers an economic alternative to early marriage and childbearing. Furthermore, the maquila wage rate is higher than the minimum salary in their home country. Yet, while some workers may experience positive effects of their employment in manufacture plants related to increased earning power or social support, they are often simultaneous with adverse health effects from chemical and physical exposures.

Specific and comprehensive data on health and safety status in the manufacture sector is hard to come by. This sector is known for its limited study capability, due in large part to denial of access on behalf of employers, often with the blessing of public officials. Politically, plant owners are resistant to facilitating research that may adversely affect their operations. Local governments moreover are economically dependent on the industry and are reticent to require research or health assessments, which might lead to unfavorable publicity. Data produced by plant personnel may not be reliable, and attempts to date to conduct independent on-site research have been blocked by plant officials.

Despite these difficulties however, much is known about the health and safety in this sector, thanks in part to interviews, testimonies, and anecdote or disparate facts. The high concentration of hazardous industries creates many risks of accidents and deaths in maquilas across the region. While morbidity in this sector varies by type of industry, there are common features in the main occupational and environmental health conditions and problems encountered and/or reported, such as:

- Repetitive movements, forceful manual work, uncomfortable postures, and heavy physical efforts
- Sexual harassment
- Lack of training, reinforced by a high rate of illiteracy
- Limited enforcement of OSH and labor laws
- Absence of industrial hygienists
- High noise level, no hearing conservation program
- Health stress
- Confined spaces
- Substandard housing and dwellings with no connection to water or sewer lines
- High incidence of crime and violence, especially towards women

- Reproductive health hazards
- Long hours of work, inappropriate breaks
- Inadequate childcare
- Absence of hazard communication
- Lack of Spanish Material Safety Data Sheets (MSDS)
- Lack of protective equipment
- No medical surveillance
- Chemical exposure, such as heavy metals, acids, solvents and other industrial poisons
- Unguarded machinery
- Lack of sanitation
- Widespread contamination of air, water and soil
- Lack of necessary emergency exist in workplaces
- Under-reporting of injuries
- Food-poisoning in plant cafeterias
- Skin and respiratory irritations

All of the above are directly responsible for a low health status for workers in this sector. Occupational diseases can include headaches, unusual fatigue, forgetfulness, chest pressure, difficulty in falling asleep, stomach pain, dizziness, numbness or tingling in the extremities, nausea or vomiting, urinary and breathing problems, and eye and nose secretions. Likewise, high levels of stress in maquiladoras women workers have been associated with nonspecific symptoms such as gastric disorders, menstrual problems, depression, and mass hysteria. Health might also be adversely affected by other stressful conditions such as degrading treatment by supervisors, job insecurity, monotonous tasks, shift rotation, double workloads produced by household responsibilities, and lengthy commutes to and from work. Some of the health problems most commonly reported are: a high prevalence of arthritis (due to exposure to sudden changes of temperature), renal and back problems (due to heavy lifting and awkward postures), respiratory problems, and psychosocial problems such as stress and depression.

In addition, environmental health hazards are responsible for a double pattern of exposure that adversely affects the health of the working population. A case in point in Mexico is the high

rate of water-borne infectious diseases, which are caused by industrial and agricultural pollution of river and well water and are the leading cause of morbidity and mortality in the communities where maquiladora workers live, called colonias.

There are a variety of reasons why such a high prevalence of occupational diseases and injuries are observed in the manufacture sector. For one, it is difficult to enforce the legislation. There is often no meaningful regulatory enforcement on behalf of Latin American governments due to lack of adequately trained and equipped personnel. Further, the legally required management-worker safety committees frequently do not exist or exist only as paper organizations. Likewise, corporate oversight of facility safety and health in manufacture plants is often nominal: one or two visits a year, announced and prepared in advance, of industrial hygienists who come from company headquarters in the United States (or elsewhere) and who often do not speak Spanish and do not have the time on site to adequately evaluate hazards or design solutions.

Hence, even when the appropriate laws are in place, the lack or ineffectiveness of enforcement by public authorities hinders compliance. Mexico's Department of Labor and Social Welfare (STPS) for example has in many instances failed to fine companies for violations of the Federal Labor Law (LFT). The STPS' failure to enforce clearly stated requirements of workplace health and safety regulations is a direct threat to the lives and well being of the Mexican maquiladora workers. It is worth noting, however, that this problem is not limited to Mexico's case, and federal agencies' apparent unwillingness to apply environmental health and safety regulations throughout the region is in large part due to economic globalization and the adoption of harsh macroeconomic programs that weaken the ability of Latin American governments to regulate multinational corporations' activities.

Finally, it is important to recognize when dealing with this sector that economic development is a political priority in the region and foreign investments directed at the creation of new manufactures are often viewed as a way to transfer technology, to upgrade workers' skills, and to increase the demand of the goods produced at home. Many governments thus justify the existence of low labor standards in the manufacture sector (as in most export-oriented sectors) based on the ill-founded and wrong-headed premise that they need to preserve their comparative advantage, which in turn rests—inter alia—on low wages and lack of safety protection. Hence, there is often a gap between economic objectives and occupational health and safety objectives.

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THE INFORMAL SECTOR

The Problem

Throughout much of Latin America, inadequate safety and health standards and environmental hazards are apparent everywhere, in every home, workplace and community. But nowhere are such hazards more evident than in the informal sector. Poor working environment including inadequate premises and often very unsatisfactory welfare facilities, as well as practically non-existent occupational health services are causing large human and material losses that burden the productivity of national economies and impair the health, general well-being, and the quality of life of informal workers and their families.

A quick survey of the literature reveals that the informal sector has been interpreted from several different perspectives according to the focus of study or the academic and professional background of those who have researched issues relating to this sector. Some equate the informal sector with micro, small, or even medium enterprises, while others look at informality from a legal and regulatory view.

The term "informal sector" was used for the first time in 1971 by J.K. Hart, referring to the section of the workforce that was excluded from the organized labor market. The term was then adopted by the International Labor Organization in a context that focuses mainly on urban economic, social, and employment policies. Despite the great deal of research conducted on the subject since the 1970s, the meaning and scope of the term "informal sector" still remains controversial. Moreover, the definitions of the informal sector and the methodologies employed to measure it vary from region to region and country to country, making a comparative analysis difficult. The nature and composition of the informal sector also vary within regions and countries. Indeed, there are many different informal sectors showing different levels of productivity, labor use, remuneration and organization.

According to the ILO definition, "The urban informal sector can be characterized as a range of economic units in the urban areas, which are mainly owned and operated by individuals either alone or in partnership with members of the same household and which employ one or more employees on a continuous basis in addition to the unpaid family worker and/or casual employee. Typically these units operate on a small-scale, with a low level of organization and little or no division between labor and capital. They are engaged in the production and distribution of goods and services with the main objective of generating employment and a basic income to the persons concerned."

For the purpose of this brief overview however, we will use a simple, general and practical definition: ***The informal sector is one where the (generally urban) working population is engaged in activities that go unrecorded from an economic and legal standpoint, even though it contributes to the formal economy. Informal sector workers are excluded from social security, health protection, and from other enjoyments of labor and human rights that can normally be afforded in the formal sector. The informality of this sector is rooted in a***

workplace setting where there are no official labor relations between employees and employers (public or private), and hence there are no rights or obligations for either parties.

The informal sector constitutes an employment refuge for workers who fall out from the formal sector in times of economic depression and provides a safety net for poor households' income. The main common features of this sector are: labor-intensive technologies, high levels of competition, low-quality of the goods and services produced, limited capital, and limited capacity for accumulation even when the workers own the means of production. Family members are often found working together. Women and children are mostly found in unskilled manual jobs. This sector involves mainly non-waged and unorganized workers engaged in precarious work processes and labor arrangements in business, which in many cases are largely unregulated and unregistered, falling outside of state regulations and control. In most cases they lack institutional support and advocacy, as they have poor channels of communication with the relevant institutions.

Another common feature is a low income, which has been steadily declining partly due to the influx of displaced miners, farmers, and government employees, to name only a few of the victims of downsizing, streamlining, privatization, and similar processes that are symptomatic of an ever globalizing world. Finally, in many informal sector micro-enterprises, a clear employer/employee relationship is lacking. Labor relations are based on casual employment kinship or personal and social relations rather than contractual arrangements with formal guarantees. This situation may facilitate or hamper the informal sector workers' capacity of mobilization and organization as a group and highlight the differences between the associations of operators in the informal sector and the traditional trade unions and employers' organizations of the formal sector.

The main source of capital originates from self-financing due to restricted access to assets, credits, and other services. Entry into and exit from the sector more frequently depend on economic fluctuations—the level of employment in the informal sector usually correlates with the level of unemployment in the formal sector. That is, the higher the unemployment in the formal sector, the higher the employment in the informal sector. Still, the demand of labor by the informal sector is not sufficient to accommodate the supply of unemployed workers from the formal sector. They are then subject to poverty and are more willing to accept hazardous work and poor living conditions.

There is also overwhelming evidence to suggest that urban poverty and informal employment are closely related. In Latin America, the proportion of urban poor (i.e., bottom 20 percent ranked by per capita income) working in the informal sector was estimated to be as follows: Bolivia, 66.2 percent; Brazil, 66.4 percent; Costa Rica, 63.5 percent; Guatemala, 93.3 percent; Honduras, 84.9 percent; Panama, 87.1 percent; Paraguay, 64.7 percent; Uruguay, 18.3 percent; and Venezuela, 57.4 percent.

In many countries of Latin America and the Caribbean facing structural adjustment programs, micro-enterprises in the urban informal sector make a significant contribution to generating employment and often constitute the main source of income for disadvantaged groups. This sector, which has recorded a steady growth in the last three decades, employs a considerable

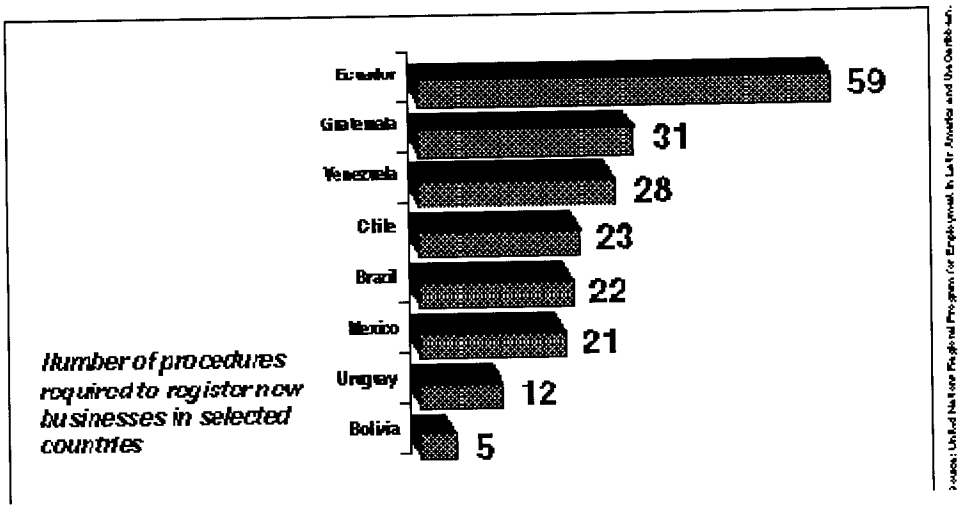
part of the urban labor force in many developing countries, its employment share being estimated to fluctuate between 30 and 80 percent.

It is important to note that the magnitude and rate of growth of the informal sector are difficult to establish. Most informal activities are unrecorded in official statistics and therefore the measurement of informal production and labor force is difficult. Available data are scattered and not up-to-date.

When data is available and reliable, it reveals that in Latin America, informal sector-employment grew at an annual rate of 4.7 percent compared to the 1.1 annual percent growth of formal-sector employment between 1990 and 1994. The informal sector in Latin America accounted for about a quarter of urban jobs in 1990 (less conservative figures state that up to 54 percent of the urban labor force works in the economy's informal sector). It varied considerably between countries, from about 20 percent in Costa Rica and Venezuela to over 50 percent in Bolivia and Ecuador in 1980. In some countries, such as Peru and the Dominican Republic, more than 60 percent of the working population works in the informal sector of the economy. In Latin America and the Caribbean, the sector's share in total employment has risen from 19 percent in 1980 to 24 percent in 1992—an increase from 16 to 28 million.

In the 1970's, the main factors that contributed to unemployment or to the so-called informal sector in urban areas were the high rate of urbanization fueled by rural migration and the increase of urban population per se, which created a sector that could not have access to a formal employment. In the last two decades, however, the trends and characteristics of this sector have been shaped by the intensification of international competition in trade and by the resulting structural and organizational changes that have permeated public and private sectors alike. In addition to exogenous pressures, other factors that are intrinsic to the region are also responsible for the increase of informal work.

Indeed, the major difference between most Latin countries and the industrialized countries of North America (the United States and Canada) involves the relative strength of their economic, social, and political institutions and of the democratic political processes that underpin them. In the latter countries, reliable rules of the game enable citizens to compete under conditions of equality. In contrast, Latin governments are characterized by institutional instability and arbitrary decision-making. This favoritism and corruption creates a mercantilist system under which only the political and economic elites have access to markets, shaping the rules to protect their special interests. These elites perpetuate their control through huge public and private bureaucracies, which create national economic and political structures that are inherently inefficient and unjust. The largest segments of these societies, the poor and working classes, are thus marginalized. To escape these systems, they unleash their entrepreneurial energies in the informal sector, devising rules of the game that are much more equitable than in the formal economy. The huge growth of Latin American informal sectors, which now account for 30 to 40 percent of the region's Gross Domestic Product, attests to the overburdening demands placed on these citizens by the state (see Graphic 1).



Graphic 1.

The incidence of employment in the informal sector has in total increased throughout the region from 44.4 percent in 1990 to 47.9 percent in 1998. These ratios vary between countries and so does the relative contribution of this sector to a country's economy and unemployment rate. Three groups of countries can be created in that regard: those with a high, medium and low level of informality, respectively. The data from 1998 shows that in the group with a high level of informality (above 50 percent), we find three countries: Ecuador (58.6 percent), Honduras (57.9 percent) and Peru (53.7 percent). At the other end of the spectrum, those with a low level of informality (below 42 percent), there are also three countries: Chile (37.5 percent), Panama (38.5 percent) and Uruguay (41.2 percent). Hence, the majority of countries (six) have a medium level of informality (between 43 percent and 50 percent). The countries that belong to this group are Argentina (49.3 percent), Brazil (49.7 percent), Colombia (49.0 percent), Costa Rica (45.4 percent), Mexico (49.6 percent) and Venezuela (43.0 percent). Finally, in 1998 the employment in the informal sector in the region was made of independent or freelance workers (51.6 percent), of workers involved in domestic duties (14.4 percent), and of those who work in micro-enterprises (34.0 percent).

In the informal sector, the distinction between working and living conditions often becomes blurred because both are related to broader problems of poverty and underdevelopment. Hence, poor working practices and poor working conditions are interrelated. The majority of urban informal sector workers live in poor areas, lack basic health and welfare services and social protection, and work in an unhealthy and unsafe working environment. For many informal sector workers, their home and workplace are one and the same. Vulnerability to diseases and poor health result from a combination of undesirable living and working conditions. The conditions under which most informal workers operate are precarious and unsafe. Informal sector workers often operate on open land or locations not legally recognized for the purpose and with no right of ownership. Thus, municipal regulatory standards are not applicable to them. Therefore, as they do not own the land, they cannot have access to sanitary facilities, a permanent and suitable working

environment, or access to potable water or electricity, as these services are provided only to lawful owners of land. Many of the micro-enterprises in which they operate have ramshackle structures, lack sanitary facilities or potable water and have poor waste disposals. And needless to say, existing occupational safety and health regulations do not cover these workers.

While hazards varied according to occupation, some of the most frequently encountered problems were: poor lighting, lack of ventilation, excessive heat, poor housekeeping, inadequate work space and working tools, lack of protective equipment, exposure to hazardous chemicals and dusts, and long hours of work. The most prevalent health impairments were musculoskeletal disorders and low back pain, allergic reactions and other respiratory disorders, physical strain, fatigue, and stress. Injuries with tools were also frequent.

Finally, due to high production demands and poor work organization, the tools and facilities used for lifting and transporting materials are often inadequate. This, linked to repetitive working movements, carrying of heavy loads, and awkward postures, provokes a physical workload which may reach unacceptable levels causing unnecessary strain on the workers and fatigue, contributing towards injuries.

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