A Symphony in Silence

In the shadow of the Formosa Petrochemical Plant in Taiwan, the air hums with a quiet defiance. It's not the hum of machinery but of life—the persistent rustle of leaves trying to cleanse air heavy with unseen weight, the tentative laughter of children unaware their playgrounds double as battlegrounds for their health. I stood there last summer, inhaling deeply, beyond just the air to the stories of a community caught in an muddled dance between progress and preservation. Their voices, like the wind that carried the faint scent of chemicals, seemed both omnipresent and ephemeral: a haunting reminder of resilience against overwhelming odds.

The air and water was like a silent archive, holding the unsaid history of those who lived and died in its shadow. Every breath seemed to draw in the whispers of children who once laughed freely, their lives now measured in particles per cubic meter. As I stood there, I thought of Eduardo Galeano's words in *Children of the Days*: "History never really says goodbye. History says, 'See you later.'"[1] The invisible toxicants felt like Galeano's prophecy—never gone, only waiting to reappear in medical records and gravestones.

This moment felt achingly familiar. Before arriving in Taiwan, I had spent months in the Rio Grande Valley, Texas—my home—working on the Roots of Resilience Project for sharing and documenting the effects of agrochemicals on our residents. It was there, in the heart of the colonias, that I learned how deeply environmental injustices are woven into the fabric of marginalized communities. The colonias are unincorporated settlements where basic infrastructure often feels like a distant dream. For many families, clean water is a luxury, paved

[1] Eduardo Galeano, Children of the Days: A Calendar of Human History

roads an anomaly, and healthcare access a near impossibility.[2] Yet, within these constraints, the people persist. Our story mirrored those of the residents in Taiwan's Yunlin and Changhua counties, where the Zhuoshui River, once the lifeblood of the region, now bore the scars of industrial contamination. The river shimmered under the sun, its beauty a cruel façade for the toxins that coursed beneath.

In both Taiwan and the Valley, the stories of the people were drowned by the same forces that polluted their waters. Iris Marion Young wrote that structural injustice often thrives in invisibility of smaller indiscretions: "Only a large number of wires arranged in a specific way, and connected to one another, serve to enclose the bird and to ensure that it cannot escape."[3] Whether in the pesticide-laden air of Texas or the industrial effluents of Yunlin, injustice wore its silence like armor, deflecting attention and ensuring accountability dissolved like sediment in the current.

Ethical dilemmas often begin where visibility ends. This essay grapples with the moral weight of what is unseen: the air rendered toxic but clear, the water that shimmers while carrying harm, and the communities whose suffering exists just beyond the edge of collective awareness. In both Taiwan and Texas, I encountered moments where action seemed essential but fraught with risks: the risk of speaking too loudly in a system designed to suppress dissent, or the risk of remaining silent and enabling harm to fester. The true challenge lies in navigating these moments, weighing personal and communal safety against the moral imperative to act.

Through the intertwined stories of Taiwan's industrial shadow and the Rio Grande Valley's agricultural margins—places I know intimately as a visitor and as a neighbor—I aim to

[2] Colonias on the Border Struggle with Decades-Old Water Issues
[3] Iris Marion Young, Justice and the Politics of Difference

trace the contours of environmental injustice. But this is not a narrative of harm. It is an exploration of responsibility: what it means to bear witness, to listen, and to act. The questions that awaken my conscience are neither distant nor abstract. They ask us to confront the limits of our systems, to reimagine justice in a world where progress too often comes at a cost borne by those least able to pay. This is an invitation to reckon with the dissonance between what we promise and what we deliver, and to consider what it might mean to resolve it. My hope is to engage these struggles not merely as problems to be solved but as questions that demand deeper reckoning: What does justice require of us when harm is woven into the structures of our world? And how can we learn to listen to the voices of those who persist in the face of silence?

In searching for a way to understand this intricate tension—between the visible and the invisible, the monumental and the minuscule—I found myself returning to music, to Bach's *St. Matthew Passion*, and its ability to hold anguish and grace in the same breath, offering layers of meaning that resonate across time.[4] Bach's *Passion* demands its audience hold their breath, too, as moments of dissonance transform into notes of fragile harmony. In the same way, the struggles of these communities are laced into a greater score: one that challenges us to listen with intent and respond with care. Resolving their dissonance requires more than acknowledging their hardship; it calls for a symphony of action, where voices long silenced find resonance, and justice becomes not a fleeting grace but a sustained melody of renewal.

In Yunlin County, I visited a crab farm threading through the waterways near the Formosa Plant. On a boat ride through the farm, the water appeared serene, its surface shimmering in the sunlight. Yet beneath, the farmers spoke of decimated crab populations, their livelihoods disrupted by pollutants that silently claimed the waterways. "The water looks alive,"

[4] Johann Sebastian Bach, St. Matthew Passion

one farmer said, his voice tinged with irony, "but we know better now. Our catch dwindles every year." Nearby, the embellished Formosa administrative building stood in jarring contrast—its opulence glaring against the backdrop of industrial devastation. Later that day, I walked to a crumbling ledge along the Zhuoshui River, gazing across its once-vital waters. On the opposite bank, a forest of smokestacks rose like a grim cityscape, their emissions curling into the sky in endless plumes.[5] Behind me, remnants of a once-thriving community lay silent. Locals had recounted stories of families devastated by an alarming rise in cancers—an affliction that seemed to flow as relentlessly as the river itself. "This place was full of life once," a man told me earlier, gesturing to the abandoned homes. "Now, even the air feels heavy with what we've lost." Their stories were not just about crabs or crops but about a way of life slipping away, a glaring signal that progress often comes at the cost of memory.

Later, in Changhua County, I visited an abandoned residence turned into a small art exhibit. The exhibit displayed haunting imagery, photographs of barren, rocky roads leading to isolated homes, a lone black cat wandering through desolation, and verandas overlooking landscapes scarred by industrial erosion. One particularly striking image depicted a dirt path carved between piles of debris, with a deteriorating signpost marking a place where vibrant community life once thrived. The starkness of these scenes was juxtaposed with the natural beauty of the surrounding hills, a marker of what had been lost and what remained at stake. The exhibit's curator explained how the house's abandonment symbolized a collective loss. "People leave," he said, "when they feel there's no longer anything left."

[5] The environmental and health impacts associated with the Formosa Petrochemical Plant have been documented in environmental reports and legal cases addressing pollution and its consequences on local communities (Center for International Environmental Law).

Marginalization is not an accident; it is an architecture. In the Valley, it was the lack of power and unfiltered water that created the framework. In Yunlin, it was the unmonitored air and unregulated effluents.[6] Both systems functioned as designed, their symmetry a cruel testament to the universality of neglect. As I walked through abandoned homes in Changhua, I thought of the empty houses in the colonias, where economic precarity forced families to uproot across the country, leaving behind echoes that no one would hear again.

The Weight of Unfinished Chords

My struggle back home centered on sharing information about pesticide exposure while grappling with the potential repercussions for the very individuals I sought to support. At a community meeting, I was asked to facilitate recorded interviews about the health risks of pesticide exposure, including its links to increased rates of respiratory illness and harm towards children. However, several attendees expressed concern that speaking openly about these health outcomes and their dissent against local practices since they could draw unwanted attention to those without legal status in the U.S. One woman pulled me aside, her voice low. "If you talk about what's happening here, they'll ask questions about who we are, where we're from. That's more than we can risk." Her fear was palpable, a rooted reminder of how systems of oppression often overlap, making advocacy itself a perilous act. I was left grappling with a choice: Do I prioritize transparency, risking reprisals that could devastate these families, or do I withhold, protecting their safety but silencing their truths? In that moment, justice felt as fragile as a thread stretched too thin.

[6] Reports on Formosa Plastics Group highlight its history of environmental and human rights violations across various locations, including Yunlin and Changhua Counties, Taiwan (Center for International Environmental Law; ChemScore).

Agency, I grasped, is often defined by constraints. In Changhua, the residents who stayed were seen as defiant, while those who left were viewed as resigned. Neither choice was simple; both carried the weight of survival. In the Valley, a colonia leader once told me, "This is our home, but sometimes I wonder if I'm being selfish keeping my kids here." Her words resonated in Taiwan as a mother told me, "We stay because leaving isn't manageable for us. But every time I send my child to school, I wonder if I'm sacrificing their future for a hope we might never see." Both voices were grappling with a dilemma that refuses simplicity: the desire to protect their families versus the need to resist the forces of erasure threatening their communities. How does one choose between personal safety and collective responsibility? This question lingered in my mind like the unspoken truths their communities were forced to live with daily.

In the *Passion*, the chorus often represents the collective voice of humanity, crying out in anguish or pleading for mercy. Yet, interwoven are moments of piercing individuality: Peter's denial, Judas's betrayal, Mary's lament. Similarly, the dilemmas I encountered oscillated between the deeply personal and the profoundly communal. In Changhua, I met a teacher who had lost half his students to families leaving the region, driven out by the rising rates of illness. "I stay because the ones who remain still need me," he told me, his words carrying both pride and quiet resignation. His voice reminded me of the arias in Bach's work—solitary, reflective, and weighted with personal sorrow. But just as the arias feed back into the chorus, his struggle was not isolated; it resonated with the collective loss and resilience of his community.

Nearby, within the buffer zone of the Formosa Plant, I joined environmental researchers collecting air and water samples near a local school.[7] The schoolyard seemed

[7] *When cash rules: A local researcher-activist's fieldnotes on passive locals living around Mailiao's petrochemical complex*

ordinary—children's drawings adorned the walls, washed out chalk in the summer months from games played under the sun—but looming over it all was a six-foot-tall FT-IR Gas Analyzer, its sleek body trained unflinchingly on the children's playground. The device, silent yet all-seeing, betrayed the invisible threats lingering in the air. Air monitors recorded alarming levels of particulate matter, their measurements a quiet indictment of the factories on the horizon. Water samples, too, carried a toxic story, laced with traces of heavy metals that refused to settle.

Despite the grim discoveries, what could be shared was carefully curated, like a puzzle with its sharpest edges removed. The researchers spoke in muted tones, weighing every word as if the air itself might carry them back to the wrong ears. Government policies in Taiwan constrained the public dissemination of data, forbidding the publication of findings that could implicate industries too deeply entangled with the nation's economy.[8] "We can present the numbers," one of my mentors explained, her voice tight with frustration, "but not the causes. We can say what is here, but not why." It felt like shouting into a void, where facts might land but truths would be swallowed.

This deliberate limitation transformed the act of research into a performance of omissions. The unspoken realities loomed larger than the numbers displayed on the monitors. It was not just the children who were being shielded but the industries, the political networks, and the delicate balance of economic growth that relied on their complicity. Every point started feeling minuscule, a sliver of light cut short by the surrounding darkness. Yet, our work persisted, defiance evident in every sample taken, every anomaly recorded, and every breath drawn in defiance of a system that sought to render their work invisible. These children, this land, were worth the quiet rebellion of inquiry.

[8] *Data activism and petro-public knowledge across borders: The Formosa Plastics global archive*

At night, the air in these regions took on a heavier silence, punctuated by the occasional rumble of trucks leaving the Formosa Plant. I visited a small inn near the Zhuoshui River, where the stillness of the night was broken only by the distant sound of water lapping against the banks. The innkeeper, an older man who had lived in the area his whole life, told me stories of a childhood spent fishing along the river. "We never worried about the water back then," he said. "It was clean, full of life. Now I can't even stand the smell some days." His words lingered, a reminder that progress often comes at a cost paid disproportionately by those least equipped to bear it.

The moral weight of silence is heavier than the loudest protest. As researchers we tiptoe around governmental constraints, carefully framing our findings to avoid repercussions in Taiwan. As health advocates in the Valley we grapple with an equally suffocating silence: the fear that sharing medical data or raising awareness might expose undocumented workers to deportation or legal retaliation. Caught between these two worlds, I realized that the dilemma faced in Texas and Taiwan, though shaped by different landscapes and injustices, shared a common thread: the tension between protecting those most vulnerable and confronting the systems that perpetuate harm. The act of speaking out, in both places, felt like standing on a precipice, where one misstep could jeopardize lives, yet silence could erode the very foundation of resistance.

As I sat across from the community leader in the Mailiao Township Representative Council, the steaming tea between us carried a warmth that belied the gravity of our conversation. Her words were careful but resolute, chosen with the precision of someone who knew the weight they bore. She invoked a traditional saying: "水滴石穿" (shuǐ dī shí chuān), meaning "Dripping water can penetrate stone," her eyes fixed on the horizon beyond the room's

narrow window. The tea became a quiet anchor, its rising steam curling like the questions we left unspoken: How do you protect a home poisoned by the very forces that sustain its economy? How do you demand justice from a system that equates silence with survival? Her voice, though steady, she said, was built by the exhaustion of long nights drafting petitions, rallying neighbors, and speaking out in a place where speaking out often feels futile. Yet her resolve was unshaken, showing me that in the face of overwhelming odds, even the smallest acts of resistance can instead feel monumental.

A Fugue in Contamination

Environmental justice, at its core, is a fugue—a weaving together of themes that repeat and transform, demanding recognition of the dissonance. In Texas, pesticide-laden air shrouded agricultural migrants like an invisible prison, restricting their breath while exposing them to systemic inequities: limited healthcare access, economic precarity, and racial marginalization.[9] Meanwhile, in Taiwan, industrial effluents coursed through the Zhuoshui River, disproportionately impacting rural communities where generations depended on the water for agriculture. Cultural barriers further compounded these challenges; in both places, a deep-seated mistrust of external interventions silenced many voices. These intersecting challenges mirrored the layers of a fugue—distinct yet interwoven, creating a recursive melody of struggle and resilience.

Stories from Texas echoed the plight of the Taiwanese women I met in Yunlin. Both parties are mothers, both stewards of their families, their lives revolving around questions of survival. Maria, whose quiet strength belied the physical and emotional toll of years spent

[9] *Texas Environmental Justice Collaborative Action Plan*

laboring in chemically saturated fields, described how she resorted to boiling water multiple times before using it for cooking—a practice mirrored by the elder in Changhua who lamented the bitter taste of water drawn from her well. These small acts of vigilance were notes of resistance in a contour of systemic neglect.

The fugue extended to economic structures, where the labor of the marginalized fueled economies that seldom returned the favor. In Changhua, I walked alongside community leaders who, despite knowing their water and air were compromised, continued to fight for their rights. Their survival, like Maria's, was tethered to an unsustainable system, one that prioritized profit over people and progress over preservation.

On another visit to Yunlin, I joined a group of students who had organized a clean-up along a tributary of the Zhuoshui River. They worked methodically, collecting plastic debris and noting the presence of oil slicks. Their teacher, a soft-spoken man with a passion for environmental science, explained that they hoped to compile their findings into a report for local officials. "It's not much," he said, "but it's a start. The next generation has to believe they can make a difference." Watching the students, I felt a sense of hope tempered by the enormity of the challenges they faced.

What struck me most in both places was the resilience of the people, but resilience alone cannot bear the weight of justice. It is not enough to survive; survival must demand reckoning. The fight for environmental justice is not a local issue but a global imperative.

Interlude: Listening Between the Notes

The colonias and the buffer zones of Taiwan are separated by oceans, yet their struggles are the same. In the colonias of Texas, my primary role was to deliver tools: educational materials on pesticide safety and access to local health resources. But I quickly found my presence wasn't about dissemination; it was about listening. Listening to the pauses in Maria's story as she spoke of miscarriages she attributed to chemical exposure—an experience compounded by her family's precarious economic situation that forced them to rely on untreated well water as their community was well outside of the town's water grid. Listening to the silences between the elder's words in Changhua, where his voice cracked under the weight of memories of neighbors who abandoned the area, unable to afford the escalating healthcare costs linked to pollution. These were breaths held in spaces where speaking out often invited retribution or ostracism, where gender, economic vulnerability, and systemic inequities converged to deepen the silence.

In Yunlin, the crab farms bore testament to this disruption, their yields dwindling as pollutants seeped into the water. Yet, the farmers persisted, their work embodying a rhythm of resilience against adversity. "We're not going to stop the next harvest," one farmer told me, his hands shaking from years of passion. "This land is ours, even if they try to take it from us with promises of payments." His defiance caught me thinking of Maria's insistence on teaching her children about pesticide safety despite the odds stacked against her family. Their lives were revolving around enduring harm but about finding ways to reclaim agency in a system that sought to silence them.

Coda: The Ethics of Bearing Witness

In both Taiwan and Texas, I felt firsthand the ethical imperative to bear witness—not as a passive observer but as a participant in their struggle for justice. At the Formosa Plant, I found myself scribbling notes for a report on public health impacts, yet my thoughts strayed to the people I had met. I wrote about effluent limits and policy reforms, but my mind lingered my notes of our conversations. What words suffice when the answers are rooted in systemic apathy? What does accountability look like when harm has already been woven into the fabric of daily life? These experiences illuminated an uncomfortable truth: justice is not simply about exposing harm but about addressing the structures that protect it. I realized that systems of power don't operate through visible oppression but through deliberate omissions: cancer rates unstudied, pollution unregulated, and lives uncounted. The ethical question becomes not only how to make these systems visible but how to dismantle them in a way that does not put the vulnerable at greater risk. Justice, then, requires a delicate balance between transparency and protection, between urgent action and the safety of those most affected.

In the final moments of the *Passion*, as Christ is laid to rest, the music becomes unbearably quiet, almost delicate. This silence, however, is not an end but an invitation to reflect, to bear witness, and to act. I realized that the communities I met were living in this silence. Their struggles were the unresolved cadences of a fugue left unfinished, asking: Who will complete this composition? Back in Texas, after concluding a health session with a group of farmworkers, Maria's husband approached me. "You give us tools to protect ourselves, but what about the industry and the so-called 'regulators'? Who makes them accountable?" His question hung in the air like a sharp dissonance, unresolved. It was the same question implicit in every Taiwanese elder's gaze toward Formosa's smokestacks. Accountability, I found, wasn't a legal term—it was

a moral refrain, one that demanded to be sung aloud. If the *Passion* teaches us anything, it is that silence is not passive: it demands a response.

Beyond reflection lies the pressing need to address the structures perpetuating harm. In Taiwan, industrial expansion sacrifices marginalized voices for economic gain, as pollution seeps into water and air, disproportionately impacting the working class and rural populations. Similarly, in Texas, pesticide exposure underscores how systemic inequities intersect with class, race, and immigration status, creating layers of vulnerability. The ethics of environmental justice, I've learned, must grapple with these intersections—between labor and livelihood, exploitation and survival, and the broader question of whose lives are deemed expendable in the pursuit of progress. It is a fugue unresolved, an echo that insists on being heard.

A New Movement

In the months since, I have returned to these notes and narratives, finding in them not closure but continuity. The Formosa Plant remains, as do the pesticides in Texas, but so too does the resilience of the people. They compose their lives against a backdrop of harm, each act of defiance—be it boiling water, wearing protective gloves, or sharing their stories—a note in the symphony of environmental justice. This resilience is mirrored in research from the Global Alliance for Health and Pollution, which highlights how community-led initiatives worldwide combat industrial pollution despite systemic neglect.[10] Case studies from places like Bhopal, India show that the fight for clean water and air often begins with grassroots advocacy, much like the efforts I witnessed in Yunlin and Changhua.[11] These examples remind us that environmental

[10] *The Global Alliance on Health and Pollution: An Innovative Approach to Mitigating the Impacts of Toxic Pollution on Human Health*
[11] *India: Environmental Racism Enabled Forty Years of Injustice for Survivors of Bhopal Gas Tragedy*

justice is not only a local battle but a universal one, requiring collective accountability and sustained action. Each breath taken, each step forward, feels like a quiet declaration: We are still here.

In one of my final work visits to a colonia, Maria handed me an array of home-grown fruits from plants that didn't meet the farm's standards. "For your table," she said, "so you remember to sit with us in your thoughts." Sitting with them, with the elder in Taiwan, with the countless others breathing heavy air and drinking bitter water, I've come to understand that justice is not a crescendo. It is a steady, persistent rhythm that demands we listen, act, and return.

Like Bach's *Passion*, the work is unfinished—a fugue left open, inviting us to join in the composition. Perhaps the true symphony of environmental justice lies not in its resolution but in its persistence: a melody carried forward by those who operate outside of the silence.

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