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Academics as Activists: Building Bridges and Defending the Rights of Humans and Nature

Académicos como Activistas: Construyendo puentes y defendiendo los derechos humanos y de la naturaleza

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Abstract

This article explores the role of academics as activists in defending human rights and the rights of nature. It asks how engaged scholarship can contribute to territorial struggles and ecological justice, drawing on three case studies from Ecuador: waste incineration in Llano Grande, waste-picker families in Portoviejo, and the Amazon oil extraction conflict. Using methodologies rooted in participatory epidemiology and long-term systematizations of community–academic collaborations, the analysis shows how extractivist projects generate embodied harm and ecological devastation. At the same time, the case studies illustrate how academic activism can strengthen resistance, generate evidence for justice, and co-produce protective strategies with communities. The discussion situates these findings within Latin American critical scholarship on the social determination of health, rights of nature, and epistemologies of praxis. We conclude that defending health is inseparable from defending territory, and that academic activism is not optional but an ethical imperative for universities in times of planetary crisis.

Keywords

academic activism
collective health
extractivism
rights of nature
territorial health
critical epidemiology

Resumen

Este artículo explora el papel de la academia como activista en la defensa de los derechos humanos y los derechos de la naturaleza. Analiza cómo la investigación comprometida puede contribuir a las luchas territoriales y la justicia ecológica, a partir de tres estudios de caso en Ecuador: la incineración de residuos en Llano Grande, las familias de recicladores informales en Portoviejo y el conflicto por la extracción de petróleo en la Amazonía. Mediante metodologías basadas en la epidemiología participativa y la sistematización a largo plazo de colaboraciones entre la comunidad y la academia, el análisis muestra cómo los proyectos extractivistas generan daños físicos y devastación ecológica. A su vez, los estudios de caso ilustran cómo el acti-

Palabras clave

activismo académico
salud colectiva
extractivismo
derechos de la naturaleza
salud territorial
epidemiología crítica

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vismo académico puede fortalecer la resistencia, generar evidencia para la justicia y coproducir estrategias de protección con las comunidades. La discusión sitúa estos hallazgos dentro de la investigación crítica latinoamericana sobre la determinación social de la salud, los derechos de la naturaleza y las epistemologías de la praxis. Concluimos que la defensa de la salud es inseparable de la defensa del territorio, y que el activismo académico no es opcional, sino un imperativo ético para las universidades en tiempos de crisis planetaria.

Introduction: Academics, Activism, and the Ethical Imperative

> *If you are neutral in situations of injustice,*
> *you have chosen the side of the oppressor.*
> Desmond Tutu

Health is social, biological, and territorial. It is our collective right, one that demands responsibility toward both human and non-human beings. Yet today, an extractivist world order undermines the very foundations of life, perpetuating inequality and ecological collapse. In this context, academics hold a privileged position: to either reinforce dominant systems of exploitation or to engage in activism that supports social transformation. This article examines the latter role, showing how research can accompany territorial struggles and amplify the defense of human and nature rights.

This article adopts a hybrid format, combining elements of an essay with case-study based research. To showcase how academics can act as activists in ways that defend health, rights, and territory, we present three Ecuadorian case studies and compare them through the lenses of critical epidemiology, collective health, and epistemologies of praxis.

Holistic Worldviews Instead of Artificial Divisions

Generations of critical Latin American scholars have developed elaborated critiques of the dominant positivist health sciences.[1] Instead of fragmenting the world into individualized elements (e.g. risk factors) and calculating decontextualized probabilities of partial phenomena, this critical scholarship aims to elucidate the multidimensional social processes that determine health. A crucial part of this quest has been to overcome the illusion of linear, reductionist causality that forms the core of Cartesian thinking underpinning positivist health sciences. Cartesian distinctions of humans vs. nature, or indigenous cultures vs. development, paint false pictures of dichotomies where there actually are multiple inseparable, reciprocating processes and entities. Consequently, the field of collective health acts as a counterweight to commoditized science and hegemonic, positivist paradigms dominating Anglophone public health.

Economic conditions are one of the most fundamental forces in the social determination of health, and a long tradition of Latin American epistemologies has challenged hegemonic anthropocentric and Eurocentric ideals of “development” based on continuous economic growth.[2] Instead of heralding the runaway train called endless growth, unsustainable lifestyles in rich countries are called for what they are – a form of maldevelopment based on extractivism, resulting in accumulation of wealth for a selected few and destruction of livelihoods for large marginalized groups. Classical examples in the case of Latin America are deforestation, mega-mining and agro-industrial monoculture plantations in the Amazon for short-term private profits, whereas long-term harms to nature, climate and communities are communalized. A decommodification of nature is imperative to restore common goods, and responses to the current malaise of human society should be created with affected communities, who frequently challenge the growth-centred ideal of “development” that destroys their livelihoods.[3]

Instead, a consolidation of human rights and rights of nature is paramount to create a society in which humans live a dignified life in harmony with nature. Reciprocities exist between the Universal

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[1] Jaime Breilh, *Critical Epidemiology and the People’s Health* (Oxford, UK: Oxford University Press, 2021).

[2] Aníbal Quijano, “Coloniality of Power and Eurocentrism in Latin America”, *International Sociology* 15, n.° 2 (2000), https://doi.org/10.1177/0268580900015002005.

[3] Alberto Acosta, “Post-crecimiento y post-extractivismo: Dos caras de la misma transformación cultural”, in *Post-crecimiento y Buen Vivir: Propuestas globales para la construcción de sociedades equitativas y sustentables*, coord. Gustavo Endara (Buenos Aires: Friedrich Ebert Stiftung, 2014).

Declaration of Human Rights,[4] a cornerstone of international law and central in the struggle for universal human rights, and the Universal Declaration of Rights of Mother Earth,[5] which argues for the inherent rights of nature as a self-regulating entity and calls upon humanity to live in harmony with our earth. A harmonious earth is an integral prerequisite to realize the rights of humans inhabiting it. Thus, the rights of nature and the rights of humans are not contradictory, but complementary.

The Andean cosmovision of *sumak kawsay/ buen vivir* (good living) has been proposed as an alternative to extractivist ways of living underpinning wasteful consumerist societies. Originally a fusion of ideas by grassroot indigenous organizations, Andean intellectuals and Western actors, *buen vivir* emphasizes the interdependence of human society with its natural environment (*Pachamama* or "Mother Earth").[6] *Buen vivir* acknowledges the rights of nature, leaving room for human and non-human beings to flourish in a world of abundance instead of scarcity, and emphasizes ontological and epistemological plurality instead of Eurocentric universalism, thus disrupting the human vs. nature dualism justifying extractive economic development.[7] Synergies exist between *buen vivir* and other transformation discourses, such as degrowth or the capability approach, but the latter two lack the focus of *buen vivir* on participatory governance, the intrinsic value and rights of nature, and goal to live well in harmony with other human and non-human beings.[8] The innovative discussions around *buen vivir* resulted in groundbreaking outcomes in the late 2000s, such as the Yasuní-ITT Initiative, which proposed to let oil remain in the ground under the Ecuadorian rainforest in exchange for payments by richer nations, and new constitutions in Bolivia and Ecuador that recognized the rights of nature.[9]

Buen vivir was however never a uniform concept, but rather consisted of three substantially different strands – utopian by ecologists, cultural by indigenous groups, social by the government. This conceptual vagueness enabled the Ecuadorian government to co-opt and instrumentalize the term to justify a continued and expanded extractivist economic model, which acts as a stark reminder of the importance to stay activistic.[10]

Health is Territorial

The aforementioned Latin American scholarship on social determination of health recognizes the strong connections between science and politics and establishes social transformation as the central purpose of research: To challenge the structural processes perpetuating health inequities.[11]

A fundamental structural basis of health inequities is accumulation by dispossession.[12] Harvey defines this as predatory and violent accumulation of capital by appropriation of common assets, such as communal land; commodification and commercialization of natural resources, such as air, water and biodiversity; and the suppression of alternative, indigenous, forms of production and consumption. Capital accumulates among the over-rich, who become even richer on the expense of marginalized, dispossessed populations stripped of their shared resources. As we will show using several case studies, this dispossessive process is detrimental to both human and non-human life alike.

Here, we want to emphasize the importance of territory and territoriality in the determination of health. To quote Elis Borde: "Understood as more than just land, [territory is] the stage where life happens, a place where existence can take place with dignity".[13] Thus, health is not only social and biological – it is territorial. Socio-environmental conflicts around for example waste, oil extraction, and deforestation territorialize health risks. When communities resist extractivism and defend their territories, they also defend their lives. To strengthen population health, Borde calls upon the field of public health to "incorporate the knowledge and practices of the communities themselves, which have demonstrated that they know how to preserve and enhance life and health".[14] Noted Brazilian critical geographer Carlos Walter Porto-Gonçalves chronicled the struggle for territory among diverse populations in the Amazonas, and how their worldviews of reciprocity between nature and society were fundamental to collective land rights and the preservation of intact ecosystems.[15] Porto-Gonçalves considered his scientific and activist work inseparable, something we also argue for in this essay.

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[4] UN, *Universal Declaration of Human Rights*, December 10th, 1948, https://tinyurl.com/3u6cxctj.

[5] Global Alliance for the Rights of Nature (GARN), "Universal Declaration for the Rights of Mother Earth", *GARN*, April 22nd, 2010, https://tinyurl.com/3ettt8ns.

[6] Adrián Beling et al., "Buen Vivir (Good Living): A 'Glocal' Genealogy of a Latin American Utopia for the World", *Latin American Perspectives* 48, n.° 3 (2021), https://doi.org/10.1177/0094582X211009242.

[7] Katharina Richter, "Cosmological Limits to Growth, Affective Abundance, and Rights of Nature: Insights from Buen Vivir/Sumak Kawsay for the Cultural Politics of Degrowth", *Ecological Economics* 228 (2025), https://doi.org/10.1016/j.ecolecon.2024.108442.

[8] Adrián Beling et al., "Discursive Synergies for a 'Great Transformation' Towards Sustainability: Pragmatic Contributions to a Necessary Dialogue between Human Development, Degrowth, and *Buen Vivir*", *Ecological Economics* 144 (2018), https://doi.org/10.1016/j.ecolecon.2017.08.025.

[9] Beling et al., "Buen Vivir (Good Living)".

[10] Rafael Domínguez, Sara Caria and Mauricio León, "Buen Vivir: Praise, Instrumentalization, and Reproductive Pathways of Good Living in Ecuador", *Latin American and Caribbean Ethnic Studies* 12, n.° 2 (2017), https://doi.org/10.1080/17442222.2017.1325099.

[11] Carolina Morales et al., "¿Determinación social o determinantes sociales? Diferencias conceptuales e implicaciones praxiológicas", *Revista de Salud Pública* 15, n.° 6 (2013), https://tinyurl.com/4zm3u67z.

[12] David Harvey, "The 'New' Imperialism: Accumulation by Dispossession", *Socialist Register* 40 (2004), https://tinyurl.com/tumvaj2r.

[13] Elis Borde and Mauricio Torres, "El territorio como categoría fundamental para el campo de la salud pública", *Saúde em Debate* 41 (2017), https://tinyurl.com/fnjw7ynp.

Case Studies

This article draws on three case studies of collaborative research led by Universidad Andina Simón Bolívar and partner organizations in their territorial resistance against extractive exploitation. The cases also illustrate some of the false dichotomies described earlier, such as humans vs. nature or environment vs. development, instead emphasizing the interconnected and interdependent processes that connect all life on earth. Each case combines critical epidemiology with participatory action research; integrating quantitative and qualitative tools, geospatial mapping, and testimonies. While methods differ, all share a commitment to co-production of knowledge with affected communities.

- Llano Grande: Original mixed-methods research on health impacts of a hazardous waste incinerator in an indigenous commune.
- Portoviejo: Participatory psychosocial epidemiology with waste-picker families and their children.
- Amazon oil extraction: A synthesis of decades of epidemiological, anthropological, and legal evidence documenting extractivism's cumulative harms.

The cases were chosen to represent different territorial scales—urban indigenous, peri-urban waste workers, and Amazonian indigenous and campesino communities—and to show a continuum of extractivist harm. The Amazon case is presented with less methodological detail because it systematizes decades of evidence mobilized for litigation and advocacy. This asymmetry reflects differences in research design rather than weakness.

Methodological limitations include the uneven depth of data across cases and the dual role of researchers as both academics and activists. These tensions—balancing rigor with commitment, ensuring reciprocity, and avoiding instrumentalization of communities—are intrinsic to activist scholarship and must be acknowledged rather than concealed.

Llano Grande – Environmental Injustice, Embodied Harm, and Academic Activism

Llano Grande is an ancestral Kitu Kara commune located in Calderón parish, north of Quito. Despite rapid urban growth, the community has preserved practices such as *minga* (collective work), *randi randi* (you give, I give, an ancestral Andean tradition of reciprocal exchange grounded in mutual care and community balance), *tandanakuy* (cultural celebration and exchange of knowledge or the tradition of resolving conflicts), the use of Kichwa language, and the principle of *sumak kawsay* as collective life foundations. Since 2017, a hazardous waste incinerator (category 3, highest environmental impact) has been operated by *G&M Tratamiento Integral de Desechos* in the community despite their opposition and created a severe socio-environmental conflict.

Research Question and Objectives

The central question of this project was: *How do destructive processes manifest in the health of Llano Grande inhabitants exposed to the hazardous waste incinerator, considering biological, territorial, social, economic, historical, and political dimensions in a context of environmental injustice?* Objectives included characterizing differential exposures, describing patterns of referred morbidity (respiratory, digestive, dermal, visual symptoms, and cellular alterations), interpreting results through a social determination of health lens, and strengthening territorial defense strategies.

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[14] Ibid.

[15] Antipode, "Carlos Walter Porto-Gonçalves: The Decolonial Geography of an Intellectual from Abya Yala", *Antipode Online*, February 9th, 2024, https://tinyurl.com/bdhyjcty.

Methodology

A retrospective longitudinal survey was combined with a cross-sectional micronucleus analysis of buccal mucosa cells. The non-probabilistic stratified sample included 51 adults across four neighborhoods at increasing distance from the incinerator (San Vicente II directly besides it, San Vicente I, San Juan Loma, and a control group >1.6 km away). Data included a structured survey of morbidity and exposure history, buccal cell sampling, georeferenced exposure mapping, and coded testimonies.

Fifty-one buccal cell samples were analyzed through a micronucleus cytome assay following standard protocols (2,000 cells per subject), complemented by epidemiological surveys of morbidity and exposure history

Key Findings

High symptom prevalence: Respiratory symptoms reached 78.6% in San Vicente II, dermal symptoms 71.4% in the same area, and visual symptoms 76.9% in San Juan Loma. Digestive issues were high across neighborhoods, while abortion and disability reports were notable in the control group, suggesting multiple contamination sources.

Gendered vulnerability: Women reported higher frequencies of dermal (76.2% vs 23.8% for men), respiratory (62.5% vs 37.5% for men), and visual (65.5% vs 34.5 % for men) symptoms, suggesting differentiated exposure and embodiment.

Cellular damage: The findings revealed a clear spatial gradient of genetic damage inversely correlated with distance from the emission source. Participants residing within 250 m of the incinerator exhibited significantly higher frequencies of nuclear anomalies—micronuclei, binucleation, karyorrhexis, pyknosis, and karyolysis—compared with the control group located 1.6 km away. These biomarkers, widely recognized as indicators of chromosomal instability and oxidative stress, confirm chronic exposure to toxicants likely associated with dioxins, heavy metals, and other combustion by-products. Reported symptoms, including respiratory, dermal, and ocular irritation, further support the presence of sustained toxic exposure. The study thus provides robust biological and epidemiological evidence of environmental injustice and health inequity, linking territorial pollution with early cellular injury in a marginalized indigenous community.

Testimonies as evidence of embodiment: Residents reported persistent strong odors, soot, and recurrent health symptoms. As a 56-year-old woman described: *"Here we can't breathe anymore. Some days you feel suffocated. The smoke is so strong, not even a mask helps. My throat burns, my head hurts. This is not life"*. A 30-year-old woman stated, *"I have unexplained rashes and chest pains. Doctors don't know what it is, but I believe it's from the air I breathe"*. Community members described emotional impacts such as fear, uncertainty, and stigma besides physical health deterioration. A teenager expressed, *"I don't have many symptoms yet, but I worry about what might happen in the future. It's scary seeing people get sick while nothing is done"*.

Analysis and Implications

Using a critical epidemiology framework, these results demonstrate how environmental injustices produce embodied harm. Micronuclei results, together with reported symptoms, support the presence of sustained toxic exposure. The study thus provides robust biological and epidemiological evidence of environmental injustice and health inequity, linking territorial pollution with cellular injury in a marginalized indigenous community.

The incinerator's location reflects structural violence, with indigenous ancestral territories deemed disposable under urban development and waste management models that prioritize profit over collective wellbeing. Institutional responses have been inadequate, with state agencies declaring compliance despite community data showing worsening health and quality of life.

In 2024, Llano Grande invoked indigenous jurisdiction under Article 171 of Ecuador's Constitution to issue a community justice sentence demanding compliance with 15 reparation points. However, implementation remains pending.

Conclusion

The Llano Grande case exemplifies how environmental destruction manifests in bodily suffering, psychosocial distress, and social fragmentation, reinforcing existing structural inequities. However, it also illustrates the power of academic activism. By engaging directly with the community to co-produce epidemiological evidence, amplify testimonies, and support indigenous justice processes, researchers shifted from detached observers to allies in territorial defense.

In a world where extractive knowledge systems often replicate the very violence they study, this case demonstrates that science must be placed at the service of peoples, popular demands, and nature itself. Academic neutrality is neither possible nor ethical in contexts of structural injustice. Health is territorial, and defending health means defending territory, rights, and life in all its forms.

Thus, Llano Grande calls on us to break with the technocratic and extractive university model and embody an epistemology of praxis: research as action, knowledge as resistance, and universities as spaces of solidarity and social transformation. It reaffirms that the highest purpose of science is not merely to describe suffering but to contribute to ending it – alongside the communities that fight daily for dignity, justice, and a future in which both humans and the Earth can flourish.

Portoviejo – Collective Psychosocial Health Amid Waste

Portoviejo hosts one of Ecuador's oldest open-air dumps, where generations of informal waste pickers live and work in precarious and segregated conditions making a living from sorting city waste and selling recyclable materials. Since over a decade, researchers from Universidad Andina Simón Bolívar have partnered with the Asociación 17 de Septiembre to analyze the psychosocial and collective health of children, adolescents, and families in this context. The resulting study *Crecer a cielo abierto* ("Childhood in the Open Sky", 2024)[16] focused on 67 families (including 165 children and adolescents), offering a participatory, rights-based, psychosocial epidemiological assessment.

Research Question and Objectives

The central inquiry was: *How does living and growing up in the open-air dump impact the collective, nutritional, developmental, psychological, and social health of children and adolescents from waste-worker families?* Objectives included mapping historical territorial segregation, reconstructing class-based social fractions and life modes, identifying psychosocial vulnerabilities, and co-producing prevention and accompaniment protocols.

Methodology

The research followed four participatory phases: (1) pre-diagnosis and protocol co-creation; (2) epistemological and analytical framing; (3) training of researchers, health promoters, community leaders and interns; and (4) data collection, systematic feedback, and dissemination. Mixed methods used spanned surveys, anthropometry, developmental tests (Denver, Bender, Sacks), geospatial mapping, and individual and group feedback sessions. Anchored in collective health, critical epidemiology, and community psychology, this approach emphasized the integration of psycho-social and ecological determinants.

Key Findings

Extreme precarity

Families were found to live in extreme precarity, combining toxic contamination (chemical, biological, thermal, and physical) with multiple structural deprivations: inadequate housing, lack of access to basic public services, and severe food insecurity. Child labor, disrupted schooling, exposure to violence, stigmatization, and intergenerational trauma were recurrent conditions.[17]

Child development concerns

The study identified multiple developmental delays among included children and adolescents, far exceeding those typically observed in children from non-waste-picker families:

- Denver Test: A large proportion of children showed "doubtful" or "abnormal" results, particularly in language, personal-social, and fine motor domains.
- Emotional well-being: 85% of children exhibited emotional stability, while 15% presented mild to moderate emotional maladjustments.
- Adolescent Sacks Test: In the "personal" domain, 68% fell within the normal range (0–2 points), 27% showed mild affectations (3–5 points), and 5% presented moderate affectations (6–8 points).

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[16] María Fernanda Solíz et al., *Crecer a cielo abierto: Salud colectiva y psicosocial de infantes, escolares y adolescentes de familias recicladoras* (Quito: Universidad Andina Simón Bolívar, Sede Ecuador [UASB-E] / Fundación Alianza en el Desarrollo / MISEREOR / Institutos de Estudios Ecologistas del Tercer Mundo, 2024), https://tinyurl.com/3ubyfty9.

[17] Ibid.

Pandemic aggravation

The COVID-19 pandemic intensified cycles of vulnerability. Lockdowns and school closures exacerbated job insecurity and income loss, while increasing children's exposure to domestic and community violence, neglect, nutritional deficits, and psychosocial stress.[18] Educational reinforcement programs were interrupted due to lack of funding, further limiting recovery opportunities for the most at-risk children.

Empowerment and co-construction

A key dimension of the study was its participatory approach. Waste-picker families were engaged from the outset in protocol design, feedback processes, and the co-production of protective strategies. Together, communities and researchers developed culturally grounded prevention materials, recovery plans, and health-promotion interventions. This ensured that responses were not externally imposed, but rather collectively built and locally owned, reinforcing both resilience and empowerment.

Analysis and Implications

This case reveals how waste segregation is a racialized territorial process that reproduces poverty and child suffering. Applying a social-ecological and psychosocial lens confirmed how children's health is not merely individual but rather emerges from territorially structured inequalities and collective living conditions. Critical epidemiology frames this as embodiment: structural violence encoded in bodies and psyches, rooted in dispossession and exclusion. The participatory methodology reflects an epistemology of praxis, where scientific activity functions as solidarity and resistance rather than extractive knowledge production.

Conclusion

Crecer a cielo abierto shows that science – when mobilized deliberately in collaboration with affected communities – can illuminate hidden injustices and catalyze constructive change. By placing psychosocial and developmental health at the center, the study rejects reductionist biomedical models and highlights the university's catalytic role as a co-creators of social justice. There is a striking parallel with *sumak kawsay*/*buen vivir*: a relational, ecological, rights-based worldview that opposes extractive technocratic approaches and centers human *and* non-human flourishing.

As we argue in this essay, neutrality in research is an illusion. Engaged, critical, and co-constructed science is ethically imperative when research intersects with marginalization and environmental harm. Portoviejo exemplifies how committed academics can transcend behind-the-desk working styles and contribute to the defense of life in the territory through collective knowledge production and social transformation. Academia – especially in Latin American traditions – must be reimagined as a politically engaged ally in struggles for dignity, rights, and ecological justice.

Amazon Oil Extraction – Science, Resistance, and Strategic Litigation

Ecuador's northern Amazon has been systematically exploited for oil extraction since the 1960s, producing catastrophic socio-environmental impacts. This case study[19] summarizes decades of research, monitoring, and community-based evidence generation that documented and denounced the brutal consequences of extractivism for indigenous and campesino populations and the Amazon biome itself. Far beyond a single report, this body of knowledge represents an epistemic struggle where science becomes an instrument of resistance and justice.

Research Question and Objectives

Based on the central inquiry: *What are the cumulative impacts of chronic oil extraction on the physical, psychosocial, reproductive, and collective health of Amazonian populations, and how can science support truth, justice, and guarantees of non-repetition?,* objectives included: Systematically documenting health impacts such as cancer, chronic diseases, reproductive harm, and congenital malformations; exposing psychosocial harms including fear, loss of identity, cultural breakdown, and gender-based violence; generating evidence for strategic litigation to hold corporations and states accountable; and strengthening territorial defense and community sovereignty through co-produced knowledge.

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[18] Ibid.

[19] María Fernanda Solíz, coord., *La salud petrolizada: Sistematización de un ecogenocidio en la Amazonía ecuatoriana* (Quito: Medicusmundi / Agencia Vasca de Cooperación y Solidaridad / Gobierno Vasco / UASB-E, 2024), https://tinyurl.com/4apd3cx9.

Methodology

This systematization integrated epidemiological studies (e.g., the Yana Curi report[20]), public health surveys, toxicological analyses, anthropological research, participatory mapping, and testimonies. Methods used in the materials include community-based participatory research, co-designing data collection and analysis with affected peoples; mixed epidemiological approaches such as cross-sectional, cohort, and case–control studies comparing exposed and non-exposed populations; and finally critical socio-epidemiological framing linking embodiment of illness with structural and territorial violence.

Key Findings

Cancer and chronic disease epidemic: Significantly elevated rates of cancers (stomach, skin, leukemia), chronic respiratory and cardiovascular diseases were found in oil-exposed communities.

Reproductive harm: Increased spontaneous abortions, infertility, and congenital malformations linked to hydrocarbon contamination.

Psychosocial impacts: High prevalence of anxiety, depression, fear, and collective grief; erosion of cultural identity; normalization of death and disease. Gender-based violence and vulnerability were exacerbated by extractivism-induced social disintegration.

Territorial and cultural destruction: Oil infrastructure fractured indigenous territories, destroyed subsistence economies, and imposed extractive logics that violated cosmovisions of *sumak kawsay/buen vivir*.

Analysis and Implications

These findings together reveal that oil extraction is not just an environmental issue but a multidimensional human rights crisis, involving biophysical, psychosocial, cultural, and territorial harms. The research tradition underpinning this systematization exemplifies science with conscience – popular, committed science grounded in solidarity and justice rather than technocratic neutrality.

It demonstrates how academics as activists can accompany communities in defending their rights, territories, and life itself. Research became a tool for strategic litigation (e.g. in the *Aguinda v. Texaco*[21] case or Waorani legal victories), truth-seeking, and demands for reparation and guarantees of non-repetition, supporting indigenous and campesino struggles for dignity and environmental justice.

Conclusion

The Ecuadorian Amazon oil case exemplifies why health is territorial and knowledge is political. Academic neutrality in the face of such destruction equates to complicity. Instead, decades of activist research illuminate how science can uncover hidden harms, amplify marginalized voices, and catalyze legal and social transformation.

This case affirms that science committed to peoples and nature is essential for strategic litigation, justice, and prevention of future violations. It calls for an epistemology of praxis rooted in solidarity, decoloniality, and defense of life in all its forms – embodying the deepest purpose of academia: to transform society in the direction of dignity, equity, and planetary care.

Discussion

Taken together, these three cases reveal a continuum: from acute toxic exposures in Llano Grande, to chronic psychosocial and developmental impacts in Portoviejo, to the structural, multidimensional eco-genocide observed in the Amazon. Across the three case studies, commonalities emerge that highlight how extractivist projects and waste infrastructures systematically undermine both human rights and the rights of nature. A structural logic of accumulation by dispossession is exposed, in which indigenous and marginalized populations bear the brunt of environmental harms while extractive economic actors accumulate profits.[22] Each case also illustrates the territoriality of health, showing that illness and suffering are not randomly distributed but spatially anchored in histories of dispossession and territorial resistance.[23]

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[20] Miguel San Sebastián and Juan Antonio Córdoba, *Informe Yana Curi: Impacto de la actividad petrolera en poblaciones rurales de la Amazonía ecuatoriana* (Coca, EC: Instituto de Epidemiología y Salud Comunitaria "Manuel Amunárriz", 2000), https://tinyurl.com/sd72n3d4.

[21] US Court of Appeals, 2nd Circuit, *Aguinda v. Texaco, Inc.*, August 16th, 2002, https://tinyurl.com/57ewxuym.

[22] Harvey, "The 'New' Imperialism".

[23] Borde and Torres, "El territorio como categoría fundamental".

The findings resonate with earlier Latin American works in critical epidemiology,[24],[25] which argue that health outcomes cannot be reduced to individual risk factors but must be understood as products of structural and territorial processes. The psychosocial harms observed in Portoviejo echo Porto-Gonçalves' work on territorial struggles,[26] which emphasizes that land is not only material but also cultural and existential. Similarly, the evidence of cellular damage and embodied toxicity in Llano Grande extends previous research on environmental injustice in urban indigenous communities, contributing to what Breilh calls a meta-critical methodology that links embodiment with structural determinatio.[27] The long-term evidence of cancer, reproductive harm, and cultural loss in the Amazon confirms and updates the findings of the Yana Curi report[28], while also contributing to debates on post-extractivism and *buen vivir*.[29],[30]

Together, the cases demonstrate how defending health is inseparable from defending territory, human rights, and the rights of nature. At the same time, the three cases show that activism and co-production of knowledge are not ancillary to science but integral to producing valid and socially relevant findings. They reaffirm that knowledge production cannot be detached from struggles for dignity and ecological justice. By situating empirical findings within critical Latin American scholarship, and by reflecting on the limits and potentials of activist methodologies, this discussion underscores that engaged, decolonial, and participatory science is not only possible but ethically imperative. This supports arguments that universities must function not only as technocratic science factories but as catalysts for social transformation.[31]

Universities as Technocratic Science Factories or Activistic Social Transformers?

On the notion that research and thus researchers should be "objective", we counter that not to engage in activism is just as much a decision and position as it is to be an activist academic. The illusion of objectivity was succinctly summarized by Desmond Tutu in the opening quote.[32] Universities are catalysts for social transformation, as student protests and associated popular movements have repeatedly demonstrated. Social transformations require an epistemology of praxis, breaking with the Cartesian theory-practice dichotomy. Unfortunately, this transformative potential is hampered by current study programmes reproducing inductive empirical linear thought, rather than creating space for critical and transformative thought.[33]

The quest for transformative mindsets is challenged from various directions, both outside of and within academia: Autocratic politicians, over-rich actors, and funding cuts create pressure from the outside, combined with an ongoing metricization of the academic system where the number of publications and their citations are seen as a dominant measure of scholarship quality even among academic leaders.[34] This metricization is linked to an individualization and commodification of research efforts, despite the increasing need for interdisciplinary science and participatory approaches to solve complex societal challenges.[35] The impact of research is ultimately its effects on society, to minimize health inequities or maximize collective wellbeing is usually a slow and long-term process. However, in a metric-driven academic system that constantly pushes for the next publication, time becomes a valuable commodity. Focusing on easily quantifiable, "objective" metrics such as citations or impact factors impedes long-term academic activism, a convenient coincidence for those benefitting from the very extractivism that such activism is trying to contain.

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[24] Breilh, *Critical Epidemiology*.

[25] Morales et al., "¿Determinación social?".

[26] Antipode, "Carlos Walter Porto-Gonçalves".

[27] Jaime Breilh, "The Social Determination of Health and the Transformation of Rights and Ethics: A Meta-Critical Methodology for Responsible and Reparative Science", *Global Public Health* 18, n.° 1 (2023), https://doi.org/10.1080/17441692.2023.2193830.

[28] San Sebastián and Córdoba, *Informe Yana Curi*.

[29] Acosta, "Post-crecimiento y post-extractivismo".

[30] Beling et al., "Buen Vivir (Good Living)".

[31] Marjan Marjanović, "In Defence of Scholarly Bullshit: A Reflection on Kirchherr", *Circular Economy and Sustainability* 3, n.° 4 (2023), https://doi.org/10.1007/s43615-023-00253-6.

[32] "Desmond Tutu", in *Oxford Essential Quotations*, ed. Susan Ratcliffe (Oxford, UK: Oxford University Press, 2017), https://tinyurl.com/4w4e8zxr.

[33] Breilh, "The Social Determination of Health".

[34] James Wilsdon et al., *The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management* (Bristol, UK: Higher Education Funding Council for England [HEFCE], 2015), https://doi.org/10.13140/RG.2.1.4929.1363.

[35] Breilh, *Critical Epidemiology*.

Another factor impeding the socially transformative power of non-Anglophone universities on a global level are the structural inequalities within the contemporary global academic system. Researchers outside of English-speaking academia may encounter financial, linguistic, and cultural barriers when trying to enter this sphere.[36] Critical Latin American scholars predominantly publish their works in Spanish or Portuguese, often in journals not indexed in major English databases but rather in regional ones such as Latindex, SciELO and Redalyc. However, exchanging ideas and experiences across cultural and linguistic boundaries among academics engaged in activism is crucial to sustain the struggle for a global social and ecological transformation. Thus, both Latin American and Anglophone colleagues are invited to more deliberatively explore scholarly output in multiple languages, whether through machine translations or by acquiring additional language skills.

Emancipation for Transformation

As we have argued in this essay, academics can challenge hegemonic logics and bridge the gap between theory and practice by engaging in activism. The three case studies examined in this article reveal a spectrum of how extractivist projects undermine human health and ecological, but also how communities and academics together can confront these injustices. Our cases demonstrate that academic activism is not a complementary activity but a moral obligation. We call on our colleagues to reject the technocratic and extractive university in favour of a committed, pluriversal academia: An emancipatory science grounded in collective processes.

Socially transformative activism can take many forms –defending health in the territory of communities exploited by extractive actors, advocating for social and ecological transformations in political and legal arenas, or educating current and future generations of critical thinkers – all of which are important. In a world facing ecological collapse and deep inequalities, research must become a practice of solidarity and resistance. By aligning scientific knowledge production with the struggles of communities, academia can contribute to building alternatives rooted in *sumak kawsay/buen vivir*: a horizon where human and non-human beings coexist in reciprocity and abundance.

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Declaración de autoría

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Los autores declaran no tener ningún conflicto de interés financiero, académico ni personal que pueda haber influido en la realización del estudio.