



Pathways to decolonize North–South relations around energy transition

Miriam Lang¹

Universidad Andina Simón Bolívar, Ecuador

Abstract

Climate coloniality manifests in the violent appropriation of territories in the Global South, including the extraction of strategic minerals such as copper and molybdenum to service energy transition and green growth for the major world powers. Peasant communities in the Intag river valley in Ecuador have been resisting large-scale mining for decades and, thus, have built up a local solidary economy as a livelihood alternative. This includes communitarian hydropower projects at different scales, which are designed not only to provide families with extra income or jobs but also to build virtuous circles that avoid deforestation, protect biodiversity, and strengthen relations in all their dimensions: within communities, with nature, and with organized actors in the Global North who recognize and wish to cancel their climate debt.

Keywords

climate coloniality, energy transition, convivial technologies, community organizing

1. Introduction

Climate coloniality is justified via assumptions that the territories of former colonies are available to countries in the geopolitical North for the externalization of the environmental and social costs of the green-growth-oriented transition toward renewables, proposed as an answer to global warming. The green economy or green growth perspective has become hegemonic in the aftermath of the Rio+20 Conference in 2012 and has been reframed since as a consensus to 'decarbonize' the globalized economy without questioning the imperative of infinite growth that underlies it. The Green Deal launched by the European Union in December 2019 endeavors to achieve 'zero net' greenhouse gas emissions by 2050 and to boost economic growth by upgrading the technological basis of infrastructure and production to renewable energies. The deal aims for 'green' economic growth, supposedly decoupled from resource use and pressure on ecosystems, which would be possible through the digitalization of much of the economy (European Commission, 2019). The US wants to halve its economy's net CO₂ emissions by 2030 and to reduce them to zero by 2050. China has also declared its aim for peak emissions before 2030 and carbon neutrality by 2060. Several declarations signed in the context of the Glasgow COP in November 2021 suggest the willingness of industrialized countries to move toward renewable energies. Even the International Energy Agency (IEA, 2021) has emphasized the need to stop new oil, coal, or gas extraction projects if the world is to effectively limit global warming to 1.5°C.

Climate coloniality unfolds in at least four different dimensions of the relations between the geopolitical North and South as they are being reshaped and updated in the context of this decarbonization consensus.² The first is in the claim on illimited raw materials in the context of 'resource security' policies, brought forward in a competitive way by all major world powers as a condition for decarbonization, which adds an extra 'green' layer to the already existing extractivist pressures on world regions such as Latin America and Africa. The second dimension features the imposition of certain formats of conservation in Southern territories in the context of carbon offset schemes, which also allow for a further postponement of urgent structural changes in

¹ Miriam Lang, Professor of Environment and Sustainability, Universidad Andina Simón Bolívar, Ecuador. Email: miriam.lang@uasb.edu.ec.

² Breno Bringel coined this term in Universidade do Estado do Rio de Janeiro.

polluting production processes located in Northern economies. The third dimension of climate coloniality is the use of places in the Global South as sinks for toxic and electronic waste generated by digitalization and the use of renewable energy sources (Sovacool *et al.*, 2020). The fourth dimension envisions the landscapes of the South as new markets for selling new renewable technologies at high prices within the asymmetric architecture of global trade, thus perpetuating unequal exchange (Hickel *et al.*, 2022).

All four forms of interaction between the geopolitical North and South, already underway in the context of energy transition, implicate dynamics of colonial appropriation, which undermine the possibilities of peripheral countries to engage in an ecosocial transformation of their own, in the interest of their own population. They jeopardize national sovereignty and strip those countries of the material, technological, and political means to engage in such a transformative process. For instance, Latin America has provided the rest of the world with raw materials throughout the Great Acceleration (Steffen *et al.*, 2015). More materials have been extracted from the region for export in the last four decades than in the entire history of the region. Further, most Latin American economies import at higher prices than they export. In fact, in many countries in the region, deficits coexist in both physical and monetary trade balances: despite exporting more resources than are imported, income generated to pay for imports remains insufficient. In this context, Infante-Amate *et al.* (2020) highlighted a process of 'natural decapitalization.' This very material process of material plunder and re-subordination within the capitalist world system is what I frame as green colonialism. Bhambra and Newell (2022), alongside many Latin American intellectuals, such as Eduardo Galeano (1973), Arturo Escobar (1995), Anibal Quijano (2000), Maria Lugones (2010), and Marisol de la Cadena (2015), insisted that the modern world is specifically a colonial modern world, in which colonialism is continuous with the reproduction of capitalism in very material and symbolic terms—a continuity that now shapes climate policies.

The recent geopolitical shifts in the context of the war between Russia and Ukraine have not only unleashed a worldwide energy crisis but have also reconfirmed that what is underway is not so much an energy transition, which would suggest that fossil fuel consumption is effectively replaced by renewables. Rather, it underscores an energy expansion³, in which renewable energy sources are added onto ongoing and even expanding fossil fuel operations that remain at the heart of energy security strategies, regardless of past climate commitments (SEI, 2021). While governments in the geopolitical North⁴ declare energy policies a matter of national security, elites and governments in the Global South interpret those renewed appetites for oil and natural gas as opportunities for 'development', notwithstanding the experiences of environmental destruction and decline in wellbeing from most oil- and gas-exporting countries. Those experiences confirm the 'resource curse' hypothesis (Acosta, 2009; Bassey, 2012).

Further, the planned expansion of productive processes, mobility, and household consumption based on renewable energy sources from the perspective of green growth is boosting the demand for certain minerals. According to the World Bank (2020, p. 12), "Molybdenum and copper, for instance, are used in more than eight clean energy generation and storage technologies." Copper and molybdenum are the main minerals supposedly found in the potential copper mining project Llurimagua, located in Ecuador, more precisely in the foothills of the western Andean mountain range in the province of Imbabura, in a region known as the Intag river valley or simply Intag. Struggles around a profitable future for some versus a livable future for all, have characterized this region over the last decades. More specifically, there have been recent advances in communitarian energy that contest the tacit dynamics of green colonialism.

2. Research methods: Structure of the article

This article examines three renewable community energy projects in the Intag Valley, Ecuador, which are analyzed in the context of a wider societal project that Inteños (inhabitants of Intag) are building in

³ The Algerian academic-activist Hamza Hamouchene was the first person in my circuits to use this understanding of "energy expansion."

⁴ I include China in the geopolitical North, as one of the major world powers that increasingly externalizes the social and ecological costs of its economic growth toward other world regions, such as Africa, Latin America, and neighboring countries of South East Asia.

opposition to the constant threat of large-scale mining amid shifting Ecuadorian politics and global energy markets. By analyzing the multiscale dynamics and the political, economic, sociocultural, and environmental forces and actors that shape this territorial dispute, this study seeks to contribute to the debates around the geopolitics of ecosocial transitions from the perspective of Latin American political ecology. After an introduction to the multiscale context, the article focuses on four aspects:

- a reframing of hydropower as embedded in the web of life,
- the centrality of care,
- a specific understanding of energy and technology, and
- innovative proposals for climate finance.

I explore the place-based epistemologies that evolve around the understanding of energy in the context of climate change.

My research is grounded in one and a half decades of relationships with anti-mining activists in Intag, accompanying their resistance process and the building of territorial alternatives, as well as on a series of recent interviews and field visits. It takes the perspective of participatory action research, with the objective of connecting local strategies against extractivism with Latin American and global debates around just transitions and climate coloniality. The aim and scope of this article were discussed with some of the community leaders who promote a different vision of energy in Intag and who are part of a dialogical process of mutual learning. As a Western activist scholar based in Ecuador since 2006, who has taken an active part in Latin American *beyond development* debates (see, for example, Lang *et al.*, 2013), I engage with the peasant, *mestizo*, and Afro-descendant communities of Intag from a pluriversal perspective. I relate to local actors as protagonists of their place-based political practices and conceptualizations in an attempt to give shape to ecologies of practices and knowledges (De la Cadena & Blaser, 2018).

3. Intag: Resistance to mining and alternative economies

The multiscale perspective characteristic of political ecology shows that the processes of resistance and construction of alternatives in Intag are not only entangled with the colonial geopolitics of energy expansion described above, but are also embedded in a broader Latin American context. This context is rich in experiences that have either sustained or have recovered a series of commons, where alternative pathways are proposed regarding the processes of production, distribution, and consumption of energy, as well as understandings of energy itself. There have been decades of debates and struggles against all kinds of projects that have time and again threatened to destroy those modes of living, cultures, peoples, and ecosystems that have subsisted at the margins of colonial/modern capitalism: the modes of living of indigenous, Afro-descendant, or peasant communities and peoples. Those struggles have opened, for example, perspectives on communitarian energies⁵ or worldviews that do not consider oil the fuel of economic growth but the blood of the earth. They show pathways to confront the climate and environmental crisis that are radically different, based on other forms of knowledge and other ways of relating to nature, energy, water, and food. All of this implies a profound cultural transformation that also envisions other forms of understanding wellbeing or a dignified and delectable life.⁶

Seven parishes constitute the Intag zone, an area totaling 150,000 hectares, with approximately 17,000 people, including Afro-descendant, *mestizos*, and indigenous inhabitants. Although archeological sites reveal an ancestral indigenous territory, its actual population is mostly peasants who came to the region since the late 19th century. With an altitude that ranges from 650 to 4,000 meters above sea level, Intag's cloud forests belong to one of the most important biodiversity hotspots in the world: the Tropical Andes. Its trees are "typically

⁵ See the two documentaries *La energía de los pueblos* by La Sandía Digital (2020) available here: https://www.youtube.com/watch?v=aX1A-2S_uAs (last accessed on 15 April 2023); as well as *Energías comunitarias* by FUNDAEXPRESION (2021) available here: <https://www.youtube.com/watch?v=cyQuvk3-NOs> (last accessed on 15 April 2023).

⁶ For a deeper insight, see the chapter by Tatiana Roa and Pablo Bertinat (2024).

covered with orchids, mosses, and other plants on each branch. There are many species found in cloud forests that are not found elsewhere; therefore, this ecosystem is known for containing a high incidence of endemic species. Cloud forests are fragile and threatened by climate change, logging and slash-and-burn agriculture" (Kocian *et al.*, 2011, p. 11). To qualify as a hotspot, a region must contain at least 1,500 native species of vascular plants (> 0.5 percent of the world's total) and have lost at least 70 percent of its original habitat. According to the World Wildlife Fund's 2020 Living Planet Index, the tropical regions of the Americas are currently the region of the world that has lost the most biodiversity since 1970, with a total loss of 94% (World Wildlife Fund, 2020, p. 6).



Figure 1: The location of the Intag zone in Ecuador. Source: García Gallegos (2014).

Since 1995, the peasant communities and social organizations of Intag have waged a struggle against four mining companies that successively had been granted concessions around the community of Junín, where copper and molybdenum deposits were identified: first the Japanese Bishimetals, then the Canadian Ascendant Copper. Strategies of resistance included legal demands and advocacy, as well as sabotage of mining camps and direct confrontation with private guards who penetrated the territory to make way for the mine but were

taken prisoner by the peasants in December 2006. This community resistance and the Mining Mandate issued in 2008 by Ecuador's Constituent Assembly, which restricted mining activity, temporarily forced the state to revert the concession. However, shortly after that, in 2009, the government of Rafael Correa (2007–2017) enacted a mining law that allowed for an expansion of extractivism, but now prioritizing public companies. A national mining company—ENAMI—was created in 2012. This shift from a corporate/private mining project toward a public company that cooperates as a placeholder with the state-owned CODELCO from Chile was a decisive shift in the process, legitimizing further mining activities (Dupuits, 2020). In March 2023, a provincial court ruled that CODELCO and ENAMI had violated community rights and the rights of Nature established in the 2008 Constitution and canceled their licenses, leading the struggle to the next round.

Intag is one of many territories in the Global South that directly feels the enhanced extractivist pressure around the decarbonization consensus. Ecuador's governments desire to (re-)fuel economic growth and attract 'foreign investment' on the one hand and the 'green growth' policies in the geopolitical North on the other, converge here. What began as one single mining concession in the mid-1990s has multiplied over the last thirty years to at least 18 granted concessions covering a surface of 62,000 hectares, 70% of the territory, with a dozen more still in process (Bermúdez, 2021).

As illustrated in the following maps, the entire Intag Valley, despite officially belonging to the Cotacachi Cayapas Ecological Reserve, is now covered by mining concessions (red rectangles on the right). Some of these concessions also overlap with the municipal protected forests (*bosques protectores*) outlined in green. On the left is a map of more than 250 water sources in the Intag valley.



Figure 2: Water sources vs. mining concessions in Intag as of 1 June 2018. Banner reclaiming water justice with two comparative maps. Source: Consorcio Toisán

However, the people of Intag reject the geoeconomic logic that compels territories like theirs to service the raw material appetites of the geopolitical North. None of these mining concessions, not even Llurimagua, which has existed since 1995 in the proximity of Junín, have yet reached their exploitation phase. The peasants gave fierce resistance to exploration activities, enduring repression and manifold promises of access to services and well-paid jobs to divide their communities. Until halted in court in March 2023, Llurimagua was the only mining project in the process of exploration. While the mining companies have already announced their appeal in this longstanding legal struggle, the prospect of advancing toward the effective exploitation of minerals in Intag remains uncertain.

From the perspective of Inteños, it makes no difference if the destruction of their territory for the extraction of copper and molybdenum is driven by the prospect of 'brown' or 'green' economic growth in other parts of the world. To them, mining is incompatible with the livelihoods they have opted for. The Inteños' defense of constitutional rights of water sources, native forests, and biodiversity also includes building up a local, community-led, popular solidary economy. In 2005, a coalition of nine grassroots organizations and environmental NGOs created Consorcio Toisán, the umbrella and driving force of this alternative economy. One of its pillars is small-scale agriculture. Farms in Intag are highly diversified and produce for local consumption as well as for the market, and are partly organic. Some of the products are processed in cooperatives for added value, for example, coffee, natural cosmetics, yogurt and ice cream, fruit pulp, and handicrafts. Ecotourism is another of the economic strategies Inteños are building. While granting certain levels of income in this remote rural location, the economy opposes the promises of modernization, development, and individual prosperity made by both mining companies and the state with collective counter-narratives of balanced, reciprocal, and long-lasting relations, both between humans and with the surrounding ecosystems, in dialogue with the principles of *sumak kawsay* (living well) (Lang, 2022).

In this context, as a third pillar, several projects that aim to generate renewable energy, both for satisfying local needs and as a sustainable income alternative, have been brought forward in recent years. As Denis Laporta, a promoter of these initiatives, points out, Inteños "want to be protagonists in the change of the energy matrix, not being mere consumers, but generators of our own energy" (Laporta, D., personal interview, 3 March 2023).

4. Communitarian energies as part of the web of life

Throughout the last one and a half decades, Inteños have developed three renewable energy projects at different scales, including different sets of actors (communitarian, public, and private). In Ecuador, the law allows private or communitarian producers to upload energy to the public grid and get paid for it, but it establishes a monopoly of that public grid for energy provision to consumers. This means that outside the grid, there can be no direct producer–consumer relation or energy autonomy. However, it is legally possible to establish direct bilateral payment agreements between a renewables producer (communitarian or private, non-state) on one end of the grid and a consumer on another end, who will pay exactly the amount to the producer that the power meters on both ends will measure.

One project, called Hidrointag, is a public-private-communitarian, medium-scale project consisting of three hydropower plants of 13.7 megawatts in total, which is still in the planning phase. The produced energy is destined to be sold to a nearby cement plant, UNACEM—the biggest energy consumer in the province—to lower carbon emissions and generate income for Inteño communities. To make that possible, Inteños have created a public-communitarian-private institutional model: a mixed business in which the municipality of Cotacachi owns 51% of the shares and UNACEM 49%. On Intag's side (a part of the municipality of Cotacachi), a watershed council has been created. It includes local communities, local social or producer organizations, and the respective parish government responsible for the project area. It receives money from the public–private business through a trust fund. This means that the communities from Intag decided that their participation in the project would not occur either through a percentage of shares or through a percentage of profit but via a granted percentage on sales, which has the motivating effect that if more water comes down the river, more income is generated—as an incentive to improve effective care for the watershed. The model includes a pre-fixed price per kilowatt-hour. It grants the people of Intag not only monetary income and jobs, for example, as park rangers, but also decision-making power and a constant investment in the management of their watershed, in a percentage that has been fixed. Unfortunately, once the legal and business framework was created, an electoral political turn in the municipality of Cotacachi delayed the project over the last four years.⁷

⁷ Of course, not all inhabitants of Cotacachi county and not even of the Intag valley are against mining and for renewable energies. In decades of aggression, mining firms have succeeded in dividing some communities and generating subjectivities more aligned with their projects.

With the local elections in February 2023, it has come back on track, as the mayor who had been part of the agreement was re-elected.

The second project, called Hidroaguagrún, is a communitarian-only, small pilot project of 300 kilowatts, managed in a cooperative logic by 19 farmers who inhabit one specific watershed of the Aguagrún river. The site where the turbine will stand has been bought through a collective savings scheme and a contribution from Corporación Toisán that opens the path for national credit. Participants are motivated by the conviction that mining is not an option for life, by the impulse to demonstrate that alternatives are feasible on a scale that is easily replicable, and by the expectation of contributing to their families' economies. Alongside the revenues generated by the sale of renewable energy, better watershed management will prevent deforestation and improve their agricultural activities, according to Laporta, who is part of Hidroaguagrún (Laporta, D., personal interview, 12 September 2022). Although Hidroaguagrún is formally set up in the legal frame of the popular solidary economy, it internally follows cooperative logics, driven by a collective commitment to the rights of Nature.

The third project combines community tourism with local technological innovation. Ruta Innova Puranquí is a demonstration project involving several micro-hydro-technologies produced by a local workshop and their different uses in a series of farms, according to the coordinator, Kathy Robalino. The project seeks to attend to very situated needs and to be a pedagogic project for raising public awareness around the care for water and energy use. It includes pumps driven by hydropower used to irrigate higher slopes, small water turbines that generate electricity for remote farms that do not have access to the grid or are used to oxygenate the water pools in trout farming, small wind turbines, and biodigestors that process the waste from pig pens and produce methane for cooking or other uses. Local guides accompany student groups or ecologically interested tourist groups on a tour through four of five of these farms, where they receive demonstrations of how the innovations work as well as talks by the guides and the farmers. This allows visitors to reconnect realms that in formal education are kept separate, such as the physical functioning of a water turbine, climate change, biodiversity and deforestation, extractivism, community organizing, and women's rights. Each visit provides the guides and farms involved with small extra income (Robalino, K., personal interview, 13 September 2022).

All three projects include hydropower, a source of energy whose cleanliness and sustainability are severely contested in Latin America and beyond, because of a series of social, cultural, and environmental impacts mainly due to the scale, design, and distribution characteristics of most projects (Del Bene *et al.*, 2018; Gómez *et al.*, 2014). In fact, in the lower part of the Intag valley, the government of Rafael Correa built a conventional hydropower plant called Manduriacu, which not only has technical problems preventing it from functioning at full capacity, but also ecological ones. In November 2021, sediment discharges provoked the death of millions of fish downstream in the neighboring Esmeraldas province, where communities depend on filtered river water to drink (El Productor, 9 December 2021).

5. Reframing hydropower

Inteños consider hydropower to be the best transformative option for their context, provided that it is micro-, small-, or medium-scale. They have placed a number of conditions on energy projects to keep their impacts as low as possible: no dams can be built, a road already has to exist for access, the energy project cannot harm small-scale agriculture as the prevailing economic activity, all pipes must be buried underground, and the exceptional scenic beauty of the landscape cannot be affected. Moreover, the projects seek to combine energy production with the generation of other infrastructures that are positive for community life, such as a public bathing site, water games, or a museum about communitarian territorial management (Laporta, D., personal interview, 12 September, 2022).

While Intag is exceptionally rich in rivers and creeks, the intensity of wind and sun energy is inconsistent in a cloud forest ecosystem. "The good thing about hydropower is that communities can take a positive influence on it. It is the only renewable source that gives us agency; it connects the production of energy with caring for the forest", says Denis Laporta. "There is a direct connection between the care that you give to a spring, to the corresponding watershed and the upstream forests, and the abundance and quality of the water

flow which you will be able to harvest to generate energy. We speak of a virtuous circle around the production of water, where the production of clean energy is only a side effect of avoiding deforestation and caring for the ecosystem as a whole" (Laporta, D., personal interview, 12 September 2022). This virtuous circle intends to break a vicious circle that is already in place. Jorge Guachagmira, president of the Hidroaguagrún initiative, says:

Energy companies sell us energy produced from our own watersheds. Farmers here have to pay for it. In order to get the money, they cut down the forest and sell the wood. This will lower the water flow and increase the cost of energy production and prices, which will only force people into even more deforestation. We, on the contrary, want to show people the benefit of a healthy watershed. (personal interview, September 13, 2022)

As collective awareness has risen, the positive effects on the forest are already tangible during the current organizing and setup phase of the project.

6. Convivial technologies

Guachagmira is also a motorcycle mechanic. In the backyard of his workshop, Nuevos Horizontes, he and his brothers produce the small water turbines used in Ruta Innova Puranquí and other farms by upcycling old aluminum coolers from motorcycles and casting them into the shape that is needed. For the smelting process, they use methane gas from the family-scale biogas plant. Guachagmira promotes technological innovation around energy in Intag. He looks at energy from a perspective not centered on profit or rentability but on care, both for people and for nature—in a way that resonates strongly with both Ivan Illich's perspective on convivial technologies (Illich, 1973) and more recent elaborations around technologies within degrowth scholarship (Muraca & Neuber, 2018; Vetter, 2018). Serving people's situated needs in the context of environmental challenges is what has driven him to invent micro-hydro-powerplants and design virtuous cycles:

We have to change the model and learn to live together. Mining makes all life invisible. We, to the contrary, recognize our wealth: wealth in biodiversity, wealth in water, wealth in security, native seeds, food sovereignty, and human qualities. We have to set this potential against the forces of destruction. We aim at moving forward collectively and stopping outmigration. (Guachagmira, J., personal interview, 13 September 2022)

Guachagmira dropped out of formal education early because he found that he was not being taught what he really needed. Today, he is a respected community leader who has succeeded in restoring peace in a territory shaken by conflict. He describes his approach to technology as follows:

The changes have to happen at 70% in people's minds. The concrete artifacts make up only 30%. We do not have to know everything. We must have the ability and patience to listen, understand, and put into practice. There are many technical concepts I don't know, but I know how things work because I have put them into practice. This is how positive transitions are made, by learning, practicing, and replicating. A need arises, and we gather materials, knowledge, we agree and design. (Guachagmira, J., personal interview, 3 March 2023)

In his inventive low-tech work, Guachagmira aims at holistic solutions in which greenhouse gas emissions and pollution are avoided, raw materials are effectively recycled, and organic fertilizer and appropriate technology are produced. His technologies are aligned with recent accounts of convivial technologies: they comply with the criteria of relatedness, accessibility, adaptability, bio-interaction, and appropriateness (Vetter, 2018).

Further, Inteños are very clear that the technology has to be understood—and transformed—within the social relations and values in which it is embedded, which determine its purpose and shape its underlying logic. Key characteristics are collective, communitarian management, radical assembly democracy, an equitable distribution of benefits, maximal autonomy, and sovereignty.

7. The centrality of care

To the Inteños, energy is not the motor of unlimited economic growth, which in countries such as Ecuador in the last few decades has been mainly achieved by extractivist activities. Energy must not be produced in ways that include sacrificing ecosystems, although Latin American governments have long justified extractivism alleging a supposed incompatibility between social wellbeing and environmental protection. On the contrary, for the peasants of Intag, energy is embedded in the web of life and is part of the communitarian relations between human and non-human beings who inhabit the watersheds together, and are interdependent on each other. In the same way that agricultural crops can be harvested if soil, seeds, and water are cared for, energy can be harvested by caring for springs and surrounding forests. The emphasis is not on the production of energy but on the production of water itself as the fluid of life. The entire local economy is centered around a notion of care.

In an overlapping discourse, the sale of renewable energy according to the terms of Ecuadorian legislation is perceived as an option to increase the material standard of living of the marginalized rural communities of Intag. By strengthening the local economy and increasing farmer resilience, hydropower can strengthen resistance against the threat of large-scale mining and help avoid deforestation. In fact, stopping the advancement of mining in their territory is Inteños' first priority. Inteños are also very aware of the risk of collapse of the public energy system in the face of climate change. In this case, they could easily disconnect from the grid, and their projects would allow them at least partial energy autonomy.

7. Innovating climate finance from the grassroots

Besides the micro-technologies that are produced with local means and knowledge, Intag's anti-extractivist community is also seeking external funding for its bigger hydro-projects. They have established relations with all kinds of actors from the geopolitical North in search of start-up funding, with the goal of also innovating and transforming the dominant forms of climate finance. They propose people-to-people partnerships with different kinds of organized actors from the geopolitical North—NGOs, universities, trade unions, etc.—in a perspective not of emission compensation but of effectively paying the climate debt while transforming structural conditions. One model they propose is a reimbursable fund that will not be paid back to the donor but placed in a trust fund that will then finance other communitarian, situated, and holistic energy projects in other regions of Ecuador. According to Denis Laporta, this would be the best way for private, public, or even social actors in the geopolitical North to start canceling their huge climate debt (Laporta, D., personal interview, 12 September 2022).

8. Conclusion

The political ecology approach adopted in this article shows that community energy projects developed by the people of Intag must be analyzed in the context of a wider societal project that Inteños are building in opposition to the constant threat of large-scale mining. This project involves a sustainable local economy that values auto-consumption, food and water sovereignty, a life in community where the quality of relations is cared for, and renewable energy production. The alternative livelihoods being built by the people of Intag are centered around care in a way that overcomes the epistemic divide between society and nature: care for the water, territory, and forests is inseparable from care for the people who live there.

Inteños have developed skills in innovating technologically, aiming at virtuous circles and emphasizing the connections in the web of life they feel part of. They also seek to innovate existing institutional, business, and finance frameworks in ways that enhance communitarian logics of solidarity and people-to-people relationships. They uphold balanced, careful relations with the ecosystems they depend on. Their

multidimensional transformative practice shows how technology is always embedded in specific societal institutions, power relations, and values and thus cannot provide isolated solutions to the ecological crisis without those also being called into question.

Inteños' vision of autonomy does not exclude alliances with municipalities or other state actors, or even with private businesses that seek to reduce carbon emissions, but it always seeks to protect and even enhance their collective, local decision-making power. Their fierce resistance to imposed mining projects designed to service (green) growth far away in the Global North, and their understanding of energy, of technology, of collective needs and wellbeing, and of North–South relations around ecological and climate debt indicate pathways to decolonize North–South relations around energy transition.

References

- Acosta, A. (2009). [La maldición de la abundancia: Un riesgo para la democracia](#). *La Tendencia, Revista de análisis político*, 9 (March–April), 103-115.
- Bassey, N. (2012). *To cook a continent: Destructive extraction and the climate crisis in Africa*. Pambazuka Press.
- Bermúdez, D. (2021). [Una lucha de resistencia contra el Neo-extractivismo en Intag, Ecuador](#). *Antropología Cuadernos de Investigación*, 25, 119-129.
- Bhambra, G. K., & Newell, P. (2023). More than a metaphor: 'Climate colonialism' in perspective. *Global Social Challenges Journal*, 2(2), 179-187. <https://doi.org/10.1332/EIEM6688>
- De la Cadena, M. (2015). *Earth beings. Ecologies of practice across Andean worlds*. Duke University Press.
- De la Cadena, M. & Blaser, M. (2018). Pluriverse. Proposals for a world of many worlds. In M. De la Cadena, M. Blaser (Eds.), *A world of many worlds* (pp. 1-22). Duke University Press.
- Del Bene, D., Scheidel, A. & Temper, L. (2018). More dams, more violence? A global analysis on resistances and repression around conflictive dams through co-produced knowledge. *Sustainability Science*, 13, 617-633. <https://doi.org/10.1007/s11625-018-0558-1>
- Dupuits, E. (2020, July 21). Scaling-up territorial alternatives to water extractivism: Mini hydroelectric plants in Ecuador. *Undisciplined Environments*. Retrieved from <https://undisciplinedenvironments.org/2020/07/21/scaling-up-territorial-alternatives-to-water-extractivism-mini-hydroelectric-plants-in-ecuador/>
- El Productor. (2021, December 9). *Ecuador: En Esmeraldas muerte de peces motiva investigación*. Retrieved from <https://elproductor.com/2021/12/ecuador-en-esmeraldas-muerte-de-peces-motiva-investigacion/>
- Escobar, A. (1995). *Encountering development: The making and unmaking of the third world*. Princeton University Press.
- European Commission. (2019). *The European green deal*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN>
- Galeano, E. (1973). *Open veins of Latin America*. Monthly Review Press.
- García Gallegos, B. (2014). Case study on the Intag region. In I. Briscoe, C. Perdomo and C. Uribe Burcher (Eds.), *Illicit networks and politics in Latin America*. International Institute for Democracy and Electoral Assistance. Retrieved from https://www.researchgate.net/publication/328108426_Case_study_on_the_Intag_region
- Gómez, A., Wagner, L., Torres, B., Martín, F. & Rojas, F. (2014). Resistencias sociales en contra de los megaproyectos hídricos en América Latina. *Revista Europea de Estudios Latinoamericanos y del Caribe*, 97, 75-96. <https://doi.org/10.18352/erlacs.9797>
- Hickel, J., Dorninger, C., Wieland, H. & Suwandi, I. (2022). Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990-2015. *Global Environmental Change* 73, 102467 <https://doi.org/10.1016/j.gloenvcha.2022.102467>
- Illich, I. (1973). [Tools for conviviality](#). Harper & Row.

- Infante-Amate, J., Urrego, A. & Tello, E. (2020). Las venas abiertas de América Latina en la era del antropoceno: un estudio biofísico del comercio exterior (1900-2016). *Diálogos, Revista de Historia*, 177-214. <https://doi.org/10.15517/dre.v21i2.39736>
- International Energy Agency (IEA). (2021). *World Energy Outlook 2021*. Retrieved from <https://iea.blob.core.windows.net/assets/4ed140c1-c3f3-4fd9-acae-789a4e14a23c/WorldEnergyOutlook2021.pdf>
- Kocian, M., Batker, D. & Harrison-Cox, J. (2011). *An ecological study of Ecuador's Intag Region: The environmental impacts and potential rewards of mining*. Earth Economics.
- Lang, M. & Mokrani, D. (Eds.) (2013). *Beyond development. Alternative perspectives from Latin America*. Transnational Institute and Rosa Luxemburg Foundation.
- Lang, M. (2022). *Buen vivir* as a territorial practice. Building a more just and sustainable life through interculturality. *Sustainability Science*, 17. <https://doi.org/10.1007/s11625-022-01130-1>
- Lugones, M. (2010). Toward a decolonial feminism. *Hypatia*, 25(4), 742-759. <https://doi.org/10.1111/j.1527-2001.2010.01137.x>
- Muraca, B. & Neuber, F. (2018). Viable and convivial technologies: Considerations on climate engineering from a degrowth perspective. *Journal of Cleaner Production*, 197(2), 1810-1822. <https://doi.org/10.1016/j.jclepro.2017.04.159>
- Quijano, A. (2000). Colonialidad del poder eurocentrismo y América Latina. In E. Lander (Ed.), *La colonialidad del saber* (pp. 201-246). CLACSO.
- Roa, T. & Bertinat, P. (2024). Resist extractivism and build a just and popular energy transition in Latin America. In Lang, M., Manahan, M. A., & Bringel, B. (eds.). *The geopolitics of green colonialism: Global justice and ecosocial transitions*. Pluto Press.
- Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O. & Ludwig, C. (2015). The trajectory of the Anthropocene: The great acceleration. *The Anthropocene Review*, 2(1), 81-98. <https://doi.org/10.1177/2053019614564785>
- Stockholm Environment Institute (SEI). (2021). *Informe sobre la Brecha de Producción 2021 Resumen Ejecutivo*. Retrieved from <https://reliefweb.int/report/world/informe-sobre-la-brecha-de-produccion-2021-resumen-ejecutivo>
- Sovacool, B. K., Hook, A., Martiskainen, M., Brock, A. & Turnheim, B. (2020). The decarbonisation divide: Contextualizing landscapes of low-carbon exploitation and toxicity in Africa. *Global Environmental Change* 60, 102028. <https://doi.org/10.1016/j.gloenvcha.2019.102028>
- Vetter, A. (2018). The matrix of convivial technology – Assessing technologies for degrowth. *Journal of Cleaner Production*, 197, 1778-1786. <https://doi.org/10.1016/j.jclepro.2017.02.195>
- World Bank. (2020). *Minerals for climate action: The mineral intensity of the clean energy transition*. World Bank.
- World Wildlife Fund International (WWF). (2020). *Living Planet Report 2020 – Bending the curve of biodiversity loss*. World Wildlife Fund International.