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CAUSES OF ENVIRONMENTAL RISK INEQUALITY IN THE AMERICAS

Leda Barnett
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Abstract

The environmental justice movement has resulted from documented evidence that the poor and people of color are more likely to be at high risk of exposure to certain environmental toxics, such as the siting of hazardous wastes, landfills, incinerators, and polluting industries. Little is known about whether the causes of environmental injustice in the United States hold true in Latin America. This research will analyze areas of convergence and divergence between the areas, and second, investigate whether the causes of environmental inequity hold true across the Americas. Ringquist (2006) has noted that environmental injustice in the US can be explained by five potential factors, including scientific rationality, market rationality, neighborhood transition, political power realities, and intentional discrimination. Drawing on multiple explanations from perspectives in political science, economics, ethnic studies, and demography, the application of Ringquist's causes of U.S. environmental inequity as a framework for environmental justice in Latin America leads to mixed results. There is some level of support for all five causes of environmental inequity. However, challenges remain, including a lack of data, differences in regime types, rural versus urban, and considering the type of environmental problem. The interplay between the indicators of political power realities and intentional discrimination as well as market rationality and neighborhood transition are difficult to assess. Regardless of whether race or political power realities are factors contributing to environmental inequality, the equitable spread of environmental risk and the inclusion of local communities to make their own environmental planning decisions are very important.

In the last thirty years, there has been a growth in research of environmental justice movements in North America and in wealthy industrialized countries. Numerous studies have shown there to be inequity in the siting of hazardous wastes, landfills, incinerators, and polluting industries (U.S. General Accounting Office 1983; Commission for Racial Justice 1987; Hill 1999; Ringquist 2006; Bullard 1993,1994, 2005). The environmental justice movement has resulted from investigations using documented evidence that shows the poor and people of color are more likely to be at a high risk of exposure to environmental toxics. Most environmental justice research has focused on case studies of particular communities throughout the United States or the U.S. – Mexico border where there has been disproportionate exposure or risk of exposure to these environmental hazards and consequently the varying organized responses of the affected communities.

However, less is known about whether these cases of environmental injustice can serve as models for understanding the causes of injustice throughout the Americas. Do the causes of environmental injustice in the United States hold true in Latin America? In seeking to answer this question, this research will analyze areas of convergence and divergence between the U.S. and Latin America, and second, investigate whether the *causes* of environmental inequity hold true across the Americas. While Pellow's (2007) research has contributed to our understanding of the dumping of toxic wastes in developing countries and some of the subsequent varying community and transnational responses, there is not a systematic accounting of what factors are attributed to the rise of the movements throughout Latin America. Bullard (2005) has provided a framework for environmental justice in the US. But much of the precedents and assumptions of the framework are based on U.S. laws, case studies, and evidence. Ringquist (2006) has noted that environmental injustice in the U.S. can be explained by five potential factors, including scientific rationality, market rationality, neighborhood transition, political power realities, and intentional discrimination.

This research will explore these factors, combined with Pellow's (2007) focus on globalization and Bullard's (2005) U.S. framework, to gauge whether these factors also help explain the existence of environmental inequity throughout the Americas. Given the paucity of research comparing the causes of environmental injustice throughout the Americas, an environmental justice framework for

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the Americas will help serve indigenous communities in seeking greater empowerment in their claims to land, resources, and well being.

Defining Environmental Justice

In its most basic sense, environmental justice is an integral part of movements for social justice. This is the case because whenever access to clean water and sanitation, access to health care, disproportionate exposure to toxics, and the degradation of ecosystems important to the well being of indigenous communities are examined, they call into question issues of equality, race, and class. If the aims of movements for social justice include equality, solidarity, grass roots action and the respect for human rights, then that too is the aim of achieving environmental justice. The inherent dignity of all persons, regardless of race or class, demands a clean and healthy environment and a stake in decisions affecting that environment.

We can differentiate between environmental inequity and its causes and economic and health effects, and the social movements that arise as a result. The former involves analyses of “the fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (U.S. Environmental Protection Agency, 2005), while the latter focuses on the responses of the affected communities and the larger environmental movement. Another way to distinguish these two axes of environmental justice would be to distinguish between distributional and procedural inequity (Hunold & Young, 1998; Schlosberg, 2003; Carruthers, 2008a).

Distributional inequity involves the establishment, through evidence, of disproportionate risk of exposure to toxics on the part of minority and poor communities. On the other hand, procedural inequity refers to systematic exclusion of disadvantaged groups from the decision making process, and the subsequent movements for justice arising out of the environmental and power inequities. While the *distributional* inequity of the exposure to environmental risks and hazards and the cultural and gender based responses to such threats has been well documented, less is established about the *procedural* inequity of environmental injustice, particularly in Latin America. Simply describing the problems is not an effective

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anecdote to begin solving them. If distributional inequity can be established, problems will remain unless *procedural* inequity can be abated. Is there exclusion of the affected communities in decisions and policy making processes? If political voice is weak, can there be progress in deterring inequitable siting of toxics or of negative environmental effects?

Bullard (1993) has shown that environmental justice involves three key aspects: procedural inequity, geographical inequity, and social inequity. Procedural inequity involves a type of institutionalized racism, in the form of non-uniform application of rules and regulations. This may entail, for example, holding hearings or periods of public comment in remote locations, or at nonpublished times, which discourages awareness and participation; filling boards and commissions with business - only interests; or providing English-only information to non-English speaking communities.

Geographical inequity pertains to the unequal distribution of costs and benefits in the development of communities. For example, a large industrial or agricultural facility may produce jobs and tax revenue for some communities, whereas the pollution, toxic run-off, or waste disposal is sited in a disadvantaged community. This places environmental justice in the context of economic issues, since socioeconomic status and race are factors in the disproportionate sharing of the burden of risk. If the poor and people of color are more likely to bear the burden of the effects of environmental degradation while the wealthy enjoy the economic benefits of the industry or transaction, then it makes environmental justice also an economic justice issue.

Finally, social inequity places environmental inequity in the larger social context of persistent race and class inequities. From this aspect, environmental racism is a reflection of many other types of race and class inequities that endure throughout society, from growing income inequality to perceptions of racial bias in the workplace and schools (Bullard, 1993; Rosenbaum, 2008) The role of persistent political and economic equality problems shows how movements for environmental justice are connected to social justice issues.

Although there is great diversity in the environmental justice movements, much of which will be explored in this research, there are several basic aspects that the movement entails. To begin with, there is a call for the recognition of cultural, racial and gender

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contributions to affected communities' unique situations (Krauss, 2005; Dryzek & Schlosberg, 2005). The experiences of working class people, especially women and people of color, place their perspective of environmental problems within a very different context than the traditional elite-based environmental movements. These experiences are diverse, reflecting the perspectives of White, Latino, African American, and Native American communities. This recognition of diverse starting and ending points is especially pertinent to our understanding of environmental justice in Latin America, for if we begin with diversity in the North American paradigm, we may expand this perspective throughout the Americas.

Stemming from this, the environmental justice movement is the rejection of mainstream environmental approaches and assumptions, as well as skepticism of government reform efforts. Mainstream, often elite-based environmental organizations often approach environmental problems in abstract ways, far removed from the "boots on the ground" center of the problem (Sabel, Fung, & Karkkainen, 2005; Roberts & Thanos, 2003). As Michel's ([1915] 1962) classic paradigm has established, the "iron law of oligarchy" is typically the norm for any large organization. Leadership may be unrepresentative and overly paternalistic in its organization. Government efforts, similarly, are criticized both for not effectively addressing issues of unequal distribution of hazards and for not being inclusive in the policymaking process (Dryzek & Schlosberg, 2005).

By rejecting traditional approaches, grass roots activism is necessarily embraced. At the First National People of Color Environmental Leadership Summit, all of these principles were adopted and may serve as a starting point for evaluating environmental justice in the Americas. These Principles of Environmental Justice include an affirmation of the intrinsic value of Mother Earth, apart from its economic or social value, a call for policymaking to be free from discrimination, and a mandate for the fundamental right of all people to political, economic, and cultural self-determination (First National People of Color Environmental Leadership Summit, 1991).

Divergence or Convergence?

The contours of the environmental justice movement in the United States have been researched at length, especially the various distributional inequities that exist. Of particular interest is what

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parallels can be drawn to similar distributional and procedural inequities in Latin America. In the sections that follow, I will show areas of convergence and divergence in terms of parallels for comparison. This will serve to clarify the analysis testing Ringuist's (2006) paradigm for causes of environmental injustice in Latin America.

In order for environmental injustice to be demonstrated, data must be used to document disproportionate placement of toxic industries in or near communities of color or low income. In the United States, this has been the main approach under which the allegations of the environmental justice movement have gained traction. Beginning with studies such as the United Church of Christ's Commission for Racial Justice (1987) that documented the relationship between the percentage of poor and minority residents and the siting of commercial hazardous waste treatment, storage, and disposal facilities, research in the U.S. has relied on analyses from case studies. Superfund laws in the United States require industries to report their releases of toxic chemicals in a collective report called the Toxics Release Inventory (TRI), which has been used numerous times to substantiate claims of environmental inequity (Burke, 1994; Cutter, 1994; Pollock & Vittas, 1995; Ringuist, 1997; Perlin et al, 1995; Elliot et al, 2004).

Although such data do exist in the United States, there remains tremendous problems with the quality of the data and the way in which it is often managed to substantiate claims that certain toxics are low risk and therefore do not pose threats to the communities in which they are placed. Risk assessment is the prevailing approach used in the United States. Risk assessment involves determining the probability of injury, disease or death due to a given environmental hazard. According to Andrews (2006), even though risk assessment is the predominant approach in the US, "serious dispute remains regarding how much of risk assessment is really scientific and how much is merely a recasting of value judgments into scientific jargon" (p. 219). Concerns remain over which substances will be measured for their risk (assuming other potential substances are not measured in the first place), which specific problems are counted as a result of the risks (e.g., considering cancer but not asthma, species loss, or climate change), inattention to ecological interdependency, and gaps in existing data that are used.

Despite all of these challenges, when one compares the existing data collected and managed in the United States to that of many

Latin American countries, there is a divergence. As Carruthers (2008a) has pointed out, no such data exist in many countries in Latin America. Data on environmental hazards are rarely collected in a systematic fashion, and data on demographic traits, where they exist, are often unreliable due to factors such as high immigrant mobility or underreporting of low skilled or seasonal workers (Guzmán et al, 2006). When available government data are used, they have tended to significantly understate the environmental problem at hand.

Since data are typically the driving force behind regulatory schemes, a paucity of data poses real problems for regulatory reform efforts, particularly in Latin America. According to the *Engineering News-Record* (1996), reports from the World Bank have issued “a scathing indictment” (p. 38) of governmental efforts to regulate the environment throughout Latin America. Rapid urbanization and industrialization have outpaced governments’ ability or initiative to meet the problems of pollution, clean water, and sanitation in many cases. There is large variation in the way that environmental problems are regulated and abated. The reports note that the style of regulation implemented in the U.S. is unworkable in many parts of Latin America, as it is too resource-intensive. Rapid growth in agriculture, transportation, and consumption of energy and fishing resources has not been accompanied by a growth in environmental regulation in those areas (Joyce, 1997).

In addition, potential fines imposed in the U.S. may serve as a deterrent for certain environmentally risky practices such as hazardous waste dumping, whereas the same may not hold true in many Latin American countries (Pellow, Weinberg, & Schnaiberg 2002). It is especially important for regulatory reform to focus on codifying conservation strategies. In Bolivia, for example, Ibisch (2005) has documented a strong need for collecting data on spatial socioeconomic patterns, population density, and topographic and climatic diversity. A need exists for Bolivian government to develop environmental legislation that addresses biodiversity conservation, strengthens environmental laws, and takes into account potential threats to conservation, such as municipal and private property land use and planning.

It is reasonable to conclude, based on the above observations, that the collection and application of data for substantiating distributional inequity remain a problem both in the United States and throughout Latin America. Although improvement in

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cataloguing toxics has been made, the reach of which toxics are tracked remains a problem. And even when there are adequate data on a particular toxic, there remain questionable gaps in the study of its effects and siting. This is a significant obstacle for environmental justice in the United States and particularly in Latin America.

In addition to data problems, another area of comparison between the regions is the differences in regime types. While the United States and Canada have been consolidated democracies for some time, most Latin American countries are more recently consolidated or are still transitioning to democracy. Otaola (2009), like Wiarda and Kline (2006) has shown that Latin American democracies, with several exceptions such as Uruguay and Cuba (for different reasons), lack consolidation in several key areas, including the rule of law, horizontal accountability, and respect for civil rights. Although there is electoral democracy, an absence of consistent respect for the rule of law, a lack of accountability, and a weak and selective protection of individual rights such as freedom of expression have led to illiberal democracies. This may have effects on the passing or enforcing of environmental regulations, since “the region has a record of state-bias where the state and its agencies tend to be arbitrary, corrupt and patrimonial and therefore apply the law selectively, punishing foes and favouring friends” (Otaola, p. 5).

A lack of horizontal accountability often has meant that executives do not view legislatures as equal branches, thereby sidestepping separation of powers. In Guatemala, for example, a weak environmental regulatory regime has led to lax regulation of mining industries. According to Holden and Jacobson (2008), “the high corruption and weak governance may allow these companies to behave as they see fit...Guatemala does not have adequate legal institutions to regulate an activity such as mining” (p. 335). A similar situation exists in Chile; although the country can be categorized as one of the most democratic in the region (Wiarda & Kline, 2006), due to a legacy of dictatorship it has a persistent problem with a history of weak civil society and an exploitive, export based economy that has had negative effects on environmental regulation (Carruthers, 2001).

However, it is important to note that not all countries in Latin America are similar in the strength of their political institutions, just as the existence of such institutions in North America may not

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always lead to environmental protection or adherence to the law. As will be discussed in later sections, Costa Rica, for example, is noted internationally for its vigorous development and enforcement of environmental protection laws, and is considered to be a fully consolidated democracy. During the Bush Administration in the U.S., on the other hand, existing environmental protection laws were enforced in a lax fashion, while former oil and gas executives and lobbyists were appointed to top key environmental enforcement positions within the executive branch (Peterson, 2004; Vig, 2006; Rosenbaum, 2008).

Another important area of comparison between the regions is the divergence between the role of race and class. Examining race and class in comparing differences between North America and Central and South America is a broad area of inquiry that is not within the scope of this research, but nevertheless must be noted. It is also one of the five potential explanations for environmental injustice in the United States, as Rinquist (2006) has demonstrated, and therefore will be explored further in the sections that follow. The starting place for any social movement is dependent on the cultural, racial, and economic context in which it is taking place. This is certainly the case in Latin America. As Krauss (2005) has noted:

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People's experiences reflect where they fit into the social hierarchy. Thus, blue-collar women of differing backgrounds interpret their experiences of toxic waste problems within the context of their particular cultural histories, starting from different assumptions and arriving at concepts of environmental justice that reflect broader experiences of class and race (p. 451).

Scientific Rationality

One possible explanation for environmental injustice in the United States and throughout Latin America is the potential that toxic industries are placed in areas based on where science indicates the best location is (Ringquist, 2006). This assumption rejects claims of environmental racism and demographic considerations and instead assumes that firms are placed in areas that are most scientifically suitable. For example, are there qualities in the area's geologic composition, proximity to water sources, existence of natural resources and so on that make it a preferable location to place a polluting industry? In the United States, scientific rationality

took root with the passage of National Environmental Policy Act in 1969, which for the first time institutionalized the goal of injecting science into environmental administrative decision making (Bartlett, 1986).

However, several key factors call into doubt the use of scientific rationality as the guiding explanation behind distributional inequity. For one, if it were the guiding principle behind toxic siting decisions, there would be random placement of such toxic industries throughout all different socioeconomic variations of communities, which is not the case. In addition, in the realm of environmental regulation, even science, is often politicized and serves as a thinly veiled political agenda for the interests of those either wishing to oppose or favor a given policy. Andrews (2006) has shown numerous instances in the U.S. where existing science has been ignored for political or profit reasons, where a perceived lack of science is given as a reason not to regulate, or scientific findings are contradictory and result in the political whims of a given administration. In areas where democratic governance may be less institutionalized and where there may be a history of hyperpresidentialism, it is doubtful that countries throughout Latin America may escape similar problems.

Finally, scientific rationality as a cause of environmental injustice ignores other potential unequal environmental outcomes, especially when considering various case studies throughout Latin America. While the siting of toxic industries has been the focus of much research in the U.S., numerous other instances may arise where injustices result from other types of environmental problems. Indigenous control over nature preserves, access to clean water, access to health care coverage, climate change, and so forth are not geographically focused in a way that can easily fit this explanation.

Guatemala, for example, is naturally endowed with a rich supply of nonferrous metals such as copper, gold, lead, nickel, silver, and zinc, as well as deposits of uranium (Holden & Jacobson, 2008). After the country's civil war ended in 1997, the government passed the Mining Law, which opened up the country's resources to direct foreign investment, lifted all restrictions on foreign ownership, and lowered government royalties to one percent. The resulting surge in mining operations led directly to health and environmental risks

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associated with the mining.¹ The adverse health, social, and economic effects of the mining disproportionately affected poor Mayan groups in the mining areas. The environmental degradation resulting from the mining, including acid mine draining, cyanide spills, or threats to the water supply, have posed threats to rural poor and local Maya who overwhelmingly rely on subsistence agriculture to sustain their livelihoods.

Applying the scientific rationality explanation for the environmental injustice in this case would not provide sufficient rationale. Of course the mining operations were placed in areas where it is expected to extract natural resources, a factor that cannot be changed. But it does not account for why risky mining methods were used, the lack of environmental protection offered by the Guatemalan government, the disparity in the reaping of profits, the marginalization of the desires of local communities not to allow that industry there, or the disproportionate exposure to such toxics. As the Principles of Environmental Justice dictate (First National People of Color Environmental Leadership Summit 1991), public policy should be founded on mutual respect and justice for all communities; land use should be sustainable and renewable; extraction methods should consider universal rights to clean air, land, water, and food; and accountability should govern all production methods, among other standards. Applying these standards does not support the scientific rationality explanation.

In this case and countless others, it is helpful to return to the distinction between distributional and procedural inequity. The Guatemalan case is a clear example of distributional inequity. The other half of the story is the Guatemalan effort to avoid procedural inequity. As Holden and Jacobson (2008) demonstrated with their case study of Guatemalan mining, the explosion of civil society groups to combat environmental injustice served to try to abate the problems brought about by distributional inequity. Protests have been held on various occasions. Protestors have blocked the Pan-American Highway for 40 days, and thousands have taken to the streets in places such as Solola, El Estor, and nickel mining operations at the Fenix Project.

The emergence of strong civil society has also led to the formation of *consultas comunitarias*, whereby organizers hold local

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¹ See William N. Holden and R. Daniel Jacobson (2008) pages 331 – 333 for a discussion about the specific environmental risks resulting from the mining.

votes to see whether residents want the mining company in their community. The results of such votes have been documented to reveal strong opposition by the local communities. Organizers have also been bolstered by support and international attention from global civil society and NGOs (Holden & Jacobson, 2008). All of this has taken place in the context of weak environmental regulations and government corruption, which has aided the development of distributional inequity in the first place.

Market Rationality

Rinquist (2006) also has proposed that market rationality may help explain a lack of environmental justice. This approach focuses on the role of economic factors in the siting of various toxic industries. Just as scientific rationality claims no role of race or class in the placement of toxics, market rationality claims that another explanation, profit, is always the determining factor. Issues such as convenient existing infrastructure, cheap land and labor, or availability of raw materials are what decide where toxic industries are placed. The evidence for market rationality as an explanation for environmental inequity in the US has been mixed. Several case studies such as Hill's (1999) or the Commission for Racial Justice's (1987) have shown some support for this explanation. In these studies and others, evidence was found that showed an economic role in the siting of commercial hazardous waste facilities; industries were placed in areas where there was a nearby system of railways, highways and ports, and in proximity to a pool of available, qualified manufacturing employees.

However, these same studies also controlled for the economic factors discussed above, and found there to be a role for the race and income characteristics of those areas. While market rationality did help explain the placement of the facilities, it did not fully account for why they were placed there. Race and class did factor into the reasons for putting the industries in the disadvantages areas. A related line of reasoning, referred to as the "minority move-in hypothesis," posits that toxic industries are disproportionately located in minority neighborhoods because minorities move in to the areas *after* the facilities have been located there, due to cheap housing prices or job opportunities (Pastor, Sadd, & Hipp, 2001).

The focus of market rationality as an explanation for environmental inequity calls into scope a greater area of research looking at whether trade liberalization and neoliberalism are

incompatible with environmental protection generally. Research by Barnett (2001), for example, focused on the relationship between free trade, income, and environmental quality. Empirical evidence found that while trade may lead to increased incomes over time that in turn strengthen demands for environmental protection, the gains in income and protection are curvilinear. Demands and subsequent policies for environmental regulation do not occur until reaching very high income levels, levels that many countries do not meet. The scope of the study did not take into consideration the distribution of income or of environmental “bads” within countries, which could help shed light on the role of the market in securing or deterring environmental justice.

In Latin America, the so-called neoliberal consensus may bolster the market rationality explanation. Many governments have turned to the market as a way to attempt environmental “regulation”. The idea is that “the way to protect the environment is to price nature’s services, assign property rights, and trade these services within a global market” (Liverman, 2004, p. 734). From this perspective, the emphasis on property rights and the pricing of environmental resources leads the free market to assign higher prices to scarce resources and to investment in sustainable development.

One example of such attempts would be Costa Rica, where the market has assigned prices to environmental services and resources, in areas such as bioprospecting, debt for nature swaps, watershed protection, carbon sequestration, ecotourism and park entrance fees, scientific research, and fair trade/green labeling² (Liverman, 2004). However, it is less clear whether this model holds true throughout the region. Costa Rica is unique in that it has a consolidated democracy, an institutionalized system of governance, and a thriving middle class.

Beginning in the early 1990s, Costa Rican Constitutional President Jose Maria Figueres Olsen recognized that his country’s economic growth had been achieved at the expense of environmental preservation and took definitive steps toward making the country a model of sustainable development. This included the formulation of a plan to combine conservation of natural resources with the sustainable use of tropical biodiversity (Costa Rica, 1995). The trend continued with President Abel Pacheco’s far-reaching

² For a more thorough description of these policies, see Liverman (2004) page 734.

plan to instate a moratorium on new open-pit mining projects, crack down on illegal logging, and set aside a new national parkland (Taylor, 2002). Applying Barnett's (2001) model would predict that Costa Rica, at the higher end of GDPpc, would generate demands for a higher level of environmental protection, manifested in its political institutions. If the market rationality explanation were applied to the case of Costa Rica, it would predict that polluting industries would move to areas economically advantageous, but the reverse is true.

Neighborhood Transition

A third area raised by Rinquist (2006) to help explain environmental inequity is the possibility of neighborhood transition. This approach proposes that polluting facilities may first locate in communities due to the reasons explained by market rationality, such as cheap land, labor, and infrastructure. Once established, the polluting industries lead to declining property values and poor environmental conditions. Residents who are financially secure move away from the area, leaving predominantly poor, minority residents remaining in the community. As with the previous two potential explanations, environmental inequity from this perspective is not a result of intentional race or class factors, but rather the decline in the overall quality of the neighborhood over time; even though there may be distributional inequity, it is a product of this process rather than a result of direct discrimination.

Investigating this factor as a possible cause of environmental injustice in Latin America is highly problematic, primarily due to a lack of reliable demographic data. As discussed above, data on migration throughout the region is unreliable; when considering internal migration within countries of the region, it is practically nonexistent. Guzmán et al. (2006) have pointed out that knowing the nature of international migration can be difficult, because of "the difficulties in quantifying the massive flows of non-registered migrants" (p. 525). The Project on Investigation of International Migration in Latin America (IMILA), based on Census data from various Latin American countries, does provide some data on the demographic characteristics of those born in other countries.

Anecdotal evidence does suggest a pattern of internal migration associated with differences in socioeconomic status. Data from the *Migración Interna en América Latina y El Caribe* show that although the pattern of internal migration varies from one country to

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another, overall migration is tied to how much the given country's public policies encourage territorial population redistribution within its borders. Specifically, there is some evidence that wealthier families are migrating to rural areas near the urban areas, due to better living conditions. Guzmán et al. (2006) terms this intra-metropolitan shift as "rurbanization", which leads to a more polarized society equated with divisions based on access to better social services (p. 565).

However, this would be of little use when attempting to track specific neighborhood changes over time, particularly if the residents "left behind" after the polluting industry has located there are socioeconomically and/or racially different from those leaving the area due to contamination. Research by Escobar and Beall (1982) documents how internal migration in the Andes region follows a pattern tied to pull factors such as economic modernization or to push factors such as land use patterns. Highland migrants are leaving their traditional ecosystems to find work in lowland areas. While this pattern of migration is nothing new, the intensity of population transfer leaves tremendous strains on environmental resources in the urban areas.

As a result, indigenous ecosystems such as sloping terrain, desert, and tropical forests are increasingly susceptible to mismanagement and exploitation. In other instances, a lack of usable land may push migrants out of certain areas. For example, in the Chancay Valley and in the Sierras of the Department of Ancash in northern Peru, land shortages have led to emigration from those areas. By the 1980s Huayopampa in the Chancay Valley had the most emigration, had less arable land, and depended upon a single ecological belt for agriculture. A similar land situation on the altiplano of Bolivia has led to dramatic emigration from the area.

In all of these cases, Escobar and Beall (1982) show that the migrants are slightly more educated than the norm in their communities and of a higher socioeconomic status. However, this is a generalization and does not reflect the diversity of migrants, where in many cases their demographic traits depend on the phase of migration in which they are involved.³

A focus on the causes of internal migration in the Andean region leads to reconsideration of the neighborhood transition explanation

³ For an explanation of phases of migration in the Andean region, see Escobar and Beall (1982) pages 65 – 70.

of environmental inequity. A weakness of this theory is that it focuses only on urban transition, as a result of a toxic industry moving into the area. However, a similar situation may arise with other environmental problems, even in rural areas, where land use patterns have degraded the quality of the area's ecosystem.

Political Power

According to Rinqvist (2006), the fourth potential cause of environmental injustice in the U.S. is a lack of political power on the part of disadvantaged communities. This factor involves the reality that some groups, particularly members of minority groups, women, and the poor are less likely to have political resources such as civic skills, time and resources, membership in homeowner's associations, and participation in the electoral process, all leading to a weakened political voice. Industries investigating where to locate polluting facilities are more likely to place industries in areas where there is less political resistance.

The importance of race and socioeconomic status in predicting political power in the U.S. has been well documented in classic works such as Verba, Brady and Schlozman's (2002) *Voice and Equality*. Individuals with lower levels of education, lower income levels, working class status, and minorities and women are all less likely to participate in politics, due to low levels of time, resources, and civic skills.

In a study commissioned by the California Waste Management Board, Cerrell Associates, Inc. recommended that toxic incinerators be placed in economically disadvantaged areas. Part of the study reports:

All socioeconomic groupings tend to resent the nearby siting of major facilities, but middle and upper socioeconomic strata possess better resources to effectuate their opposition. Middle and higher socioeconomic strata neighborhoods should not fall within the one-mile and five-mile radius of the proposed site (Cerrell Associates, 1984, p. 43).

In addition, other research has shown a connection between a community's political power and siting of hazardous industries. In a study of hazardous waste facilities, Hamilton and Viscusi (1999) found that firms are least likely to place a new facility in areas with

Industries investigating where to locate polluting facilities are more likely to place industries in areas where there is less political resistance.

higher levels of political empowerment. Pellow, Weinberg, and Schnaiberg (2001) effectively note that “Stakeholders who are unable to effectively mobilize resources are most likely to suffer from environmental inequality. Conversely, stakeholders with the greatest access to valuable resources are able to deprive other stakeholders of that same access” (p. 428).

On the other hand, it may be impossible or irrelevant to distinguish level of political power from race and class and subsequent disproportionate environmental risk, particularly in Latin America. Carruthers (2008a) notes that unlike the U.S. where a clear pattern often exists, in most Latin American cities, toxic industries are placed throughout metropolitan areas and their outskirts. With the exception of new immigrants or those settled in shantytowns where risk may be greater, in most situations polluting industries are widely dispersed and affect all social classes.

Intentional Discrimination

Ringquist’s (2006) final, potential cause of environmental injustice in the U.S. is the presence of intentional discrimination. Of all the explanations, this one is the most difficult to empirically substantiate, since it requires a demonstration of discriminatory *intent*. It is important to note, however, that *intentional* discrimination is not necessary to nevertheless produce discriminatory *outcomes*. This can manifest in various ways, including serving as a motivating factor for both public or private actors in initial toxic placement decisions, as well as the way existing industries are managed. The U.S. evidence for this explanation is mixed. While some research has indicated racism has a role in pollution and siting decision making in the US (Pellow, 2002; Hill, 1999; Lavelle & Coyle, 1992), others have shown race not to be a significant factor above other factors such as income level (Gray & Shadbegian, 2004; Ringquist & Martin, 2004; Becker, 2003). But what is the role of race as a cause of environmental injustice in Latin America?

Underlying this line of inquiry is the fundamental question of whether “race matters” vis-à-vis income and class, or whether it may still matter, but only as a function of many other existing inequities such as level of education, level of income, gender, and class. Some have argued that the legacy of racism throughout Latin America can be seen as a starting point also for understanding environmental inequities (Bullard, 1993; Sundberg, 2008). Since

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the colonial era, race in Latin America has been an important factor in determining the level of legal rights and access to resources, although there has been much variation in the way this has manifested.

Bullard (1993) explores the history of the Americas by showing a similarity in the way that “free” land, labor and men were used to exploit resources from indigenous communities. Institutionalized racism “has allowed communities of color to exist as internal colonies characterized by dependent (and unequal) relationships with the dominant white society or ‘Mother Country’” (p. 97). He points to research on *maquiladoras* on the US- Mexico border, as well as evidence documenting the position of the World Bank to focus and direct the exporting of toxic waste to the less developed countries (LDCs). The central argument is that racism is the leading cause of environmental inequity, even after controlling for the effects of various class variables such as income, education, and occupational status.

For Sundberg (2008), race is the starting point for any consideration of inequality. While the entire concept of race is a social construct, it nevertheless serves as a central aspect in allowing individuals to differentiate and legitimize inequalities among groups as legally and socially acceptable. Sundberg shows how European conquest in Latin America led to a focus on race as a way to categorize and rank indigenous peoples, despite the preexisting large variations in indigenous language, governance structure, and so on. Various historical accounts are given to show that:

racial categories came to be reified as though natural; indeed, handed down by God...[and] defined their differing rights and responsibilities accordingly, including what jobs they were eligible for, whether or not they could pursue formal education, where they could live, and whether or not they had access to natural resources (p. 571).

Like Bullard, Sundberg establishes that race is an integral part of explaining inequality in terms of land use and ownership and participation in the existing *ladino* power structures. Racial hierarchies exclude certain groups from environmental and conservation planning and land use decision making, on the grounds that these groups are uneducated, culturally incapable of advance planning, lazy, or obstacles to modernization and growth. The case

Since the colonial era, race in Latin America has been an important factor in determining the level of legal rights and access to resources, although there has been much variation in the way this has manifested.

studies that are detailed provide evidence for the existence of both distributional and procedural environmental inequity.

Conclusion

Reviewing the applicability of Rinquist's causes of U.S. environmental inequity as a framework for environmental injustice in Latin America leads to mixed results. There is some level of support for all five causes of environmental inequity. However, numerous challenges remain, including a lack of data and differences in terms of the type of environmental problem and how it manifests. There is also uncertainty over whether some of the causes can be isolated, rather than being products of multidirectional causality. The interplay between the indicators of political power realities and intentional discrimination as well as market rationality and neighborhood transition are difficult to assess.

The response of governments and grassroots organizations to environmental risk depends a great deal on the type of environmental problem arising, which leads to another area lacking clarity. As noted previously, a lack of data and disagreements about its application may lead to variations in which toxics will be measured for their risk in the first place, which specific health, political, or social problems are counted as a result of the risks, and a lack of attention to complex problems such as ecological interdependency. Previous research has tended to focus on urban environmental problems in the U.S. and Latin America, in particular the siting of toxic waste facilities or other polluting industries. More research is needed that examines the differences between rural and urban environmental risks, and the many ways that the differences manifest in varied environmental justice responses.

On which areas should a framework for environmental risk inequality and environmental justice in Latin America focus? While considerable differences exist throughout the Americas in terms of regime type, language, history, strength of environmental regulatory schemes, origin of environmental inequity, level of urbanization and so on, several commonalities exist. To begin with, regardless of whether race or political power realities are factors contributing to environmental inequity, the equitable spread of environmental risk and the inclusion of local communities to make their own environmental planning decisions is very important.

Adeola (2000) has argued environmental rights are the basis for human rights; when governments or dominant groups violate rights

...regardless of whether race or political power realities are factors contributing to environmental inequality, the equitable spread of environmental risk and the inclusion of local communities to make their own environmental planning decisions is very important.

to land, natural resources and clean air and water, they are at the same time violating basic political equality. This will hold true regardless of regime type, class differences, or racial hierarchies. As noted previously by Krauss (2005), all groups view environmental threats in terms of their own cultural and social lens. This is similar to Carruthers' (2008b) conclusion that environmental justice movements take on myriad local forms, depending on local situations. Pellow, Weinberg, and Schnaiberg (2002) focus on multiple stakeholders. The latter concludes that "environmental inequality impacts many actors with often contradictory and cross-cutting allegiances. These struggles therefore become a moving drama—a process—rather than a cross-sectional outcome" (p. 423).

Given these differences, the main commonality across regions is the power of strong grassroots organizations in affecting change and demanding environmental justice, as explained with the case of Guatemalan mining. It may be that the common environmentalist phrase "think globally, act locally" is suitable for all environmental justice objectives – regardless of where they may take place.

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