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Mitigating the Effects of Hudbay's Copper World Mine: Community Action Scenarios Prepared for Great Old Broads for Wilderness

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Part I: Project Background

About the Project

The Copper World Complex project, proposed by Hudbay Minerals Inc., is a large-scale open-pit copper mining project located in the Santa Rita Mountains, approximately 28 miles southeast of Tucson, Arizona. The Copper World project formally emerged back in 2021, but its origins track to over two decades ago under the proposed Rosemont Copper Mine. Efforts to develop copper in the Santa Rita Mountains began in the early 2000s when Augusta Resource Corporation proposed the Rosemont Copper Mine. This initial project was sited on federal lands within the Coronado National Forest and required compliance with federal environmental regulations, to include the National Environmental Policy Act (NEPA), the Clean Water Act, and the Endangered Species Act. Augusta spent years conducting environmental assessments and securing permits under federal oversight. In 2014, Hudbay Minerals acquired the Augusta Resource Corporation and took control over the Rosemont project. The project then encountered opposition from environmental advocacy groups, local residents, and Indigenous nations such as the Tohono O'odham Nation. These stakeholders raised concerns about potential harm to the regional environment, groundwater resources, and culturally significant landscapes. In 2019, a major turning point came when a federal judge ruled that the U.S. Forest Service had improperly approved the Rosemont project's plan and blocked the development of the project on federal land.

In response to the legal challenges, Hudbay announced the Copper World Complex project in 2021, this time the site being located primarily on private and state lands adjacent to the original Rosemont site. By shifting the project's footprint away from the federal lands, Hudbay hoped to avoid the need for federal environmental review processes and instead pursue the required State permits. The Copper World project builds on the same resources and infrastructure plans as the Rosemont project. Hudbay then started to advance their project by acquiring the Mined Land Reclamation Plan in October 2021, Aquifer Protection Permit in August 2024, and the Air Quality Permit in January 2025. These permits allow Hudbay to move forward with construction of the \$1.7 billion project, anticipating to produce 85,000 tons of copper annually over the 20 year expected mine life. Despite these permit approvals, legal appeals from environmental groups and local stakeholders continue to challenge the state's decision-making process, including concerns about water use, air quality standards, and the absence of federal oversight.

Opposition to the project has been led by tribal nations, environmental groups, and local organizations, who argue that the draft air pollution permit issued by the Arizona Department of Environmental Quality (ADEQ) is inadequate. They contend that Hudbay has misclassified many emission sources as "fugitive" to avoid stricter regulatory oversight and has underestimated the mine's potential to emit pollutants. Based on a technical comment

submitted to ADEQ in September 2024, the group suggests that if emissions were properly classified, the project would exceed federal thresholds for major pollution sources and should be regulated under a more stringent Class I permit, rather than the currently proposed Class II (Comment Letter to ADEQ, 2024). Critics also argue that the draft permit lacks sufficient monitoring, enforceable limits, and protections required under the Clean Air Act. As such, they have called on ADEQ to deny the permit or require Hudbay to resubmit its application under the appropriate regulatory standards to ensure the protection of public health and the environment.

Who are the Actors?

As with most modern-day mines, the Copper World mine has prompted many groups to organize and make their voices heard. In order to best navigate nuanced situations like mining near developed communities, it is important to take stock of all the actors involved.

Hudbay Minerals, Inc.

Hudbay Minerals, Inc. is a Canadian-based copper mining company that has operated around the world for roughly a century. The company currently has three active mining operations: two in Canada and one in Peru. According to the company's website, Hudbay also has two prospective projects in the United States (including Copper World) and an additional prospective mine in Peru. (About us, 2025)

The Canadian extractive industry—led by massive, multi-million-dollar corporations like Hudbay—has long pioneered ways to violate the rights of people in conflict-prone regions where their resource-driven agendas unfold.

Differences in regulatory frameworks in the U.S. vs abroad

Mining regulations in the United States are among the most comprehensive and strictly enforced in comparison to many developing nations. In the U.S., mining activities are regulated by a framework of federal and state laws such as the Clean Water Act, Clean Air Act, and National Environmental Policy Act (NEPA). Some agencies responsible for the enforcement of these laws are the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA). Companies like Hudbay are required to perform risk assessments, manage hazardous materials, and prepare emergency response plans, in case there is an incident. They must also comply with the Process Safety Management (PSM) standard and the Risk Management Plan (RPM), which emphasize safety procedures, community protection, and detailed documentation (Besserman & Mentzer, 2017). Moreover, U.S. law also mandates land reclamation following mine closure, meaning that mining

companies are required to restore sites to their original or approved post-mining use (Ragefront Mining Services, 2024).

Mining regulations abroad, on the other hand, tend to be weaker and are often poorly enforced. This creates conditions where environmental impacts, unsafe labor practices, and community displacement are more likely. In countries like the Democratic Republic of El Congo, small-scale mining operations often function without proper oversight, leading to widespread use of child labor and other human rights violations (Malan, 2021). Weak government structures and corruption impact enforcement even more, and the ability of external entities to enforce best practices is undermined (Malan, 2021). Furthermore, international regulatory gaps—such as delays in implementing mining regulations—allows companies to exploit poorly-governed countries with minimal-to-no accountability.

Hudbay's History of International Violations

There are two major human rights violation cases involving Hudbay that expose some of the company's deeply disturbing actions—actions that deserve to be documented and remembered. The first case, *Choc v. Hudbay*, was filed on September 24, 2010. It stems from events surrounding Hudbay's mining operations in Guatemala. In 2004, the Guatemalan government granted Hudbay and its subsidiaries—Skye Resources and Compañía Guatemalteca de Níquel (CGN)—permits to acquire land in the El Estor region for the development of the Fenix mine, a multi-million-dollar nickel extraction project (Imai et al., 2014). Unsurprisingly, the local Mayan Q'eqchi' communities responded with anger and resistance, launching protests against the Canadian extractive industry's encroachment on their land. In response, Hudbay—through CGN—deployed heavily armed private security forces to suppress the protests. On September 27, 2009, Adolfo Ich, a respected community leader and vocal protestor, was brutally hacked and shot to death by CGN's security personnel (Imai et al., 2014), sparking outrage. In 2010, showing immense courage and resilience, Ich's widow filed a lawsuit against Hudbay and its subsidiaries in a Canadian court. The case alleges that Hudbay knowingly deployed unlicensed, undertrained security forces, failed to enforce proper oversight or standards despite making public commitments to do so, and ultimately authorized the use of lethal force against peaceful demonstrators (Imai et al., 2014).

The second major human rights case is *Caal v. Hudbay*, filed in 2011. This case centers on the forcible evictions carried out in 2007 by Hudbay's subsidiary, targeting residents of the Lote Ocho community—an area that fell within the planned excavation zone of what would become the Fenix mine. According to reports, over 11 women from Lote Ocho came forward with harrowing claims that they were gang raped by uniformed security personnel, police, and military forces during these violent evictions (Imai et al., 2014). At the time of the assaults, the operations were under the control of Skye Resources, a subsidiary of Hudbay. However, Hudbay acquired Skye in 2008, inheriting not only its assets but also its potential

liabilities—strengthening the case that Hudbay had some responsibility for the atrocities (Imai et al., 2014). These evictions were carried out with virtually no oversight, leaving the Lote Ocho community to suffer irreparable and unimaginable violations of their human rights—acts that are deeply disturbing, especially coming from a company based in a country like Canada, which publicly champions human rights. In 2011, Hudbay sold the Fenix mine and its Guatemalan assets, officially exiting the region (Imai et al., 2014).

Advocacy Groups

Great Old Broads for Wilderness

The Great Old Broads for Wilderness is a national, women-led grassroots organization focused on protecting and preserving America’s public lands and wilderness areas. Founded in 1989 on the 25th anniversary of the Wilderness Act by a group of women hikers who wanted to refute a notion that wilderness is inaccessible to elders. They operate through regional chapters, or “Broadbands”, and empower volunteers to monitor land use, participate in restoration projects, and influence environmental policy decisions at local, state, and federal levels. Their work includes legal advocacy, civic engagement, and direct action campaigns aimed at resisting harmful development projects such as oil and gas drilling, mining, and irresponsible recreation practices.

Save the Scenic Santa Ritas

Save the Scenic Santa Ritas is a grassroots environmental organization founded in 1996 with the mission of protecting the ecological, cultural, and recreational integrity of the Santa Rita Mountains in southern Arizona. The group formed in response to increasing interest in mineral mining development in the area, particularly the proposal to establish large-scale open-pit copper mining operations. SSSR is composed of local residents, environmental advocates, and community leaders who collaborate to raise public awareness, promote sustainable land use, and engage in legal and policy advocacy to prevent mining-related degradation. SSSR has been a key stakeholder in the opposition to both the Rosemont Copper Mine and the newly Copper World Complex and play a prominent role in litigation, public commenting, and coalition-building with other environmental and Indigenous groups. They argue that mining in the Santa Rita Mountains poses substantial risks to biodiversity, groundwater, scenic values, and the cultural heritage of the area. Their long-standing advocacy reflects a community-driven commitment to environmental justice and conservation of our ecosystems.

Sierra Club

The Sierra Club is the most enduring and influential grassroots environmental organization in the United States. They were founded in 1892 by naturalist John Muir, and are dedicated to exploring, enjoying, and protecting the planet through grassroots activism, policy advocacy, and public education. Throughout the various chapters across the country, the Sierra Club engages in a broad range of environmental initiatives, including climate change mitigation, clean energy promotion, wildlife conservation, and protection of public lands. Additionally, they have been an active opponent of mining projects that threaten ecologically sensitive areas, including the Copper World project in southern Arizona. As part of its environmental advocacy, the Sierra Club has participated in legal actions and public comment processes aimed at holding mining operations accountable to environmental regulations and protecting the Santa Rita Mountains from industrial development.

Farmer's Investment Co.

Farmer's Investment Co. (FICO) is a pecan farm that has a 6,600 acre operation in the Santa Cruz Valley, which is near Sahuarita, AZ at the foot of the Santa Rita mountains. Combined with their other two farms in the southwestern United States, FICO is one of the largest pecan producers in the world. The success of their Sahuarita operations allow them to be active benefactors to the community. According to their website, they donated lands that a Sahuarita high school was built on and regularly support the Sahuarita food bank.

FICO has been an active opponent to the Copper World mine due to the proposed mine's proximity to the company's pecan orchards. They have been co-litigants in many of the legal actions against Hudbay and the Copper World mine.

Government Actors

The Copper World mining project in Southern Arizona stands at the intersection of environmental regulation, local governance, and Indigenous sovereignty. As extractive industries increasingly encroach upon ecologically sensitive and culturally significant areas, understanding the institutional frameworks and community responses becomes essential. This section analyzes the governmental and tribal roles in the permitting, oversight, and opposition to the Copper World mine, with a focus on the competing priorities of economic development, public health, and cultural preservation.

Arizona Department of Environmental Quality (ADEQ)

The Arizona Department of Environmental Quality (ADEQ) is responsible for implementing environmental laws at the state level, including the issuance of air, water, and waste permits. In 2024, ADEQ granted an Aquifer Protection Permit (APP) to Hudbay Minerals

for the Copper World project, allowing mining activities to proceed under specific groundwater protection standards (Hudbay Minerals Inc., 2024). The decision was controversial given Arizona's drought conditions and concerns over water safety. Subsequently, environmental organizations such as Save the Scenic Santa Ritas (SSSR), the Center for Biological Diversity, and Farmers Investment Co. appealed the Air Quality Permit on January 31, 2025 (KGUN 9, 2025).

Although ADEQ followed legal procedures and conducted a public comment period, critics argue that the process prioritized regulatory compliance over meaningful engagement and long-term environmental safeguarding (KJZZ News, 2024). This tension underscores the limitations of existing environmental governance frameworks in addressing ethical and intergenerational concerns.

Pima County

Pima County, where the Copper World site is located, has formally opposed the project on multiple fronts. The Board of Supervisors, alongside the County Administrator, has expressed consistent concerns over potential water contamination, ecological harm, and public health risks. A 2024 letter from County Administrator Jan Leshar articulated opposition based on landowner complaints and environmental uncertainty (Great Old Broads for Wilderness, 2023). Supervisor Adelita Grijalva's 2022 memo referenced long-standing regional resistance to similar projects and urged ADEQ to deny Hudbay's permit applications (Arizona Public Media, 2019).

Despite these efforts, Pima County's ability to block the project is limited due to the mine's location on private land. Key easements for roads and pipelines fall under state, not county jurisdiction. Nonetheless, Pima County's Environmental Quality Department has engaged with Hudbay to create dust mitigation strategies in response to public health complaints from nearby communities such as Green Valley and Sahuarita.

City of Tucson

The City of Tucson has taken a firm position against aspects of the Copper World project, particularly regarding water infrastructure. City officials have voiced opposition to Hudbay's proposed use of Tucson's groundwater recharge facilities, warning that mining runoff and tailings could compromise municipal water quality. The city's position reflects broader concerns about protecting limited water resources in a desert environment.

Adjacent Communities: Sahuarita, Green Valley, Vail, and Corona de Tucson

The urban communities of Sahuarita, Green Valley, Vail, and Corona de Tucson are geographically closest to the Copper World site and have emerged as key voices in grassroots opposition. While Sahuarita is the only incorporated town, none of these local governments have officially opposed the project. Nonetheless, civic engagement has been substantial. During a March 2025 Sahuarita Town Council meeting, residents raised alarms about air quality,

increased traffic, and the close proximity of tailings storage to schools, some within three miles of an elementary and middle school (KGUN 9, 2025).

Tribal Nations

Multiple tribal nations, including the Tohono O’odham Nation, Pascua Yaqui Tribe, and Hopi Tribe, have ancestral and spiritual ties to the Santa Rita Mountains. These tribes have strongly opposed the Copper World project, citing the potential desecration of sacred lands and threats to water and ecological systems. Although federal law, specifically Section 106 of the National Historic Preservation Act and Executive Order 13175, requires tribal consultation, these provisions are often circumvented when projects are located on private land (National Congress of American Indians, 2022). This procedural gap limits the capacity of tribes to assert their sovereign rights and protect culturally significant territories.

Chairman Austin Nunez of the San Xavier District has publicly denounced ADEQ’s permitting process, stating that it undermines both tribal sovereignty and environmental justice. Tribal leaders and their allies advocate for adherence to Free, Prior, and Informed Consent (FPIC), a principle enshrined in the United Nations Declaration on the Rights of Indigenous Peoples (United Nations, 2007). In addition to formal objections, tribal nations have engaged in protests, public outreach, and coalition-building with environmental NGOs.

The Copper World mining project reveals the complex dynamics of environmental decision-making involving multiple levels of government, local stakeholders, and tribal nations. While state agencies like ADEQ advance the project through technical permitting, local governments and Indigenous communities emphasize the broader impacts on health, ecology, and cultural survival. These tensions highlight the urgent need for governance systems that prioritize meaningful consultation, environmental ethics, and Indigenous rights.

Where are we now?

Issued Permits

Arizona State law mandates a Mined Land Reclamation Plan (MLRP) for any mining operation disturbing more than five contiguous acres of private land. This requirement ensures that lands impacted by mining are eventually returned to a stable, usable condition, both economically and environmentally after the operations cease. The initial MLRP for Hudbay’s project was approved by the Arizona State Mine Inspector in October of 2021. The plan was then subsequently amended to reflect an expanded project footprint, increasing from two open-pit mines, to six open-pit mines. Despite this change, the Arizona State Mine Inspector’s Office approved the amendment in September of 2022, without holding a public comment period. This absence of public engagement in the approval process led to increased legal action by groups such as Save the Scenic Santa Ritas (SSSR) and Farmers Investment Co., who argued

that the changes constituted a substantial alteration which required further review. Despite these efforts, the challenge was dismissed in May of 2023. The MLRP also includes a financial bonding requirement, ensuring Hudbay covers the estimated costs of reclamation before initiating ground disturbance. The plan will continue to be updated as the project advances, maintaining compliance with state reclamation standards.

The Aquifer Protection Permit (APP) is issued under Arizona's Aquifer Protection Program and is designed to ensure that facilities are constructed and operated in a manner that protects groundwater resources from sources of pollution. Hudbay submitted an application for the permit in September of 2022, and the Arizona Department of Environmental Quality (ADEQ) formally issued the permit on August 29 of 2024. The permit covers the full life cycle of the facility, including an estimated two years of construction, fifteen years of active mining, up to two years of closure, and approximately thirty years of post-closure monitoring. The purpose and stringency of the APP reflect ADEQ's aim to ensure long-term groundwater protection during a time of increasing concerns about regional water scarcity and contamination. The APP was issued following a public comment process that ran from January 5 through April 10 of 2024. During this period, stakeholders raised concerns about the sufficiency of the review timeline and the potential environmental impacts of granting significant water usage rights to a Canadian-based firm during Arizona's ongoing drought.

Lastly, the Air Quality Permit was issued on January 2 of 2025 by the ADEQ and represents the final regulatory hurdle for the Copper World Project at the state level. This final permit governs the emission standards and operational air quality impacts. ADEQ granted Hudbay a Class II permit after determining that the projected emissions from the mine would not exceed federal air quality thresholds. Environmental organizations and community stakeholders argue that a more stringent Class I permit is warranted, given the scale and scope of the proposed mining operations, this type of permit includes more rigorous monitoring requirements and better enforcement capabilities than the Class II. After the permit was issued, the Center for Biological Diversity, Save the Scenic Santa Ritas, and Farmers Investment Co., filed a formal appeal, asserting that the ADEQ had inadequately evaluated the project's air quality impacts. This dispute is ongoing and is under review by the Arizona Office of Administrative Hearings, unless this matter is resolved through informal settlement, the case may proceed to Superior Court.

Next Steps

As of January 2025, Hudbay has obtained the three key state permits needed to move forward with the development and operation of their Copper World project.

According to a January 2025 news release on their website, the company is now working towards completing a definitive feasibility study (DFS) for the Copper World mine. A DFS is a comprehensive study to forecast the financial viability and value of the mine prior to proceeding

with the project. Viability is determined by analyzing results from metallurgical testing (testing that assesses the structure and composition of metals and alloys that have initially been excavated). It is common for DFSs to include projected environmental and community impacts the project will have. The DFS for Copper World is projected to complete in the first half of 2026.

Hudbay is also currently developing a "multi-faceted financing strategy" for Phase I of the project. The company has secured hundreds of millions in both investments and financing, and is building a financial plan that ensures they have a \$600 million minimum cash balance during the project. The January 2025 news release also noted that since all required permits have been secured, they are now seeking a minority venture partner for Phase I of the project who will also help cover the costs of the DFS.

There are currently two ongoing legal actions against the Copper World project.

First, Save the Scenic Santa Ritas (SSSR) and Farmer's Investment Co. (FICO) filed a lawsuit in January 2024 challenging a right-of-way permit issued to Hudbay by the Arizona State Land Department. The lawsuit alleges that the use of public land was not accurately represented by Hudaby, and that it is not legal to use environmentally protected public lands for tailings and other mining infrastructure. Within the lawsuit they are also alleging procedural violations for how the state has gone about remedying the situation.

A second lawsuit was filed challenging the Air Quality permit issued to Hudbay by the Arizona Department of Environmental Quality in January of 2025. SSSR and their co-plaintiffs argue that ADEQ did not properly count the prospective emissions from Hudbay's mining activities and that therefore the issued permit should be revoked or at least upped to a classification with stricter requirements.

Part II: Scenarios

Scenario 1 - Best Ethical Practices

The Copper World mining project in Southern Arizona raises critical ethical challenges that extend beyond local impacts. As resource extraction continues to shape landscapes and livelihoods across the globe, best practices must be rooted in ethical principles that prioritize long-term sustainability, public health, and Indigenous sovereignty. While economic incentives often drive mining ventures, these short-term gains must be carefully weighed against enduring consequences for the environment and marginalized communities. This paper offers a generalizable ethical framework to guide stakeholders, particularly governmental bodies and corporations, toward more equitable and transparent decision-making in mining and similar extractive industries.

Ethical mitigation strategies begin with a foundation of environmental justice, which asserts that all people, regardless of race, income, or geographic location, deserve equal protection from environmental harm (Bullard, 2005). Extractive industries often impose disproportionate burdens on Indigenous and rural communities, necessitating a shift toward ethical leadership that values inclusive participation and harm prevention. Regulatory agencies such as the Arizona Department of Environmental Quality (ADEQ) have a responsibility not only to uphold legal standards but to act with moral integrity. This includes early and meaningful engagement with affected communities, clarity about environmental and health risks, and transparency throughout the project lifecycle (Wenar, 2008).

To generalize ethical best practices across extractive projects, several key strategies must be prioritized. First, environmental impact assessments should be conducted independently by third-party experts unaffiliated with mining interests. These assessments must offer comprehensive evaluations of risks including groundwater contamination, air pollution, and ecosystem degradation (Hilson, 2002). Second, the principle of Free, Prior, and Informed Consent (FPIC) must be upheld, granting Indigenous nations the authority to approve or reject projects that affect their traditional lands. FPIC is a cornerstone of ethical engagement and is supported by the United Nations Declaration on the Rights of Indigenous Peoples (United Nations, 2007).

In addition, ethical mining operations must include legally binding commitments to post-operation land reclamation. Companies should be held accountable for restoring biodiversity, water systems, and land usability long after a mine ceases operation. Long-term public health monitoring is also essential, including routine water quality testing and health impact studies in nearby communities to detect any environmental or physiological harm caused by mining activity (Zhang et al., 2015).

In water-scarce regions like Southern Arizona, protecting aquifers from contamination is both an ethical and ecological imperative. Desert ecosystems are especially vulnerable, and

once damaged, can take generations to recover. Ethical decision-making in these contexts must follow the precautionary principle: prioritize actions that prevent irreversible harm when the long-term outcomes remain uncertain. This future-oriented approach counters the frequent pattern of valuing short-term economic benefits at the expense of lasting environmental and public health consequences.

Ethics should serve as a central pillar of collaborative governance. Effective decision-making in extractive industries requires mutual trust among corporations, regulatory bodies, Indigenous nations, and community stakeholders. By embedding ethics into policy development and project planning, stakeholders can foster transparency, reduce conflict, and co-create solutions that prioritize human and environmental well-being. Ethics must not be treated as an afterthought, it must be the guiding framework for any effort to mitigate harm.

The Copper World case exemplifies the importance of generalizing ethical standards in resource extraction projects. By adhering to principles of justice, consent, accountability, and sustainability, stakeholders can lead with integrity and contribute to a more equitable future for all communities impacted by industrial development.

Scenario 2 - Stopping the Mine Through Legal Action

In many cases, the ideal outcome for environmental advocacy groups or local communities that fear harmful impacts from mines is that they can stop the mine altogether. The following are examples of advocacy, legal action, and/or government regulation successfully shutting down or limiting operations on environmentally harmful mines.

Examples of Successfully Stopping Mines

The first example is the Balco Power Plant and Smelter in Korba, India. From its inception, the plant was surrounded by rural and tribal communities dependent on agriculture and forest resources. Balco's operations emitted large volumes of pollutants, leading to reports of widespread respiratory illness, water pollution, and crop failure in surrounding villages. A 2009 chimney collapse that killed more than 40 workers—raised alarms about both worker safety and environmental risk. Over the next several years, public pressure and increased government oversight combined to pressure and impede the Balco's operations. Balco was repeatedly forced to halt operations and respond to court directives. While never permanently closed, its operations were significantly scaled back, and this case can be viewed as an example of how public pressure over environmental and health concerns can be channeled through the courts and yield positive results.

A second example of how mines can be successfully stopped through litigation is the American Twin Metals project. The Twin Metals project proposed a copper-nickel mine near the Boundary Waters Canoe Area Wilderness, a federally protected ecosystem that is critical for biodiversity. Scientific studies warned that mining in this location posed a near-certain risk of acid mine drainage, which could devastate the ecosystem. A strong coalition of environmental groups, Indigenous nations, and local business owners formed to oppose the project. The group filed lawsuits against the project and produced extensive environmental assessments. In 2023, the U.S. Department of the Interior revoked mining leases for the project and instituted a 20-year pause on mining in the region, citing unacceptable environmental risk. This case demonstrates the potential of science-based advocacy paired with government authority to override powerful mining companies and protect sensitive ecological zones.

Together, these cases show how environmental closure is typically not the result of a single event but of cumulative pressure: scientific documentation, legal enforcement, persistent activism, and a regulatory environment capable of responding to public harm. The closures also reflect broader dynamics of accountability—where governments are pressured to act not just for compliance, but to restore public confidence and protect long-term ecological stability.

Examples of Shutting Down a Hudbay Mine

There is also an example of a Hudbay mine being shut down through advocacy and government action.

The Flin Flon copper smelter in Manitoba, Canada operated for nearly 80 years and became an emblem of industrial pollution. Its emissions of sulfur dioxide, arsenic, lead, and mercury led to significantly deteriorating local air quality and contamination of surrounding ecosystems. For decades, Flin Flon residents and local organizations raised concerns about respiratory illnesses, acid rain, and declining environmental health. The turning point came in 2007 when the Canadian government revised its air quality standards, introducing stringent regulations that required an 85% reduction in sulfur dioxide emissions. Hudbay, facing the substantial financial burden of modernizing its aging infrastructure, assessed that compliance would not be economically viable. Rather than invest in upgraded technology, the company made the strategic decision to shut down the smelter in 2010. This closure was less an act of corporate responsibility and more a reaction to the power of enforceable public policy backed by scientific data and community advocacy.

While this example is not specifically mine closure because of legal action, it does demonstrate that coordinated community advocacy paired with enforceable government regulation can yield desired results.

Application to the Copper World Mine

Operating mines in the United States, and more specifically Arizona, requires companies to acquire an array of permits and other allowances. These permits require mining companies to put forward plans that show their efforts to mitigate environmental and human health risks.

Opponents to mines often take their fight to the courts in order to either prevent a mine from opening or shutdown active mining operations. Through litigation, these groups can use one of two general strategies: poke holes in the plans that a company used to acquire their permits, or demonstrate why a mine's ongoing operations do not comply with the environmental and safety standards.

Hudbay acquired their required permits between 2021 and 2025. During that time, Save the Scenic Santa Ritas, Farmers Investment Co., and a few other parties brought lawsuits against Hudbay. One of their most recent lawsuits challenges an easement granted to Hudbay by Arizona's State Land Department to use public land for tailings and other mine infrastructure. Another recent lawsuit challenges ADEQ's issuance of an air quality permit for Hudbay, alleging that the emissions levels were misrepresented and the class of air permit should be stricter.

Legal action against mines rarely results in mine closure. More often than not, legal action against mines, specifically large companies that have the resources to withstand delays, merely postpone mine operations rather than prevent them. Additionally, there is little discretion in the government approval process; if a company satisfies the requirements for the permits and has properly secured the land, then the company is allowed to mine. Therefore, extended litigation can sour relationships between the mining company and the communities

they are operating in. A more fruitful strategy, therefore, may be for advocacy groups to take a more collaborative approach to mitigating the risks mining operations pose to the environment and surrounding communities.

Scenario 3 - Community Engagement

As regulations and legal avenues become insufficient to prevent the advancement of mining projects, it is necessary to analyze meaningful ways to engage the community in the project. Effective community engagement ensures that the needs and interests of the impacted communities are taken into account in the planning and execution of the mining project. Two of these avenues are discussed in this scenario due to their success in Arizona and across the United States: Community Advisory Groups and Social Impact Assessments.

Community Advisory Boards

Community Advisory Boards (CABs) are independent, community-driven groups that facilitate dialogue between stakeholders and project developers. These groups seek to incorporate local concerns into project planning and oversight. A well-structured CAG brings together diverse perspectives and empowers them to engage with technical data, regulatory processes, and corporate representatives in an informed manner (EPA, 2023).

A regional example is the Santa Cruz County Advisory Panel on the South32 Hermosa Project near Nogales, Arizona. Although the panel was not a direct party to the recently-signed Community Protection and Benefit Agreement (CPBA), its presence contributed to the agreement's formation between South32 and the local governments of Santa Cruz County, Nogales, and Patagonia. The CPBA achieved in the South32 case includes commitments relevant to the Copper World project, such as protections for groundwater and surface water, dust and air pollution mitigation, funding for community infrastructure, regular environmental monitoring, and a formal dispute resolution process (Santa Cruz County, 2022). Additionally, South32 created the Hermosa Community Fund, which has awarded over \$1.1 million in grants to support education, public health, environmental stewardship, and cultural preservation initiatives in the region (Community Foundation for Southern Arizona, 2023).

Although the Santa Cruz County Advisory Panel itself was not a legal party to the CPBA, its existence created a framework that legitimized community involvement and helped lay the foundation for a stronger agreement.

In this sense, a potential CAG for Copper World should be empowered to shape legal agreements that reflect community priorities. This would represent a stronger model of community engagement, especially given the scale of the Copper World project and the concerns about its potential impacts on the environment and public health (ADEQ, 2025; KGUN 9, 2025). For the Copper World project, a successful CAG would need to be inclusive, transparent, and independent of company control. It should include representatives from tribal nations like the Tohono O'odham and Pascua Yaqui, nearby communities such as Sahuarita and Green Valley, environmental groups like Save the Scenic Santa Ritas and the Sierra Club, agricultural stakeholders like Farmer's Investment Co., and public health experts. Furthermore,

the CAG should be empowered to submit official recommendations and propose dispute resolution mechanisms.

Mitigation through Social Impact Assessment (SIA)

By establishing a Community Advisory Board, members will gain a platform to advocate for a Social Impact Assessment (SIA) on behalf of Hudbay. An SIA is an informal framework used to monitor, manage, and analyze both the formal and informal impacts of planned policies, projects, or interventions on people, surrounding communities, and social environments (Lodhia, 2018). It encourages collaboration among stakeholders, helps plan for potential consequences, and ultimately fosters trust and mutual respect. While not exclusive to the mining sector, SIAs have been effectively applied to mining operations both locally and internationally, proving to be a valuable tool in strengthening relationships between mining companies and the communities they affect.

There are four core activities that take place when a Social Impact Assessment (SIA) is properly developed and carried out. First, an SIA helps stakeholders understand the key issues and broader social context. Second, it predicts and evaluates potential social impacts, along with how stakeholders might respond. Third, it guides the development of strategies to manage negative impacts and strengthen positive ones—this includes tools like grievance mechanisms and community support programs. Finally, an SIA monitors and evaluates outcomes to enable adaptive management (Lodhia, 2018). The effectiveness of an SIA largely depends on the active involvement and commitment of all stakeholders. Without this effort, these core activities may not be fully realized. Importantly, an SIA is not a one-time assessment; rather, it is a continuous process that evolves with new information, stakeholder feedback, and project changes. This ongoing approach helps improve both social performance and impact management over time (Lodhia, 2018).

To understand the impact SIAs have on stakeholders in the context of mining, it's essential to first grasp the wide-ranging social effects that mining projects can have on communities. These effects are often significant and can include changes in employment opportunities, cultural heritage, social cohesion, income, traditional livelihoods, health, housing, and access to essential resources (Lodhia, 2018). Environmental changes can also be considered social impacts due to the strong psychological, emotional, and cultural ties many communities have to their land (Lodhia, 2018). Because of this, social impacts are not isolated—they are deeply interconnected with environmental conditions, health, and cultural identity within the affected communities (Lodhia, 2018). When mining companies recognize and address these social impacts, they are more likely to create meaningful relationships with local communities and support long-term sustainable development. A well-executed SIA involves all

stakeholders and ensures that community voices are not only heard but also play a central role in project planning and decision-making.

The core of SIA implementation unfolds throughout the entire mining cycle, which can be broken down into four key stages: exploration, permitting, construction and operation, and finally, mine closure. As mentioned earlier, the SIA process is ongoing and should be introduced as early as possible in the mining cycle to achieve the most effective outcomes. During the exploration stage, the SIA process should begin with a thorough community profile and context analysis. This includes identifying land tenure arrangements, the presence of Indigenous groups, existing legal gaps, histories of conflict, and any issues related to resource scarcity (Lodhia, 2018). Additionally, early-stage SIA implementation can include social investment and capacity-building initiatives, such as literacy programs, employment planning, and skill development training. These efforts bring lasting value to the community—even if the mining project does not move forward (Lodhia, 2018).

The implementation of SIA becomes more structured during the permitting phase, as more technical data is available to support a thorough assessment of social impacts and the development of appropriate mitigation, management, and monitoring plans (Lodhia, 2018). At this stage, proper application of SIA results in key deliverables such as impact assessment reports, stakeholder engagement strategies, monitoring frameworks, mitigation measures, and draft closure plans (Lodhia, 2018). The permitting process is often the defining moment for the success of an SIA; without genuine participation and transparency from both the community and the mining company, the assessment's effectiveness can be significantly compromised. Therefore, strong communication and clear accountability mechanisms are essential to address concerns and adjust plans throughout the life of the project.

The construction phase of a mine plays a critical role in the success of the SIA process. Social Management Plans (SMPs), which are developed as a direct outcome of the SIA, act as practical tools for managing social issues. They help implement mitigation measures, outline timelines and costs, and include monitoring and grievance procedures, all while integrating social considerations into broader site management (Lodhia, 2018). SMPs are increasingly required under standards like the IFC Performance Standards, especially for projects seeking international financing, and are built on participatory involvement from all stakeholders (Lodhia, 2018). While closely linked, SMPs and SIAs are considered separate tools because SMPs provide specific objectives, indicators, and timelines that help address unforeseen risks and inaccuracies in early assessments (Lodhia, 2018). Since construction is often the most socially and environmentally disruptive phase, SMPs offer an added layer of oversight that strengthens the overall impact management process.

SIA's are often underutilized during the final stage of the mine lifecycle: mine closure. At this stage, the primary focus tends to be on managing environmental damage and physical site rehabilitation, while the lasting social, cultural, and economic impacts on surrounding

communities are frequently overlooked (Lodhia, 2018). A key component of a comprehensive SIA is identifying the community's reliance on mine-supported services and infrastructure, which helps guide a smoother transition to sustainable, independent governance beyond the mine's presence (Lodhia, 2018). A strong SIA recognizes that the social effects of mining do not disappear once operations end. Without a socially conscious closure plan, communities are often left with long-term challenges and little support to recover.

In conclusion, Social Impact Assessments (SIAs) play an incremental role in ensuring that mining projects, like those undertaken by Hudbay, are socially responsible and community-centered. The establishment of a Community Advisory Board provides a much-needed platform for local voices, encouraging greater transparency, collaboration, and mutual trust. When implemented effectively across all stages of the mining cycle, SIAs help identify and address the complex, interconnected social and environmental impacts that communities face. More than just a planning tool, an SIA is a continuous, adaptive process that supports long-term sustainability and community well-being. By prioritizing community input and proactive engagement, SIAs can transform how mining companies interact with and support the people and environments they affect.

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