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Trapped in Toxic Exposure: Mitigation Masking and the Emotional Geography of Residential Proximity to Expanding Industry

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Peer Review

This work has undergone a double-blind review by a minimum of two faculty members from institutions of higher learning from around the world. The faculty reviewers have expertise in disciplines closely related to those represented by this work. If possible, the work was also reviewed by undergraduates in collaboration with the faculty reviewers.

Abstract

The purpose of this study was to introduce a citizen's stakeholder perspective into research on environmental regulation and offending. The business operations of a steel recycling plant located in a residential neighborhood was analyzed to identify how their mitigation efforts have been used to justify continued business expansion, mask other aspects of environmental offending, and block citizen efforts to become stakeholders in the governance process. The concept of "mitigation masking" was introduced to reveal victim blaming governance processes. We surveyed the residence using the retrospective pre-then-post design in a two-block radius surrounding HI&M (N=17). We collected a convenience sample of public comment cards (n = 79) on two different occasions. This study adds to research on environmental offending by introducing a citizen narrative into the literature on environmental regulation and offending and exploring how mitigation masking pollutes citizen human agency.

Keywords

environmental regulation, mitigation, social justice, carcinogens, human agency, pollution, toxic exposure

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INTRODUCTION

Locally-based research contributes to an in-depth understanding of the unique socio-economic and political characteristics that influence public health (Wakefield & McMullan, 2005). The majority of carcinogenic toxic exposure research identifies high-risk priority chemical mixtures, disease clusters and the cancer-related health impacts (Zhou, 2015), with limited attention given to the everyday life experience of living with pollution (Atari, Luginaah, & Baxter, 2011). Social movement research on people who are impacted by toxic contamination, however, considers research into victims' everyday life important for understanding the conditions under which residents do, and do not, take an active role in responding to the pollution (Beveridge & Koch, 2016; Edelstein, 1984, p. 8).

Living with toxic exposure creates environmental stress and damages psychological well-being (Downey & Willigen, 2015). Authorities often advise residents not to drink faucet water or eat fresh produce from their garden. Everyday activities such as teeth brushing or cooking pasta may be disrupted. Parents are instructed to teach children that dust is 'poison' and toys may be 'contaminated;' housecleaning, child care and a range of everyday activities become more difficult (Edelstein 1984, p. 8). Foul odors, fugitive dust, and advice from public health officials may pressure residents to retreat into their home and tightly shut themselves off from the out-of-doors (Edelstein 1984, p. 7). Toxic exposure can become a central focus of residents' lives, dominating their time and negatively influencing interpersonal relationships (Edelstein, 1984, p. 8). When interacting with the broader community, people emotionally experience stigma when they live in a toxic neighborhood (Davidson

& Milligan, 2004). Entertaining company becomes awkward as residents explain to visitors the precautions they must take to avoid toxic exposure (Edwards, Reid & Hunter, 2015). People's sense of home becomes transformed from a place of safety and security to a source of threat and danger. For homeowners, in particular, mortgage commitments, property devaluation, and community stigma combine to trap people in homes that can be neither sold nor abandoned (Edelstein, 1984 p. 10). However, homeownership in America carries meanings and values that, when contaminated, convert one's "castle" into a "prison," undermining resident's sense of freedom, independence and respectability (Edwards, Reid & Hunter, 2015; Fitchen, 1989).

Various stakeholders often interpret the "exposure experience" in different ways that may further influence residents' tendencies to publicly disengage. Local residents may want to refute governmental designations of an area as contaminated, or residents may seek assistance with toxic exposure that regulators refuse to acknowledge (Atari & Luginaah, 2011; Edelstein, 1984). Once stakeholders agree that environmental offending must be regulated, discrepancies persist in the perceptions between regulators and the regulated community; regulators become more lenient under conditions of voluntary environmental remediation, whereas members of the regulated community anticipate less leniency from the regulators if there is a history of prior noncompliance (Rorie, Rinfret, & Pautz, 2015). Geiser (1983) identifies value-biases in citation patterns which include a regulatory deference to business, social biases that discount minority communities, and a heavy reliance upon hard tech evidentiary criteria. Low-income and minority residents often have limited understanding of complex toxic

exposure issues, making them susceptible to media coverage and agency efforts to minimize the problem (Edelstein, 1984, p. 8). Outsiders tend to be unsympathetic to the impact toxic exposure has on people's everyday life, further eroding resident's willingness to trust outsiders and government officials, in particular (Janoff-Bulman & Freize, 1983). If government agencies, media and businesses succeed in defining residential communities as having marginal toxic exposure, residents will receive no help, becoming "effectively trapped in fearful ambiguity...as much victims of this ambiguity as of toxic exposure" (Edelstein, 1984, p. 9).

Sometimes residents succeed in having their concerns taken seriously in the governance process of competing stakeholder interests. Social isolation can support emergence of a toxic victims' movement if residents share experiences, network, form a collective identity, and organize (Edelstein, 1984, p. 8). Through collective action, the victimization experience can be transformed into an opportunity for individuals to participate in regaining a significant sense of control over their lives. Even when government does not respond to resident's request for support to deal with exposure crises, in some contexts, increased distrust in nonresponsive government forces the kind of activism that "fuels the growing movement" (Edelstein, 1984, p.9). Networking with national organizations such as The Citizen's Clearinghouse for Hazardous Wastes, Inc., Environmental Action Foundation, and The Environmental Defense Fund can provide citizens with a means of inserting their concerns as stakeholders into the governance process.

Emotions and sensual experiences influence the coping strategies residents develop that may ultimately influence whether people exposed to toxins retreat into

social isolationism or engage in collective action. For example, residents living in a heavily industrialized area of Canada developed a variety of emotion-based strategies such as sustained optimism, pragmatic acceptance, cynical fatalism, and health denial (Atari, Luginaah, & Baxter, 2011). Mitigation efforts can also adversely affect resident's emotional experience if they are deemed insufficient, create additional nuisance effects (e.g., smell), or contribute to further property devaluation (Little, 2012).

In the pages that follow, we explore the emotional geography of homeowners' proximity to contamination with attention to resident's sense of human agency to have their interests become part of the governance process. We present a qualitative case study of a steel recycling plant in Hartford City, Indiana to describe how mitigation is used to mask ongoing business expansion that increases residents' toxic exposure. We introduce the concept of "mitigation masking" to the literature to explain how the steel recycling plant convinced local government officials to exclude residents as stakeholders in the governance process. We theoretically explore the social impact of "mitigation masking" on residents' emotions as a factor polluting residents' human agency.

Our case study is set within the environmental justice literature that is increasingly framing justice in terms of capabilities (Edwards, Reid & Hunter, 2015). Environmental justice has always focused upon the importance of place and the inequitable impacts of polluting industries upon vulnerable people (e.g., Bullard, 1990; Chavis & Lee, 1987). However, for a long time, academics were caught up in factors influencing the citing of hazardous facilities more than the health and mortality impacts of toxic exposure (Mohai, Pellow & Roberts, 2009). We focus on the procedural justice dimension of environmental justice in our

case study as an exploration of how citizens are “challenging the discourse of development in the streets” to demand “full participatory democratic rights” to help fill a theoretical lacunae in the environmental justice literature (Schlosberg, 2004, p. 537). We contribute to environmental justice trends in scholarship that explore how people’s identities are attached to their community experiences and how they struggle to participate in the urban planning process (Agyeman, et al., 2016, p. 332).

THE CASE STUDY

The citizens of a small town in Blackford County, Indiana have been exposed to various toxic chemicals in their soil, air, and water because of the operations of a metal processing plant, Hartford Iron and Metal (HI&M). The plant is a waste management company that buys and processes scrap metal including automotive, industrial, and household items. Although the steel recycling plant has a long history with the business community in Hartford City, they employ less than 10 people full-time and they are not the major employer in town.

Hartford City is one of the poorest and least populated rural communities in Indiana. The population is racially homogenous (primarily white). The county consistently ranks amongst the lowest for quality of health.

HI&M has an extensive regulatory history, dating back to 2006, with both the Environmental Protection Agency (EPA) and the Indiana Department of Environmental Management (IDEM) found HI&M to be in violation of environmental regulations. In a 2009 Agreed Order, HI&M entered into a relationship of voluntary compliance with a cleanup mandated by the EPA and IDEM whereby HI&M was to remediate pollution impacts on

neighborhood surface water, groundwater, soil and atmospheric conditions. Nevertheless, since that time, HI&M has been repeatedly fined for discharging PCB contaminated storm water over the years. Other pollutants for which they have been fined include the discharge of arsenic, benzene, lead, nickel, cadmium and PAHs into neighborhood soil, groundwater and surface water. Although residents living near HI&M have complained for years about fugitive dust in the air, governmental enforcement agencies have ignored atmospheric pollution and attended to the storm water runoff that enters into drains that combine storm and sewage waters. At times of heavy rainfall, the sewage treatment center becomes overwhelmed allowing contaminated runoff water to be released untreated. Although some remediation efforts have taken place since the beginning of the regulatory history, there are still important contamination issues that have not yet been fully addressed. Through a process of what we describe here as mitigation masking, HI&M has used their partial remediation efforts as a means of justifying continued business expansion at the expense of the interests of neighborhood residents.

MATERIALS AND METHODS

We collaborated with a community-based citizen’s group that was formed to investigate elevated cancer rates in Hartford City, IN. Blackford County Concerned Citizens (BCCC) was our bridge to the community so that residents would reveal their accounts of their toxic experiences in a context where their voices had been dismissed by governmental officials for years. Data is drawn from IDEM records, Blackford County Concerned Citizens’ (BCCC) records, and maps. Information about residents’ emotions come from three sources: a survey and two sets of solicited

public comment cards. We surveyed residents in a two-block radius of HI&M using a retrospective pre-then-post design in April of 2017 (N=17; IRB #1607017903). We also collected and analyzed a convenience sample of 79 public comment cards. Responses for public commentary were gathered before (N = 59), and after (N = 20), city officials were made aware of evidence indicative of residential air pollution from HI&M. The comment cards were collected in two phases. In the first phase, residents were selected based on purposive sampling to reflect individuals' knowledge of the situation and proximity to HI&M. Information was collected over a three-week period during the month of November in 2017. We engaged in face-to-face conversations with people who signed comment cards with space for additional handwritten comments. We were accompanied by individuals recognized by residents within the neighborhood (e.g., former mayor, former district attorney, etc.) who explained that the purpose of the comment cards was to ask local government to respond to residents' concerns; we also created a Qualtrics survey to solicit comments online using the BCCC website and the BCCC newsletter. In the second phase, we collected comments during a two-hour information meeting about HI&M's pollution at Blackford Junior High School in Hartford City on April 21, 2018. The public meeting and the use of the BCCC website were appropriate venues for data collection because residents from Hartford City were aware that data was being gathered to advocate to local government for including citizens as stakeholders in HI&M governance. No software program was used for data coding; instead, hand-written comments were carefully studied for emergent themes. The data was used to develop a roadmap of the overall emotional landscape of the residents living in the area.

DISCUSSION

In the qualitative analysis several predominant themes emerged in relation to the emotional geography of the residents living in close proximity to HI&M. Initial themes of shame, distrust, disgust, and helplessness were evident. Additionally, it became apparent that residents felt as though their voices would not be heard, or taken into consideration in regard to the future of HI&M and the community in which they reside. One resident describes these feelings:

We are unable to grow a garden because of the soil, we don't go outside in our yard from concerns of air quality, we have health conditions and are not sure if they are caused by the air and water from Hartford Iron and Metal. If we would have been aware of the problems, we never would of bought in this area. We just want something to be done to make life safe for us.

Residents, particularly those living in the immediate vicinity of HI&M, remain concerned about toxic contamination issues that have yet to be adequately addressed. "Contamination of groundwater is a big concern of mine. Everyone gets sick...the whole community," said a respondent. Residents brought their concerns to the Mayor and City Council on multiple occasions during 2017-2018, only to be disregarded and eventually dismissed.

Victim Blaming

For years, all responsibility for reducing toxic exposure from fugitive dust has been placed on the residents. Public health officials have repeatedly advised residents to close themselves off from their own yards, wash all items that could have been exposed to dust, prevent children from

playing in the yard, and keep all windows and doors closed throughout the year. Residents complain about having to choose between exposing themselves to toxic dust by opening their windows or living in sweltering conditions within the home. One resident described what it was like to live a block away, saying

When one of [HI&M] gas tanks exploded we had whiteouts from the dust. Could never open windows, swimming pool had to be cleaned most days because of dust, and washed cars was a joke.

Many residents cannot afford air filtering systems and cooling systems, so their world continues to shrink. One resident talked about her mother who had built a porch onto their home,

but it seemed like the day the porch was finished, the junkyard started crushing cars – they crushed from sun up to sun down. She had no peace on her back porch and she never got to enjoy it.

Our findings are consistent with Wing's environmental health research into the impact of industrialized hog production where residents sometimes have "had no choice but to live and work in the presence of contaminants" (Wing, 2002, p. 437). Residents' advocacy efforts did result in some voluntary remediation by HI&M to address fugitive dust. Since 2017, HI&M has occasionally sprayed calcium carbonate during the dry season to settle the dust. IDEM has begun to occasionally inspect for fugitive dust, but they have yet to cite HI&M for air violations. Upon discovering that HI&M could be a major contributor to air pollution in the area, the company quickly pointed the finger back at the homeowners. At a community gathering in

April of 2017, a spokesperson on behalf of HI&M reiterated to the homeowners that they did not have to live in the neighborhood, and that they were free to move. However, residents find it difficult to relocate given that the toxic exposure decreases the resale value of their homes. This gives homeowners a sense of feeling stuck. As one resident put it, "I will be shocked if my mom is able to sell her house."

At a public meeting in 2017, homeowners were told by HI&M representatives that residents knew HI&M was in the neighborhood when they initially purchased their homes, so dealing with the consequences of toxic exposure is the homeowner's responsibility. However, in 2006, HI&M reported processing zero to ten vehicles per day (*Indiana v. HI&M*, 2006, p. 2), and their original operations were confined to a much smaller geographical location (see Figure 1). Holding residents responsible for their choice to locate near the facility might seem reasonable if residents' homes had been immediately adjacent to HI&M operations at the time of purchase, but for many of the residents, they lived blocks away from where HI&M was operating at the time of purchase. HI&M has expanded an estimated 262,000 ft² between 2006 and 2018 (see Figure 1).

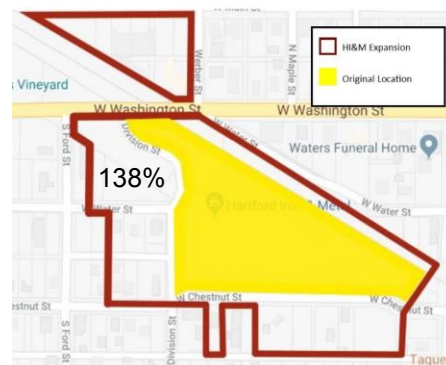


Figure 1. Percent Expansion of Hartford Iron and Metal Operations from 2006 to 2018.

As HI&M has expanded over time, they have purchased several residential homes as they became available for various reasons including owner illness and death. They have used this additional space to expand business operations by an estimated 138% since 2006. By 2018, HI&M was using seven excavators equipped with claws and magnets to process vehicles and other metal six days a week. Several of the homes that were blocks away from HI&M at the time of purchase are now immediately adjacent to a metal recycling facility in full operation. This places undue stress on homeowners in ways that adversely affect their sense of home. For these homeowners, they experience more than a sense of feeling stuck: they feel trapped in toxic exposure.

Mitigation Masking

IDEM has been slow to enforce the 2009 Agreed Order. Weak oversight has allowed HI&M to make minimal mitigation or remediation efforts at the location. Citizens formed an advocacy group, Blackford County Concerned Citizens (BCCC), when they learned that Hartford City had several cancer clusters and other public health concerns. Several BCCC board members met with IDEM officials on August 3, 2015 to discuss the health and environmental risks posed by the operations of HI&M. This began an ongoing interaction between BCCC and IDEM officials that has resulted in increased efforts by HI&M to comply with the 2009 Agreed Order. HI&M mitigation efforts focused primarily on surface water runoff, but additional testing indicated groundwater and off-site soil and air contamination. The new information motivated residents to pressure local government in 2017 to relocate HI&M out of the residential neighborhood to an industrial park. The Mayor and City Council

agreed to discuss with HI&M their relocation.

Everything changed abruptly when HI&M received a Case Close-Out letter on May 10, 2018 from IDEM for their surface-water mitigation efforts (IDEM, 2018). The Mayor and City Council changed their positions, and HI&M refused to discuss relocation (Marsh & Evans, 2018a; 2018b). Both claimed that HI&M was now in compliance with the 2009 Agreed Order – which was true, but *only in relation to surface water runoff*. Only 18% of the area used to expand HI&M's business since 2006 (when they were first cited for violation) has been used to mitigate surface water runoff (see Figure 2).

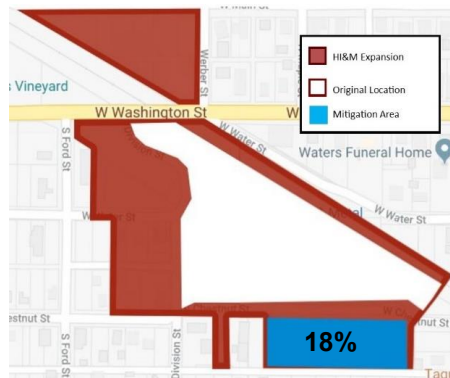


Figure 2. Portion of 2018 HI&M Business Expansion Dedicated to Surface Water Mitigation.

Other pollution issues involving groundwater and fugitive dust remain unaddressed. IDEM officials are monitoring a *groundwater* pollution plume that HI&M currently denies to be problematic. Residents' efforts to relocate HI&M have been dismissed. BCCC's attempt to become a stakeholder in the decision-making process has been blocked.

The Mayor, City Council and HI&M have used the surface water mitigation as a rationale to claim that HI&M is now in compliance, and to justify and support continued business expansion in their

current location. In this sense, mitigation is used to mask the expansion of their for-profit business. Essentially HI&M, through its remediation processes, has managed to keep regulators off their backs, expand operations, and increase profits at the expense of the individuals who live nearby. The themes that emerged clearly indicate that the citizens feel a sense of distress due to their proximity to HI&M. The extra precautions that must be taken to safeguard health, the stigma associated with pollution, and the lack of support from regulatory agencies has created a negative emotional environment for the neighborhood residents. The environmental governance relationship between HI&M, IDEM and the EPA represents a form of neoliberal rationality that is essentially blaming residents for their lot in life (Gray, 2009).

CONCLUSION

Unlike cases where researchers have argued over whether or not poor neighborhoods have been taken advantage of for their weakened ability to resist the siting of polluting industries, our case emerged out of a long history of a business and residential community growing together over time. The business and the residential communities co-evolved, eventually impacting one another. Our research was not about trying to identify which came first – people or pollution (Mohai & Saha, 2015), but rather was focused on citizen efforts to address the question of what to do about the toxic exposure in the here and now. Our findings are consistent with the work of Altmann, et al. (2008) who have explored how residents develop personal narratives from their exposure experience wherein “pollution comes home and gets personal.” Efforts to relocate the facility to an industrial site have failed, and the group has found it difficult for new notices of violation (NOV) to be issued

by regulators. This is consistent with environmental regulation research. For example, Rorie, Rinfret, and Pautz (2015) found that regulators are less likely to issue new notices of violation once an organization begins to voluntarily mitigate in response to a citation. Although the company may be wary that regulators may be quick to issue additional NOVs, the trustful relationship that voluntary mitigation creates elicits a qualitatively different response from the regulators. In the case of HI&M, surface water compliance is making it more difficult for citizens to have their concerns about groundwater and air pollution taken seriously. Often, residents are made to feel as though the situation is their fault for remaining to live close to the facility. These findings are consistent with research into other case studies of residential toxic chemical exposure (e.g., Edelstein, 1984; Fitchen, 1989).

Regulatory and criminological research has tended to leave out citizens as stakeholders when studying different perspectives of environmental offending (e.g., Rorie, Rinfret, & Pautz, 2015). In our study, citizens were not able to become stakeholders in the governance of environmental offending despite significant efforts to do so. As one might expect, comment cards indicated that residents were emotionally distraught over public health concerns, HI&M’s environmental offending, and IDEM’s slow regulatory response. What was less expected in our findings was that residents expressed their most intense emotional language in association with the possibility that their concerns might actually affect governance. Residents’ expressed dismay about the community cancer clusters, but they said they would be shocked if HI&M would be made to relocate to the industrial park. The emotional geography of residential proximity to expanding industry is that mitigation masking pollutes more than the

environment: *mitigation masking pollutes citizen human agency itself*. People become discouraged when their concerns are not responded to because enforcement agencies are satisfied that the company is taking adequate steps to address the pollution impacts that they consider to be the most important. Once dismissed by local governance, residents lack a place to turn to for issuance and enforcement of future violations.

Mitigation masking in the context of regulatory enforcement is not unlike how businesses engage in greenwashing to attract environmentally conscious consumers (Laufer, 2003), and how philanthropic behavior may serve as a form of conscience laundering that justifies the disproportionate concentration of wealth in the hands of the few (Buffet, 2013). In all three social contexts, powerful actors engage in superficial practices as a means of sustaining the status-quo while effectively shielding themselves from social accountability and social responsibility.

There are limitations to our theoretical exploration of the relationship between mitigation masking and human agency that are derived from how we gathered our data. We used applied research methods that were oriented toward those residents who wanted to relocate HI&M away from the residential neighborhood to the industrial park. Those residents felt disempowered by mitigation masking. Further research might explore how mitigation masking could also have the opposite effect on residents who support HI&M remaining in their current location. It might well be that mitigation masking empowers residents that want HI&M to expand their current operations. Further research might also explore how mitigation masking represents a contemporary form of alienation and false consciousness (in the Marxist sense) as people experience the

psychological ramifications of buying a mortgage at a fixed price only to have that house devalued on the market because of toxins.

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