Paths Beyond Extractivism

An Eco-Humanist Approach to Green Industrial Policy

Isabel Estevez and Nicolás Grimblatt

Climate & Community INSTITUTE

Industry, Infrastructures, and Innovation for Strategic Transformation

Climate & Community INSTITUTE

The Climate and Community Institute (CCI) is a progressive climate and economy think tank. Our growing staff and network of over 60 academic and expert fellows create and mobilize cutting-edge research at the nexus of inequality and the climate crisis. We fight for a transformational agenda that will rapidly and equitably decarbonize the economy by focusing on material benefits for working people.

Industry, Infrastructures, and Innovation for Strategic Transformation

i3T - Industry, Infrastructures, and Innovation for Strategic Transformation - is an international think tank and non-profit consulting firm that develops actionable research and provides tailored policy solutions in service of sustainable industrial development. i3T brings together scholars and practitioners with expertise in industrial strategy, development economics, and the political economy of green transitions, with a particular focus on Latin America and the Global South.

Authors
Isabel Estevez is the Co-Executive Director of i3T and Nicolás Grimblatt is the General Coordinator of i3T.

Suggested citation
Isabel Estevez and Nicolás Grimblatt, "Paths Beyond Extractivism: An Eco-Humanist Approach to Green Industrial Policy," Climate and Community Institute, April 2026, https://climateandcommunity.org/research/beyond-extractivism.

This brief is primarily based on Isabel Estevez and Jorge Forero, "How Can (Green) Industrial Policy Serve Human and Natural Flourishing?" i3T, July 2025, and Isabel Estevez and Ha-Joon Chang, Forthcoming, "Rethinking Green Industrial Policy." It is part of a series examining how to advance the energy transition without reproducing extractivism. The full series is available at https://climateandcommunity.org/research/beyond-extractivism.

Summary

Current green industrial policies (GIPs) approach the ecological crisis too narrowly, reducing "green" to carbon mitigation while ignoring biodiversity loss, toxic pollution, resource degradation, and the exploitation of communities at extraction sites.[1] In most cases, GIP is understood as the expansion of low-carbon sectors through private investment incentives, an approach that risks locking in new forms of ecological damage and deepening extractive dependence. At the same time, many GIPs lack guardrails to ensure public investment serves public goals and remain disconnected from structural economic transformation. The consequences are especially severe in the Global South, where supply chains reproduce extractive relationships and deepen commodity dependence.[2]

This brief proposes an "eco-humanist" approach for GIP, oriented toward a dual mandate of securing planetary livability and expanding the equitable satisfaction of essential needs.[3] It argues that GIP must be reconceived as a systemic project to reorganize how societies produce and deliver what people need, within ecological limits. The brief outlines a broadened policy toolbox that goes beyond subsidies for "green goods" to include demand-reduction strategies, environmental and labor conditionalities, corporate guardrails, holistic procurement standards, and whole-economy planning.

Key takeaways

- Prevailing green industrial policies suffer from carbon reductionism, narrow system boundaries, missing public interest guardrails, and disconnection from structural economic transformation and the imperative of meeting essential human needs.
- An eco-humanist approach calls for industrial policy that serves both ecological and human flourishing, guided by

[1] While definitions vary, industrial policy typically refers to a set of government actions aimed at shaping the structure of the economy by promoting, supporting, or regulating specific industries or sectors to achieve broader economic, social, or strategic goals.

[2] These patterns can be understood as extractivism, an economic development model based on largely unfettered resource exploitation with highly unequal distributions of benefits and impacts.

[3] This approach, based on what Estevez and Forero (2025) call "eco-humanist," draws on ecological economics, humanist development theory, and Global South intellectual traditions.

holistic environmental standards and embedded in broader strategies for productive diversification.

- Policymakers should expand the industrial policy toolbox beyond subsidies to include demand-reduction strategies, binding conditionalities, and regional coordination mechanisms.
- Applied to mining and extractivism, the approach provides an operational pathway to move beyond extractivism, aiming to: minimize material demand at the system level, ensure community governance that can eliminate sacrifice zones, and build regional value chains that maximize local benefit.

Introduction: the narrowness of "green" industrial policies

Industrial policy has returned to the center of economic debates. Governments across the Global North and Global South now treat green industrial policies (GIPs) as a pillar of their climate agendas. Yet most current GIPs remain limited in scope, inequitable in outcomes, and poorly integrated with broader economic transformation.[4]

In practice, GIP is understood as expanding low-carbon sectors through private investment incentives. This narrow interpretation risks locking in new forms of ecological degradation and reinforcing demand for critical minerals, intensifying pressure on communities and ecosystems at extraction sites.

At the same time, geopolitical fragmentation and renewed industrial competition create both constraints and opportunities. **The key question is no longer whether industrial policy should play a role, but how it should be deployed and what it should transform.**

The limits of current green industrial policies

Emerging GIPs are constrained by a set of limitations that undermine their transformative potential.

[4] Estevez and Ferrero, "How Can (Green) Industrial Policy Serve Human and Natural Flourishing?"

Ecological narrowness: Most GIPs define "green" primarily as greenhouse gas mitigation, while biodiversity loss, toxic pollution, and resource degradation are treated as afterthoughts.[5] This narrow framing can lock in technologies that improve one environmental parameter while worsening others. For example, certain kinds of hydrogen-blended steelmaking can significantly increase toxic emissions, concentrating harm in vulnerable communities.[6]

Inadequate system boundaries: Current approaches often address "green" challenges at the level of individual technologies rather than the broader provisioning systems in which they are embedded. For example, electrifying private vehicles reduces emissions but preserves resource-intensive mobility. System-level alternatives, such as mass transit combined with battery right-sizing and recycling, could reduce material demand dramatically, potentially lowering lithium demand for US passenger transport by 92 percent by 2050.[7]

Weak public-interest alignment: Many GIPs rely heavily on incentives without sufficient conditionalities to ensure alignment with labor rights, equity, and environmental goals.[8] Without such safeguards, industrial policy can perpetuate sacrifice zones where ecological and health burdens concentrate.

Insufficient embeddedness in broader economic planning: GIP is often disconnected from wider processes of structural transformation. Limited coordination, weak public-sector leadership, and lack of integration with diversification or poverty reduction undermine its impact, especially in the Global South, where "green" supply chains often reproduce extractive dependence.[9]

---

[5] Isabel Estevez and Justus Schollmeyer, "Problem Analysis for Green Industrial Policy," in Toward AI-Aided Invention and Innovation (Springer Nature Switzerland, 2023).

[6] Mehmet Salih Cellek and Ali Pınarbaşı, "Investigations on Performance and Emission Characteristics of an Industrial Low Swirl Burner While Burning Natural Gas, Methane, Hydrogen-Enriched Natural Gas and Hydrogen as Fuels," International Journal of Hydrogen Energy 43, no. 2 (2018): 1194–1207; Brian Dabbs, "DOE Funds to Cut Industrial CO2 May Worsen Air Pollution," Politico, December 14, 2023

[7] Thea Riofrancos et al., "Achieving Zero Emissions with More Mobility and Less Mining," Climate and Community Institute, January 2023, https://climateandcommunity.org/more-mobility-less-mining.

[8] Isabel Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy," Roosevelt Institute, October 26, 2023, https://rooseveltinstitute.org/publications/multi-solving-trade-offs-and-conditionalities-in-industrial-policy; Lenore Palladino and Isabel Estevez, "The Need for Corporate Guardrails in US Industrial Policy," Roosevelt Institute, August 18, 2022, https://rooseveltinstitute.org/publications/the-need-for-corporate-guardrails-in-us-industrial-policy.

[9] Baptiste Albertone, "Lost Principles of a Sustainable Developmentalism," Review of International Political Economy 32, no. 3 (2025): 766–789; Estevez, "Multi-Solving, Trade-Offs, and Conditionalities in Industrial Policy"; Isabel Estevez and Thea Riofrancos, "Global Green Industrial Policy," Climate and Community Institute, September 2025, https://climateandcommunity.org/research/global-green-industrial-policy/.

Global inequity: Current GIPs in the Global North often delay green transformation to protect domestic industries while imposing restrictions on Global South policy space through trade rules and carbon border mechanisms that function as "green protectionism."[10]

Narrow sectoral focus: Most GIPs concentrate on energy, transportation, and heavy industry while neglecting other essential sectors, such as food systems, housing, and care work, which are equally critical to both ecological sustainability and human flourishing.[11]

Redefining green industrial policy

Taken together, these limitations call for a different understanding of GIP as a systemic project to reorganize how societies produce and deliver what people need, within ecological limits. This brief proposes an approach to GIP guided by the imperative of securing planetary livability while expanding the equitable satisfaction of essential needs.

This requires shifting from sectoral interventions to systemic transformation. The objective is not simply cleaner production, **but reconfigured provisioning systems that deliver essential goods with lower material intensity and greater equity.** These principles can be operationalized through a set of guiding heuristics for policy design.

[10] Ha-Joon Chang, *Kicking Away the Ladder: Development Strategy in Historical Perspective* (Anthem Press, 2002); Amir Lebdioui, *Survival of the Greenest: Economic Transformation in a Climate-Conscious World* (Cambridge University Press, 2024).

[11] Isabel Estevez and Jorge Forero, "How Can (Green) Industrial Policy Serve Human and Natural Flourishing? Critiques, Concepts, and Tools," i3T Working Paper, 2025, https://www.i3-t.org/documents/How%20Can%20(Green)%20Industrial%20Policy%20Serve%20Human%20and%20Natural%20Flourishing_%20Critiques,%20Concepts,%20.pdf

Guiding principles for green industrial policies

On the human flourishing side, industrial policy should:	On the ecological flourishing side, industrial policy should:
Build the structural conditions that guarantee access to essentials like energy, food, and housing	Increase material efficiency in provisioning systems, so that more social value is delivered with fewer resources
Foster dignified employment, reduce ecological and health harms, and prioritize affected communities.	Reduce pollution across multiple dimensions: greenhouse gases, toxic pollution, waste. etc.
Support productive diversification to build economic resilience and reduce extractive dependence	Protect ecosystems, biodiversity, forests, and water.

Source: Adapted from Estevez and Ferrero (2025).[12]

"Green" must therefore be understood holistically. Transformation must address biodiversity, pollution, and resource use (not only carbon) and involve both scaling sustainable systems and phasing out harmful ones.

Cutting across these goals is productive diversification. Economies with more diversified productive capabilities, including a strong industrial base, are better positioned to reduce extractive dependence, strengthen long-term resilience, and afford essentials for their populations.

A broadened policy toolbox

The common narrow framing of GIP also limits the policy toolkit. When policymakers see GIP as "making more green products," they prefer carrot-like policies and miss the potential of sticks and enabling institutions, leading to fragmentation: narrowly "green" instruments replacing broader development tools.[13] For example, stand-alone "green banks" displacing development banks with wider mandates, and carbon-focused procurement replacing integrated strategies.

An eco-humanist approach requires deploying the full suite of industrial policy instruments.

[12] Isabel Estevez and Jorge Forero, "How Can (Green) Industrial Policy Serve Human and Natural Flourishing? Critiques, Concepts, and Tools."

[13] Daniela Gabor and Benjamin Braun, "Green Macrofinancial Regimes," *Review of International Political Economy* 32, no. 3 (2025).

The industrial policy toolkit for moving beyond extractivism

Carrots: expanding and directing productive capacity	Sticks: disciplining and phasing out harmful activities	Enabling institutions
• Public finance (grants, preferential loans, development banks) • Public ownership (public enterprises, equity stakes) • Demand shaping (procurement, advance commitments, stockpiling) • Fiscal incentives (tax credits, direct payments) • Capacity building (workforce, R&D, quality infrastructure)	• Economic (taxation, financial regulation) • Regulatory standards (performance, price regulation, transparency) • Trade and investment governance (tariffs, border adjustments, technology transfer) • Labor regulation (wages, health and safety, organizing rights) • Corporate governance (worker representation, antitrust) • Direct public intervention (nationalization, public equity acquisition) • Enforcement (monitoring, litigation)	• Strategic planning (industrial strategy bodies, sectoral targeting) • State coordination (cross-agency and intergovernmental)

Source: Adapted from Estevez, Chang, and Schollmeyer (2025).[14] A more detailed version appears in the original.

The starting point is reducing the material intensity of how human needs are met: the goal is not cleaner versions of existing goods, but provisioning systems that require fewer resources. Expanding public transportation, extending product lifespans, and investing in shared infrastructure can transform entire sectors. As material demand declines, so does pressure on extraction and affected communities.

But reducing demand is only half the equation. Where public investment occurs, it should include strong conditionalities. Environmental and labor standards, corporate guardrails, and participatory governance mechanisms, such as community benefit agreements, and respect for free, prior and informed consent, can

[14] Isabel Estevez, Ha-Joon Chang, and Justus Schollmeyer, "Industrial Strategy: Methodological Approaches, Lessons, and Pitfalls," i3T, 2025, https://www.i3-t.org/documents/Industrial%20strategy%20-%20Methodological%20approaches,%20lessons,%20and%20pitfalls%20-%20i3T%20-%202025.pdf.

ensure that investments align with public goals.[15] Evidence suggests such measures can accelerate, rather than hinder, implementation by building social legitimacy.[16] Where extraction is unavoidable, these same tools apply. Conditionalities, local content requirements, and supply chain standards can anchor value locally and make environmental and social costs actionable.

Public procurement is particularly powerful. Representing roughly 12 percent of global GDP, procurement can turn routine government purchases into strategic investments that simultaneously drive ecological transformation, productive diversification, and economic inclusion.[17] Standards can move well beyond carbon-focused "Buy Clean" programs to cover toxins, biodiversity, and full supply chain impacts, while also incorporating local content, technology transfer, and labor protections.[18] The power of procurement multiplies when countries coordinate through clubs, pooling purchasing power, negotiating better terms, and setting shared standards that prevent competitive deregulation.[19]

None of this is possible without stronger public sector leadership. Development banks, public enterprises, and coordinated planning are essential to align investments and manage trade-offs. Green transformation confined to a few sectors is insufficient; it must extend across the entire economy.

Navigating structural obstacles

Deploying these tools is easier said than done, particularly for developing countries. Productive capabilities in advanced manufacturing and clean technologies are increasingly concentrated among a small number of firms and nations, widening the gap between the industrialized core and the commodity-exporting

[15] James J. A. Blair et al., "Building Community Power: Community Benefits Agreements Across the Global Energy Supply Chain," Climate and Community Institute, October 2025, https://climateandcommunity.org/research/cbas/.

[16] Johanna Bozuwa et al., "Planning to Build Faster: A Solar Case Study," Roosevelt Institute, 2024.
[17] Elisabetta Bosio and Simeon Djankov, "How Large Is Public Procurement?" World Bank Blogs, February 5, 2020, https://blogs.worldbank.org/en/developmenttalk/how-large-public-procurement.

[18] Santiago Vásquez et al., "Make What You Buy: A Targeting Algorithm for Procurement-Led Industrial Strategies," i3T and Rubidium Data, last updated November 9, 2025, https://accounting-ai.github.io/rubidium-data-publications/pdfs/make-what-you-buy/make-what-you-buy.pdf.

[19] Isabel Estevez et al., "Building Leverage for Green Industrial Transformation in Latin America and the Caribbean: Procurement Clubs, Production Clubs, Investment Clubs, and Beyond," i3T, September 2025, 17, https://www.i3-t.org/documents/Building%20Leverage%20for%20Green%20Industrial%20Transformation%20in%20Latin%20America%20and%20the%20Caribbean_%20Pr.pdf.

periphery. Trade and investment agreements tend to restrict policy space, while geopolitical pressures (or coercion) from wealthy countries, whether through aggressive tariff measures or pressure to sign trade agreements that restrict said policy space, adds further constraints.[20]

At the same time, the current global fragmentation creates openings. The weakening of multilateral enforcement and the widespread use of industrial policy by wealthy countries reduce the political cost of assertive strategies. For developing countries, priorities include leveraging procurement, building regional coordination through producer alliances, and moving downstream into higher-value processing. Productive diversification remains the most durable answer to extractive pressure.

Conclusions

Green industrial policy has gained prominence, yet current approaches remain too narrow, carbon-centric, and disconnected from structural change.

An eco-humanist approach raises the bar, asking whether industrial policy can simultaneously sustain ecological systems, reduce material intensity, and expand equitable access to dignified life. Applied to extractivism, this means minimizing extraction through demand reduction, maximizing community benefit through local value capture, and abolishing sacrifice zones through enforceable standards.

The tools exist, but their effectiveness depends on political will, policy space and collective action. As the global economic order shifts, new opportunities emerge for countries to build coalitions and pursue structural transformation on more equitable and sustainable terms.

[20] Adriana Abdenur et al., "Removing International Obstacles to Sustainable Industrial Policy," G20 South Africa Presidential Report, November 20, 2025, https://iei.org.za/resource/research-report/removing-international-obstacles-to-sustainable-industrial-policy/; José Miguel Ahumada and Ha-Joon Chang, "A New International Economic Order for the Twenty-First Century," Review of Keynesian Economics 13, no. 4 (2025): 562–580.