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Visualizing Canada in Central America: Transnational Connections in the Green Extractivist Transition

Visualizar Canadá en Centroamérica: Conexiones Transnacionales dentro de la Transición Verde Extractivista

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Abstract

This paper mobilizes radical cartographic projects to explore the participation of Canada within green extractivism in Central America. The transition to a green capitalist economy built on alternative energy sources is well underway across Central America, but the multiple forms of dispossession associated with the transition have generated harm for surrounding communities. This paper highlights the extractivist logic of supposedly renewable energy by pairing the literature on green extractivism with findings from fieldwork in Costa Rica and Panama. In doing so, the paper connects with radical cartography, which aims to subvert state and corporate mapping through grassroots artwork. Following an exploration of the Beehive Collective's Mesoamérica Resiste! poster, the paper presents a pair of maps and a series of stories. The stories pre¬sented were collected through fieldwork in Costa Rica and Panama, which included 34 interviews plus participant observation at 18 energy and infrastructure sites. Discussion of the findings explores Canada's participation in extractivist projects, and offers an approach to analyzing transnational involvement through categories of Consumption, Investment, Promotion, and Provision. Given the relationship between these findings and the map-making process, the paper emphasizes the ability of radical cartography to generate academic theory and to communicate findings to non-academic participants.

Keywords: Green extractivism; energy transition; Canada; radical cartography; *Mesoamérica Resiste!*

Resumen

Este artículo moviliza proyectos cartográficos radicales para explorar la participación de Canadá en el extractivismo verde en Centroamérica. La transición hacia una economía capitalista verde basada en fuentes de energía alternativas está en marcha en toda la región, pero las múltiples formas de despojo asociadas a dicha transición han generado daños a las comunidades circundantes. El artículo destaca la lógica extractivista de la energía supuestamente renovable al vincular la literatura sobre extractivismo verde con hallazgos obtenidos en trabajo de campo en Costa Rica y Panamá. Al hacerlo, el texto se conecta con la cartografía radical, que busca subvertir los mapas estatales y corporativos mediante obras artísticas de base comunitaria. Tras una exploración del cartel ¡Mesoamérica Resiste! del colectivo Beehive, el artículo presenta un par de mapas y una serie de relatos. Las historias presentadas fueron recopiladas a través de trabajo de campo en Costa Rica y Panamá, que incluyó 34 entrevistas y observación participante en 18 sitios de energía e infraestructura. La discusión de los hallazgos explora la participación de Canadá en proyectos extractivistas, y propone un enfoque para analizar el involucramiento transnacional a través de las categorías de Consumo, Inversión, Promoción y Provisión. Dada la relación entre estos hallazgos y el proceso de elaboración cartográfica, el artículo enfatiza la capacidad de la cartografía radical para generar teoría académica y comunicar resultados a participantes no académicos.

Palabras clave: Extractivismo verde; transición energética; Canadá; cartografía radical; *¡Mesoamérica Resiste!*

Introduction

As the drive to generate ever-more electricity from non-fossil fuel sources gathers momentum worldwide, the balance of benefits and harms is playing out dramatically within the countries of Central America. Without the consent, or even meaningful input, of surrounding communities, the region has unfurled project after project in the areas of hydroelectric dams, industrial wind projects, solar farms, transmission towers, electrified transit, and more (Granovsky-Larsen & Larreátegui 2023). Dispossession of communities from water, air, forest, coasts, and farmlands is presented as a necessary trade-off in the quest for a carbon-neutral future. Behind that claim, however, lies a deeper drive for profit, which can be squeezed twice from energy projects: both in the sale of electricity and in the lucrative transnational markets for carbon credits and bonds (Ervine 2013; Granovsky-Larsen & Escudero-Nuñez 2024). Despite the stark and often violent nature of the region's unjust transition to new forms of electricity generation, the discursive power of green capitalism successfully hides the extractive and colonial nature of this growing industry.

This essay explores green extractivism in Central America, highlighting the roles played by Canadian public and private actors in order to emphasize the many nodes of transnational engagement in the direct and indirect forms of green extractivism (Dunlap, Verweijen, & Tornel 2024). In doing so, the paper mobilizes fieldwork-based observations from Costa Rica and Panama into the terrain of visual graphics. Framing the work in relation to the tradition of radical cartography and drawing inspiration from the graphic depiction of extractive capitalism contained in the Beehive Collective's *Mesoamérica Resiste!* poster (Beehive Design Collective 2014), this paper offers a pair of original maps that depict findings from fieldwork on environmental conflict in Costa Rica and Panama. These maps demonstrate the power of visual art to both communicate grassroots knowledge and assist in the production of theory, leading to a visually based categorization of Canadian involvement in green extractivism as Investment, Consumption, Promotion, and Provision.

The paper begins with an overview of green extractivism and the presence of Canadian players in and around extractivist projects, with an emphasis on Central America. The regional context and the importance of radical cartography are then expanded upon in an exploration of the *Mesoamérica Resiste!* project. The paper then turns to illustrative cases, presenting the two maps and exploring a series of grounded stories learned during fieldwork and contained within the maps' contributions. We conclude with a discussion of the range of Canadian engagement with green extractivism that becomes evident through our graphic exploration, even while it remains hidden from view in most assessments of Central America's energy transition.

Canada and the Green Extractivist Transition

The global energy transition is upon us. However, where generations of environmental activists from the 1970s forward have fought for not only the end of fossil fuels but also a robust transformation of the relationship between humanity and the rest of the natural world, the current transition focuses disproportionately on harnessing supposedly 'renewable' energy sources in order to sustain economic growth. As Gutiérrez Arguedas (2020) shows, discussion in global governance forums since the 1990s has progressively narrowed the dominant understanding of the ecological crisis to one of excessive greenhouse gas emissions. The accepted response to the crisis has likewise narrowed to one of market-based programs to incentivize the production of supposedly 'clean' energy and the international trading of carbon credits (Gutiérrez Arguedas 2020), while holding onto an imperative to measure progress through consumption and growth. This shaping of the parameters of international action on climate change benefits not only the global capitalist order as a whole, but also some fossil fuel companies, many of which have navigated the transition well by investing in alternative energy projects (Newell 2019). Insofar as there is a double movement (Polanyi 1944/2001) of capitalism-induced ecological crisis and its response in grassroots action, the hegemonic order has managed to remain intact and concede little more than a shift in investment patterns (Bainton et al. 2021; Newell 2019).

The transnational mining sector represents one of the best examples of an environmentally destructive industry that has successfully rebranded itself as 'green' within the transition economy (Deniau, Herrera Vargas, & Walter 2022). The harmful nature of mining is well documented, from deforestation and mountain-top removal through the poisoning of water sources and the violent dispossession of communities from territory (Imai, Gardner, & Weinberger 2017; Birn et al. 2023; Gordon

& Webber 2016). Nevertheless, the mining industry—including Canadian companies, which faced significant pressure from affected communities and grassroots organizations in Canada beginning in the early 2000s (North & Young 2013)—appears to have partially overcome scrutiny by positioning itself as vital in the fight against climate change (Mining Association of Canada 2023). As argued by mining companies and their supporters within governments and multilateral bodies, the world requires a tremendous boost of certain minerals in order to build solar and wind energy projects, along with the electrification of transportation, especially through electric vehicles and batteries (International Energy Agency 2021). Governments have followed suit, defining national lists of 'critical minerals' for the energy transition and producing strategies to secure their extraction and international supply (Giese 2022). Among these plans is *The Canadian Critical Minerals Strategy* (Government of Canada 2022), which pledges financial support from the Government of Canada to expand mineral extraction at home and abroad. Arguing that "there is no energy transition without critical minerals," the strategy positions lithium, graphite, nickel, cobalt, copper, and rare earth elements at the top of a list of 31 critical minerals whose acquisition will receive federal investment. The industry appears to have selected a path to revive the sector by 'greening' its discourse while avoiding reform.

It is no surprise that the Canadian mining industry has received such high-level support from the Government of Canada in its quest to recover its image in the face of rising resistance. The neoliberal era witnessed a major shift in the direction of Canadian foreign policy. Canada has always been, first and foremost, a settler-colonial state that sides with dominant powers and benefits from an imperialist world order (Butler 2015). The rise of globalization sparked an expansion of Canadian investment in countries of the global South, and an accompanying foreign policy built on advancing the financial and legal architecture of neoliberalism (Klassen 2014). Protecting Canadian investments, such as mining projects, from local opposition, became central to foreign policy (Gordon & Webber 2016; Brown 2016). This represented a turn away from a brief moment of mid-20th century internationalism and diplomatic innovation, characteristics that continue to inform global opinion of Canadian politics even while they have been abandoned in practice (Dubinsky, Mills, & Rutherford 2016). The depiction of Canada as a 'secondary imperialist power' by Gordon and Webber (2019) explains the government's unwavering defense of Canadian mining companies as well as the country's participation in American-led military campaigns such as the occupation of Afghanistan (Klassen & Albo 2013). Over the last twenty years, mining projects have come to present the most visible face of Canada in the countries of Central America and have led to deep contradictions with other aspects of Canadian foreign policy such as support for human rights-based state reforms (Anzueto 2017).

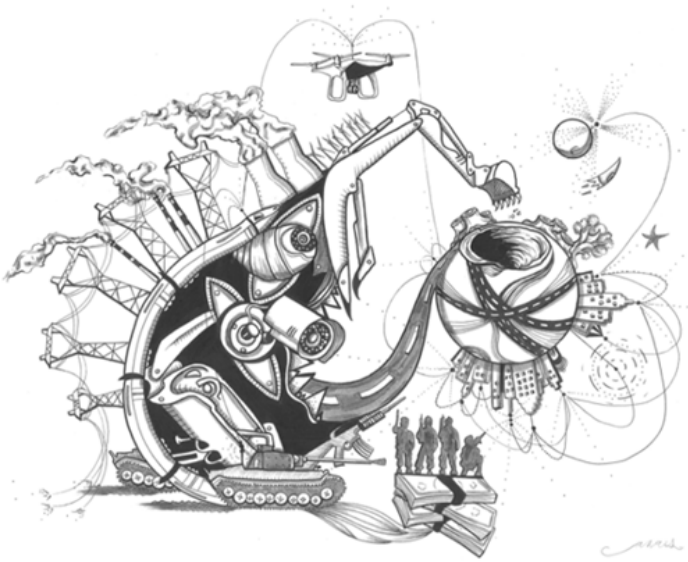
While Canadian mining attempts to position itself as environmentally-friendly, the industry nevertheless carries forward forms of exploitation and dispossession that are present across instances of extractivism in both its traditional and 'green' varieties. Svampa & Viale (2014, 18) discuss extractivism as "a mode of accumulation based on the over-exploitation of natural resources – in large part non-renewable ones – and in the expansion of frontiers towards territories that are considered to be 'unproductive'." The authors also view extractivism as representing a form of governance that accepts uncritically the potential to achieve 'development' by chasing the comparative advantage of southern countries through the exploitation of nature (Svampa & Viale 2014). When examined in place, extractivism is associated with a host of rights violations. Resistance to extractivism, and the often deadly response of states and extractive companies, has become a defining feature of contemporary social movements worldwide (Menton & Billon 2021; Scheidel et al. 2020; Svampa & Viale 2014). A proliferation of research denounces the gendered and racialized characteristics of extractivism (Cruz Hernández & Bayón Jiménez 2020; Ulloa 2016; Butler 2015), the violation of women's and Indigenous peoples' rights (Simons & Handl 2019; Picq 2020), and the impact of extractivism on non-human beings and the role of other-than-humans as actors within territorial defense movements (Boelens et al. 2022; Scheidel et al. 2022).

More than just a model of development or governance, extractivism can also be understood as set of ontological assumptions that produce "a way of organizing life" (Chagnon et al. 2022) and "a particular way of seeing and being in the world" (Dunlap, Verweijen, & Tornel 2024, 440). Dunlap & Jakobsen (2020, 6-7) capture this with their concept of "total extractivism," which they understand as "the imperative driving force of the global capitalist economy." Total extractivism represents an insatiable quest to reconfigure the planet that is backed by violent technologies and that, in its extractivist impulse "attempts to devour all vitality: plants, animals, humans, hydrocarbons, minerals, and just about anything 'seen', valued, or revalued by the state and its appenda-

ges." In support of the concept of total extractivism, the authors revive the figure of the Worldeater, which was offered by Fredy Perlman (1983) in his book, *Against His--Story, Against Leviathan*. For Perlman, the Worldeater represents the spirit of power that predates capitalism and colonialism, and is embodied in the state and civilization. A global web of 'worms' spread the infrastructure of civilization across the planet, while slowly fusing into the Worldeater beast that is the spirit of capitalist progress that has possessed humanity. In the illustrated depiction of the Worldeater that opens Dunlap and Jakobsen's text (Figure 1), the beast is composed of extractivism and energy in their 'green' and 'dirty' forms, infrastructures of transportation and distribution, and the militarism and surveillance that support the beast structurally and guard its wealth. The beast's appetite, meanwhile, is shown hollowing out the planet and ultimately yearning to colonize realms beyond Earth.

Carbon-emitting industry and wind towers appear equally as spikes on the Worldeater's back, and the beast mines the earth to feed both the 'green' and 'dirty' aspects of its appetite. This integration of sectors reflects the rise of green extractivism, a concept that captures both the greening of traditional extractivism in capitalist discourse and the extractive nature of many activities that are justified as climate friendly. Bruna's work in Mozambique (2022, 859) explores how a range of economic activities from farming modernization techniques to biofuel production and for-profit conservation all transfer fictitious emission rights from the rural poor to capitalist classes in other countries. In the process, the extractive agro-industry is rebranded as green while new extractive endeavours such as carbon credits are presented as environmentalist. Archer & Calvão (2024) similarly explore the greening narrative of the global mining industry, which centres the emerging sector of energy storage facilities in the discursive turn towards mining as key in the energy transition. Since the world needs to transition to low-carbon energy sources, the narrative goes, and, since energy needs to be stored in large quantities in order to meet rising demand, the mining industry is indispensable in its provision of materials for the technologies of both energy and storage. In their focus on mining, Archer & Calvão (2024, 17) define green extractivism as "the idea that the logic of extractivism can be redirected toward more sustainable ends by providing the materials needed for the energy transition." Dunlap, Verweijen, & Tornel offer the expanded definition that green extractivism is "a system of extractive development that harnesses climate change and other socioecological crises as profit--generating and re-branding opportunities" (2024, 438). Dunlap and colleagues offer four key features of green extractivism: the generation of new markets; the deployment of ecological discourse to legitimize extraction; the

Figure 1. The Worldeater



Source: Illustration by Anaïs, published in Dunlap & Jakobsen (2020). Reproduced with permission

entanglement of green and conventional extractivism, for example in the range of industrial activities involved in the production of wind towers, solar panels, and other 'green' energy technologies, and the false assumption that the resources of green extractivism are 'renewable' (Dunlap, Verweijen, & Tornel 2024, 447-449). Green extractivism—including through the wind energy and hydroelectric industries discussed in the following paragraphs—continues to operate as a development model based on the over-exploitation of natural resources for profit, sustaining existing forms of extraction and branching out into new forms of profit generation in a global transition that is nothing short of the appropriation of the ecological crisis by capital.

In conversations with activists near the Panamanian Toabré wind project (discussed in the cases below), we repeatedly heard the sentiment that the harms created by wind tower construction were hidden by wind energy's veneer of greenness (Granovsky-Larsen & Escudero-Nuñez 2024). The nearby urban population of Penonomé look to the towers dotting the distant mountain range and see only modernity and environmental virtue, which in turn are sources of national pride (Research notes, March 2023). Meanwhile, as expanded upon below, the Toabré project created a sacrifice zone of water depletion, noise pollution, deforestation, and land dispossession. These characteristics are experienced globally. While wind energy proponents actively construct a positive reputation for their technology (Ulloa 2023), the reality is of an industry replete with environmental harm and social conflict.

Environmental concerns associated with wind energy include the "slapping/whistling/swishing sound of the whirling turbines [that] has to be endured day in and day out" (Tabassum et al. 2014, 275); visual impacts, including landscape change and the persistent shadow flicker produced by blades moving through sun rays; death of birds and bats, both by turbine blades and through habitat destruction; land requirements and their impact on agricultural production, and local climate change through changes to wind turbulence (Tabassum et al. 2014; Sayed et al. 2021; Howe 2019). Avila (2018) expands upon these concerns by highlighting the environmental justice perspective of opponents to wind projects. From this perspective, the extensive land requirements of wind energy projects frequently lead to environmental conflicts over land acquisition, while the distribution of benefits (electricity and profit) skews away from those directly affected by projects (Avila 2018). The desirability of many Indigenous territories as apt locations for wind energy infrastructure leads to an overrepresentation of Indigenous peoples in often violently repressive wind-related environmental conflicts, and to accusations of a form of green colonialism that positions wind as "yet another project in a long history of dispossession" (Normann 2019, 85; Ulloa 2023; Dunlap 2019 ; Dunlap & Correa Arce 2022). As Singh (2023) demonstrates in the case of the Indian border state of Gujarat, the incursion of wind into territory is entangled with existing repressive politics, including the deployment of wind infrastructure into areas deemed rebellious with the intent of extending state surveillance and control.

Hydroelectricity similarly demonstrates key features of green extractivism, including an entanglement with conventional extractivism and a legitimization based on a false discourse of 'renewability.' However, while hydro blazed a trail for non-fossil fuel energy early on, states and investors have become disillusioned. Multilateral lenders have begun to apply strict conditions to loans for dam construction, and some states have even initiated processes of dam removal (Finley-Brook 2021; Boelens et al. 2022; McCully 2001). The reasons for this disillusionment are environmental, social, and economic. Environmentally, hydroelectric dams are increasingly recognized as ecologically harmful, due to both deforestation and the negative effects on species and ecosystems across the entire watershed where a dam affects the natural flow of a river (Boelens et al. 2022). Social realities within river territories are also affected negatively as a result, as the alteration and drying of rivers produce spiritual and economic dislocation from river-based activities (Rodríguez 2023), and community-based movements against dams are often met with repressive violence (Global Witness 2018). Two passages from our research interviews in Costa Rica illustrate these impacts locally.

The first passage demonstrates the environmental impact of dams, as well as an associated social dislocation, as recounted by a community member in northern Costa Rica:

> When an Environmental Impact Assessment is conducted, it is done in the immediately affected area, but they ignore the fact that the ecosystem isn't affected only where a dam or a reservoir or its discharge are built. The entire ecosystem, from the sandbanks to the mountains, is affected, it becomes totally different. And we can see it. What happened to the nutrients in the region? What happened to the bobo fish? What happened to the fishing that many people here used to do? I was a

> person who in my childhood and youth I survived off of fishing in the naturally-flowing rivers, that's where we got our protein from. Today that isn't possible. Why? Because there can't be aquatic life when the rivers lose their channels three or four times in a day. (Interview, community member, November 2022)

The following passage tells us of the personal satisfaction derived from relationships with rivers, which also highlights the sense of loss that individuals and communities feel when those relationships are severed by hydroelectric dams.

> In my memories from my youth, I remember visiting rivers with my dad, with our dog, with my cousins, with my aunts. The river is a happy place for me and it's also a place where a lot of people go, without thinking about social class or anything like that. You go to the river, and you don't have to pay anything. You bring a little food from home, a sandwich or whatever, some fruit. It's an incredible experience. And in the communities here in the south, it's very common for people to be connected with a specific river […] I have a few rivers that I like to go to and where I feel happy and where I've had moments like that, very very very beautiful experiences […] So the river for me is more than a physical or geographic space, it's more like a metaphor, more poetic, it's like I have a more spiritual connection with the water and it seems to me that we all have that in some way, because we all react in the same way to water. (Interview, community member, October 2022)

As first hydro and then wind energy projects rolled out across the countries of Central America, a range of transnational involvement was evident. Financial and technical support from development banks played a key role in promoting non-fossil energy generation, and European companies invested heavily in wind projects, but private investment in hydroelectricity was established as a sphere of investment mainly for local capital (Granovsky-Larsen & Larreátegui Benavides 2023). Why, then, the focus on Canada in the present research? Here it is important to recognize the distinction between direct and indirect green extractivism offered by Dunlap, Verweijen, & Tornel (2024). For these authors, direct green extractivism denotes extractive activities that are justified as 'green', while indirect green extractivism refers to "the extractive operations—mines, smelting, chemical production, digital technologies—that enable this resource appropriation to take place" (Dunlap, Verweijen, & Tornel 2024, 450). In order for the sites of direct green extractivism such as wind and hydro to operate within Central America, a global web of enabling capitalist activity swirls nearly undetected, hidden by its apparent disconnect and by powerful narratives of green capitalism. Canada, as a middle power country on the benefiting side of the global capitalist order, engages in this enabling web, and many Canadian corporations and investors profit from the green extractivist transition. Canadian mining companies, which dominate the sector in Central America, are the most visible Canadian promoters of green extractivism in the region. However, a range of additional actors stand on the sidelines of the energy transition while also benefitting and profiting from the expansion of green extractivist projects.

Our research explored Canada's presence in energy expansion in Costa Rica and Panama through this lens, and identified a typology of engagement in indirect green extractivism. These modes of engagement are labeled Investment, Consumption, Promotion, and Provision, and they frame the discussion of the four cases presented in fifth section below. *Investment* involves direct ownership or financing of a project by private actors, as well as a range of financial support from public and intergovernmental actors. In the cases explored below, investment included funding by the Interamerican Development Bank and Canadian international cooperation, and public pension fund investment. *Consumption* refers to the purchase or use of natural resources or their byproducts, by Canadians or Canadian companies, whether in the country of resource extraction, in another Central American country, or at home in Canada. In the cases observed, this includes the consumption of electricity by Canadian companies across Central America, the purchase of international carbon credits, and Canada's role as an importer of Costa Rican pineapples—a key driver in the expansion of Costa Rica's dry corridor. *Promotion* refers to the activities, often transnational in nature, that promote the energy transition and green capitalist investment as adequate solutions to ecological crises. In the cases discussed below, we see the promotion of carbon markets by the REDD+, of wind energy by UN agencies, and of non-fossil energy projects through the Clean Development Mechanism. Finally, *Provision* refers to the sale of materials, services, or technology required in order to build and run energy projects, such as by the purveyors of critical minerals for wind tower construction that enter into the cases.

Conceptual work on green extractivism, the importance of political art in communicating experiences with

extractivism, and the grounded examples from our field research begin to flow together at this point. The development of a framework identifying Investment, Consumption, Promotion, and Provision, which itself intersects with the work of others on green extractivism, took form through interactive mapping work together with research participants. In order to properly introduce those maps, we begin with an exploration of the *Mesoamérica Resiste!* poster project, which provided inspiration to place socially-engaged cartography at the centre of this research.

The Mesoamérica Resiste! Project: Extractivism and Alternatives Come Alive

The Beehive Collective's *Mesoamérica Resiste!* project, as well as the visual depiction of the metaphorical Worldeater reproduced above, serve as examples of a wider tendency to rely on visual media to communicate grassroots insight. Where Western scientific thought privileges academic production, graphic projects demonstrate that theoretical contributions also flow from grassroots projects undertaken for non-academic purposes such as popular education. Appreciation of this inverse flow of knowledge forms the basis of a hemispheric reappropriation of mapping known as social cartography or radical cartography (Barragán-León 2019; Sletto et al. 2020; Torre 2023). Over the past three decades, participatory projects connecting researchers and communities have produced counter-maps that represent community knowledge and serve to defend territory against dispossession or to recognize it for the legal representation of autonomy. Examples include the detailed map of all energy, extractive, and infrastructure projects in Central America produced by the Mexican collective GeoComunes (2019); the community-based overlap of extractivism and traditional territory facilitated by Resistencia de los Pueblos in Guatemala (NISGUA 2014); and the mapping of Afrodescendent and Indigenous land rights in coastal Nicaragua (Gordon, Gurdian, & Hale 2003). Each of these radical cartographic projects stands as an act of resistance to megaprojects and corporate and state power, by formalizing community perspectives, exposing extractive plans and violence, and providing powerful educational tools. In the case of the present research, the *Mesoamérica Resiste!* project serves as a grassroots-driven contextual framing of the expansion of energy projects in Costa Rica and Panama. This political artwork, explored here before entering into discussion of cases from our fieldwork, serves as an introduction to extractivism and alternatives across the region of Central America, as presented from the combined perspectives of local civil society.

The Beehive Collective, which released *Mesoamérica Resiste!* in 2014, is a grassroots political art troupe ba-

Figure 2. Outside of the Beehive Collective's *Mesoamérica Resiste!*

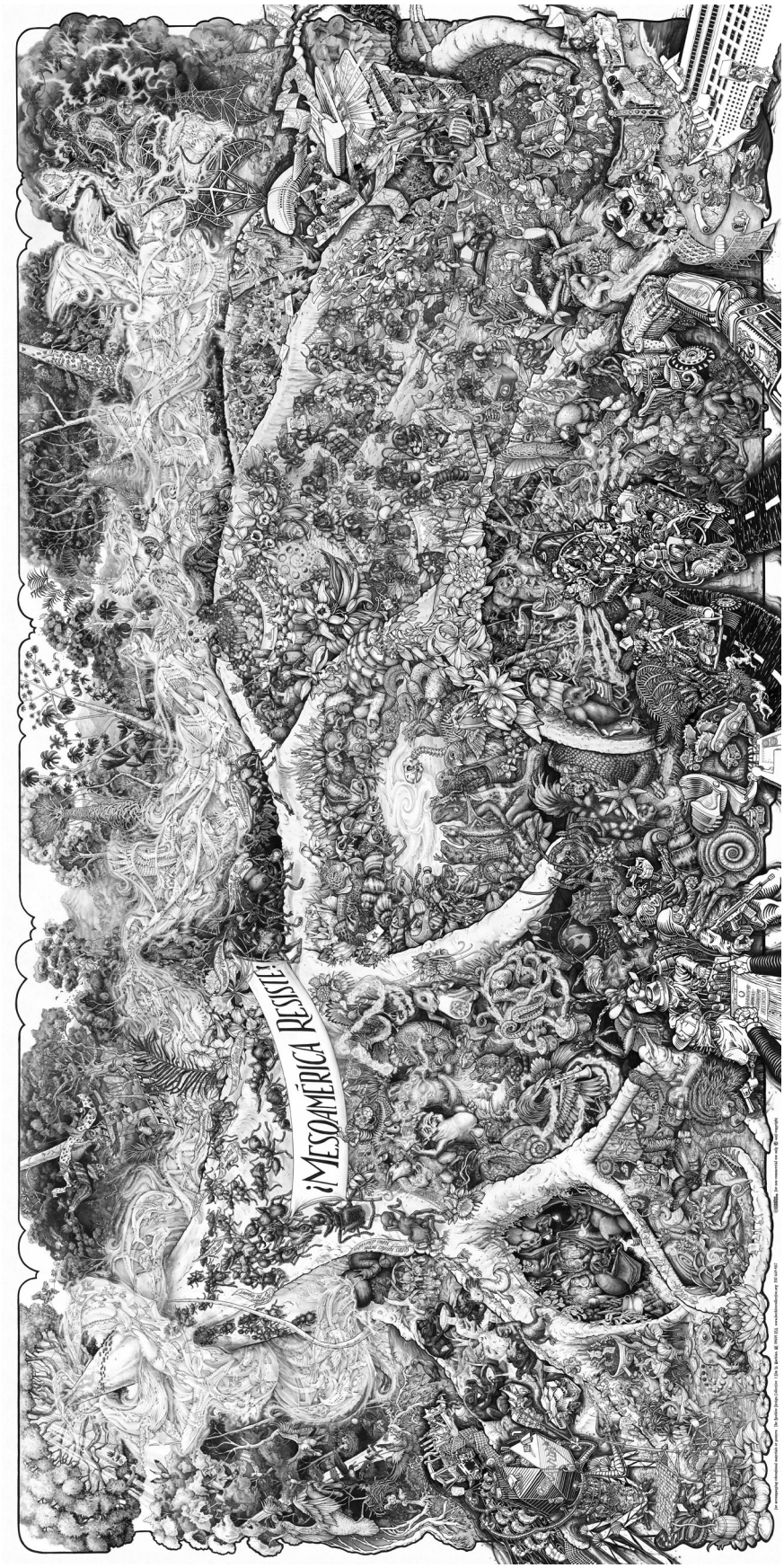


Figure 3. Inside of the Beehive Collective's *Mesoamérica Resiste!*

sed out of Maine in the United States. The Beehive has been designing rich depictions of the violences of corporate globalization and militarization for nearly thirty years. The third graphic in a trilogy on globalization in the Americas, *Mesoamérica Resiste!* takes a dual approach to exploring the Project Mesoamerica, illustrating the top-down imposition of economic projects on the outside of a folded poster (Figure 2, page 7), and opening up to a grassroots, bottom-up view on the inside (Figure 3, previous page).[1] The graphic project is the result of extensive consultation with more than 70 grassroots organizations from from Mexico to Panama over a nine-year process of meetings (Beehive Design Collective 2014). Ten years after its release, the collective continues to update online resources related to the poster and engage in educational tours with the project.

The folded poster approach allowed the collective to highlight two realities in Mesoamerica: external development plans, and the place-based community alternatives they threaten. The outside of the poster is drawn in the style of a colonial map and shows, from above and outside, the interrelated plans for infrastructure and energy expansion, the industries these support, and the transnational forces driving them. The regional map, which illustrates development plans contained within the *Plan Mesoamérica* regional development blueprint (Capdepont Ballina 2011; Otros Mundos 2011), is criss-crossed with highways, dry-corridor rail lines, ports, pipelines, and electrical powerlines, with many of these corresponding with the actual location of projects underway (Figure 4).[2] At the edges of the isthmus, the same infrastructure extends seamlessly north into Mexico and south into Colombia, and is capped by a militarized wall along the US-Mexico border. Along the way, it connects hydroelectric dams, airports, export goods, factories, and garment assembly. Neighbouring ocean space is filled with some 27 boats, each representing a different industry or transnational economic activity affecting the region since the colonial era. These run a wide range including mining, deforestation, drug trafficking, slavery, weapons, toxic chemicals, and more.

Surrounding this cacophony of capitalist activity perch four influencing forces depicted in allegorical form. Four trade winds blow on the region, bringing militari-

1 For magnified images, visit https://beehivecollective.org/graphics-projects/mesoamerica-resiste/

2 Projects in Costa Rica approximate the dry corridor from Limón to Puntarenas, the concentration of hydroelectric dams in San Carlos de Alajuela, the expansion of the Interamerican highway, and the Central American Electrical Interconnection System (SIEPAC) electrical line. The map of Panama shows the canal, the Barro Blanco hydroelectric dam, an isolated reserve of the Mesoamerican Biological Corridor, the Interamerican highway and SIEPAC line, and the extension of highways, power, and pipelines into Colombia—all real-world projects that are depicted in the *Mesoamérica Resiste!* graphic.

Figure 4. Detail of *Mesoamérica Resiste!*: Costa Rica and Panama

zation from the north, unnatural disasters and opportunistic disaster capitalism from the south, mass production for the Central American market from the east, and, from the west, disposable consumerism sends goods to pass through the Panama Canal and the region's dry corridors on its way to markets in North America and Europe. Positioned prominently in the four corners of the map, semi-human depictions of four international financial institutions oversee Project Mesoamerica: the Interamerican Development Bank, drawn as a cash register, showers money on the region; the World Trade Organization as judge fights off grassroots resistance; the International Monetary Fund as surgeon uses shock therapy to insert new projects, and the World Bank as gambler stokes the fossil fuel economy. A final area of importance in this summary is a 'green' area of environmentally-themed economic activity that is shown to be financed by the World Bank's fossil fuel gambling. Here, the Clean Development Mechanism, carbon credit markets, and private conservation highlight the green extractivism built into Project Mesoamerica (Figure 5).

The flip side of the poster opens onto a world of grassroots organizing and community alternatives that contain the most varied and nuanced aspects of the graphic. This second, bottom-up, side also makes use of the poster's edges to bring the two sides of the narrative together. Along the four edges, an onslaught of manifestations of capitalist violence attempt to invade grassroots territory. Powerlines, dams, and highways extend; tourism and an airport make landings; junk food pushes in while corporate water extracts and pollutes and an open pit mine devastates the land, and military, police, death squads, and gangs wield guns in the faces of women on the front lines of territorial defense (Figure 6, next page). In all cases, the centre of this bottom-up world is defended by animal, bird, and plant figures representing organized communities that confront the incursions of capital and militarism. Moving inward, away from the incursions, alternative systems of production, media, health, reproduction, and education thrive (Figure 7, next page). Historical memory is documented and disseminated. At the heart of the image, a horizontal, inter-species community forum breathes life and solidarity into all of these initiatives.

The *Mesoamérica Resiste!* poster is rich in its depiction of extractivism and green extractivism. Svampa & Viale's (2014, 18) definition of extractivism overlaps neatly with the depiction of extractivism in the graphic: the mode of accumulation central to development plans for the region is shown to be based in the extraction of energy, minerals, lumber, species, and more, a process that is depicted as relying on the expansion into 'unproductive' territories on the reverse side of the graphic. This mode of accumulation leaves behind only "a void," as suggested by Ye et al. (2020, 155)—the barren, conquered territory of capitalist extraction on MR's top-down map. As

Figure 5. Detail of *Mesoamerica Resiste!*: IMF, South Wind and Green Capitalism

in the literature, the towering influence of international financial institutions and other external forces in *Mesoamérica Resiste!* produces a delusionary effect of development aspirations (Svampa & Viale 2014), although the poster missed a chance to communicate the important involvement in regional extractivism by local elites, Central American transnational business groups, and capital from Mexico, Colombia, and other nations (Segovia 2021; Ballvé & McSweeney 2020).

The graphic also appreciates the tangled web of global capitalism that sustains extractivism and feeds its affiliates. In *Mesoamérica Resiste!*, hydroelectric dams feed the powerlines that connect industry while running alongside the highways that bring raw materials and finished products to port; fossil fuels provide funding for carbon markets and neoliberal conservation, and militarism accompanies the land-grabs dispossessing communities as extractivism pushes deeper into territory. The poster presents a seamless integration between traditional extractivism and its green variety, as well as the direct and indirect forms of green extractivism (Dunlap, Verweijen, & Tornel 2024). Indeed, extractivism as "a way of organizing life" (Chagnon et al. 2022) is an apt description of the incursion of capitalist activity along the rim of community defense on the grassroots-focused side of the poster. This violently-backed activity is shown in *Mesoamérica Resiste!* to have an insatiable thirst to consume all life. Extractivism, in *Mesoamérica Resiste!*, is shown as nothing short of "total" (Dunlap & Jakobsen 2020). The stories and maps presented below aim to bring this context to life further, through the narration of the lived experiences of energy expansion and its impacts on lives, livelihoods, and ecologies.

Figure 6. Detail of *Mesoamérica Resiste!:* Garifuna Resistance to Tourism

Figure 7. Detail of *Mesoamérica Resiste!*: Solidarity Economies

Methodology

The following section of this article presents grounded snapshots of green extractivism in Costa Rica and Panama, and identifies points of connection to Canadian actors. These are communicated through a series of stories from our fieldwork, each of which privilege the experiences of local people living with the impacts of proposed or constructed energy and infrastructure projects. In keeping with our appreciation of the power of visual art projects to communicate grassroots knowledge, these four stories, as well as many others learned during the fieldwork, are collected in a pair of maps depicting green extractivism in the areas under study: the country of Costa Rica, and the province of Coclé in Panama (Figures 7-8). The maps were drawn by the Costa Rican illustrator Raquel Mora Vega as a representation of this fieldwork, and were revised through a collaborative review process with research participants.

The maps covered the cases that entered into five months of fieldwork in Costa Rica and Panama during 2022 and 2023. The fieldwork supported a project that explored dynamics of environmental conflict around hydro and wind energy production, and with an emphasis

on the roles played by public and private Canadian actors within these conflicts. Research in both countries was conducted in collaboration with local academics and grassroots organizations. A Visiting Researcher position at the Centre for Political Research and Study at the University of Costa Rica facilitated much of the research there, while the support of the Federation for the Conservation of Nature (FECON) provided vital introductions to community organizers. In Panama, the project worked in collaboration with the Panamanian Observatory for the Environment and Society (OBPAS), and a member of the Observatory, University of Panama Sociologist Carlos Escudero-Nuñez, joined as a co-researcher during fieldwork. In total, 34 interviews were conducted, alongside participant observation at 18 energy and infrastructure sites across Costa Rica and Panama (mainly in the province of Coclé).

The maps presented here depict an interrelated set of energy, infrastructure, and environmental projects that intertwine with communities and social movements. Participants from the research project were invited to comment on drafts of the maps, and these were adjusted to reflect participant input. Nevertheless, the maps should not be considered as examples of social cartography, since the map-making exercise began with the researcher and an artist, and only later sought participant input. Instead, the maps were a visual research output, a tool for presenting findings to participants in an accessible way. Indeed, long before their official publication, final versions of the maps were circulated among participants and grassroots organizations, accompanied by a one-page explanation of their contents and the research findings. The maps further represented a productive process for the research itself, as the framework of Investment, Consumption, Production, and Provision—introduced in this article—was formulated through the process of arranging the research data in its visual form. We offer these maps and their accompanying stories as both an accessible research outcome depicting our findings, and a testament to the powerful insight of the grassroots actors who contributed to their contents.

Visualizing Canada in Costa Rica and Panama: Two Maps and Four Stories

To consider green extractivism in Costa Rica and Panama is to position oneself in the heart of the global energy transition. As two countries that provide terrain and resources for the regional Plan Mesoamerica development blueprint, and two national nodes within the Central America-wide SIEPAC electricity distribution network and the Regional Electric Market, Costa Rica and Panama are caught up in the fervor of capitalist investment in supposedly renewable energy projects. However, as Gutiérrez Arguedas & González Quiel (2023) show in their work comparing the border regions of Chiriquí, Panama and the Zona Sur in Costa Rica, experiences with hydroelectric expansion have differed in important ways. Both countries have faced waves of proposed new dams since the early 2000s, which the authors depict as characterized in both cases by non-transparent and coercive engagement with communities, strong ties between private interests and public institutions, and large numbers of proposed hydroelectric dams in concentrated areas (Gutiérrez Arguedas & González Quiel 2023, 28). However, the comparison of Chiriquí and the Zona Sur also highlights the greater success of Costa Rican grassroots movements in halting proposed dams, with the Zona Sur remaining entirely free of dams due to citizen movements like those detailed below. This difference is strongly related to the scenario of privatization in each country. While Panama privatized its electricity generation and distribution entirely in the 1990s, Costa Rica has been caught in a limbo allowing some private dams within the public system ever since a nation-wide movement blocked attempted privatization in 2000 (CIFHU-OBPAS 2021; Gutiérrez Arguedas 2024; Gutiérrez Arguedas & Villalobos Villalobos 2020; Feoli 2018). The drive to finish the job and fully privatize energy projects and the Costa Rican Electricity Institute remains a contentious cornerstone of Costa Rican politics today (Feoli 2023).

This difference in public and private involvement in energy markets has also shaped the nascent wind energy sector in both countries. Panamanian investors and their partners in Spanish transnational wind companies were backed by new laws incentivizing wind energy production beginning in the 2010s, and a number of private industrial wind projects have entered into construction and operation in recent years (CIFHU-OBPAS 2021). Investors in Costa Rica continue to focus on hydroelectricity, although a plan released by the Costa Rican Electricity Institute in 2023 declared an intention to significantly expand private wind and solar projects (Gutiérrez Arguedas & Granovsky-Larsen 2023). Activists consider the turn as a reflection of successful grassroots resistance to hydroelectric dams, which has resulted in project cancellations, municipal moratoriums, and a perception of a national chill on new dam construction (Interview,

Figure 8. Cases from Costa Rica Fieldwork

Source: Illustration by Raquel Mora Vega.

community member, November 2022).

In both countries, right-wing governments have recently promoted the further expansion of private energy projects, but this expansion has faced significant community resistance in both Costa Rica and Panama. The maps introduced below capture some of these national dynamics. While the Costa Rican map addresses the entire country, however, our map of Panama focuses on the province of Coclé. This difference is due to collaboration between the researcher and grassroots organizations during fieldwork—whereas the FECON organization facilitated research access across Costa Rica, the OBPAS hosts and their co-researcher in Panama encouraged a focus on Coclé as the epicentre of the expansion of wind projects at the time. The maps are still comparable in their depiction of fieldwork-based observations framed within local dynamics. The following sections present each map, followed by stories that illustrate grounded experiences with energy expansion and green extractivism.

Costa Rica

The map of Costa Rica (Figure 8) presents four clusters of energy, infrastructure, and community resistance. The Regional Electric Market features prominently in the map, through the Central American Electrical Interconnection System (SIEPAC) infrastructure for international distribution that cuts across the country (labelled #1 on the map). Under these wires we see two areas in the crosshairs of dam expansion: the Zona Sur (#2), where campesino and Indigenous communities succeeded in cancelling at least 35 dam projects between 1995 and 2015, maintaining a region free of hydroelectric production; and the San Carlos area in the north (#6), where the early construction of dams served as a warning to the rest of the country about the ecological harm of supposedly renewable sources of electricity. Running east-west across the north of the country, a series of interconnected megaprojects show the amplification and electrification of transportation infrastructure (#4), port expansion for exports (#8), biomass energy generation through agroindustry (#5), and open-pit mining and river gravel extraction (#7). South of these projects, the canton of Turrialba (#9) combines the construction of mega-dams with community movements that successfully protected local rivers in 2005 and 2020. The two fieldwork-based stories below highlight these dynamics through the observation of cases along the east-west corridor (Guácimo) and in the Zona Sur (Coto Brus).

Guácimo: the highway dividing pineapple and campesinos

The Ruta 32 highway, under frantic expansion as part of a road and electric-train dry corridor across northern Costa Rica, cuts a line between two worlds. To the north is a barren land. Despite *campesino* resistance in the 1980s, small-scale agriculture has been replaced by monocrop pineapple plantations that stretch all the way to the Nicaraguan border, poisoning watersheds and disarticulating social organization. Desperation has set in among young people who see no future for employment, and gang violence is on the rise. On the southern side of the highway, however, community struggles were successful, preserving the *campesino* way of life and protecting water and ecosystems. A life-long community organizer recalls one important campaign, when,

> they wanted to build a hydroelectric dam right in the Parismina River, a very, very beautiful river. It's one of the best rivers that we have in this area. […] And the huge number of aquatic species the river has is incredible. It's a river that crosses the mountain. So it is very clean. So, they wanted to completely destroy that river. […] And at the same time they were constructing the Reventazón hydroelectric project, which is one of the biggest hydroelectric dams, in this area I think, and maybe in all of Central America, I'm not sure, but it's one of the biggest. And these rivers are very similar, Reventazón and Parismina. They're like twins. It turned out that the Inter-American Bank, in order to lend funds to the ICE to build the reservoir and all the work that was needed on the Reventazón, they ask for two rivers with similar flow as the Reventazón River as compensation. So because of those things in life that only God knows how they appear, two men came to my office and the said, Mrs. Councilwoman, we're looking for two rivers that can compensate for the Reventazón project (Interview, community member, December 2022).

The Parismina was protected—freed from hydroelectric construction and supported with reforestation and conservation projects—but only as a condition that allowed an IDB loan to build a mega dam on the neighbouring Reventazón river. In the foothills to the south of the Ruta 32, another campaign protected the rivers of Guácimo, as well: a pineapple plantation was driven out by court order after the community organized in response to industrial water pollution. Today, those foothill communities serve as an alternate reality of pineapple's sa-

crifice zone north of the highway. Streams flow through lush forests and stories tell of strong communities and rural tranquility, all protected by recurring bouts of community struggle. Local rivers are also affected by the dividing highway itself: excavators gouge Guácimo's rivers for sand and gravel, to feed cement to the infrastructure projects running through the zone and deepening the local connection to global capitalism.

Both realities in Guácimo, north and south of the highway, are run through with transnational engagement. The Interamerican Development Bank (IDB) bankrolls highway and train expansion, which in turn supports increased pineapple exports to the global North. The eventual electric train will draw on power produced at dams across Costa Rica. And farther north-west along the same dry corridor, the Canadian government delivered a $2.4 million donation to generate biomass energy at one of the largest citrus plantations in the country, maintaining a priority for corporate profit within the energy transition (Government of Canada 2024a). Guácimo's local water is jostled among transnational interests as the IDB seeks to improve its image through conservation while financing dams. Community struggles to protect water grapple with local and foreign threats to rivers posed by investors, companies, and banks.

Coto Brus: the domino effect of community resistance

The Municipality of Coto Brus in Costa Rica's Puntarenas province is a land full of rivers and free of hydroelectric dams. I drove the length of the municipality one day in a rented 4x4 and guided by an elderly *campesino* activist. Along a gravel road that climbed mountains and descended valleys of small-scale cattle and coffee, I was given a tour of dams that never came to be. The principal projects in the area comprised a set of four dams proposed by the Instituto de Costarricense de Electricidad (ICE), the once beloved public institution that has become increasingly questioned during three decades of semi-privatization of electrical generation. The four dams—three proposed for the Cotón River and one for the Coto Brus River—together would have represented the potential generation of 423 MW of electricity, with around half of that coming from the Coto Brus River's Palmas 2 project alone (Pacheco Morgan 2015). Reportedly aiming to piggyback on the public infrastructure that would accompany the ICE dams, another series of private dams were in the works for the Cotón River, Hamaca River, Claro River, Canasta River, and Negro River. Outside investors bought up land and existing landowners surveyed for hydroelectric potential, and all waited for an ICE transmission line to connect to. Some of the dams were set to be tiny projects built on waterways no bigger than streams, while the Canasta River attracted the interest of a Spanish corporation for a large dam (Research notes, November 2022).

The story of attempts to build hydroelectric dams in Coto Brus is also intimately tied to El Diquís, a mega-dam that was defeated within the nearby Téribe Indigenous territory. The 650 MW El Diquís was defeated in 2018 after many years of Indigenous struggle claiming rights for free, prior, and informed consent for construction on the Térraba River. The downfall of the El Diquís dam was further aided by a revelation that the ICE intended to export the electricity generated for sale on the Regional Electric Market, given that existing dams already satisfied demand in Costa Rica (Interview, journalist, December 2022). Community members in Coto Brus believe that the ICE dams proposed for Coto Brus were being positioned as backups for the troubled El Diquís project. When El Diquís fell, however, the ICE proposals in Coto Brus were withdrawn. With ICE infrastructure off the table, the proposed private projects went silent, as well.

Surrounding the site of the proposed El Diquís, another green project also faced Indigenous opposition. Although they would later join the project, local communities initially opposed incorporation of Indigenous territory into the Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) network (Wallbott & Florian-Rivero 2018; see also Ramírez Cover 2020). REDD+ has been criticized heavily in many other contexts, for commodifying forests for external profit while encouraging a cycle of deforestation and monocrop reforestation (Otros Mundos 2014; Aguilar-Støen 2017).

The scenario of conflictive hydroelectricity on the Térraba River and its spill-over into the nearby rivers of Coto Brus, as well as contentious carbon markets, flow across transnational ties back to Canada. The federal government invested CAD$1.29 million in two stages of the Forest Carbon Partnership Facility funds for REDD+ implementation in Costa Rica (Government of Canada 2024b), and the IDB produced US$1.5 million for El Diquís. Once again, the transnational ties of global extractivism connect Canadians to seemingly local threats to watersheds and forests in Costa Rica.

Figure 9. Cases from Panama Fieldwork

Source: Illustration by Raquel Mora Vega.

Panama

Following many years of conflict over the construction of large-scale hydroelectric dams, many of which were built or proposed in autonomous Indigenous comarca territories without consent, Panamanian legislators and politicians began to promote wind energy as an alternative in 2011 (Interview, NGO staff, March 2023; Presidencia de la República 2011; SNE 2016). The province of Coclé in eastern Panama has been the focal point for wind expansion up until now (ASEP 2023), and it was also the location of our fieldwork in Panama. The two fieldwork-based stories presented below are also the two areas where fieldwork took place: the industrial wind project in Toabré (#1-3 on figure 9) and a combination of wind, hydro, and solar projects along the Grande River (#5-6). The Toabré wind project is depicted on the map as encircled by private security and surrounded by deforestation and water shortage. The dollar sign clipped onto an image of air beside the wind towers represents the company's potential to profit from selling wind-generated carbon credits through the UN's Clean Development Mechanism. South of Toabré, additional wind projects (#2 & 3) are under construction, while an urban wind project (#4) was constructed under conditions that were more beneficial to residents than those seen at Toabré. Along the Grande River (#5 & 6), wind and hydro projects carry electricity away to the national grid while leaving community members without power. Amidst this injustice, at least one hydroelectric dam project was cancelled by community resistance. Finally, outside influence is depicted along the outer rim of the map of Coclé: critical minerals (#7) and investment (#8) support the projects depicted here; the contentious Cobre Panamá mine (#9) affects the ecology of neighbouring Coclé, and transnational studies of ideal locations for wind energy projects (#10) introduce previously isolated locations —such as the mountains of Coclé —as sites for mega-development.[3]

3 Since the early 2000s, various intergovernmental agencies and development banks have provided open access data on resource assessments for wind, solar, and other non-traditional forms of electricty generation. One front-runner project was the United Nations Environmental Program's Solar and Wind Energy Resource Assessment between 2001-2008 (UNEP 2011). Agencies such as the International Renewable Energy Agency and the World Bank-funded Global Wind Atlas maintain interactive datasets online that detail wind energy conditions worldwide. Community members in Coclé remember the early stages of the UN survey (Interview, community member, March 2023).

El Fraile hydroelectric dam: the intersection of 'green' and 'dirty' extractivism

From the bank of the Grande River in Panama's Coclé province, the injustice of the El Fraile Hydroelectric Project (PH El Fraile, as it is known in Spanish) is evident in three sights. The river water is low in this spot less than a kilometer downstream from the dam, reportedly about a meter lower than before the dam arrived. Sediment from a recent floodgate opening churns the water brown, but there is another discolouring visible as well: a slick layer of petroleum coats the small boulders that cluster on a riverbank that used to be its floor. "The water is polluted," says a neighbour. "Grease, oil from the machinery, from the turbines. And the other thing is that the eggs from the fish and the shrimp are practically all gone. My mother grew up eating fish and shrimp from this river. Now you go and they aren't there" (Interview, community member, March 2023). Alongside the ecological injustice of reduced and polluted water, the third injustice flows overhead, coursing through powerlines. The electricity produced at the PH El Fraile—and at the accompanying solar and wind plants under construction at the same site—is carried south to the national grid while bypassing unelectrified rural villages including homes that are a stone's throw from the dam.

About 12 kilometers upstream, I sat with local organizers in Bajo Grande on their porches overhanging the same river. Above the dam, the Grande River flows in its natural form—deep, turbulent, clear. In these spots, and in communities along the length of the river, neighbours organized recently to stop the expansion of PH El Fraile through a second hydroelectric dam. Their efforts joined together with a campaign by an environmental legal aid organization that forced many dam projects to cancellation and brought about what one activist understands to be a chill on new hydroelectric dam construction (Interview, NGO staff, March 2023). Even without the new dam, however, the joint project of the El Fraile dam, the Caimitillo wind project, and the El Fraile solar project intend to generate earnings for investors in addition to those gained from the sale of electricity. Although El Fraile has not begun earning through carbon credit sales yet, the expected amount noted in the project's application for Clean Development Mechanism certification was $280,000 USD annually (UNFCCC 2012a).

Electricity from PH El Fraile and its associated wind and solar projects reaches the Panama Canal as well as tourist locations and shopping malls along the Pacific

coast satisfies residential demand (especially for air conditioning), is exported to Central America via SIEPAC infrastructure, and supplements on-site generation at the Canadian Cobre Panamá copper mine (Interview, NGO, Staff, March 2023). Another connection entwines El Fraile with the Cobre Panamá mine. "It's a geographical alley. A canyon that comes from the Caribbean into Colón and Coclé, the provinces that lie in that," said a community member alongside the Grande River (Interview, community member, March 2023). And with the mine's deforestation, that wind is now stronger. "The mountain vegetation in Donoso, Coclé, where the mine is, was very big, very thick. […] And the trees worked like a natural windbreaking curtain. But now that the trees aren't there, it passes through." That strong wind is also a salty one, straight off of the Caribbean, and the combination of the El Fraile dam and the Cobre Panamá mine has a double impact. "It's very clear here, it has been an extreme drought. You can see the drought in the river, the saltpeter that comes in on the Caribbean wind towards the Pacific damages our homes' metal roofs." Communities surrounding the El Fraile dam and its wind and solar appendages, and within impact range of the Cobre Panamá mine, are reduced to sacrifice zones (Scott & Smith 2017). Their water is drained and polluted and their air is transformed, while the proceeds of the capitalist energy transition take to the sky in power lines overhead, bound for wealthier centres.

Toabré Wind Project: sacrifice zones and murky legal terrain

The municipality of Toabré has begun rationing water. "Now we have to plan for one or two days for a section," says a member of the local water management committee. "That's also a consequence of the water level that is dropping, that has dropped notably." (Interview, March 2023). Together with his colleagues, we head to the municipal water collection site to see this impact firsthand. Large pipes extend down into a nearly dry riverbed, and a trickle flows through two enormous storm drains, built seemingly oversized. The cause of this shortage, however, is not a hydroelectric dam, but a wind energy project uphill where the rivers are born in mountain forests. Interviews and conversations with 11 people living in the shadow of the Toabré Wind Project (PE Toabré as it is known in Spanish) coincide in claims that the wind company bulldozed over important springs during construction, leaving the local rivers depleted and filled with sediment.

Toabré and surrounding communities have been turned into sacrifice zones in more ways than one. Not only has their water been needlessly stolen, but they find themselves subject to a new scenario of quasi-privatization that separates people from land and neighbours from one another (Granovsky-Larsen & Escudero-Nuñez 2024). I first learned about this legal gray zone from a private security guard. Two local activists, a University of Panama professor, and I had driven a back road nearly vertically up a mountain to its peak, where some of the PE Toabré Vesta towers loomed mammoth overhead, their electric whir drowning out even the strong wind in our ears. Before long, a private security truck arrived to inform us we were trespassing on company land, and escorted us to the boundary of the project. When we tried to enter through the main road on another day, a guard at the entrance blocked our passage. Unlike land privately owned by an extractive company, though, the Audax Renovables company does not hold title to any of the land its wind infrastructure is built upon. Instead, it leased *campesino* land for a 40-year period in order to built the PE Toabré. One of those *campesino* landowners discussed his contract with me, and a lawyer acting on behalf of other residents corroborated his story as generalizable in Toabré:

> It turns out that the communities or the farm owners signed a contract that I would call unfair (leonino). In legal terms, it's a disadvantageous contract, a completely harmful contract for the landowners. Why? Because many of these people didn't know, mostly because they were campesinos and many of them were illiterate, they weren't familiar with what they signed, and many of them just signed with their thumbprint. Others signed with their name or their signature, but they told me, 'They asked for my name,' but what they ended up providing was the signature from their Panamanian identification card and which committed them to give up their land to these companies (Interview, lawyer, March 2023).

Landowners did not know that their contract ceded use of their entire property to the whims of the company, they did not understand that that the contract could be extended without notice at the end of 40 years, and they certainly were not aware that a security barrier would prevent those outside of the project area to visit them without permission from the company. The resulting patchwork of contracts across a 2,000 hectare area, together with a road built by the company across the same land, creates a space of legal ambiguity. The land belongs to the original *campesino* owners, but access is controlled

by the wind company. And the company road that runs through the wind project falls outside of the control of the Ministry of Transportation but also is not owned by the company, an anomaly that the same lawyer described as in violation of Panamanian law (Interview, March 2023; Sabonge 2024).

The Toabré wind project was built through joint Panamanian and Spanish capital, but many connections lead back to Canada. The mining-energy entanglement appears again, this time through the "transition minerals" required to construct the project. Wind turbines are built using many tonnes of steel and copper, along with a range of other minerals and rare earth minerals, all of which are mined in part by Canadian companies (including inside of Panama) and supported strategically by the Canadian government (Government of Canada 2022). The Vestas turbines at the PE Toabré also benefit from the investment of the Canada Pension Plan in the Danish company (CPP Investments 2022). PE Toabré, meanwhile, intends to earn from the sale of carbon credits via its certification through the Clean Development Mechanism once the wind project is up and running beyond its current testing stage (UNFCCC 2012b). Finally, as with the El Fraile dam discussed above, electricity produced at the PE Toabré flows into Panama's national grid and onwards to mining projects and capitalist infrastructure across Panama and out into the Central American regional energy market. The web of capitalist extraction and accumulation swirls visibly around the transformed municipality of Toabré.

Locating Canada in Central American Environmental Conflicts

The stories recounted above from Guácimo, Coto Brus, and Coclé are representative of the lived engagement with green extractivism by neighbouring communities across the region of Central America. Local domestic contexts vary widely (Spalding 2023), but—as the *Mesoamerica Resiste!* Project demonstrates through its depiction of the collected perspectives of civil society voices—affected populations across Central America experience the transition to green extractivism, with its energy and infrastructure projects, with a great deal of similarity. Environmental degradation, social dislocation, dispossession, a lack of sharing in the benefits of energy and infrastructure projects, and an overall sense of a major economic shift that has not taken communities into consideration are apparent across the four cases introduced above. Importantly, the cases from Guácimo, Coto Brus, and PH El Fraile (but not PE Toabré) also speak to the power of organized communities and the potential to halt green extractivist projects and protect alternative ways of life.

The transition affecting communities in Costa Rica and Panama is deeply transnational. Contrary to a tendency to focus on the nationality of the extractive com-

Table 1. Canadian Public and Private Involvement in Selected Extractive Projects

	Guácimo (Costa Rica)	Coto Brus (Costa Rica)	PH El Fraile (Panama)	PE Toabré (Panama)
Investment	IDB finances dry corridor Ruta 32 and electric train (public) IDB finances Reventazón dam (public)	IDB investment in El Diquís dam (public) Canadian government investment in REDD+ (public)	Neighbouring Canadian-owned Cobre Panamá mine affects region (private)	Canadian Pension Plan invests in Vestas wind tower company (public)
Consumption	Pineapple demand drives infrastructure expansion and water exhaustion/pollution (private)		Carbon credits for international polluters (private) SIEPAC for transnational energy demand including Canadian mines and companies across Central America (private)	SIEPAC for transnational energy demand including Canadian mines and companies across Central America (private)
Promotion		REDD+ investment promotes carbon markets (public)		Toabré certification with Clean Development Mechanism (public) Intergovernmental surveys of wind energy potential by UNEP, IRENA, and World Bank (public)
Provision				Transition minerals for wind tower construction (private)

pany at the forefront of an environmental conflict—for example, a Canadian mining company or the Costa Rican owners of a hydroelectric dam—we have argued here for an appreciation of the wide transnational entanglement of global capitalist activity in the often indirect forms of green extractivism evident locally. The process of creating and collaboratively revising the above maps of fieldwork cases led us to a categorization of transnational involvement as *Investment* (in projects and associated companies), *Consumption* (of resulting products), *Promotion* (of green extractivism and its facilitating initiatives), and *Provision* (of materials for extractive projects). Table 1 maps instances of this involvement across our cases. For each of the four cases/stories introduced above, the table denotes areas of Canadian Investment, Consumption, Promotion, and Provision. Each instance also notes whether the involvement is of public or private actors. The focus here is on Canada as a country that is influential and that benefits from green extractivism disproportionately, but which maintains low visibility in the green extractivist transition in Central America. The same exercise could be undertaken to explore the roles of other countries as well, such as the United States or China, or important regional players such as Brazil or Colombia.

The benefits that Canadian companies and the Canadian government draw from a green extractivist economy in Central America are subtle but substantial. The Canadian government benefits from a mostly hands-off approach to energy in the region, supporting the overall transformation of the sector within a neoliberal framework while maintaining distance and deniability from involvement in resulting community-level environmental conflicts (Granovsky-Larsen & Larreátegui Benavides 2023). Private Canadian companies likewise benefit from the regional energy transition even when they do not directly own the projects involved. The Provision and Consumption modes of involvement demonstrate this most clearly, as Canadian companies benefit from direct sales of construction materials, as well as the consumption of electricity at the sites of Canadian investments. In a broader sense, the globalized Canadian economy as a whole also relies on and benefits from Central America's unjust energy transition, dependent as it is not only on mining and financial foreign direct investment in the region but also on the health of liberalized investment and the acceptance of the neoliberal framework worldwide. Ignorant of the local harms that accompany the expansion of energy and infrastructure projects, and indifferent to national and regional debates over energy futures in Central America, the participation of the Canadian government and Canadian companies in continuing to shape and profit from green extractivism has cemented a form of intervention that balances low visibility with high influence. The experiences recounted here of communities in Guácimo and Coto Brus in Costa Rica, and in Coclé in Panama demonstrate the significant impact on the livelihood of rural communities that accompanies the political-economic turn of green capitalism and green extractivism.

Conclusion

A significant global political-economic shift away from fossil fuels is underway, and is accompanied by slow turns in investment patterns, development models, resource frontiers, fictitious commodities, and more. This turn has harmed many local communities in its wake, generating waves of agrarian change and dispossession that, for the most part, have been to the benefit of investors and elites. The transition has been equally global and local; unsurprisingly, then, existing uneven relationships between actors in the global North and South are reproduced and reinforced through the green economy. These qualities of the energy transition are well understood by members of rural communities affected by energy and infrastructure projects, as was made unwaveringly clear through many fieldwork conversations in Costa Rica and Panama.

This article attempted to represent that community-held knowledge, along with the results of other research into corporate and government documentation, through a pair of visual graphics. This exercise was intended to reinforce the importance of graphic projects and to emphasize their ability to both incorporate academic theory in accessible ways and communicate the relevance of community knowledge to that theory. The paper explored the *Mesoamérica Resiste*! project at length as an example of community-oriented, non-academic radical cartography that nonetheless contains empirically and theoretically relevant data for academic research. In the case of the research presented here, graphics production resulted in an improved understanding of the forms of Canadian involvement in renewable energy environments of Central America. Organized around transnational participation identified as Consumption, Investment, Promotion, and Provision, the article highlighted the importance of identifying less visible forms of involvement by powerful countries within economies, societies, and ecologies in the global South, much of which is subsumed within what Dunlap, Verweijen, & Tornel (2024) refer to as indirect green extractivism. As green capitalism continues

to evolve and to grow in importance, it will be vital for researchers to maintain strong relationships with grassroots actors in order to learn from their direct experiences with green extractivism. Of equal importance is the dedication and ability to engage in reciprocal knowledge production and to make academic findings accessible and relevant for participants and their peers. Radical cartography and other visual graphics projects present one approach to these imperative tasks within the evolving political economy of green extractivism.

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